KAUA‘I ISLAND PLAN

May 2004

The Department of
Hawaiian Home Lands

State of Hawai‘i

GROUP 70 INTERNATIONAL
925 Bethel Street, 5th Floor • Honolulu, HI 96813

UPDATED: June 4, 2004

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ACRONYMS & HAWAIIAN TERMS

ACRONYMS

ALISH	Agricultural Lands of Importance, State of Hawai‘i
ATV	All Terrain Vehicle
EPA	Environmental Protection Agency
Ft	feet
CBED	Community Based Economic Development
DHHL	Department of Hawaiian Home Lands
DLNR	Department of Land & Natural Resources
GIS	Geographic Information System
gpd	Gallons per day
HHC	Hawaiian Homes Commission
IWS	Individual Wastewater System
KIP	Kaua‘i Island Plan
KS	Kamehameha Schools
LUD	Land Use Designation
mg	Million gallons
mgd	Million gallons per day
OHA	Office of Hawaiian Affairs
QLCC	Queen Lili‘uokalani Children’s Center
PMRF	Pacific Missile Range Facility
sf	Square Feet
SHPD	State Historic Preservation Division
STP	Sewage Treatment Plant
TBD	To Be Determined
USDA	United States Department of Agriculture

HAWAIIAN TERMS

Ahupua‘a	Land division usually extending from the top of the mountain to the coral reef
Auwai	Ditch, canal
Halau	Long house, for canoes or hula instruction; meeting house
Heiau	Hawaiian pre-Christian place of worship
Hui	Club, association; to form a society or organization
Iwi	Bone; skeletal remains
Kauhale	Group of houses comprising a Hawaiian home; hamlet or settlement
Kūpuna	Grandparent, ancestor
Lo‘i	Irrigated terrace , especially for taro but also for rice
Mauka	Toward the mountains
Makai	Toward the sea
Menehune	Legendary race of small people who worked at night, building fish ponds, roads, temples
Pu‘uhonua	Place of refuge, sanctuary, asylum, place of peace and safety

Executive Summary

The Kaua‘i Island Plan (KIP) provides recommendations for the future use of the Department of Hawaiian Home Lands (DHHL) 20,565 acres on Kaua‘i (*Figure ES.1)*. The plan is intended to guide overall land use patterns and development on Kaua‘i for the next 20 years.

Anahola Bay

GENERAL PLAN GOALS

The KIP is consistent with the DHHL General Plan goals. In particular,

- The proposed land uses exceed the General Plan’s goal of delivering 840 Residential homesteads in the next 20 years or an average of 42 per year; and
- Income generating uses constitute less than 1% of the Department’s total land holdings on Kaua‘i.

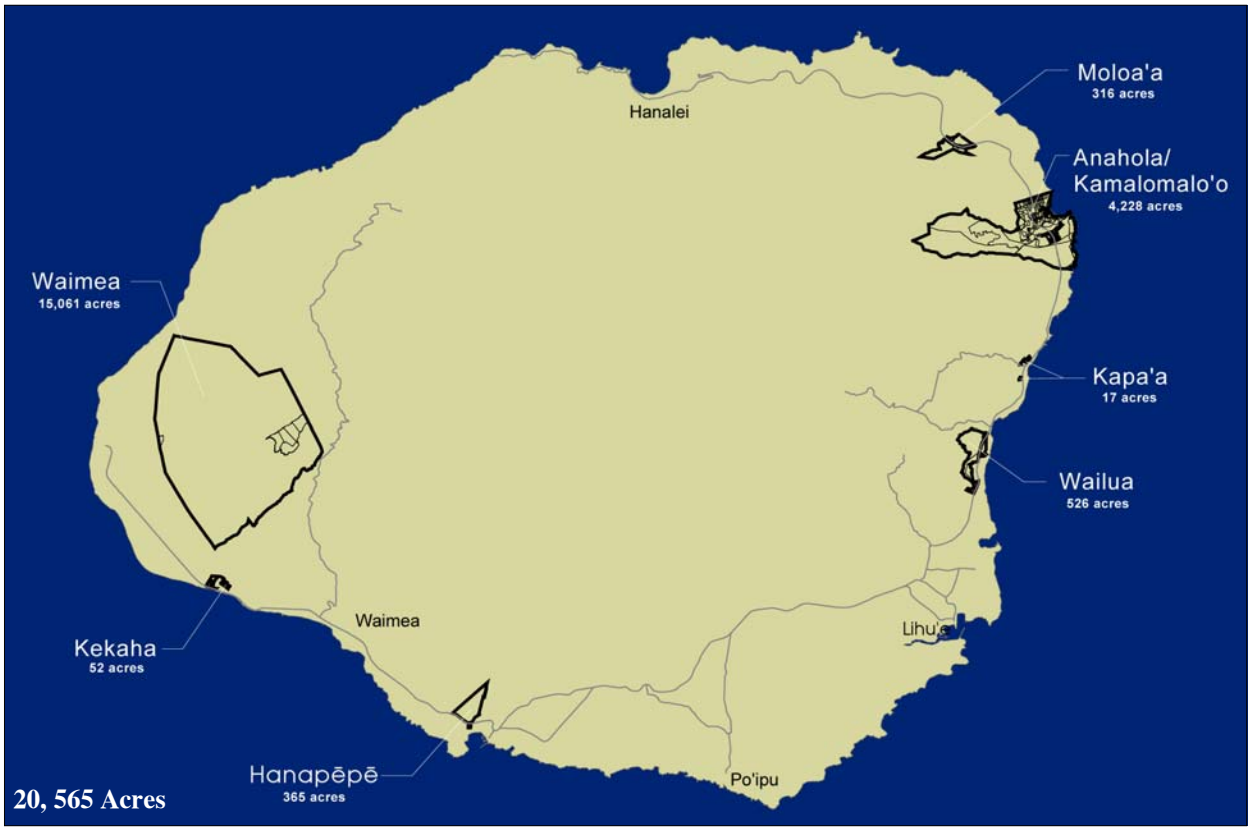


Figure ES.1

DHHL’s Kaua‘i Lands

LAND USE PLAN

The KIP designates land uses for all of DHHL's land holdings on Kaua‘i. A synopsis of the major land use designations is provided to the right and discussed below:

Residential Homesteads - The plan proposes 2,541 new residential homesteads at a total cost of $ 212 million. To create healthy communities, community use areas are planned within each major new residential community. Residential uses will be focused in Waimea, Kekaha, Hanapēpē, Wailua, and Anahola/ Kamalomalo‘o.

Agriculture Homesteads - 284 new agriculture homesteads are proposed in this plan for a total cost of $ 39 million. In general, these agriculture areas surround proposed higher density residential areas. Proposed agriculture homestead areas are: Waimea, Hanapēpē, Wailua, Anahola/ Kamalomalo‘o, and Moloa‘a.

Pastoral Homesteads – Existing pastoral lots in Waimea will be maintained. The only proposed pastoral homesteads are in Anahola/ Kamalomalo‘o at a cost of $ 4.2 million.

General Agriculture – Over 13,000 acres of land island-wide are designated General Agriculture. This designation preserves the land for a possible future use and makes it available for groups or individuals to lease it for farming and ranching. Beneficiaries interested in large scale agriculture or ranching are encouraged to lease general agriculture areas. General agriculture areas are located in Waimea, Wailua, Kapa‘a, and Anahola/ Kamalomalo‘o.

Special District – The 2,812 acres designated Special District includes environmentally or culturally sensitive land in Waimea, Kekaha, Wailua, Anahola/ Kamalomalo‘o, and Moloa‘a. Lands in this category should be protected but also made available for certain community and commercial uses.

Community Use – A total of 211 acres is designated Community Use. This includes areas in residential communities such as school and parks sites as well

LAND USE PLAN

Residential Homesteads
- 2,541 lots
- $ 212 million

Agriculture Homesteads
- 284 lots
- $ 39 million

Pastoral Homesteads
- 14 lots
- $ 4.2 million

General Agriculture
- 13,684 acres

Special District
- 2,812 acres

Community Use
- 211 acres

Conservation
- 693 acres

Commercial
- 132 acres

Industrial
- 16 acres

as community use areas with regional significance. Activities related to Community Based Economic Development (CBED) are also included in this category. Community use areas are found in all tracts except Kekaha, Kapa‘a and Moloa‘a.

Conservation – 693 acres of environmentally sensitive areas in Waimea and Anahola are designated Conservation. These areas are also designated Conservation by the State Land Use Commission.

Commercial – Land designated as Commercial for income generation purposes for DHHL include 132 acres of land in Hanapēpē, Wailua, and Anahola.

Industrial – Sixteen acres in Kapa‘a are designated Industrial which will generate income for the Department.

RESIDENTIAL PRIORITY AREAS

The KIP designates three priority tracts for development. These are the residential areas of Wailua, Hanapēpē, and Anahola/ Kamalomalo‘o. These priority areas reflect the Department’s emphasis on developing large master-planned communities to provide as many houses as possible to beneficiaries, in the shortest amount of time and at the least cost. The plan also assumes that existing infill projects currently underway will continue as planned.

DEVELOPMENT COSTS

Order of magnitude costs are provided for homestead developments. These estimates are conservative figures and there may be opportunities to reduce costs. For example, the Department may work with the County or private developers to share the expense of costly off-site infrastructure improvements such as sewage treatment plants. In addition, agriculture and pastoral costs could be reduced by reducing the infrastructure to only gravel roads and potable water. By reducing overall costs, however, beneficiaries may not be able to build homes on agricultural and pastoral homesteads and the Department will be responsible for the maintenance of gravel roads.

RESIDENTIAL PRIORITY AREAS

1. *Wailua*
   - (651) 10,000 SF lots
   - 216 acres
   - $ 56 million total
   - $ 86,000/lot
   - Includes 15 acres of Community Use
2. *Hanapēpē*
   - (482) 10,000 sf lots
   - 168 acres
   - $34 million total
   - $ 71,000/ lot
   - Includes 15 acres of Community Use
3. *Anahola/ Kamalomalo‘o*
   - (1,218) 10,000 sf lots
   - 565 acres
   - $101 million total
   - $ 83,000/ lot
   - Includes 54 acres of Community Use

Section 1.0
Introduction

The Kaua‘i Island Plan (KIP) provides recommendations for the future use of the 20,565 acres on Kaua‘i under the jurisdiction of the Department of Hawaiian Home Lands (DHHL) (*Figure 1.1)*. The plan is intended to guide overall land use patterns and development on Kaua‘i for the next 20 years.

This plan assigns Land Use Designations (LUDs) for all of DHHL's lands on Kaua‘i and indicates specific areas for priority homestead development.

This introductory chapter provides an overview of DHHL and summarizes the KIP planning process.

Chapter Two of the plan provides an overview of the island and the beneficiary population and their preferences. This chapter also introduces DHHL's 10 land use designations and summarizes the land uses under each LUD in the Plan. A brief overview of infrastructure costs is also provided in this section.

PLAN OVERVIEW

1. Introduction
- Overview of DHHL
- Planning process

2. Island-Wide Analysis
- Island profile
- Beneficiary preferences
- Land use designations
- Infrastructure Cost Estimates

3 – 9. Land Use Plans
- Existing conditions
- Land use plan

10. Priorities & Phasing

11. Conclusion

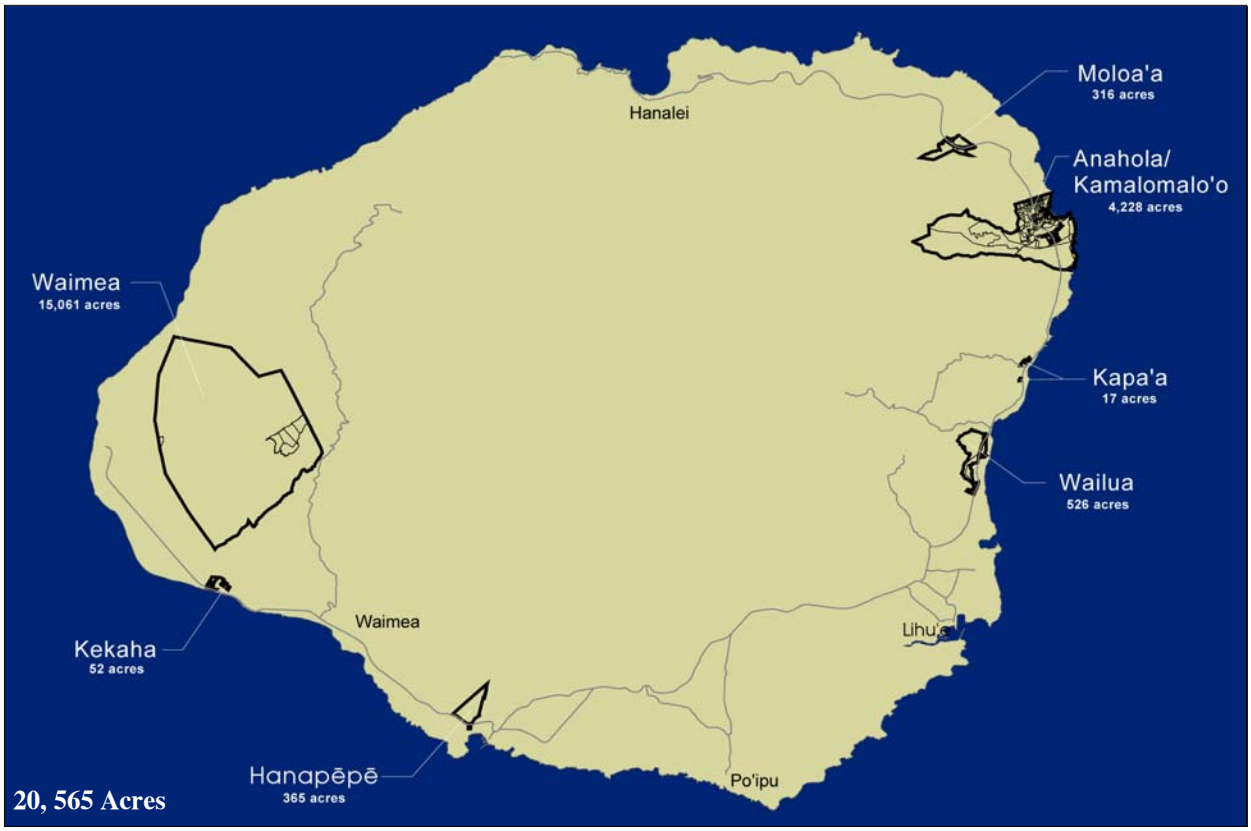


Figure 1.1

DHHL's Kaua‘i Lands

Chapters Three through Nine detail the land use plan for each of the seven DHHL planning areas on Kaua‘i. Each chapter begins with a general discussion of the existing conditions, opportunities and constraints related to that area. The chapters propose land use designations and development themes and include a discussion of infrastructure improvements and rough cost estimates.

Chapter 11 recommends Wailua, Hanapēpē, and Anahola as the three priority development areas. Preliminary lotting schemes are included for Wailua and Hanapēpē. This section also includes a discussion of the phasing for the non-priority areas.

The concluding chapter summarizes the major findings of the KIP and proposes points for future planning studies.

1.1 OVERVIEW & BACKGROUND OF DHHL

DHHL's mission is to manage the Hawaiian Home Lands trust effectively and to develop and deliver lands to native Hawaiians.

The Hawaiian Homelands Program was started in 1921 with the passage of the Hawaiian Homes Commission Act thanks to the efforts of Prince Jonah Kūhiō Kalaniana‘ole. Unfortunately, the Act was flawed from the beginning due to lack of financial resources and very little useable land. The program struggled for the first 50 years. Recent Legislation from the 1990's has improved the situation of today's DHHL. Better lands have been conveyed to the Department and a Hawaiian Home Land Trust Fund for $ 600 million has been developed. As a result, DHHL is better positioned to serve its native Hawaiian beneficiaries.

The main method by which DHHL serves native Hawaiian beneficiaries is through the 99-year homestead lease. The leases are provided for residential, pastoral, and agricultural uses for an annual fee of one dollar.

At present over 7,000 native Hawaiians throughout the State hold homestead lease awards; while approximately 33,000 applications remain un-awarded. However, the 33,000 number reflects approximately 20,000 individual applicants since a

DHHL Mission:

To manage the Hawaiian Home Lands Trust effectively, and to develop and deliver land to Native Hawaiians.

Prince Kūhiō, Father of Hawaiian Homes Commission Act

DHHL STATEWIDE PROFILE

- 7,000 homestead leases
- 33,000 applications unawarded
- Or, 20,000 individual applicants
- 200,000 plus acres

qualified applicant may apply for two types of awards.

Award recipients make arrangements to finance home construction and renovations as well as agricultural/ranching activity on their awarded land. The Department works with lessees to offer direct loans or loan guarantees for home purchase or construction/renovation as well as development of farms and ranches. The Department has also explored new approaches to home building by partnering with Habitat for Humanity, developing “self-help” housing projects, and offering rent-to-own financing.

The Department’s Land Management Division manages land not currently used for homesteading and negotiates leases that generate income and license agreements for public uses such as utilities or for homestead organizations. Approximately 40 % of the 200,000 plus acres of Hawaiian homelands statewide are managed for long and short term uses. Leases keep lands productive while minimizing the common occurrence of vegetative overgrowth, squatting and unauthorized dumping of refuse and derelict vehicles. The leases also generate revenues for the administration of the homesteading program. Statewide revenues from general leases, revocable permits, and licenses were $ 6.68 million in fiscal year 2001-02.

Hanapēpē Land leased to Gay & Robinson for Sugarcane Cultivation

1.2 DHHL PLANNING SYSTEM

The KIP is part of the DHHL Planning System (*Figure 1.2).*

The General Plan provides guiding principles for the development of DHHL lands statewide in six areas outlined in the table to the right. With respect to the island of Kaua‘i, DHHL’s planning objectives for the next 20 years include the following:

- Designate all Hawaiian home lands with one of the land use categories under the General Plan;
- Deliver at least 840 Residential homesteads, or an average of 42 per year;

DHHL GENERAL PLAN GOALS

- Land use planning
- Uses for residential, agriculture, & pastoral land
- Water resources
- Land & resource management
- Economic development
- Building healthy communities

- Provide space for and designate a mixture of appropriate land uses, economic opportunities and community services in a native Hawaiian-friendly environment;
- Direct urban growth to priority development areas based on infrastructure availability, feasible site conditions, beneficiary preference and job opportunities;
- Provide agriculture and pastoral homestead lots for subsistence and supplemental purposes;
- Provide general lease agriculture and pastoral lots of adequate size for commercial farming or ranching business purposes by native Hawaiians.

Pu‘u ‘Ōpae Pastoral Homesteads

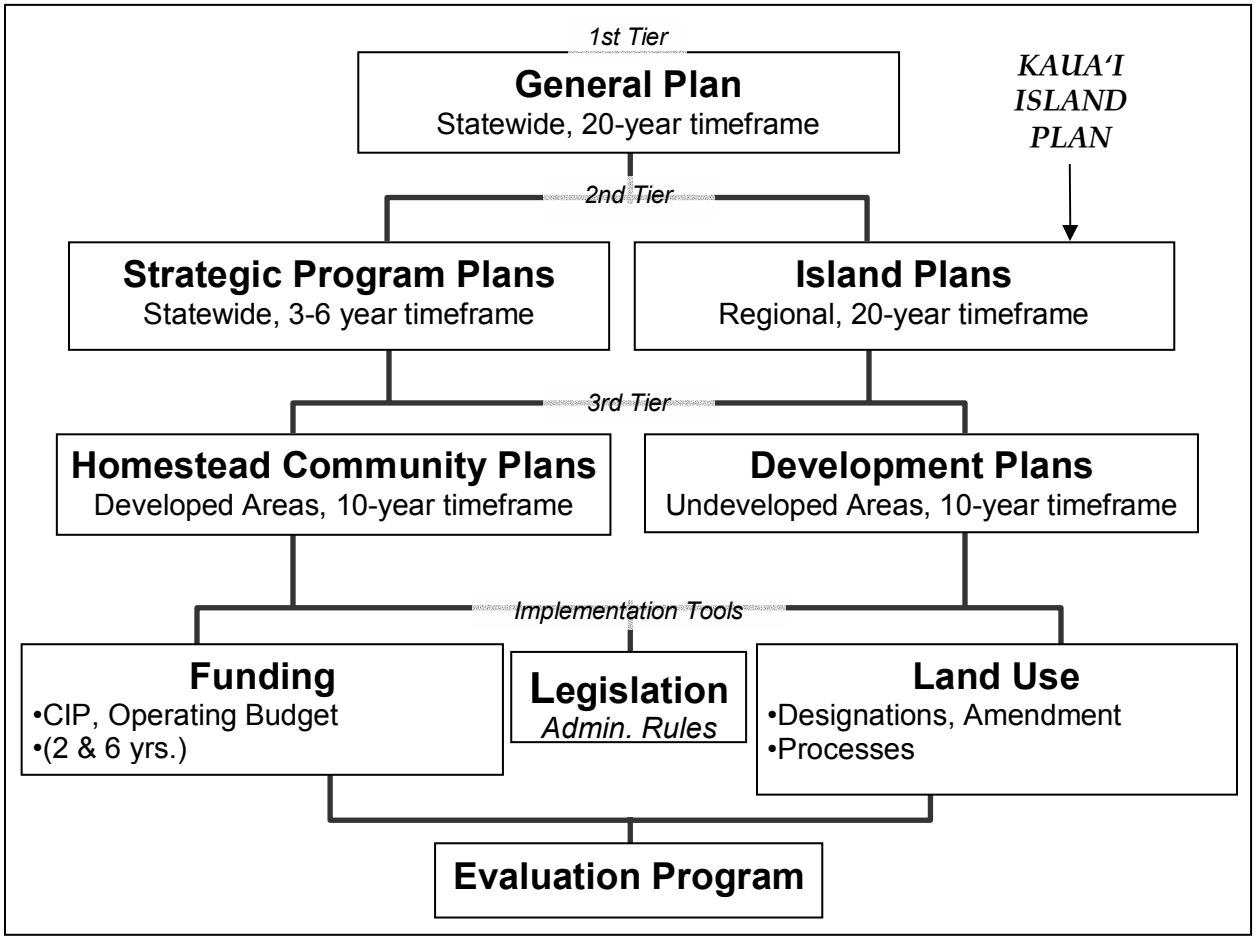


Figure 1.2
DHHL Planning System

- Identify and establish a clear understanding of existing water resources available to the Hawaiian Home Trust;
- Preserve and protect significant natural, historic and community resources on Trust lands;
- Manage interim land dispositions in a manner that is environmentally sound and does not jeopardize their future uses;
- Allow native Hawaiian use of natural resources on Trust lands for traditional and cultural purposes;
- Use no more than 1% (or 206 acres on Kaua‘i) of Hawaiian home lands for Commercial and Industrial uses by 2014; and
- Establish and implement a planning system that increases beneficiary participation in the development and use of Hawaiian home lands and improves communications between DHHL and the beneficiary community.

1.3 KAUA‘I ISLAND PLAN PLANNING PROCESS

The KIP has been developed over 10-months. Adoption of the plan is scheduled for May 25, 2004.

1.3.1 Background Information

The planning process began by looking at general economic trends on Kaua‘i and collecting data on DHHL’s Kaua‘i lands. A Geographic Information System (GIS) was developed to analyze the environmental and cultural features of the property. The types of features studied are summarized in the box to the right.

This background research also included a beneficiary survey conducted by SMS Research which gathered information on beneficiary lease preference, location preference, and desired community facilities.

This information is summarized in fact sheets included in *Appendix F* and in a Baseline Information Report. The information was also presented to a working group composed of

Anahola Stream & Bay

BACKGROUND INFORMATION

- Topography & elevation
- Streams & waterways
- Soil types & productivity
- Threatened & endangered species
- Wetlands & flood zones
- Rainfall
- Natural hazards
- Public facilities
- Cultural sites
- State Land Use Designations
- County zoning & General Plan

representatives from homestead associations and beneficiary groups, State and local government agencies, and private land owners. This group provided guidance throughout the planning process on existing conditions and other planning considerations.

Working Group Meeting

1.3.2 Examination of Non-DHHL Parcels

Background information gathering and analysis was not only limited to DHHL owned tracts. Planning assessments were conducted for two parcels not owned by DHHL in order to determine their suitability for residential development. The assessment evaluated existing conditions, identified constraints and opportunities, and lastly recommended that the two parcels are suitable for homesteads. Further analysis of the subject parcels is detailed in *Appendix D*.

Community Input During January 2004 Site Visit to Wailua

1.3.3 Alternative Development Scenarios

Several development alternatives were developed for each DHHL area based on the background information and input from the Working Group.

Generally, the alternatives provided a range of low, medium, and high intensity development options.

These alternatives were presented to the Working Group, DHHL staff, the Hawaiian Homes Commission (HHC), and to the community at two meetings on Kaua‘i. Beneficiaries were also given the opportunity to tour the DHHL properties and were encouraged to make suggestions and critique the alternatives.

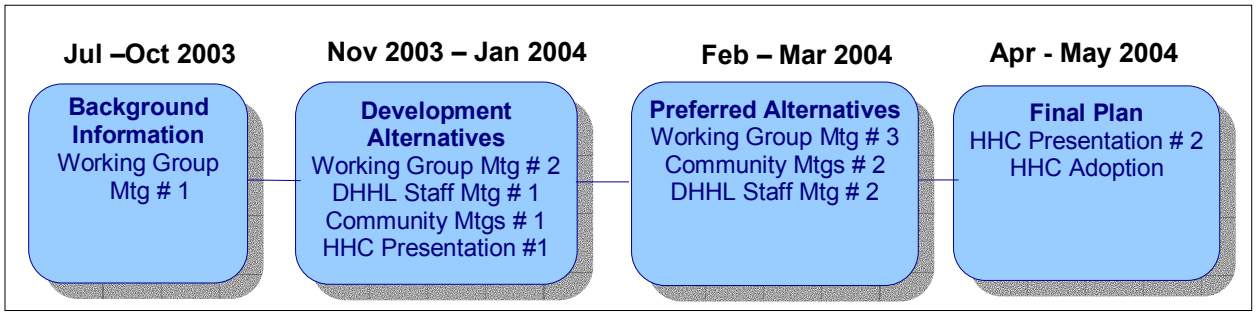


Figure 1.3

Study Methodology

1.3.4 Preferred Development Scenarios

Preferred Development Alternatives were chosen based on community input and DHHL policies. The planning factors used to assess these alternatives are summarized on the right.

The alternatives were presented to the Working Group, DHHL Staff, and the community at two meetings in Kaua‘i and one in Honolulu. Comments were taken at each presentation.

1.3.5 Final Plan

A pre-final plan was presented to the Hawaiian Homes Commission in April, and the written report was submitted for adoption at the May 25, 2004 Hawaiian Homes Commission meeting on Kaua‘i.

1.4 PLANNING TEAM

The DHHL Planning Office oversaw the development of the KIP.

The consultant team was led by Group 70, International who gathered the background information, coordinated the public meetings, and developed the Island Plan. SMS Research conducted the beneficiary survey and Kodani and Associates researched infrastructure considerations and costs.

A working group composed of representatives from the homestead associations, Hui Kako‘o ‘Āina Ho‘opulapula, local and state government agencies, and private landowners convened three times to provide input into the planning process. In addition, beneficiaries commented on the proposed alternatives at five community meetings in January and March 2004.

PLANNING FACTORS

- Beneficiary preferences (survey)
- Community input
- Returns (number of lots)
- Infrastructure costs (roads, sewage, water, etc.)
- Land conditions
- Protection of cultural Sites
- Time frame (20 + years)
- Views
- Community based economic development (CBED)
- DHHL revenue generation
- State and County Land use Designations
- Adjacent land uses
- DHHL General Plan goals
- DHHL policies

Section 2.0
Island-Wide Analysis

This island-wide analysis sets the context for the Island Plan and provides an overview of the Department’s Kaua‘i lands, beneficiary preferences, and proposed land uses.

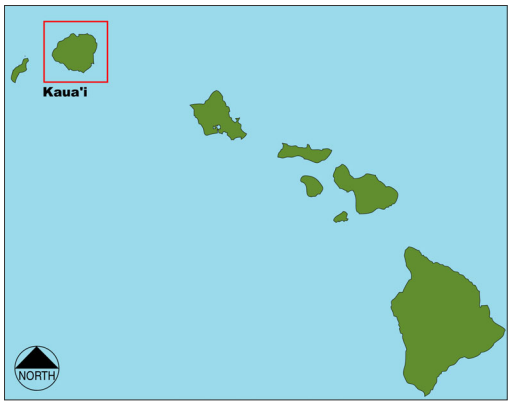
2.1 ISLAND PROFILE

Kaua‘i is the fourth largest island in the Hawaiian chain, comprised of a land area of 352,000 acres. DHHL’s 20,565 acres make up 6 % of the total land area of Kaua‘i.

Līhu‘e, with a population of 5,700 is the center of government and commerce on Kaua‘i, while the largest population center is Kapa‘a with 9,500 residents. The total population of Kaua‘i County is almost 60,000 people making it the least populated County in Hawai‘i. Census results show Kaua‘i’s people in 2000 to be much like the population of the state as a whole. The median household income is slightly lower than the state level – $ 45,020 compared to $ 49,820. The percentage of persons below the poverty level is 10.5% compared to the state percentage of 10.7 % and the ethnic mix is diverse, although Caucasian constitutes a higher group on Kaua‘i than statewide. The overall job growth in the Kaua‘i economy was projected at 3.6 % for 2003 compared to 3 % for the State as a whole. The real personal income is also growing and is expected to expand more than 3.3 % in 2004. The unemployment rate for the whole island is 3.8 %.

The 2002 Native Hawaiian Data Book reveals that native Hawaiians on Kaua‘i:

- Are more likely to be below the federal poverty level than non-Hawaiians on Kaua‘i and statewide;
- Make-up the largest group (36.8 %) of people in public housing on Kaua‘i;
- Compose 44.86 % of people receiving welfare benefits on Kaua‘i; and
- Have the highest unemployment rate (12.7 %) compared to native Hawaiians on all other islands and the total population statewide.



Map of the Hawaiian Islands

KAUA‘I OVERVIEW

- Total land area – *352,000 acres*
- Total population – *59,000*
- Largest city – *Kapa‘a*
- Median household income - *$ 45,020*
- Poverty level - *10.7 %*
- 2003 job growth – *3.6 %*
- Unemployment rate – *3.8 %*

2.1.1 Tourism

Tourism is the largest sector of the economy on Kaua‘i, generating 1/3 of the County’s real income in a typical year. There were 1,007,000 visitors in 2002 and visitor arrivals are expected to expand more than 6 % in 2004. Mainland tourists, rather than foreign, constitute the majority of the visitors to the island. Also, there are 1,599 timeshare units on Kaua‘i which accounts for 37 % of the state’s total.

Tour Busses at Waimea Canyon State Park

2.1.2 Agriculture

Agriculture is a smaller but still visible part of Kaua‘i’s economy. While it seems as though many acres of green sugarcane cover the foothills and plateaus of the island, the industry accounts for less than 1 % of the jobs on Kaua‘i. However, for much of the 20th Century, the economy of the island rested upon sugar cultivation. The 1996 shutdown of McBryde Sugar and the closure of the Līhu‘e Plantation in 2000 left only one sugar producer remaining, Gay and Robinson (G&R), based in West Kaua‘i. The closures made a significant amount of agricultural and commercial land available for leasing and caused a significant loss of agricultural jobs. G&R sugar operations remain productive as only one of two sugar plantations in the State. G&R’s lands are concentrated on the southwest shore of the island on very high-yield acreage.

Diversified agriculture efforts are struggling largely because the margins have been squeezed due to rising costs. One of Kaua‘i’s problems is that other countries with similar products have larger programs to support exports. In comparison to other places, Kaua‘i also has transportation and other infrastructure impediments such as power and water availability.

However, there are some positive diversified agriculture initiatives. At the local level, farmers’ markets around the island are doing well. In addition, range-fed beef may become a near-term use of former sugar land. A&B Kaua‘i coffee is experimenting along with a consortium of other Hawaiian coffee growers to produce a uniquely Hawaiian variety of coffee.

MAJOR ECONOMIC ACTIVITIES

Tourism

- Largest industry & growing

Agriculture

- Smaller but still visible
- Growth of diversified agriculture

High Tech

- Growth at PMRF but limited impact to date

2.1.3 High Tech

There has been progress in creating desirable high tech jobs related to activities at the Pacific Missile Range Facility (PMRF) at Barking Sands in West Kaua‘i, but the impact on official job statistics has been limited to date.

2.1.4 Housing

Kaua‘i is in an affordable housing crisis or a real estate boom depending on how one looks at the situation. There has been a significant increase in home prices on Kaua‘i which have risen 29 % over the past year, while condo prices have risen 85 %. As of February 2004, the median single-family home price for the entire island was $ 410,000-way out of reach for the local, island resident. The market is particularly strong for high-end properties but all segments of the market are strong including condominiums and raw lands sales.

The most significant barrier to the construction of new affordable housing is the island's failing infrastructure. The government no longer pays for infrastructure improvements and requires new development to cover the costs making it difficult for affordable housing projects to break even.

2.2 OVERVIEW OF BENEFICIARIES

Beneficiaries must be 18 years of age and must have a blood quantum of at least 50 % Hawaiian in order to be eligible for a Hawaiian homestead. Beneficiaries may apply for one of three lease types: Residential, Agriculture, Pastoral; or a combination of Residential with either Agriculture or Pastoral. Beneficiaries may not apply for all three types of leases.

The Homestead Area and Island-Wide Applications Waiting List Monthly report for July 2003 indicated that 513 leases had been awarded on Kaua‘i. Residential leases, which compose the majority of the awards, are concentrated in Anahola but there are also approximately 105 on the westside in Kekaha and Hanapēpē. All 47 agriculture leases are located in Anahola and the 2 pastoral leases are located in Waimea. The location and types of awards are summarized in the table to the right.

West Kaua‘i Technology & Visitor Center

KAUA‘I'S RISING HOUSING COSTS

Single Family Homes

- February 2004 Median price - $ 410,000
- Rose 29 % from 2003

Condominiums

- February 2004 Median price - $ 420,000
- Rose 85 % from 2003

As of July 2003, there were 1,479 applications for a residential award, 1,774 applications for an agriculture award, and 220 applications for a pastoral award on Kaua‘i.

Since beneficiaries can apply for more than one type of award, it is important to realize that when existing leaseholders are removed from the applicant list, the total applications are reduced to 3,159. The breakdown is shown in the second table to the right.

However, even when existing leaseholders are deducted from the waiting list, the count is still inflated since applicants can submit multiple applications. The total number of individuals waiting for their first lease is 2,236. This number, which excludes existing homesteaders and removes duplicates, is only 65 % of the total number of Kaua‘i applications.

2.2.1 Beneficiary Preferences

In September 2003, a beneficiary survey was conducted to gather information about beneficiary preferences. Some of the findings are summarized below.

Residential is the preferred award type – Since beneficiaries may apply for more than one type of award, applicants were asked in a survey about their preferred award type. *Figure 2.1* illustrates that that while agriculture applications make up the largest type of applications, residential awards are preferred.

Agriculture & pastoral applicants want to live on their homesteads – Agriculture and pastoral applicants overwhelmingly reported that they wanted to live on their homesteads. This preference would require infrastructure improvements which significantly increases the cost of development. However, attendees at community meetings added that cheaper, practical alternative utility systems are being used to supply water and power in rural areas.

Residential lot size preference – Just over half of residential applicants indicated that they would accept a lot smaller than 10,000 square feet (sf) or had no preference.

EXISTING HOMESTEADS

Residential Homesteads

- Anahola - 359
- Kekaha – 69
- Hanapēpē - 36

Agriculture Homesteads

- Anahola - 47

Pastoral Homesteads

- Waimea - 2

SUMMARY OF APPLICATIONS

3,473 Applications

- Residential – 1,479
- Agriculture – 1,774
- Pastoral - 220

3,159 Applications Excluding Leaseholders

- Residential – 1,445
- Agriculture – 1,528
- Pastoral - 186

2,236 individuals waiting for first lease

There is almost an equal preference for relatively large half-acre to one-acre residential lots and the more typical 10,000 sf lot size.

Preference is for small agriculture lots – 71 % of agriculture applicants prefer a lot that is 5 acres or less. Most applicants are interested in having land for small-scale agriculture operations or a home garden.

Preference is for small pastoral lots – Over three quarters of pastoral applicants prefer lots less than 50 acres in size or have no preference.

Residential location preference - The survey revealed that most residential applicants want to live on the eastside (*Figure 2.2)*. Over 20 % of beneficiaries ranked Wailua, Anahola, and Kapa‘a as one of their top two choices. In comparison, the highest ranking area on the westside was Waimea, where just over 10 % of beneficiaries ranked Waimea as one of their top two choices.

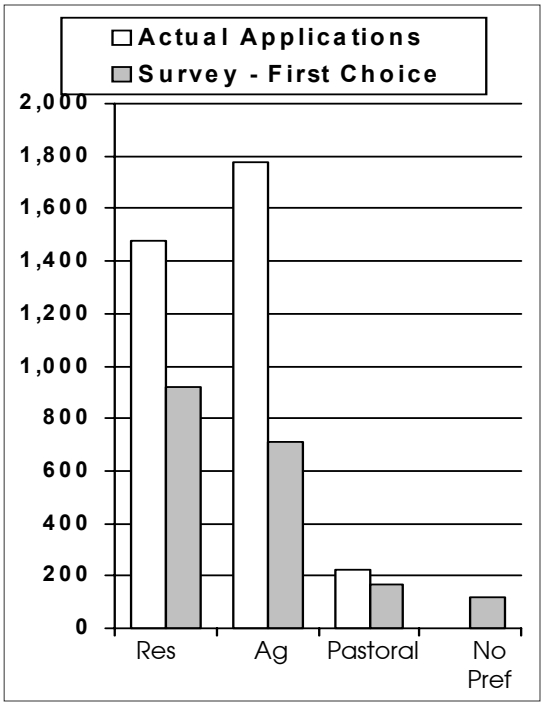
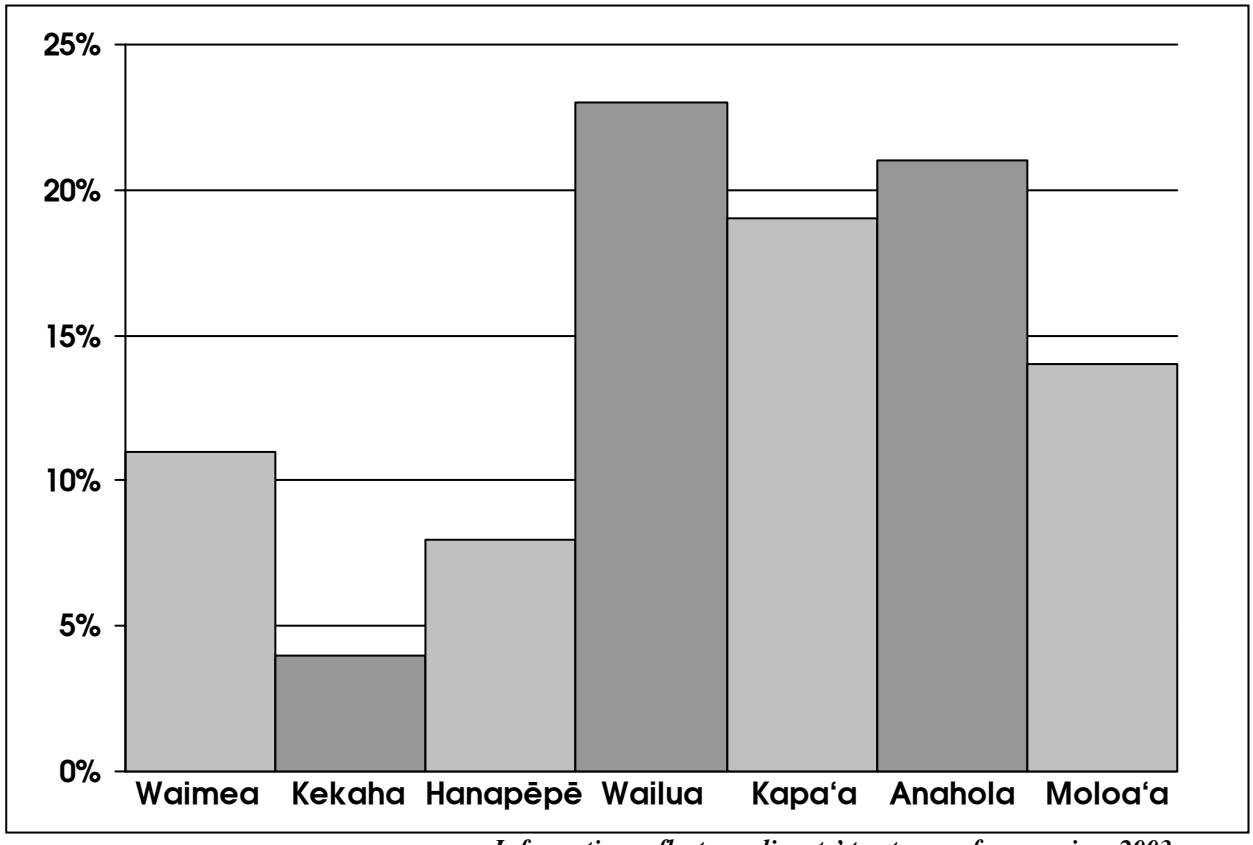


Figure 2.1
Award Type Preferences



Information reflects applicants' top two preferences in a 2003 survey

Figure 2.2
Residential Homestead Preferences

It is possible, however, that misperceptions among beneficiaries may have contributed to the low popularity of the westside properties. First, many beneficiaries may have assumed that future development would occur in Anahola and were unaware that 350 acres at Hanapēpē is available for development. Secondly, beneficiaries may have assumed that future development in Hanapēpē would mimic the existing house lots, which are unpopular among some because of their narrow, small lot size. As a result of the misperceptions, beneficiaries may have chosen eastside properties as their first choice even though their preference was for the westside.

Hanapēpē Homesteads

2.3 LAND USE DESIGNATIONS

The DHHL General Plan provides 10 possible land use designations for Hawaiian Home Lands.

Table 2.1 on the following page describes the intent of these land use designations, the lot sizes, and minimum infrastructure requirements while *Table 2.2* summarizes where these land uses are planned on Kaua‘i.

Certain key planning concepts or themes have directed when and where to designate each of the ten DHHL land uses. They are as follows:

- Focus on development of large, master-planned communities;
- Create full-service communities;
- Use the ahupua‘a concept where feasible;
- Identify income generating opportunities;
- Designate General Agriculture areas for hui and individual entrepreneurs to lease and develop;
- Designate Special Districts for special areas to create a Hawaiian sense of place; and
- Preserve and enhance the use and management of water rights and resources.

These themes are discussed throughout the KIP as they relate to specific land use designations and planning issues.

HOMESTEAD LAND USES SUMMARY

Type of Use	# of Lots	Acres
Residential	3,012	1,190
Agricultural	331	1,204
Pastoral	16	623
Community Use	--	211
TOTAL	3,359	3,228

	Setting / Intent / Purpose	Lot Size	Minimum Infrastructure
Residential (Homestead)	Residential subdivisions built to County standards in areas close to existing infrastructure.	≤ 1 acre	County standards
Subsistence Agriculture (Homestead)	Small lot agriculture. Lifestyle areas intended to allow for home consumption of agricultural products. Occupancy optional.	≤ 5 acres	Water (catchment or potable or surface) Road access
Supplemental Agriculture (Homestead)	Large lot agriculture. Intended to provide opportunities for agricultural production for supplemental income & home use. Occupancy optional. Farm plan & 2/3 cultivation required.	≤ 40 acres	Water (catchment or surface) & Road access
Pastoral (Homestead)	Large lot agriculture specifically for pastoral uses. Occupancy optional. Ranch plan & fencing required.	≤ 1,000 acres	Road access & livestock drinking water
General Agriculture	Intensive or extensive farming or ranching allowed. Uses subject to HRS Chapter 205. May serve as an interim use until opportunities for higher & better uses become available.	To be determined	N/A
Special District	Areas requiring special attention because of unusual opportunities & / or constraints. E.g. natural hazard areas, open spaces, raw lands far from infrastructure (difficult to improve), mixed use areas, green–ways	To be determined	To be determined
Community Use	Common areas for community uses. Includes space for parks & recreation, cultural activities, CBED, & other public amenities.	To be determined (see standards)	County standards
Conservation	e.g. water sheds, endangered species, sensitive historic & cultural sites	To be determined	N/A
Commercial	e.g. Retail, business & commercial activities	To be determined (see standards)	County Standards
Industrial	e.g. processing, construction, manufacturing, transportation, whole sale & warehousing	To be determined	County Standards

Table 2.1
DHHL Land Use Designations

Land Use Designation	WAIMEA (Acres)	KEKAHA (Acres)	HANAPĒPĒ (Acres)	WAILUA (Acres)	KAPA'A (Acres)	ANAHOLA (Acres)	MOLOA'A (Acres)	TOTAL (Acres)	%
Residential	202	39	168	216	0	565	0	1,190	5.79%
Subsistence Agriculture	214	0	158	99	0	533	200	1,204	5.85%
Supplemental Agriculture	0	0	0	0	0	0	0	0	0.00%
Pastoral	475	0	0	0	0	148	0	623	3.03%
General Agriculture	12,527	0	0	52	1	1,018	86	13,684	66.54%
Special District	1,258	13	0	92	0	1,419	30	2,812	13.67%
Community Use	42	0	22	20	0	127	0	211	1.03%
Conservation	343	0	0	0	0	350	0	693	3.37%
Commercial	0	0	17	47	0	68	0	132	0.64%
Industrial	0	0	0	0	16	0	0	16	0.08%
TOTALS	15,061	52	365	526	17	4,228	316	20,565	100.00%

Table 2.2

Summary of Existing and Proposed Land Use Designations

2.3.1 Residential Homesteads

Residential homesteads are the priority land use designation in the KIP. Residential is the only land use that requires occupancy and that infrastructure be built to County standards.

A total of 1,190 acres are designated Residential in the Plan. The 2,541 proposed residential homesteads are located in Waimea, Kekaha, Hanapēpē, Wailua, and Anahola/Kamalomalo‘o. This will bring the total number of residential homesteads on Kaua‘i to 3,012.

The emphasis is on large master-planned communities. Community use areas are planned in conjunction with each residential area to create healthy communities, not just houses and subdivisions.

Residential & Future Agriculture Homestead Area in Hanapēpē

2.3.2 Agriculture Homesteads

There are two agriculture homestead land use designations: Subsistence or small lot agriculture; and Supplemental or large lot/commercial agriculture.

Agriculture homesteads are a low priority in the Plan because development costs are high and the relative benefits are less. The proposed small lot sizes reflect beneficiary preferences for lots for residential purposes more than agriculture uses.

Subsistence agriculture homestead areas are proposed on 1,204 acres in Waimea, Hanapēpē, Wailua, Anahola/Kamalomalo‘o, and Moloa‘a. The 284 proposed homesteads will bring the total number of agriculture homesteads in Kaua‘i to 331. No Supplemental Agriculture homesteads are proposed.

Future Residential Homestead Area in Kekaha

2.3.3 Pastoral Homesteads

Pastoral homesteads are also not a high priority in the Plan. Only 148 acres in Anahola/ Kamalomalo‘o consisting of 14 new Pastoral homesteads are designated. The two pastoral homesteads in Waimea (covering five lots and 475 acres) will be retained.

Development costs per lot for Pastoral homesteads are the most expensive.

Pu‘u Ōpa‘e Pastoral Homesteads

2.3.4 General Agriculture

Land designated General Agriculture can be leased for farming to generate income for the Department. This designation is also used as an interim designation until higher and better uses become available.

Most of DHHL's Kaua‘i land (13,684 acres or 66.5 %) is desingated General Agriculture. Only the Hanapēpē and Kekaha tracts do not have land in this category.

Much of the land in this category is unsuitable for homestead development because of the steep topography or because of difficult access and the high cost of development. Beneficiaries and others are encouraged to prepare land use plans and apply to use these areas for agriculture and pastoral uses under permits, licenses, or general leases.

Waimea General Agriculture Area

2.3.5 Special District

The Special District designation is for land with special opportunities and / or constraints. This category is applied to environmentally or culturally sensitive land that requires some conservation principles but can also be used for compatible activities if managed correctly. Ideally, native Hawaiian beneficiaries will oversee these lands and use them to create a Hawaiian sense of place for all beneficiaries living on Kaua‘i.

Lands totaling 2,812 acres are designated Special District in Waimea, Kekaha, Wailua, Anahola, and Moloa‘a. This designation protects special areas while making them available for certain justified uses.

The Special District areas are significant for the entire island, not just the parcel in which they are located. For example, in Waimea, the Pu‘u ‘Ōpae reservoir area can serve as a retreat and refuge area.

Special Districts play a role, as well, for the ahupua‘a. Often special district areas will provide the corridor for pathways or linkages between the mountain and ocean resources. In some cases the Special District designation protects the irrigation ditches and other special features.

Waimea Pu‘u ‘Ōpae Special District Area

Special District around Malae Heiau Area in Wailua

2.3.6 Community Use

The Community Use land use designation includes a variety of community uses such as parks and open spaces, cultural centers, CBED projects, schools, camping areas, meeting pavilions, social service centers, cemeteries, and other amenities. Commercial activities not intended as income generation tools for DHHL are generally designated Community Use.

Community Use areas totaling 211 acres are designated in Waimea, Hanapēpē, Wailua, and Anahola/Kamalomalo‘o. A distinction is made throughout the plan between community uses related to a residential area such as a school or park and more regional community uses such as the social service centers proposed in Wailua and Hanapēpē.

Picnic Tables in Anahola

2.3.7 Conservation

Conservation areas are designated in Waimea and Anahola/ Kamalomalo‘o to be consistent with State Land Use Designations. The Conservation area totals 693 acres. Conservation areas protect the resources of the ahupua‘a including water resources.

Hanapēpē makai Industrial/Commercial Area

2.3.8 Commercial and Industrial

Commercial and Industrial designations are both income generating uses for the Department. The lease revenues can be used to fund homestead development. Commercial and industrial uses are designated in Hanapēpē, Wailua, Kapa‘a, and Anahola/Kamalomalo‘o. The 148 acres of land in these categories represent 0.72 % of DHHL’s total land acreage on Kaua‘i.

The DHHL General Plan stipulates that not more than 1 % of the Department’s land statewide should be used for these purposes.

Kapa‘a existing Warehousing Use

2.4 INFRASTRUCTURE COST ESTIMATES

The KIP provides rough order of magnitude costs for each land use designation.

Infrastructure costs include a breakdown between on-site and off-site costs. All costs are considered on-site improvements except for sewage treatment

plants, wells, water storage facilities, drainage improvements, and intersection improvements.

All residential homestead cost estimates are based on County standards and provide infrastructure for beneficiaries to live on lots.

The estimates for agricultural and pastoral costs also are based on County rural standards. Costs include potable water, waste water treatment, roads, site preparation, and electricity. Irrigation costs are not included because this cost is difficult to determine since it depends on the future of sugarcane cultivation on Kaua'i and the plans for neighboring land owners to maintain the existing ditch system.

Throughout the Plan some Community Use and Commercial costs are reflected in the cost estimates, however these cost are more challenging to develop because the exact future use is unknown. Cost estimates for Community Use include only the estimated cost for water storage. Commercial cost estimates include both water storage costs and sewage treatment plant costs where applicable.

No estimates are provided for General Agriculture, Special District, or Conservation.

The cost estimates are conservative figures and there may be opportunities to reduce infrastructure costs. The Department could work with the County or private developers to share the expense of building costly off-site improvements such as sewage treatment plants. Furthermore, Agriculture and Pastoral costs could be minimized by reducing the infrastructure provided to only gravel roads and potable water.

Land Use	Infra-structure
Residential (Homestead)	Water, wastewater, roads, site prep, drainage, electricity
Agriculture & Pastoral (Homestead)	Water, waste-water, rural roads, site prep, electricity (No irrigation)
General Agriculture	None
Special District	None (Water, IWS, roads, electricity for Kekaha)
Community Use	Water Storage
Conservation	None
Commercial	Water Storage, Sewage Treatment
Industrial	Water, wastewater, roads, electricity

Infrastructure Improvements included in Cost Estimates

Section 3.0
Waimea

3.1 EXISTING CONDITIONS

The Department owns 15,061 acres in Waimea, located on the dry leeward side of the island.

The land is upland, beginning where the fertile Mānā Plain abuts the rugged dramatic terrain spreading mauka to Waimea Canyon State Park and Pu‘u Ka Pele Forest Reserve (*Figure 3.1)*.

The nearest population centers are the towns of Kekaha and Waimea. The community of Mānā and PMRF are located in the coastal plain below the DHHL property. Neighboring land uses are shown in the map below.

Two thirds of the area can be described as steep, mountainous terrain and isolated valleys. The elevation ranges from 200 feet to 2,800 feet above sea level. The lower elevations receive 25 inches of rain per year while the upper elevations receive 40 inches per year.

Only five pastoral lots under two homesteads have been awarded in Waimea. The other land uses are summarized in the table on the right.

EXISTING USES

- 2 pastoral homesteads (5 lots totaling 475 acres or 3% of total area)
- Sugarcane (923 acres) & diversified agriculture (20 acres)
- Military (26 acres)
- DLNR game mgmt. (13,600 acres)

Waimea – Mānā Plain & DHHL Parcels

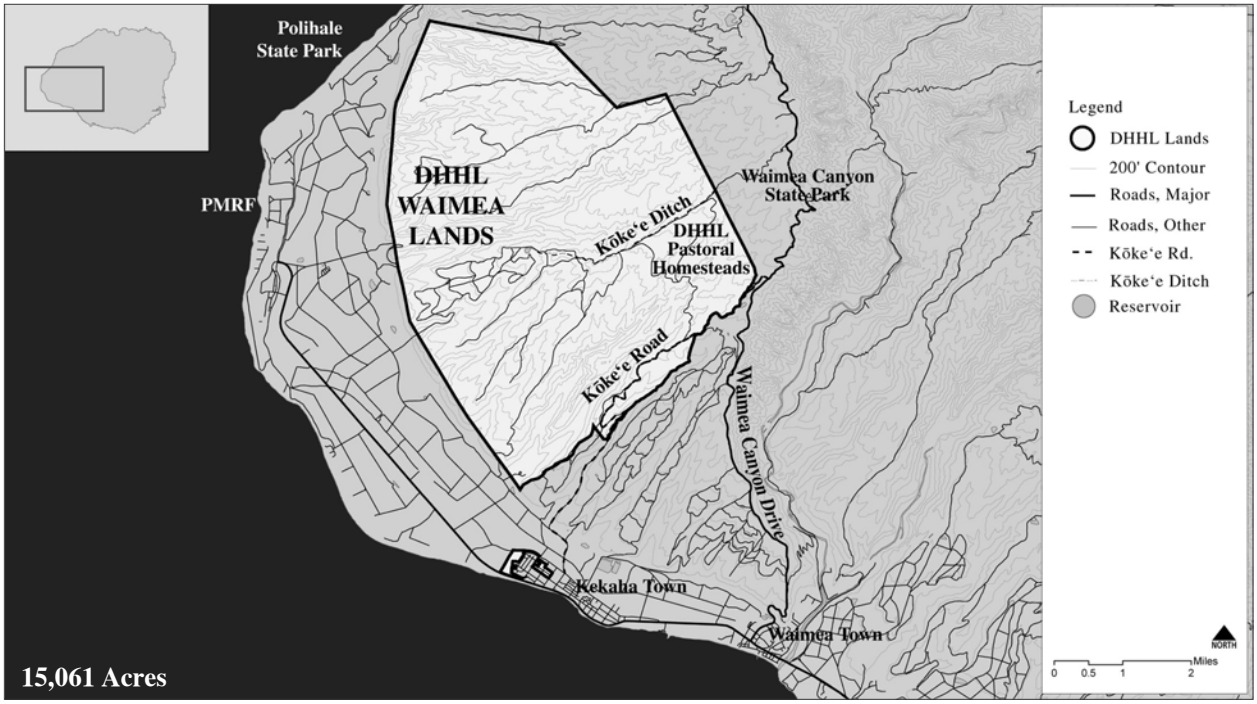


Figure 3.1
Waimea

All of the Waimea lands are located within the Agricultural State Land Use designation except for a small strip along the northeastern border which is designated Conservation.

3.2 OPPORTUNITIES AND CONSTRAINTS

The table to the right summarizes and discussion below summarizes the major factors influencing possible land uses in Waimea.

Topography – Impressive views are available from the high, cool elevations. However, the steep isolated plateaus and valleys that predominate in Waimea make development challenging and increase costs.

Large Land Area - Since the Department owns over 15,000 acres in Waimea, several different types of uses can be accommodated on the property. However, the large land area can also be an impediment to development because costs increase over vast acreages. This is especially true of road costs and pipes for water and sewage treatment.

Limited Road Access – Access to the eastern border of the property is provided along Kōke‘e Road, a heavily traveled paved road connecting Kekaha with Waimea Canyon State Park. There are no other paved roads in Waimea but there are several cane haul and 4-wheel drive roads within the property.

Water – The closest potable water serves the DLNR lease properties and parks in Kōke‘e. A .2 million gallon (mg) tank is located over five miles away in rough and hilly terrain. There is insufficient rainfall in Waimea for the use of water catchment system. Ditches and reservoirs, created for sugarcane cultivation, are located within DHHL’s property. The ditch water could be used for irrigation and could also be treated and used as potable water if the ditches are adequately maintained.

Wastewater – It is not feasible to connect to the closest wastewater system in Waimea Town.

Cultural Resources – Cultural sites such as the Makahoa and Hauola heiau and iwi in Wai‘awa‘awa Valley should be protected. Buffer zones should be established around these sites.

PLANNING CONSIDERATIONS

Opportunities

- Great views & cool temperatures at high elevations
- Ample land
- Kōke‘e road
- Ditch system, & reservoir
- Important cultural sites

Constraints

- Mostly steep, mountainous terrain & isolated valleys
- Large area can increase development costs
- Lack of potable water & sewage treatment
- Environmental contamination

Kōke‘e Ditch in Waimea

Environmental Contamination – A one-acre area in Wai‘awa‘awa Valley, known as “poison valley” is contaminated by Amfac’s former pesticide storage warehouse which was used to mix chemicals.

3.3 LAND USE PLAN

Figure 3.2 illustrates the proposed uses for this expansive property. The land uses are also summarized in the table to the right.

Development in Waimea will be centered around the Mauka Village which concentrates residential and agriculture homesteads and community uses along Kōke‘e Road to take advantage of existing road access to the area. The Mauka Village is based on the ahupua‘a concept. Waimea will be the mountain resource link to DHHL's makai lands in Kekaha.

The existing Pu‘u ‘Ōpae pastoral homesteads will be retained but no additional homesteads are designated because of the high cost of development.

The Pu‘u ‘Ōpae reservoir area and Wai‘awa‘awa Valley are designated Special District. The scenic Pu‘u ‘Ōpae will be a Pu‘uhonua or retreat and refuge area. The Special District designation in Wai‘awa‘awa Valley will preserve important cultural resources as well as create opportunities for groups to cultivate taro on the valley floor traversed by irrigation ditches and where the rainwater collects.

Links between the Special Districts and the Mauka Village will be provided physically by 4-wheel drive roads and hiking trails. The pastoral lots will also be linked to the Pu‘u ‘Ōpae Special District.

Most of Waimea will remain in General Agriculture to preserve it for future uses. Possible interim uses include agriculture and tropical forestry.

A strip of land on the northwest corner is designated Conservation to be consistent with the State Land Use designation.

The overall cost to develop Waimea is estimated to be $ 22.4 million. The off-site and on-site costs are summarized in the table to the right and discussed further in the following sections. Major infrastructure improvements include a new well and

LAND USE PLAN

Mauka Village

- (141) 1-acre residential lots on 202 acres
- (50) 3-acre subsistence agriculture lots on 214 acres
- 42 acres of Community Use

Pu‘u ‘Ōpae Pastoral Lots

- 5 existing pastoral lots

Special District Areas

- Pu`u `Ōpae / Pu`uhonua retreat (523 acres)
- Wai`awa`awa Valley (735 acres)

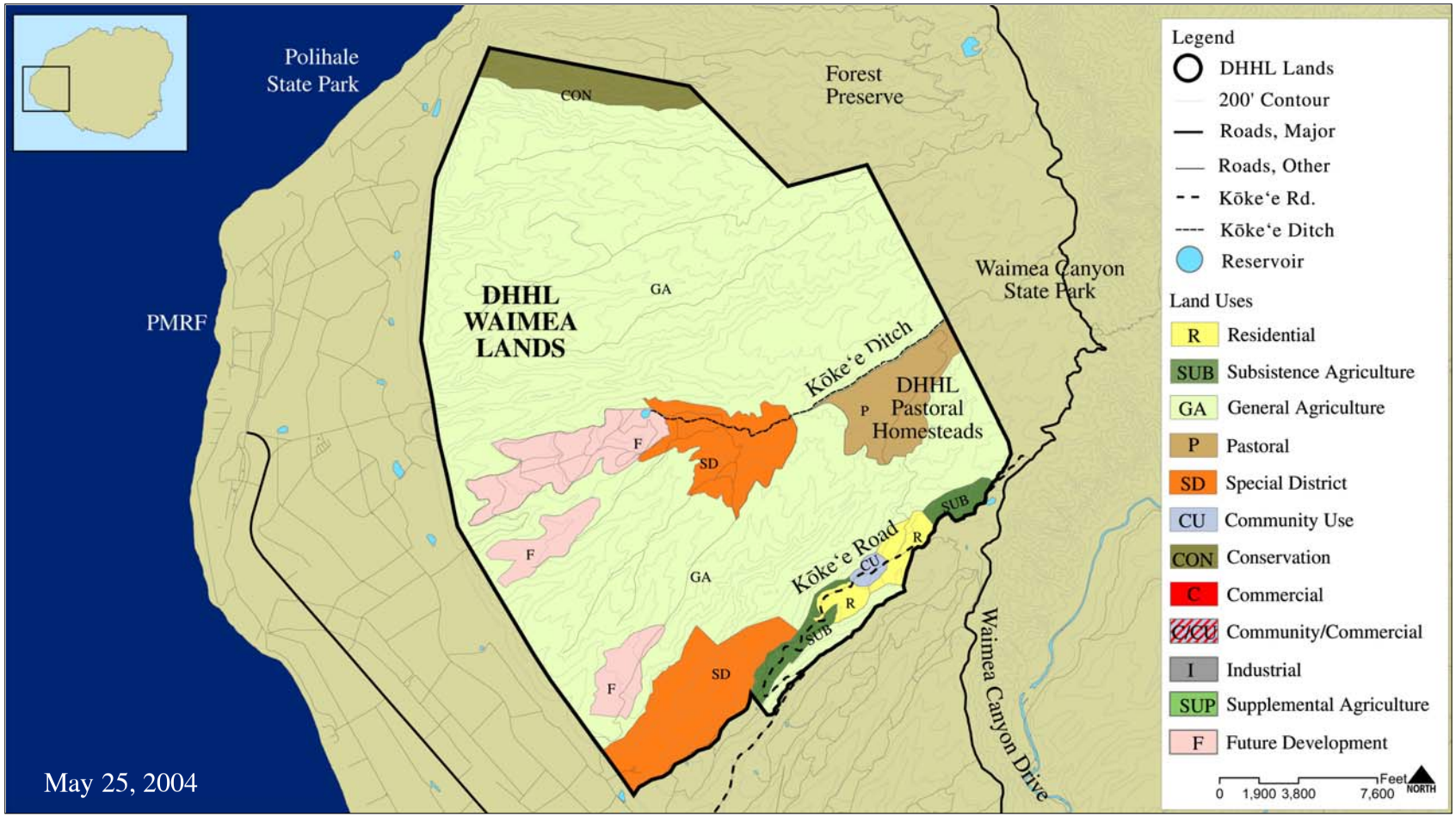
General Agriculture

- 12,527 acres
- 895 acres suitable for future development

Conservation

- 343 acres

WAIMEA TOTAL INFRASTRUCTURE COSTS	Total Cost
On-site	$ 18.8 M
Off-site	$ 3.6 M
TOTAL	$ 22.4 M



R	=	202 acres; 141 lots @ 1 acre	SD	=	1,258 acres; 523 acres @ Pu‘u ‘Ōpae & 735 acres @ Wai‘awa‘awa Valley
SUB	=	214 acres; 50 lots @ 3 acres			
GA	=	12,527 acres; 895 acres suitable for future development	CU	=	42 acres
P	=	475 acres; 5 existing lots (2 leases)	CON	=	343 acres; North edge, native species habitat

Figure 3.2
Waimea Land Use Plan

water storage facilities, individual wastewater systems, and road improvements.

Waimea is not identified as a high priority development area. Priorities are discussed further in Chapter 10.

3.3.1 Mauka Village

The Mauka Village concept takes advantage of the access provided by Kōke‘e Road, easy to develop flatter areas, traffic generated by tourists visiting Waimea Canyon State Park, cool mountain temperatures, and scenic vistas.

Based on the ahupua‘a concept, the Mauka Village is envisioned as the mountain resource and Kekaha as the ocean habitat. The physical link is Kōke‘e Road, which is indicated on the land use plan.

The Mauka Village will be a self-sufficient community where residents live, grow agricultural products for themselves and for sale, make native Hawaiian crafts, and operate shops and restaurants. The commercial activities will cater to residents and tourists traveling through the area. Tourists will be attracted to the authentic Hawaiian community and residents will be able to earn money.

Since the Mauka Village is relatively isolated from other developments, the success of the project will depend on its residents working together to create a vibrant community. Although not a requirement, leases could be awarded to a hui or similar social network of small groups of related people since people with familial ties may be more likely to work together.

A summary of the proposed number of lots and costs is provided in the table on the right. The KIP proposes 141 one-acre residential lots around the community use area. The large lot sizes will preserve the rural character of the area and protect the views of Waimea from the Mānā Plain. The residential lots will also be large enough for homesteaders to locate stores or restaurants along the street frontages of the village area as well as having homes on their property.

“Based on the ahupua‘a concept, the Mauka Village is envisioned as the mountain resource & Kekaha as the ocean habitat.”

Waimea – Proposed Mauka Village Area

MAUKA VILLAGE

Residential

- (141) 1-acre residential lots
- 202 acres total
- $121,000 per lot

Subsistence Agriculture

- (50) 3-acre subsistence agriculture lots
- 214 acres total
- $ 87,000 per lot

Community Use

- 42 acres total

Three-acre subsistence agriculture lots are proposed along each end of Kōke‘e Road bordering the residential homestead areas. It is anticipated that most homesteaders will construct residences with their leases as well as participate in agricultural activities. The location of agriculture lots on the fringe of the Mauka Village will decrease densities as one moves away from the Community Use core area.

The center of the Mauka Village will be a community use area. A generous amount of land (42 acres) has been designated Community Use although only a small amount may be developed initially. Community uses include everything a self-sufficient community needs such as a cemetery, churches, parks, and schools. This community use area should encourage a mix of uses with commercial activities to create an economically viable village.

Table 3.1 below summarizes the development costs. Large initial investments in off-site water infrastructure will be required. Individual Waste Water Systems (IWS) will provide wastewater treatment. Road development costs are reduced by providing some access to the residential homesteads along the existing Kōke‘e Road. Access to all agriculture lots is provided by Kōke‘e Road which explains why the agriculture infrastructure lots are lower than residential costs. Agriculture lot costs could be further reduced by only providing potable water and gravel roads.

Valley between Mauka Village and Pu‘u ‘Ōpae Pastoral Leases

Agricultural lands in Waimea

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	New tank, well, & transmission lines	IWS	Use Kōke‘e Rd. & construct additional	4,000 sf pad	Transmission lines	
On-site	$ 4.2 M	$ 1.9 M	$ 6.5 M	$ 1.9 M	$ 4.2 M	$18.8 M
Off-site	$ 3.6 M	--	--	--	--	$ 3.6 M
TOTAL	$ 7.8 M	$ 1.9 M	$ 6.5 M	$ 1.9 M	$ 4.2 M	$ 22.4 M

Table 3.1

Waimea Mauka Village Infrastructure Costs

3.3.2 General Agriculture

The majority of Waimea (83%) is designated General Agriculture. This will preserve the land for future uses while making it available to individuals and groups for short-term leases.

Much of this land is very rugged and unsuitable for most types of activities and development. Care must be taken to ensure that permitted uses are compatible and do not lead to further erosion of the land.

Rugged lands in Waimea

Some flatter areas accessible by cane haul and 4-wheel drive roads are shown on the land use plan as possible areas for future development. These 895 acres could be the sites of future homesteads beyond the 20-year planning framework identified in this plan.

Present uses such as sugarcane cultivation, diversified agriculture, and Department of Land and Natural Resources (DLNR) Game Management could continue within the General Agriculture designation. Other possible activities include tropical forestry or tour operations such as All Terrain Vehicles (ATV) or hiking tours focusing on eco-education or adventuring touring.

No infrastructure improvements are proposed for this area. The ditch system and roads should be maintained in their current condition.

“The Pu‘u Ōpae and surrounding reservoir area will be a Pu‘uhonua; or retreat or place of refuge for beneficiaries island-wide.”

3.3.3 Special District Areas

The area around Pu‘u ‘Ōpae and Wai‘awa‘awa Valley has been designated as Special District.

The Pu‘u ‘Ōpae and surrounding reservoir area will be a Pu‘uhonua; or a retreat and place of refuge for beneficiaries island-wide. This 523 acre area will be a passive recreation area where individuals and community groups can hike to take advantage of the serenity and scenic views. Visitors can swim in the reservoir while experiencing the breath-taking views of Ni‘ihau.

View of Ni‘ihau from Pu‘u ‘Ōpae

Beneficiaries can also operate tour groups, youth or adult camps or other retreat activities as community economic development projects in the Pu‘u ‘Ōpae Pu‘uhonua. For example, a pier could be built onto the reservoir and the reservoir could be stocked with fish. The area could also be developed as a place of

traditional healing which could include a research and training academy on traditional healing methods or a care home where actual traditional therapies are practiced. Pu‘u ‘Ōpae could be replanted with native vegetation for learning and use in traditional therapies.

Also designated as Special District, are 735 acres in Wai‘awa‘awa Valley to preserve important cultural resources and to provide opportunities for taro cultivation and other native Hawaiian cultural practices.

A former pesticide/herbicide storage site in Wai‘awa‘awa Valley has been tested for hazardous contamination by the Department of Health. Any needed cleanup of the 1-acre site will be a priority. The federal Environmental Protection Agency (EPA) will determine if Amfac, the sugar company who contaminated the site, should be responsible for the cleanup and EPA Brownfield funds could be used to restore the area.

After the cleanup is complete, the valley will make an ideal location for native Hawaiian cultural activities. The rich resources in the valley can become a model for water use and resource management. The ditch system, which provides water in the valley, is both a symbol of the ancient menehune and modern technology.

Cooperative agricultural ventures could cultivate lo‘i or other crops in the valley. Other activities could take advantage of the hot dry conditions of the valley to dry fish or fruit. The duration of leases should be based on the types of activities and their economic, cultural, and social value.

No infrastructure improvements are proposed for the special district areas. However, the ditch system and existing 4 wheel drive access should be maintained. If specific groups wish to develop programs and facilities in the Special Districts, additional infrastructure will need to be developed.

Pu‘u ‘Ōpae Reservoir

Wai‘awa‘awa Valley

3.3.4 Conservation

A strip of land in the northwest corner of the parcel is designated Conservation to be consistent with the State Land Use designation.

Section 4.0
Kekaha

4.1 EXISTING CONDITIONS

DHHL owns two non-adjacent tracts of land near Kekaha Town on the dry westside of the island. Kekaha Town is a residential community flanked by agricultural lands on either side and within two miles of DHHL's Waimea lands (*Figure 4.1).*

The existing uses of the Kekaha lands are summarized in the table to the right. The established DHHL community of 69 homesteads is located on 19 acres surrounded by other residential uses. Planning has begun to develop 49 homesteads on 20 acres of a 32-acre parcel recently acquired by DHHL. There are no development plans for 12 acres fronting the highway and beach because there is evidence of burials in the dune areas. These western parcels are bounded by uncultivated agricultural land to the north and west, Kekaha Gardens subdivision to the east, and Kaumuali‘i Highway and the beach to the south.

The property is designated Urban on the State Land Use map.

EXISTING USES

- 69 Residential homesteads (19 acres)
- 49 Residential homesteads under development (20 acres)
- 12 acres undeveloped along highway
- 1 acre undeveloped near existing homesteads

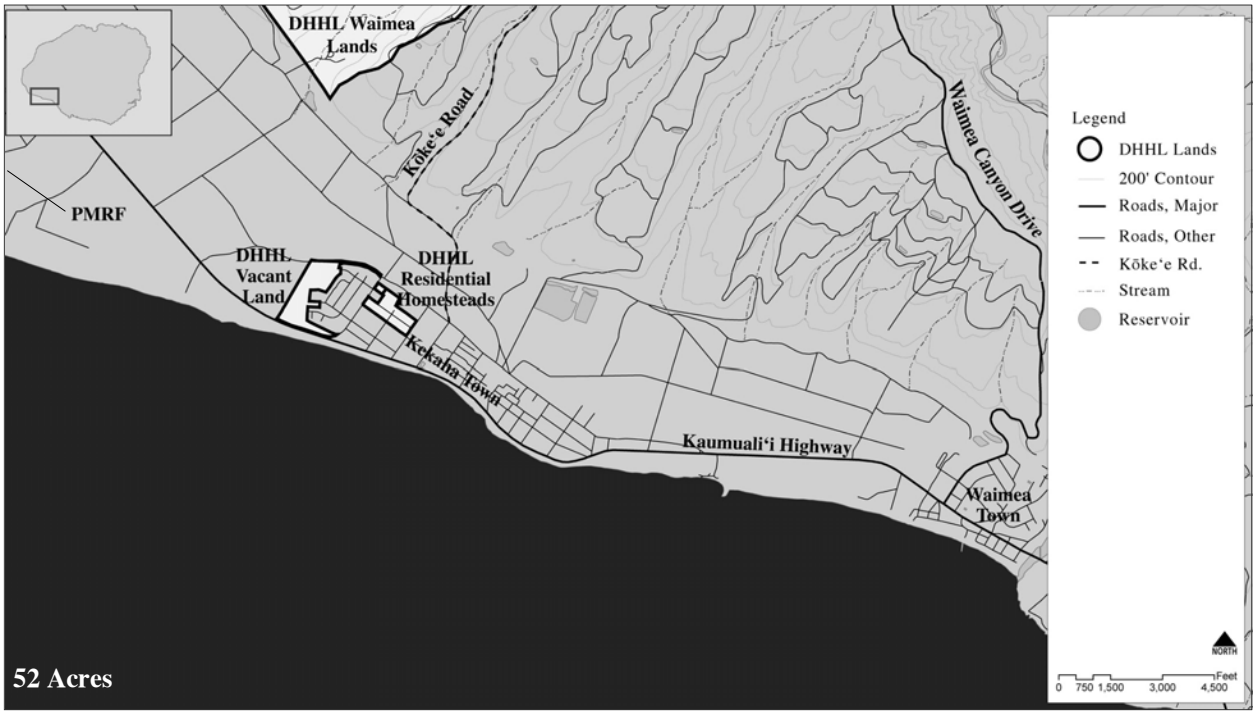


Figure 4.1
Kekaha

4.2 OPPORTUNITIES AND CONSTRAINTS

Location – The parcels are located near Kekaha town and PMRF and adjacent to existing neighborhoods. The land situated along the beach and highway is optimal for community recreational facilities.

Topography – The land is flat, easy to develop, and suitable for buildings.

Sewage Treatment System – There is no sewage treatment plant in the area.

Community Resources - There is a cemetery, school, playground, community center, and ocean recreation activities in the area.

Burials – An archeological study completed in 1993 revealed that there are iwi located on the 12-acre undeveloped parcel near the ocean. Community input suggests that there are additional burials in the sand dune area. Any development should be low intensity and sensitive to the burials on this property.

Flooding – Most of the Mānā Plain and Kekaha is prone to flooding and the DHHL parcels are no exception. The land is located in the lowland coastal plain close to the beach. While some of the land floods and is near the tsunami inundation zone, all features of the land are considered favorable for building. Pumps maintained by the State of Hawai‘i are critical to the prevention of flooding in the region.

PLANNING CONSIDERATIONS

Opportunities

- Location in a developed community
- Flat, easy to develop topography
- Community resources

Constraints

- No sewage system
- Burials
- Flooding

Existing Residential

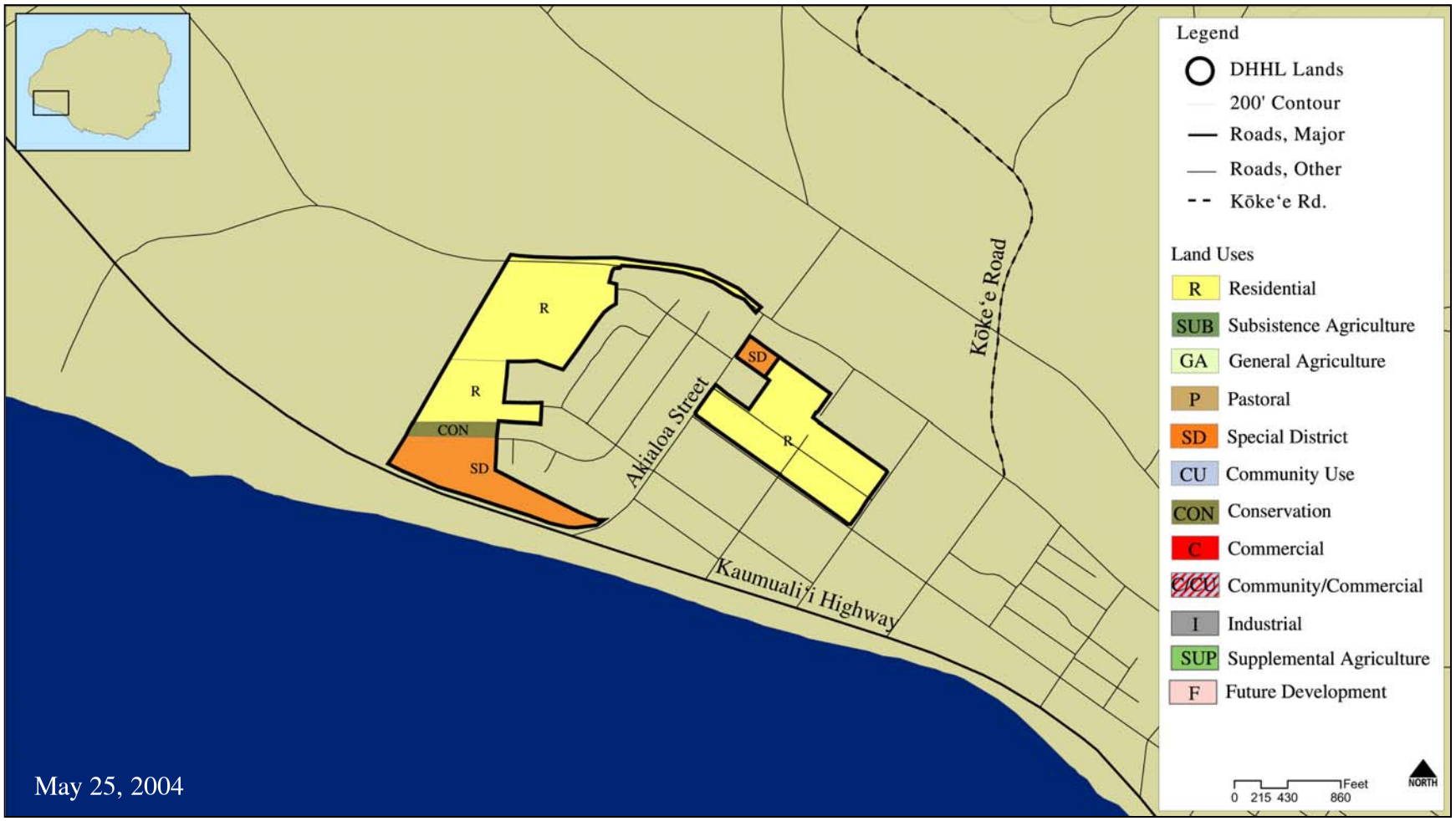
4.3 LAND USE PLAN

While the mauka village in Waimea is envisioned as the mountain resource link, Kekaha is envisioned as the ocean resource link for the ahupua‘a.

The DHHL Kekaha parcels will continue to be primarily a residential community (*Figure 4.2)*. No changes are proposed for the developed western parcels and the eastern parcels will be developed as a residential neighborhood as already planned.

New special district uses are recommended for the 12-acre parcel near the highway. These uses will be very low impact and will not affect burials in the

“Kekaha is envisioned as the ocean resource link for the ahupua‘a.”



R	=	39 acres; 118 lots (existing & under development)	SD	=	13 acres
CON	=	Detention basin			

Figure 4.2
Kekaha Land Use Plan

area. Proposed uses include a pavilion, picnic tables, camping area, and small scale commercial such as a lunch wagon or water sports equipment rental shop.

4.3.1 Residential

The primary land use of DHHL's Kekaha lands is Residential. No changes are recommended to the existing eastern most parcels and the homesteads proposed for the western area should be built as planned. Once the western residential lots are complete, there will be 118 residential homesteads in Kekaha.

4.3.2 Special District Area

A 12-acre site adjacent to the highway and beach and 1 acre near the existing homesteads are designated Special District.

A 1993 archeological study revealed the presence of burials in the 12-acre beach area. These burials should be protected and future development should be compatible with this culturally sensitive area. Proposed uses include a pavilion area, picnic tables, campsites, and restroom facilities. The area would benefit DHHL beneficiaries island-wide who would be able to come to the property for camping and ocean recreation. This area could also be used for small-scale commercial development such as a lunch wagon or water equipment rental shop in order to capitalize on the location near to the beach park and highway.

Iwi are also present on the site near the existing homesteads and no development is proposed.

The estimated cost of developing restroom facilities on the 12-acre beach parcel is approximately a half a million dollars.

LAND USE PLAN

Residential

- (69) 10,000 -12,500 sf existing homesteads on 19 acres
- (49) 10,000 – 12,500 sf lots under development on 20 acres

Special District

- 13 acres
- Community pavilion, small scale commercial
- Total cost $ 554,000

Kekaha Burial Area Near Beach

Section 5.0
Hanapēpē

5.1 EXISTING CONDITIONS

DHHL has 365 acres of good agricultural land, just west of historic Hanapēpē town and the Hanapēpē River (*Figure 5.1)*.

The parcels span both mauka and makai of Kaumuali‘i Highway with the majority of land on the mauka side.

The 6-acre makai parcel is bounded by the Kaumuali‘i Highway on the North, Lele Road on the west and a drainage channel on the east. The only adjacent use is the Hanapēpē transfer station which is located to the south of the property.

A dilapidated warehouse and parking lot are currently located on the makai parcel designated Urban by the State Land Use system.

The 359-acre mauka area is located across Kaumuali‘i Highway. The eastern border of the land is Moi Road and Hanapēpē Heights, a single family residential neighborhood. Agricultural lands are located to the west of the property.

The mauka parcels are a green, gently rolling landscape at a low elevation ranging from 20 to 200

Hanapēpē – Mauka Sugarcane Fields & Homesteads

EXISTING USES

- 36 Residential homesteads (10 acres)
- Sugarcane
- Industrial in makai area

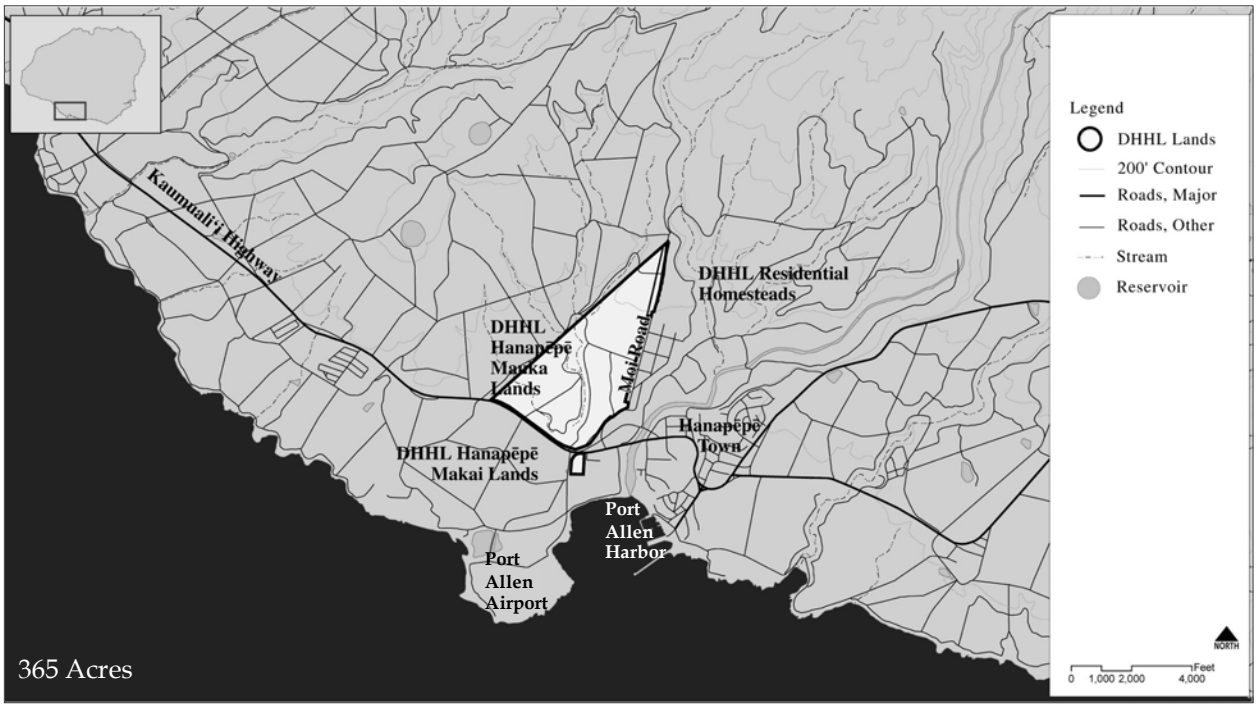


Figure 5.1
Hanapēpē

ft. The land is bisected by Kulamanu Gulch. It receives less than 30 inches of rainfall each year.

The mauka parcels are located within the State Land Use Agricultural District.

5.2 OPPORTUNITIES & CONSTRAINTS

Good Agricultural Land – Portions of the mauka lands are rated high by both the Land Study Bureau and the Agricultural Lands of Importance to the State of Hawai‘i (ALISH) classifications. Hanapēpē is the only area where DHHL parcels receive this classification on Kaua‘i.

Good Residential Land – The terrain and soil is well suited for buildings. The relatively flat conditions and scenic views make Hanapēpē a good site for residential development.

Location – The Hanapēpē parcels are within easy commuting distance of high tech jobs at the PMRF and resort related jobs at Po‘ipū. Furthermore, the mauka land fronting Kaumuali‘i Highway and the makai land at the crossroads of the highway, Hanapēpē Road, and the road to Port Allen airport and Salt Pond Park, provide opportunities for commercial development.

Roads – Access to the existing homestead lots is provided via Moi Road. Future residential development will require the development of a secondary access from Kaumuali‘i Highway. The existing cane haul roads could be upgraded to provide access to the mauka lands.

Irrigation – A ditch system provides irrigation water to the mauka lands in sugar production. The ditch system could provide irrigation water to agriculture homesteads if adequately maintained.

Potable Water – Since there is only capacity for 40 more units, any major development in the Hanapēpē area will require a new water source. Any development west of Kulamanu Gulch would also require a new water service system.

Wastewater – New development could hook into the existing system serviced by the wastewater treatment plant in ‘Ele‘ele. This plant has capacity for 200,000 million gallons per day (mgd) or

PLANNING CONSIDERATIONS

Opportunities

- Fertile agricultural land
- Relatively flat topography
- Good views
- Existing cane haul roads
- Irrigation ditch system
- Wastewater treatment available
- Highway frontage
- Good location
- Existing residential community

Constraints

- Drainage issues near highway
- Water upgrades necessary
- Traffic congestion on Moi Road

Fertile & Flat Hanapēpē Mauka Lands

approximately 500 new households. Other sewage treatment alternatives may have to be developed if the Hanapēpē commercial and community use areas are developed and non DHHL area are developed.

Drainage - Run-off from the mauka lands flows under the Kaumuali‘i Highway to a channel, and then to the ocean. The culvert crossing the highway has been blocked by debris during storm events, creating flooding problems. Development would likely require drainage improvements to mediate this situation.

Existing Residential Community – The existing 36 Hawaiian homesteads in Hanapēpē are built adjacent to a single-family residential neighborhood. Any future development should be compatible with the surrounding residential neighborhood.

5.3 LAND USE PLAN

Hanapēpē is envisioned to be DHHL's largest residential and agricultural community on the westside with commercial and community use amenities (*Figure 5.2)*.

The makai lands will be a commercial area to generate income for the Department. Future development should capitalize on the property's location on a major intersection near the waterfront.

The three areas proposed for the mauka lands are: a regional center; a residential community; and an agricultural homestead area.

The Mauka Regional Center will provide commercial uses and social services for the entire Westside.

The residential community is proposed close to the highway near the regional center and includes a community use area for a school, parks, and neighborhood commercial services.

The agriculture homesteads are concentrated upland and along Kulamanu Gulch. Beneficiaries will be able to engage in agricultural activities on some of the islands most fertile land away from pollution from the highway.

Drainage Channel under Kaumuali‘i Hwy.

LAND USE PLAN

Makai Commercial

- 6 acres
- Linkages to highway & Port Allen Airport
- DHHL income generation

Mauka Regional Center

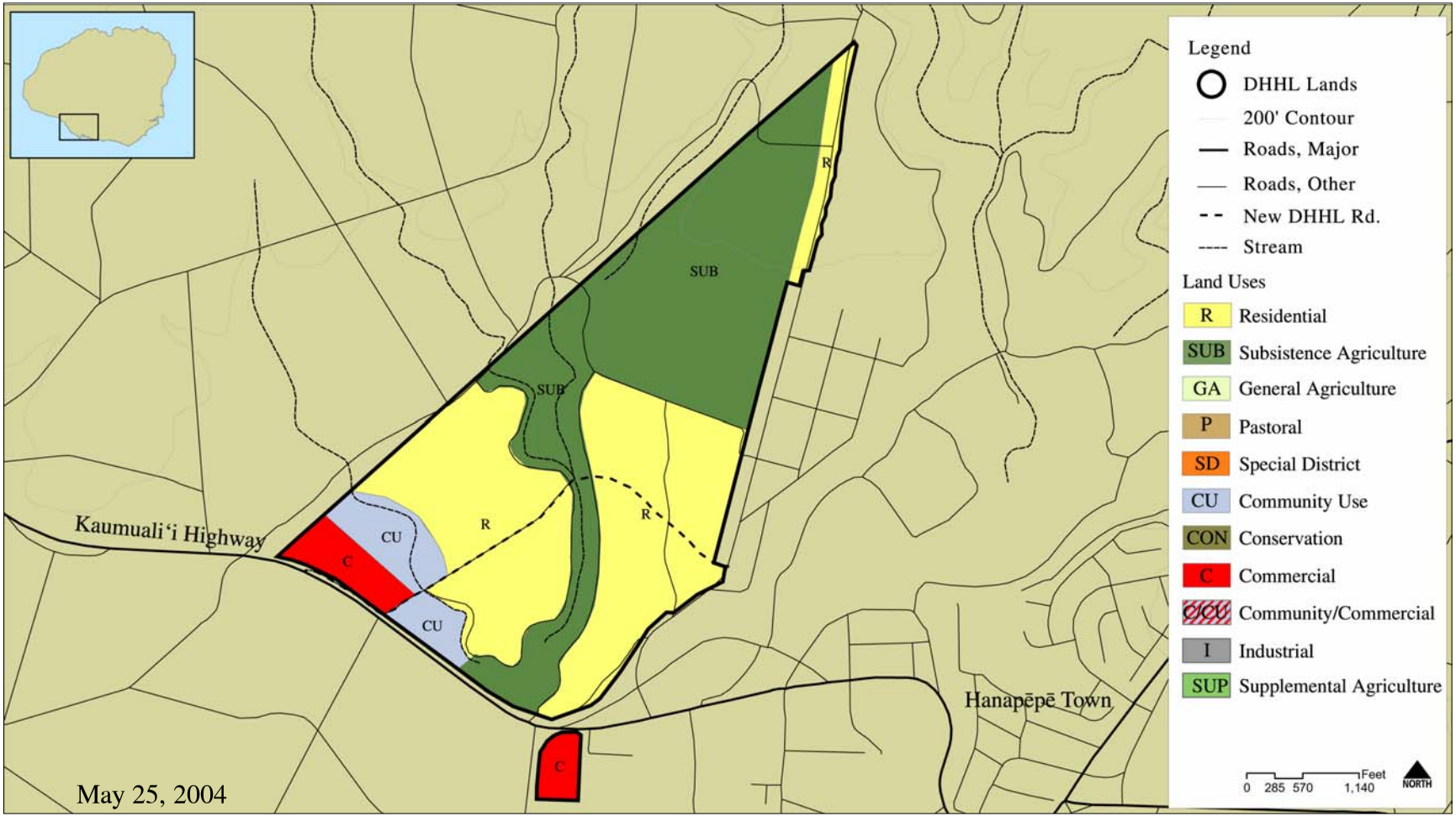
- 11 acres Commercial
- 7 acres Community Use

Residential Community

- (482) 10,000 sf new residential lots on 158 acres
- 15 acres Community Use

Subsistence Agriculture

- (13) 3-acre lots along gulch
- (36) 2-acre lots mauka
- 158 acres total



R	=	168 acres; 482 lots @ 10,000 sf	CU	=	22 acres; 7 acres along Hwy & 15 acres behind Commercial
SUB	=	158 acres; 13 lots @ 3 acres & 36 @ 2 acres	C	=	17 acres; 6 acres makai & 11 acres mauka

Figure 5.2
Hanapēpē Land Use Plan

Hanapēpē is the only DHHL property on Kaua‘i where no property is set-aside in the General Agriculture designation or recommended for preservation by placement in the Conservation or Special District. This is because the existing condition of the land provides few obstacles to development so homesteads can be awarded on most of the land.

HANAPĒPĒ TOTAL INFRASTRUCTURE COSTS	
	Total Cost
On-site	$ 37 M
Off-site	$ 10 M
TOTAL	$ 47 M

5.3.1 Makai Commercial

The 6-acre property makai of the highway is DHHL’s best located income generation property on the westside. The future use of the property should take advantage of its location on a major intersection near the waterfront, Port Allen Airport (Burns Field), and Salt Pond Park.

This area could be developed as a small scale festival market similar to Pikes Place in Seattle. Merchants, including beneficiaries, could sell their crafts, produce, local products like salt and other items in booths, creating a lively environment for visitors. A stage surrounded by café style tables in the center of the development would further contribute to the retail environment. Workspaces and kitchens for the artists and merchants could be provided on the interior of the property. Boating and nearby ocean activities could provide the themes of the commercial development

If there is not a market demand for commercial space, an industrial use would also be compatible with the surrounding land uses. Warehousing or other support services could cater to the Port Allen Airport area.

Both the industrial or commercial uses could be developed by an outside developer or a group of beneficiaries living in the newly created DHHL community mauka of the highway.

It is difficult to estimate the on-site development costs without a definite development plan. Future development would require intersection improvements plus a new well and water storage facilities.

Existing Warehouse – Hanapēpē Makai

“The 6-acre property makai of the highway is DHHL’s best located income generation property on the westside.”

5.3.2 Mauka Regional Center

The Mauka Regional Center will provide commercial and social services to the westside. This 11-acre commercial area, located along the highway will cater to nearby residents and highway travelers and generate income for DHHL. A strip mall could be developed on the site composed of small shops and restaurants with a more major grocery store as anchor tenant. A gas station with convenience store would also be an appropriate tenant.

Future Mauka commercial

The 7-acre regional social service center site proposed east of and adjacent to the commercial area would house Native Hawaiian service agencies such as Kamehameha Schools, native Hawaiian Health Program, Queen Lili‘uokalani Children’s Center (QLCC), Alu Like, and Office of Hawaiian Affairs (OHA). Beneficiaries expressed a need for these types of social services on the westside.

“The Mauka Regional Center will provide commercial and social services to the westside.”

Access to the regional center will be provided from the highway and from the proposed road along the existing cane haul road. This road will also be a major feeder road for the proposed residential community. Pedestrian access should also be provided from the residential areas to the Regional Mauka Center so residents can walk to shops and services.

Hanapēpē – Future Home sites

It is difficult to estimate the cost of infrastructure improvements without a better understanding of the proposed future developments. However, off-site costs will include intersection improvements and a new well and water storage facility. The estimated cost of the commercial area which includes water storage, water transmission line, wastewater transmission lines, and electricity is one million dollars. The proposed social service center cost is a half a million dollars which includes the same improvements as the commercial.

5.3.3 Residential Community

The Hanapēpē residential community is the second of three priority developments outlined in Section 10. It will be the largest homestead community on the westside and the third largest on the island. The Hanapēpē lands are relatively easy to develop and

are located within easy commuting distances to jobs at PMRF and Po‘ipū.

Residences will be buffered from the Highway by the Mauka Regional Center, and Agriculture lots in the Kulamanu Gulch. Pedestrian links should be provided between the residential areas separated by Kulamanu Gulch.

To reduce dependence on the congested Moi Road, the existing cane haul road should be upgraded and extended across the gulch into a major feeder for the neighborhood.

A large community of (482) 10,000 sf residential lots is proposed. The lot size will be larger than the 7,500 sf lots already awarded in the Hanapēpē Heights neighborhood. The 10,000 sf lot size was chosen to provide beneficiaries with space and privacy while also providing densities to reduce overall infrastructure costs and provide more awards.

The Hanapēpē development will be a complete community with commercial and community use amenities nearby such as parks, meeting halls, and neighborhood type commercial activities. The community uses, located away from the highway because of safety concerns, are accessible to the surrounding community via roadways and pedestrian pathways.

The estimated infrastructure costs for the residential community is $ 34 million and is summarized in *Table 5.1*. The full-build out of the Hanapēpē

“The Hanapēpē lands are relatively easy to develop and are located within easy commuting distance to jobs at PMRF and Po‘ipū.”

RESIDENTIAL COMMUNITY

Residential

- (482) 10,000 sf lots
- 158 acres total
- $ 71,000 per lot

Community Use

- 15 acres total
- Space for parks, school, and commercial, etc.

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	Serve 40 lots, then new well required	Existing STP& transmission lines	Use highway, Moi Rd. & upgrade cane haul	4,000 sf pad & drainage improve.	Transmission lines	
On-site	$ 3. 6 M	$ 3.6 M	$12.3 M	$ 4.8 M	$ 3.6 M	$ 28 M
Off-site	$ 5.4 M	--	$ 250,000	$ 500,000	--	$ 6 M
TOTAL	$ 9 M	$ 3.6 M	$ 13 M	$ 5.3 M	$ 3.6 M	$ 34 M

Costs are estimates for complete residential community. Community Use costs are included but will likely change depending on future use.

Table 5.1

Hanapēpē Residential Infrastructure Costs

residential development will require water, road, and eventually wastewater improvements. There are presently 40 more water units available so some lots could be developed without any major infrastructure improvements provided no capacity is used for DHHL commercial or community uses or non-DHHL development.

5.3.4 Subsistence Agriculture

DHHL's most fertile agriculture lands are located in Hanapēpē. An agricultural community composed of 49 lots between two and three acres is proposed. This size lot, favored by most beneficiaries, is considered large enough for small scale agriculture and keeps beneficiaries eligible for certain types of Department of Agriculture (USDA) loans.

"DHHL's most fertile agricultural lands are located in Hanapēpē."

Two distinct agricultural areas are proposed: the mauka area and the Kulamanu Gulch area. Two – acre lots in the mauka area are located away from the highway and can be used for organic farming. This proposed agricultural community will have less impact on Moi Road than a higher residential community would. The Kulamanu Gulch area while not in the floodplain is wet and could be used for lo‘i. Three acre lots are recommended in this area. A siltation or detention basin may be required in the agricultural area along the highway to address drainage issues.

SUBSISTENCE AGRICULTURE

- (36) 2-acre lots & (13) 3-acre lots
- 158 acres total
- $190,000 per lot

The total cost of the agricultural community is estimated to be $ 9.4 million (*Table 5.2)*. This includes a new well, storage facility, water transmission lines, roads, IWS, site preparation, and electricity. Costs could be reduced by only providing potable water and gravel roads.

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	New tank, well, & transmission lines	IWS	Use Moi Rd. & fix cane haul	4,000 sf pad	Transmission lines	
On-site	$ 1.7 M	$ 490,000	$ 4.4 M	$ 490,000	$ 1.7 M	$8.8 M
Off-site	$ 560,000	--	--	--	--	$560,000
TOTAL	$ 2.3 M	$490,000	$ 4.4 M	$ 490,000	$ 1.7 M	$9.4 M

Table 5.2

Hanapēpē Subsistence Agriculture Infrastructure costs

Section 6.0
Wailua

6.1 EXISTING CONDITIONS

The Wailua lands are located south of the mouth of the Wailua River near the more densely populated areas of Wailua and Kapa‘a and are essentially the halfway point of the Island for residents from the north shore and the westside (*Figure 6.1)*.

DHHL owns a total of 526 acres in the Wailua area. This includes 52 acres makai of Kūhiō Highway and 474 acres on the mauka side of the highway.

Lydgate Park, the Wailua Golf Course, the 46 room Kaha Lanai Resort, the 216-room Aloha Beach Resort, and the Wailua Sewage Treatment Plant border the makai lands. The mauka lands are bordered by Kālepa Ridge, Wailua River channels, the County Correctional Facility, and Grove Farm agricultural lands.

The properties on both sides of the highway are fertile agricultural lands that were used for sugarcane. However, only 67 acres are now being used for pasture and diversified agriculture and the rest remains fallow.

EXISTING USES

- Permits for grazing & diversified agriculture (66.5 acres total)
- Fallow sugarcane fields in remainder of area

41-acre Wailua Makai parcel

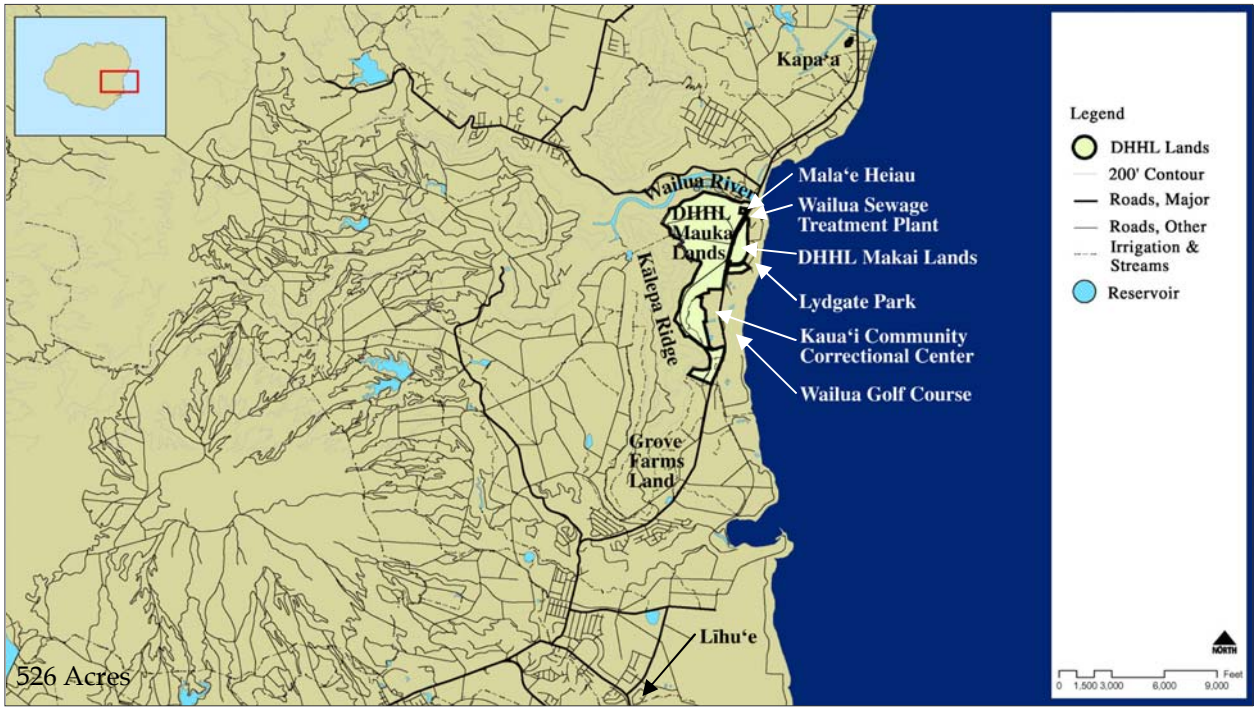


Figure 6.1
Wailua

Most of the property is designated Agriculture on the State Land Use map. Eleven acres bordering the Wailua Golf Course are designated Urban.

No homestead leases have been awarded on the Wailua property.

6.2 OPPORTUNITIES AND CONSTRAINTS

Topography – The flat and rolling hills make the Wailua area relatively easy to develop and create breathtaking views from this property.

Location – The Wailua property is ideally located for a new residential community because homesteaders would be able to work in Wailua, Kapa‘a, and Līhu‘e without a long commute. Services and recreational amenities are also nearby.

Agricultural land – Some of the Department’s best agricultural land is located in Wailua.

Water – There is a shortage of water in the Wailua area. Large-scale development could require two new wells and new water storage facilities. There is an existing ditch system on the property which could be used for irrigation water or for a surface water treatment plant for potable water.

Sewage Treatment Plant – There is enough capacity at the Wailua Sewage Treatment plant for a major residential development in the area. Odors from this plant can be smelled on the makai parcels and may need to be mitigated prior to development of the area.

Cultural Resources – There are no known cultural sites on DHHL property. However, the entire Wailua area is culturally significant. The area around the mouth of the Wailua River was the seat of Kaua‘i’s royalty for centuries. Mala‘e Heiau is located across Kūhiō highway from the Kaua‘i Resort and bordering the DHHL mauka lands. Two other important heiau, Hikina‘akala and Poliahu Heiau are also located in the area.

Roads and Traffic – Access to the property is provided by the heavily congested Kūhiō Highway. Several unimproved cane-haul roads are located within the property. Plans are underway to construct a bypass road that could bisect the Wailua

PLANNING CONSIDERATIONS

Opportunities

- Good agricultural land
- Large, easy to develop property
- DHHL District Office planned in makai area
- Ditch system
- Cultural sites
- Wastewater treatment available
- Makai lands well sited for regional services
- Near major population centers & jobs
- Near recreational amenities

Constraints

- Kapa`a Bypass route
- Water upgrades needed
- Wetlands near County jail
- Wailua Sewage Treatment Plant odors

Wailua Golf Course

lands and make the area less desirable for residential development.

Flooding – The land around the Kaua‘i Community Correctional Center is, known as one of the island’s worst flood prone areas and is not suitable for development.

6.3 LAND USE PLAN

The land use plan for Wailua (*Figure 6.2)* provides separate but synergistic visions for the makai and mauka lands. The makai area will be a regional commercial and social service center while the mauka area will be a major new residential area.

The Commercial and Community Uses at the regional center on the makai side of the highway will cater to residents and visitors to Kaua‘i’s eastside and north shore and generate income for DHHL as well as jobs for beneficiaries. The DHHL Kaua‘i District Office is already planned for this area.

The mauka residential community will have a school, parks, kūpuna housing and other community uses.

The narrower southern portion of the property will be designated Subsistence Agriculture to take advantage of the ditch and productive agricultural conditions.

Three mauka areas have been designated Special District. Residences will be buffered from the highway by a Special District corridor. The important cultural resources near the Wailua River and Mala‘e Heiau will be protected by another Special District strip. The third Special District area borders the ditch along the western border of the property in order to preserve and protect the water.

Flood prone areas near the County correctional facility have been designated General Agriculture due to the difficulty of development.

Residential homesteads in Wailua and the complementary commercial and community use areas are the top priority project recommended for development on Kaua‘i.

LAND USE PLAN

Makai Regional Center

- 47 acres Commercial
- 5 acres Community Use

Residential

- (651) 10,000 sf residential lots on 216 acres
- 50 unit Kūpuna Housing
- 15 acres for schools, parks, etc.

Subsistence Agriculture

- (35) 2-acre lots on 99 acres

Special District

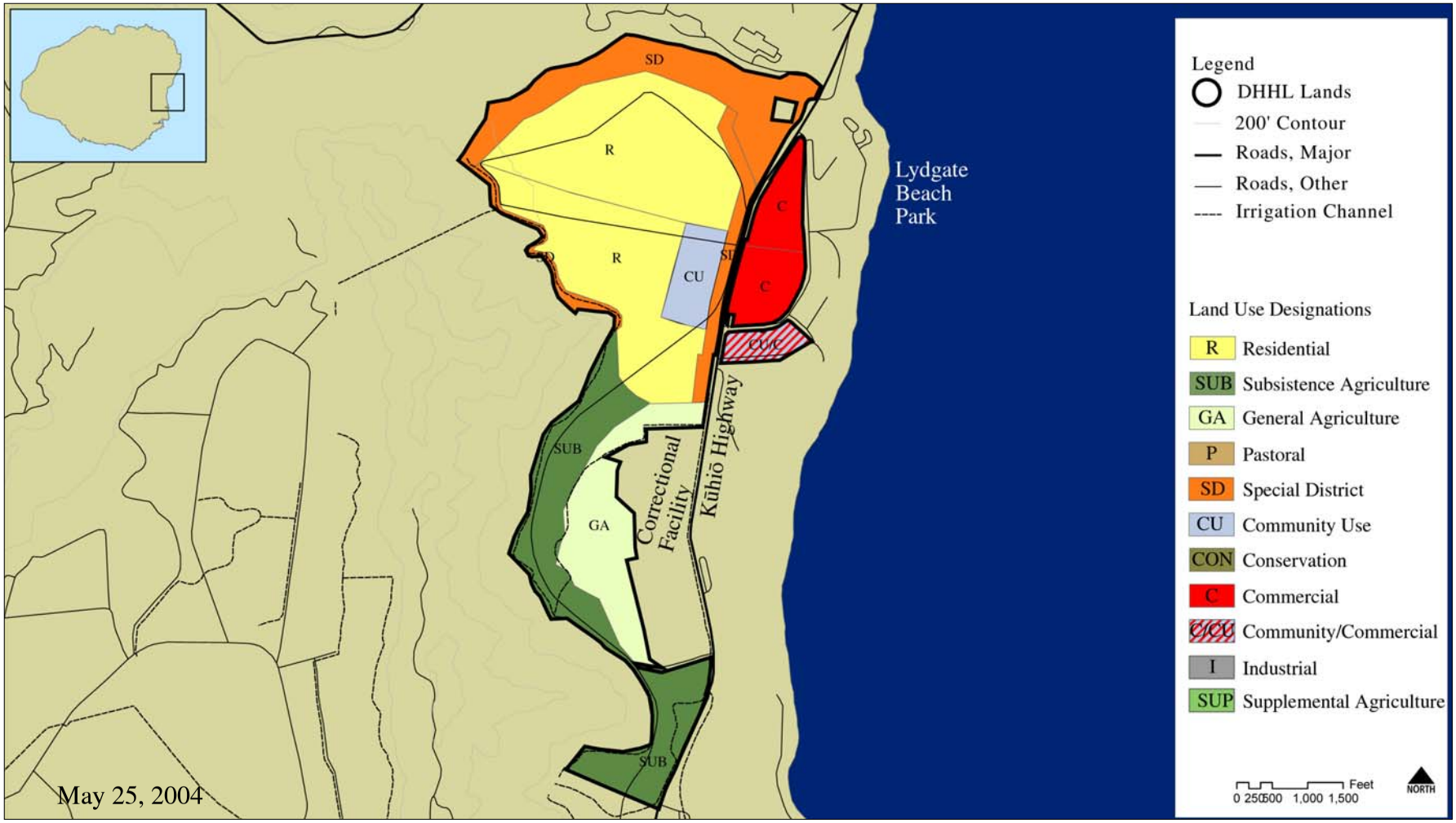
- 92 acres bordering Highway, Wailua River, and ditch

General Agriculture

- 52 acres prone to flooding near jail

WAILUA TOTAL INFRASTRUCTURE COSTS

	Total Cost
On-site	$ 55 M
Off-site	$ 9.6 M
TOTAL	$ 65 M



R	=	216 acres; 651 lots @ 10,000 sf	SD	=	92 acres
SUB	=	99 acres; 35 lots @ 2 acres	CU	=	20 acres; 5 acres makai & 15 acres mauka
GA	=	52 acres	C	=	47 acres

Figure 6.2

Wailua Land Use Plan

6.3.1 Makai Regional Center

“The makai lands will be developed as a regional commercial & social service center.”

The makai lands will be developed as a regional commercial and social service center. These uses are compatible with the surrounding regional recreational uses of Lydgate Park, the County golf course, and two hotels.

Commercial uses are proposed for the larger 45-acre parcel and part of the smaller 11-acre parcel bordering the golf course. The retail uses will provide income for DHHL to fund the construction of future homesteads and will cater to the entire region. Possible uses could include a traditional shopping mall, a theme park, or Big-box retail such as Costco.

A native Hawaiian community service center catering to eastside residents is planned on the makai portion of the 11-acre parcel. DHHL’s District Office is planned for this area and other tenants could include Kamehameha Schools, the Kaua‘i Children’s Museum, the Native Hawaiian Health Program, QLCC, Alu Like, and OHA.

Wailua Makai Lands

6.3.2 Residential Community

Wailua is a priority development area and will be the second largest DHHL community on the island. Wailua was chosen as the site of this new Hawaiian community over the other DHHL properties for several reasons:

- Wailua ranked high in the 2003 beneficiary preference survey and at community meetings.
- Wailua is located near other population centers, jobs, and amenities.
- There is a critical mass of easy to develop undeveloped land with good site access.
- There is capacity at Wailua Sewage Treatment Plant which reduces overall infrastructure costs.

The proposed development of Wailua will be a full native Hawaiian community versus a bedroom community for Kapa‘a or Līhu‘e. Residential design themes, parks, schools, neighborhood commercial services will create this distinct community feeling.

Wailua – Future Mauka Residential Area

The residences will be buffered from Kūhiō Highway, the Wailua River area, and the Ditch on the mauka portion of the property by Special District designations.

The proposed 651 residential lot sizes will be 10,000 sf which will be spacious but provide the densities required to create a sense of community and reduce infrastructure costs.

The Community Use area will include 12 acres for a school/park site and one-acre for neighborhood commercial uses such as convenient stores and restaurants. A new school will be required to serve the children of this new community.

Subject to verification of demand and economic viability, two acres of Kūpuna Housing providing 50 apartments will be located in the community use area. A day respite center should also be developed in conjunction with the elderly housing.

Overall per lot development costs in Wailua are approximately $ 86,000 (*Table 6.1)*. This cost includes the development of new wells and water storage tanks but not a new sewage treatment plant since there is existing capacity at the Wailua plant. Water costs could be further reduced if more water becomes available through the use of surface water treatment plants off-site or if the Department developed its own surface water treatment plant.

Road and intersection improvements constitute the other major development cost. Site preparation costs in Wailua are high because approximately $9.75 million is required for fill to level a topographic depression.

"Wailua will be the second largest DHHL community on the island."

RESIDENTIAL COMMUITY

Residential

- (651) 10,000 sf lots
- 216 acres total
- $ 86,000 per lot

Kūpuna Housing

- 50 unit Kūpuna Housing
- 2 acres total

Community Use

- 15 acres total
- Space for parks, school, and commercial, etc.

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	New tanks, wells, & transmission lines	Existing STP, transmission lines	Roads & intersect. upgrade	4,000 sf pad & fill	Transmission lines	
On-site	$ 5.2 M	$ 5.2	$ 17.2 M	$16.3 M	$ 5.2 M	$ 49 M
Off-site	$ 7 M	--	$ 250,000	--	--	$ 7M
TOTAL	$12.2 M	$5.2 M	$17.5 M	$16.3 M	$5.2 M	$ 56 M

Costs are estimates for complete residential community. CU costs are included but will likely change depending on future use.

Table 6.1

Wailua Residential Infrastructure Costs

6.3.3 Subsistence Agriculture

A small lot agricultural community is planned south of the residential development *(Figure 6.2).* This designation takes advantage of the fertile soil in Wailua and locates lower density development on the narrower portion of the Wailua lands.

Most of the agricultural lands are located away from Kūhiō Highway reflecting the community's desires to create opportunities for organic farming away from highway pollution.

Two-acre lots are planned to meet beneficiary desires for small scale agriculture lots. Also, smaller lot sizes means 35 agriculture awards can be made on 99 acres.

Each two-acre award will cost approximately $ 180,000 for infrastructure (*Table 6.2).* This includes water storage for potable water, IWS for each lot, and road improvements for agricultural standards. Development costs can be reduced by eliminating some infrastructure improvements. This analysis is provided in *Appendix E*.

The ditch system should be maintained for the irrigation of the agriculture lots.

SUBSISTENCE AGRICULTURE

- (35) 2-acre lots
- 99 acres total
- $180,000 per lot

Wailua Agriculture Lands

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	New tank, well, & transmission lines	IWS	Road upgrade required	4,000 sf pad	Transmission lines	
On-site	$ 1.1 M	$ 360,000	$ 3 M	$ 350,000	$ 1.1 M	$ 5.9 M
Off-site	$ 360,000	--	--	--	--	$ 360,000
TOTAL	$ 1.5 M	$ 360,000	$ 3 M	$ 350,000	$ 1.1 M	$ 6.3 M

Table 6.2
Wailua Subsistence Agriculture Infrastructure Costs

6.3.4 Special District

There are three separate Special District areas in Wailua: the Mala‘e Heiau/Wailua River District, the Kūhiō Highway Buffer, and the Kālepa Ridge District (*Figure 6.2)*.

The Special District designation will protect significant resources and buffer residential development from Kūhiō Highway.

Although each district has slightly different purposes, the first two are partially related to an alternative of the proposed Kapa‘a Bypass Road. As mentioned at the beginning of this chapter, there is a study underway to create a Kapa‘a bypass route that will impact the DHHL Wailua lands. The only alternative, presented by the Department of Transportation that will not completely bisect the mauka lands is the option to widen the existing Kūhiō Highway along most of the property frontage veering inland mauka of Mala‘e Heiau in order to create a second bridge across the Wailua River further upstream. The Special District designations along the highway and around the heiau include allotments for this proposed highway improvement. The impact on DHHL could be reduced by depressing the road and constructing pedestrian bridges over the highway at key intersections. The other alignments that completely bisect the Wailua lands are not supported by the KIP.

The Special District around the Mala‘e Heiau and Wailua River is intended to protect this culturally sensitive area. No parking lots or roads should be located within 150 feet of the heiau. Development and activity should be strictly monitored in the entire corridor but not prohibited. Appropriate uses could include an information and education center, native Hawaiian cultural center or a low-intensity Polynesian Cultural Center type development catering to tourists. Trails can be provided from the heiau and Wailua River to Kālepa Ridge. All development and activities should have limited impact on the view planes in the area.

This section of the Special District mauka of the heiau along the rim of the valley is intended to serve as a preservation buffer to protect views from the Wailua River corridor. Visual site lines from Poliahu heiau to Mala‘e are important and this

“The Special District designation will protect significant resources and buffer residential development from Kūhiō Highway.”

SPECIAL DISTRICTS

Wailua River / Mala‘e Heiau

- 62 acres total
- 1 mile long and 330-1200 feet wide
- Space for Kapa‘a Bypass

Kūhiō Highway Buffer

- 20 acres total
- 260-310 feet wide

Kālepa Ridge Ditch

- 10 acres total
- 100-225 feet wide

Mala‘e Heiau

designation will protect them. Views along the rim are spectacular and the Special District will both protect this resource and make it available to the community.

Residences will be buffered from the highway by a 260-310 foot Special District corridor. If the proposed widening of Kūhiō Highway occurs, a 120-170 foot buffer will be retained. Further study may be required to ensure that noise and pollution mitigation measures are employed. No development is planned in this buffer but the area could be used for passive recreation.

The third Special District borders the ditch along the western border of the property. This existing ditch is a remnant from the sugar plantation era and provides irrigation water through a tunnel in Kālepa Ridge. Water flow is controlled by a weir next to a reservoir on the mauka side of the ridge. This district, ranging from 100-225 feet wide and 0.6 mile long, maintains the ditch as public resource. Community groups could be responsible for maintaining the ditch and could use it for lo‘i or other activities. Appropriate fencing and signage should be erected along this district to prevent accidental injuries since it abuts a densely populated residential neighborhood.

6.3.5 General Agriculture

Fifty-two acres abutting the Kaua‘i Community Correctional center have been designated General Agriculture.

No homesteads will be awarded in this area which is prone to flooding. Leases and permits in the General Agriculture area should be available for uses that are compatible with flood conditions such as lo‘i.

No infrastructure improvements are proposed.

Wailua Floodplain Area near County Jail

“Leases & permits in the General Agriculture area should be available for uses that are compatible with flood conditions such as lo‘i.”

Section 7.0
Kapa‘a

7.1 EXISTING CONDITIONS

The DHHL properties in Kapa‘a are located within the developed urban area of Kapa‘a (*Figure 7.1)*. Kapa‘a is Kaua‘i’s largest urban area and the northern most densely populated area before Anahola and the North Shore.

DHHL owns two separate, non-contiguous areas in Kapa‘a: a southern 1.87-acre parcel and a northern 15-acre parcel.

The southern area is under lease for school bus parking. Access to the property from Kūhiō Highway is provided by Akoa Road.

The northern area is near where Lehua Street forks from the Kūhiō Highway. It is currently used for mini-storage and parking. The Mō‘īkeha Canal borders the northeast edge of the property. A mixed commercial and residential community is located to the south and east. The western edge of the parcel is bordered by a large park area that is used as a farmers market.

The State Land Use designation for the property is Urban.

Existing Uses at Kapa‘a

EXISTING USES

- School bus parking (1.87 acres on southern parcel)
- Mini-storage & parking (6.5 acres on northern parcel)

Figure 7.1
Kapa‘a

7.2 OPPORTUNITIES AND CONSTRAINTS

Location – The location of DHHL's properties near industrial and commercial activities make industrial or commercial uses more appropriate than residential uses. Neither property, however, has street frontage on Kūhiō Highway which is desirable for commercial development.

Flooding – Small portions of Kapa‘a are prone to flooding. The Mō‘īkeha Canal flows into a wetland area on the makai side of the highway just east of the DHHL northern parcel. Proximity to the wetlands and lack of rapid drainage make these parcels unsuitable for home sites unless fill is used. The area may not be appropriate for lo‘i cultivation because of surrounding urban uses and inadequate water flow.

Potable Water – Like Wailua, the water system around Kapa‘a is highly interconnected yet it lacks storage capacity to meet projected demand. Future development may require additional water storage facilities.

Sewage Treatment System – The Wailua Sewage Treatment Plant has additional capacity and provides wastewater treatment to Kapa‘a. Due to the low elevations at the DHHL Kapa‘a lands a pump may be required in order to connect into the existing sewer system. Low elevation makes IWS unfeasible.

7.3 LAND USE PLAN

The plan proposes to use the Kapa‘a parcels for income generation by designating the developable areas as Industrial and the flood plain areas as General Agriculture (*Figure 7.2)*.

Commercial uses would also generate income for the department but the Industrial designation is favored because there is a higher demand for industrial property. In addition, the Kapa‘a properties do not front Kūhiō Highway or another main thoroughfare which is almost essential for a successful commercial development.

PLANNING CONSIDERATIONS

Opportunities

- Wastewater treatment available
- Near other industrial & commercial activities

Constraints

- Flooding & low elevations
- No frontage on Kūhiō Highway
- Neighboring industrial & commercial uses
- Water upgrades needed

Kapa‘a

LAND USE PLAN

Industrial

- 16 acres

General Agriculture

- 1 acre in floodplain

Residential uses are not proposed because even though it is a popular area among beneficiaries based on the survey, the surrounding land uses are not compatible with residential or agriculture awards. Also, only a relatively small number of homesteads can fit on the parcels.

Kūpuna housing was also considered for the Kapa‘a parcels. This land use was not chosen for the same reason single family residences are not an optimal use. Furthermore, it makes sense to locate Kūpuna housing within a larger DHHL community to provide greater integration and support for elderly residents.

The Kapa‘a industrial area is not a priority development area. Development of this area will depend largely on the market demand for the property.

Kapa‘a Self Storage Area

I = 16 acres	GA = 1 acres

Figure 7.2
Kapa‘a Land Use Plan

7.3.1 Industrial

The plan proposes to essentially continue using the Kapa‘a parcels as they are being used now; for rents and other forms of income generation.

However, the Industrial designation (versus General Agriculture) will allow the department to maximize the income generation potential of the property by instituting longer term leases. The current warehousing and parking uses on the property are for short-term leases. Tenants would be willing to pay higher rents for these properties because they could construct permanent buildings and invest in the property.

Infrastructure costs are difficult to estimate because the exact type of industrial uses has not been identified. Major costs would most likely include off-site and on-site water improvements, interior roadways, electrical improvements, and sewage lines. The cost of these improvements has been estimated at $ 4.3 million but the cost will ultimately depend on the future industrial use. For example, fill may be required due to low elevations at the site.

7.3.2 General Agriculture

Just over 1 acre in the floodplain has been designated General Agriculture. This includes 0.3 acres of the smaller southern parcel and 1 acre of the larger northern parcel.

The General Agriculture designation should protect the floodplain areas, prohibit structures in the floodplain, and make the areas available for individuals or groups to lease for agricultural purposes.

However, the urban, industrial nature of the parcels may make the property inappropriate for lo‘i cultivation and other agricultural uses. Other DHHL tracts provide better opportunities for lo‘i.

“The Industrial designation will allow the department to maximize the income generation potential of the property by instituting longer term leases.”

Kapa‘a

Section 8.0
Anahola / Kamalomaloʻo

8.1 EXISTING CONDITIONS

The DHHL owns 4,228 acres in Anahola and Kamalomalo‘o extending from the shoreline mauka to the Kealia Forest Reserve. The parcels are situated midway between Hanalei and Līhu‘e and just north of Kapa‘a (*Figure 8.1)*. The area is predominantly rural but land immediately to the south of Kamalomalo‘o is being developed into large luxury estates.

The land is made up of both flat and gently rolling regions with some rugged cliffs rising above the coastal plain. Its location on the wet side of the island brings 50 inches of rain per year to lowland areas while the upper valley receives 100 inches per year.

The majority of the land is designated Agricultural by the State Land Use system, except for small portions in Urban and Conservation.

Anahola is the largest Hawaiian homestead community on Kaua‘i. However, most of the land remains undeveloped. A summary of existing leases is provided to the right.

EXISTING USES

- 359 residential leases (165 acres or 3 % of total area)
- 47 agricultural leases (241 acres or 5 % of total area)
- 20 acres to Project Faith
- 154 acres in short term leases for pasture & commercial uses
- Remainder undeveloped

Figure 8.1
Anahola/Kamalomalo‘o

8.2 OPPORTUNITIES & CONSTRAINTS

Established Community **–** There is a Hawaiian Community with a strong sense of identity.

Ahupua‘a – Anahola is the only DHHL property on Kaua‘i spanning from the mountains to the ocean.

Land & Topography – There is ample land on which buildings and home sites can be constructed.

Agriculture – The mauka lands moving up the valley present opportunities for cooperative farming. Historically the land was used by Līhu‘e plantation for sugar cultivation. While much of the land has irrigation ditches running through it, portions of the land can be irrigated by the heavy rainfall alone. Accordingly, catchment is an option for both potable water and irrigation water.

Potable Water – DHHL and the County Department of Water operate two wells and storage facilities in Anahola. Development is currently limited to the lower portion of the parcels, below the existing water storage facility elevation. Enough water is available for approximately 350 more houses in the makai area. More well and storage facilities are needed before development can expand mauka.

Wastewater – There is no wastewater treatment plant servicing the area. Houses are currently serviced by IWS. Future residential development will require a sewage treatment plant to best protect Anahola Bay and the entire natural environment in the area.

8.3 LAND USE PLAN

A Development Plan was prepared for Anahola/Kamalomalo‘o in 1987 which envisioned the area as a contemporary ahupua‘a. The plan provided a mixture of land uses, cultural, homestead, income-generating and public services.

No major changes to the overall ahupua‘a concept of the Development Plan are recommended in the KIP. However, specific land use alterations are recommended to reflect changes that have occurred in the last 15 years (*Figure 8.2)*. The Plan increases the residential areas to reflect Department’s emphasis on residential awards.

PLANNING CONSIDERATIONS

Opportunities

- Established DHHL community
- Ahupua`a intact-mountain & ocean resources available
- Areas of good agricultural land
- Catchment possibilities
- Good amount of land suitable for building

Constraints

- Water limitations
- No sewage system
- Large area can increase development costs
- Flood hazard in coastal & river areas

Anahola Mountains

Some agricultural areas are designated but overall, there is a homestead reduction from the 1987 plan. Only one area is designated Pastoral.

Environmentally sensitive areas that are not within the State Land Use Conservation District are designated Special District. These areas should be protected but appropriate commercial or agricultural activities may be permitted.

Land previously designated for agriculture or pastoral homesteads has been designated as General Agriculture to make it available to cooperative, beneficiary farming and/or development groups rather than being permanently given out as individual agriculture or pastoral homestead lots.

A mountain camp is proposed in addition to the Community Use areas proposed near the residential community.

Land designated as Conservation in the State Land Use designations is also designated Conservation in this plan.

8.3.1 Residential Development

Anahola will continue to be the largest residential homestead area on Kaua‘i and is a priority development area in the KIP.

The KIP proposes to increase residential development around the existing residential core, both mauka and makai of Kūhiō Highway (*Figure 8.2).* Approximately 359 residential homesteads already exist in this core area. 1,218 additional residential lots are proposed, approximately 3 times the number of lots currently in place. By increasing the acreage designated Residential, more lots can be awarded and at a lower per lot cost.

The proposed residential development and the complementary Commercial and Community Use areas will require substantial infrastructure improvements including new wells, water storage facilities, and a sewage treatment plant (*Table 8.1).*

The existing wells could service up to 350 more houses but new wells will need to be developed for further development. A traditional wastewater treatment plant or innovative package plant is

LAND USE PLAN

Residential

- 1,218 new 10,000 sf lots on 400 acres

Subsistence Agriculture

- 103 new 2-acre lots on 292 acres

Pastoral

- (14) 10-acre lots on 148 acres

General Agriculture

- 1,018 acres

Special District

- 1,419 acres

Conservation

- 350 acres

Community Use

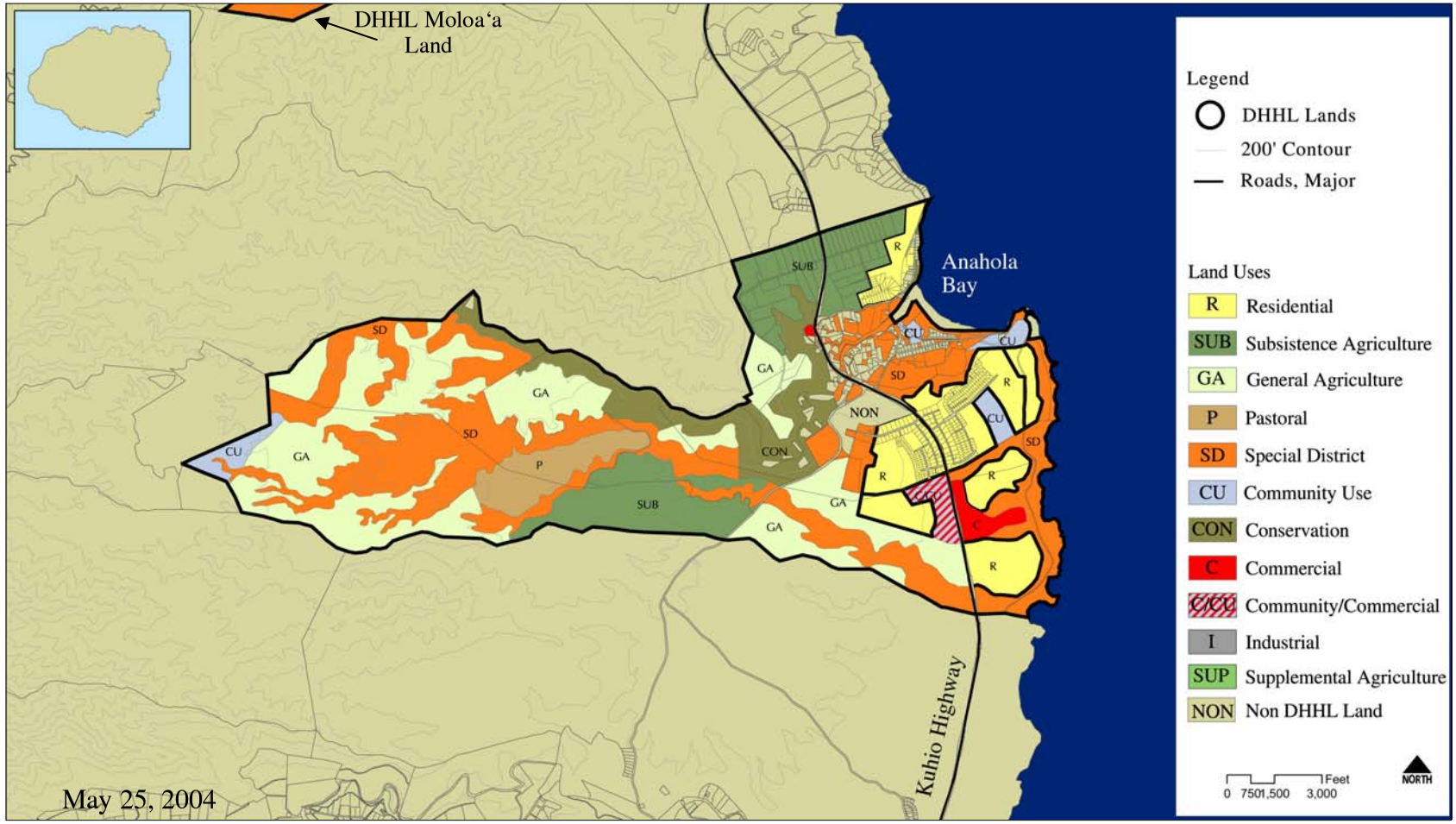
- 127 acres

Commercial

- 68 acres

ANAHOLA/KAMALOMALO‘O TOTAL INFRASTRUCTURE COSTS

	Total Cost
On-site	$ 91.3 M
Off-site	$ 33.7 M
TOTAL	$ 125 M



R	=	565 acres; 359 existing lots & 1,218 planned @ 10,000 sf	CU	=	127 acres; 44 acres mauka & 83 acres makai
SUB	=	533 acres; 47 existing lots & 103 planned @ 2 acres	SD	=	1,419 acres
GA	=	1,018 acres;	CON	=	350 acres
P	=	148 acres; 14 lots @ 10 acres	C	=	68 acres total

Figure 8.2
Anahola/Kamalomalo‘o Land Use Plan

recommended rather than the continuation of the reliance on individual sewage disposal systems. Sewage treatment plants, when developed properly, have a minimal impact on the surrounding environment and moreover their effluent can be re-used to irrigate crops, gardens, and yards. Contamination of ground and surface water, on the other hand, is often attributed to poorly performing individual sewage disposal systems. The risks of contamination are of special concern in Anahola because of Anahola Bay and the use of near shore resources for subsistence gathering and other traditional practices.

Anahola – Existing Residential Development

8.3.2 Subsistence Agriculture & Pastoral

Two agriculture homestead areas and one pastoral area are designated in the Plan.

The two Subsistence Agriculture areas will create a total of (103) 2-acre homestead lots. The larger of the two areas is 267 acres and is located deeper in the Kamalomalo‘o valley portion of the property, just mauka of Kealia road. Access to this area will be a challenge except for the small portion of land adjacent to Kealia Road. High rainfall in this area can provide water for this area.

The second agriculture area is near the existing agriculture subdivision at the northern edge of DHHL’s Anahola property, spanning both sides of Kūhiō Highway. Infrastructure systems servicing the existing agriculture subdivision could be used to develop these remaining 2-acre infill lots.

“Anahola will continue to be the largest residential homestead area on Kaua‘i”

RESIDENTIAL

- (1,218) 10,000 sf lots
- 400 acres total
- $ 83,000 per lot

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	New tanks, well, & transmission lines	STP necessary, transmission lines	Extend, fix cane haul	4,000 sf pad	Transmission lines	
On-site	$ 10 M	$10 M	$ 33.8M	$ 12.2 M	$ 10.1 M	$ 76 M
Off-site	$ 9.9M	$ 15 M	--	--	--	$ 25 M
TOTAL	$ 20 M	$ 25 M	$ 33.8 M	$ 12.2 M	$ 10.1 M	$101 M

Costs are estimates for complete residential community. Community Use and Commercial costs are included but will likely change depending on future use.

Table 8.1

Anahola/Kamalomalo‘o Residential Infrastructure Costs

The only new pastoral areas designated in the KIP are located in Anahola. The pastoral homesteading area is further mauka of the larger subsistence agriculture area which borders Kealia Road. Approximately 148 acres are set aside allowing for a total of (14) 10-acre homestead lots. The site is remote with difficult access making infrastructure costs very expensive.

The development costs are summarized in *Table 8.2.* In response to the beneficiary demand to live on the lots, the costs include wastewater treatment, paved roads built to rural standards, site preparation, and electricity. The total cost for both Subsistence Agriculture and Pastoral is $ 15 Million. Infrastructure could be reduced to only gravel roads and catchment water to reduce overall infrastructure costs.

“The only new pastoral areas designated in the KIP are located in Anahola.”

AGRICULTURE & PASTORAL

Subsistence Agriculture

- (103) 2-acre lots
- 292 acres total
- $103,000 per lot

Pastoral

- (14) 10-acre lots
- 148 acres total
- $302,000 per lot

8.3.3 General Agriculture

Most areas that were previously designated Pastoral or Subsistence Agriculture in the 1987 Development Plan are now designated General Agriculture. Specifically 1,018 acres total will be in General Agriculture compared to approximately 75 acres in the 1987 plan.

The General Agriculture areas will be available for cooperatives or hui to develop, farm, or ranch. The group action concept, in which many hands make for light work, may be a quicker, more effective way to get beneficiaries on the land.

		Water	Sewage	Roads	Site Prep	Electricity	TOTAL
	Major Factors	Catch-ment	IWS	Hwy. & Kealia Rd access, upgrade cane haul rd	4,000 sf pad	Transmission lines	
SUB AG	**On-site**	--	$ 1 M	$ 6.2 M	$ 1 M	$ 2.3 M	$ 10.5 M
	Off-site	--	--	--	--	--	0
	TOTAL	--	$ 1 M	$ 6.2 M	$ 1 M	$ 2.3 M	$ 10.5 M
Pastoral	**On-site**	--	$ 140,000	$ 2.9 M	$ 140,000	$ 1.1 M	$ 4.2M
	Off-site	--	--	--	--	--	0
	TOTAL	--	$ 140,000	$ 2.9 M	$ 140,000	$ 1.1 M	$ 4.2M

Table 8.2

Anahola/Kamalomalo‘o Subsistence Agriculture and Pastoral Infrastructure Costs

The General Agriculture areas presented in the land use map below have great potential for agriculture or tropical forestry. The areas can be irrigated by rainfall alone; therefore the cost to develop crops would not be great. The hui could then harvest and sell crops to local restaurants, farmer's markets, or roadside stands within their own Anahola community.

"The General Agriculture areas will be available for cooperatives or hui to develop, farm, or ranch. The group action concept, in which many hands make for light work, may be a quicker, more effective way to get beneficiaries on the land."

8.3.4 Special District

The large Special District areas indicate lands that need to be protected for cultural and environmental reasons or pose challenges to development. Portions of the special district areas could be used for low intensity activities such as farming, ranching, or other outdoor recreation. The Special District areas could be developed similarly to the General Agriculture areas discussed in above with hui or cooperative groups leading the initiative.

Most of the 1,419 acres of land designated Special District is located mauka of Kūhiō Highway. This land consists of deep gullies, and steep slopes. The Special District areas makai of the Highway are designated around the Anahola Stream and flood zone as well as the shoreline. Residents of Anahola have an inextricable link to the ocean and its resources, making it essential that the coastal region remain healthy and thriving. With this in mind, the Plan designates a coastal buffer in Special District to maintain beach access for recreation and subsistence activities and to serve as the makai node for the ahupua‘a. Other uses for this area may include a coastal trail.

Coastline Near Special District Area Bordering Federal Lighthouse

8.3.5 Commercial & Community Use

Commercial and community use areas will complement the expanding residential community. The overall residential community cost outlined in *Table 8.1* includes the water cost for the neighborhood Community Use sites as well as the water and sewage costs for the 45 acre mauka Commercial / Community Use area. The development of these areas will largely rely on market forces, community initiative and entrepreneurship.

"Special District Areas indicate lands that need to be protected for cultural or environmental reasons or pose challenges to development."

The core commercial and community use area is approximately 88 acres spanning either side of Kūhiō Hwy. Beneficiaries have already indicated possible uses for these lands such as a cemetery, youth gymnasium, primary health care services, fire station, meeting facility, and kūpuna housing.

There is a community initiative to develop a mixed use commercial and community support area mauka of the highway on 45 acres. An area across the highway from this development is designated commercial to serve as a business incubator of new local businesses. Possible ventures include a farmer’s market, bed and breakfasts, and water sports concessions.

In addition to the central, core commercial and community use area, smaller pocket areas have been designated on the makai lands for community uses For instance, an area known as Camp Faith near the mouth of the Anahola River could make an ideal youth camp or retreat facility. Two other small parcels totaling 31 acres have been set aside in the core residential area for either parks or schools.

At the end of the valley is an approximately 44 acre community use area set aside for a mauka camp. This camp site could have multiple functions such as a site for forestry education; a logistical base for tropical forestry operations not only on DHHL lands but on DLNR lands further mauka; a recreational camp; or an educational retreat area.

The mauka area would be connected to the makai and ocean portion of the ahupua‘a via a trail.

8.3.6 Conservation

The Conservation area along the Anahola Stream corridor is also designated Conservation by the State Land Use District Commission. No development is proposed in these areas.

Beach Park at Anahola Bay

“Commercial and Community uses will complement the expanding residential development.”

COMMUNITY USE & COMMERCIAL

Community Use

- 127 acres

Commercial

- 68 acres

Section 9.0
Moloa‘a

9.1 EXISTING CONDITIONS

There are 316 acres of undeveloped DHHL land in Moloaʻa: 210 acres located mauka of Kūhiō Highway and 106 acres makai (*Figure 9.1)*. The parcels are located inland and upland with beautiful views of the ocean and Moloaʻa Bay. The mauka parcel borders the Moloaʻa Forest Reserve.

Moloaʻa is located on the windward, wetter side of the island. Rainfall averages 80 inches per year on the makai lands and 120 inches per year on the mauka land. The land consists of flat plateaus cut by river valleys and gulches with elevations ranging from 200-600 feet above sea level.

Moloaʻa is an agricultural community located north of Anahola before Kilauea. Although the area has not experienced major development, its beautiful views and rolling hills are attractive for exclusive estate type development proliferating in Kīlauea to the North and Kealia to the South.

The property is designated Agricultural on the State Land Use map.

There are no homesteads on the property and the land is used for grazing.

Moloaʻa: Most Mauka point looking across the land

EXISTING USES

- Permit for pasture (316 acres)

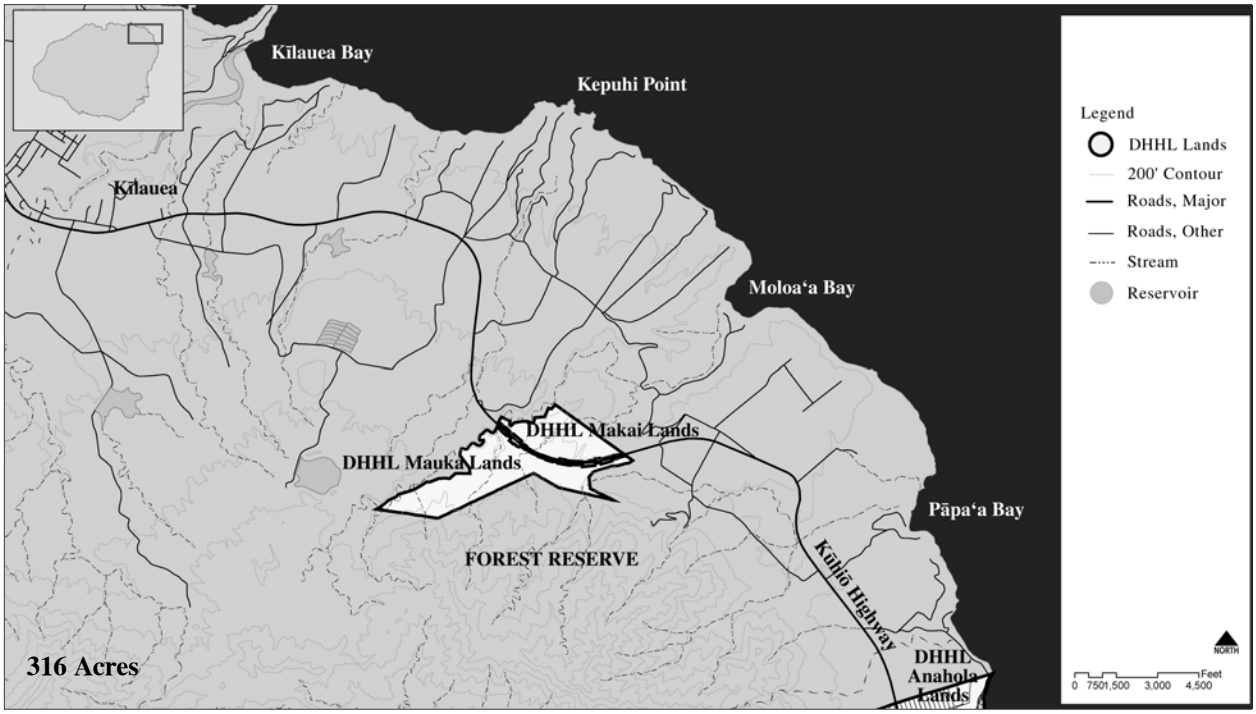


Figure 9.1
Moloaʻa

9.2 OPPORTUNITIES AND CONSTRAINTS

Location – Moloa‘a is located in a beautiful rural area far from major development, where the natural environment remains undisturbed. Despite its remoteness, the property is easily accessible from Kūhiō Highway which bisects the property.

Topography – The plateau areas create some development opportunities for house sites. Overall, however, the rolling hills make it difficult to develop the property.

Soils – The soils are not the most productive agricultural land and can be unfavorable to building due to the slope, water table, stream overflow and shrink swell.

Potable Water – County domestic water service is not currently available, but a test well is being drilled just above the mauka boundary. There is sufficient rainfall for potable water to be provided through a rainfall catchment system.

Sewage Treatment System – There is no sewage treatment system.

PLANNING CONSIDERATIONS

Opportunities

- Located on highway
- Beautiful landscape and views
- Adequate rainfall for catchment system
- Some plateau areas

Constraints

- Poor agricultural land
- Difficult to develop areas
- No sewage system
- Rolling hills

9.3 LAND USE PLAN

Moloa‘a will be developed as a small-lot agricultural community (*Figure 9.2)*. This is in keeping with the surrounding agricultural uses and input from participants at DHHL hosted community meetings.

A strip of land along a runoff gulch that flows to the Moloa‘a Stream is designated Special District for flexibility of options and flood protection. This stream corridor might be usable as a community garden or lo‘i network.

The most difficult to develop areas are designated General Agriculture.

Moloa‘a is not recommended as a priority development for DHHL lands on Kaua‘i.

LAND USE PLAN

Subsistence Agriculture

- (47) 3-acre lots on 200 acres
- $177,000 cost per lot

Special District

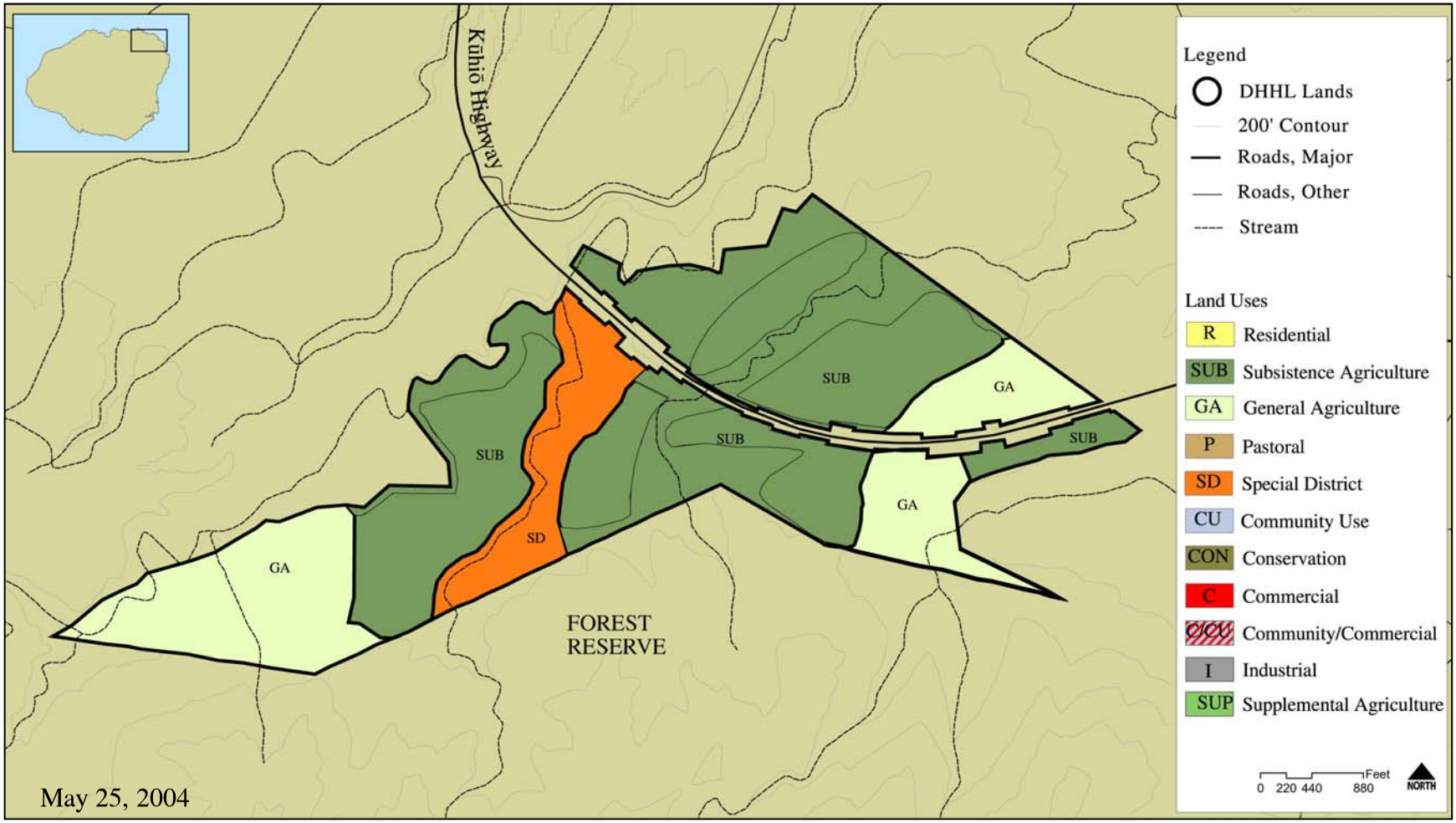
- 30 acres along stream

General Agriculture

- 86 acres of difficult to develop land

9.3.1 Subsistence Agriculture

Subsistence Agriculture is the primary proposed land use in Moloa‘a; 47 3-acre agricultural lots are planned.



SUB = 200 acres; 47 lots @ 3 acres
GA = 86 acres
SD = 30 acres

Figure 9.2
Moloa‘a Land Use Plan

Three-acre lots are proposed in Moloa‘a. These lots are small enough so beneficiaries will still qualify for certain types of loans. They are also large enough for a house lot and some agricultural activity. Portions of each lot are likely to be unsuitable for building and farming due to the hilly topography.

“Moloa‘a will be developed as a small lot agricultural community.”

The land use plan below illustrates the flatter, plateau areas in Moloa‘a. The agriculture lots should be subdivided to ensure each homestead includes a flat area for a house lot.

Development costs are minimized by following agricultural standards, and the usage of catchment water and individual waste water disposal system. The estimated development costs total $ 8.3 million (*Table 9.1)*. These costs include infrastructure for houses and could be reduced by only providing gravel roads. An analysis of this alternative is found in *Appendix E.*

Moloa‘a: Makai- looking Mauka

9.3.2 Special District

Approximately 30 acres around and along the stream are designated Special District. Wet conditions, intermittent stream flow, and the steep gully, make this area unsuitable for building. The special district designation would allow community groups to come together for taro cultivation.

Moloa‘a: Most Mauka point looking across the land

9.3.3 General Agriculture

Two areas mauka of the highway and one makai are designated General Agriculture. The topography makes these areas too challenging to develop.

	Water	Sewage	Roads	Site Prep	Electricity	TOTAL
Major Factors	Catchment	IWS	Improve 4WD road	4,000 sf pad	Transmission lines	
On-site	--	$ 460,000	$ 4.4 M	$ 470,000	$ 3 M	$ 8.3 M
Off-site	--	--	--	--	--	--
TOTAL	--	$ 460,000	$ 4.4 M	$ 470,000	$ 3 M	$ 8.3 M

Table 9.1
Moloa‘a Subsistence Agriculture Infrastructure Costs

Section 10.0
Development Priorities & Phasing

The KIP provides development priorities and phasing suggestions consistent with the DHHL General Plan. The overall priority of the different land uses is summarized in the table on the right.

Residential uses are the clear development priority. The KIP exceeds the DHHL General Plan goal of 40 residential lots per year or 840 lots over 20 years. The KIP assumes that the planned Kekaha residential lots will be completed and designates three priority residential areas: Wailua, Hanapēpē, and Anahola/Kamalomalo‘o.

Agriculture and ***Pastoral*** lots are lower priorities than Residential. These awards are important but they are more costly and serve fewer beneficiaries than Residential.

Land can be designated as ***General Agriculture*** immediately but some areas may not be leased out immediately due to low demand for land for farming and ranching.

Special District areas should be set-aside now, but the development of these areas will be driven by the market and community interest.

Two types of ***Community Use*** areas are distinguished in the plan: neighborhood and regional. Neighborhood uses such as parks and schools should be developed with residential areas. Regional Community Uses, however, will require community input and initiative and should be implemented when there is community interest.

Conservation lands are a high priority to reflect the importance of protecting Hawaii’s natural environment.

Commercial and ***Industrial*** should be developed based upon anticipated market demand and upon availability of infrastructure.

Land Use	Priority
Residential (Homestead)	High, Medium & Low
Agriculture (Homestead)	Low
Pastoral (Homestead)	Low
General Agriculture	Market Driven
Special District	Community & Market Driven
Community Use	High & Community Driven
Conservation	High
Commercial	Market Driven
Industrial	Market Driven

Phasing

High -	1-6 years
Medium -	7-10 years
Low -	10 + years
Market Driven -	Depends on market
Community Driven -	Depends on community initiative

Priority definitions

10.1 PRIORITY AREAS

Three priority residential communities were identified. The top two priorities, Wailua and Hanapēpē are undeveloped former sugarcane areas. The third priority, Anahola/Kamalomalo‘o, is already an established residential community.

These priorities were determined by an assessment of beneficiary preferences, the location of the parcels, the physical conditions of the land, and development costs. These priorities assume that the

residential development at Kekaha for 49 new residential lots, now awaiting approval by the County of Kaua‘i, continues as planned.

At full build-out, the 2,351 residential lots provided in these three areas exceeds the goals of the DHHL General Plan.

The priorities include not only the residential homesteads in these areas but also the community use areas that will provide the amenities to make these healthy communities.

Each priority area includes a suggested phasing plan. Preliminary lotting schemes are also included for the top two priorities: Wailua and Hanapēpē. The lotting schemes are very preliminary since there are no detailed topographic maps for these areas.

RESIDENTIAL PRIORITY AREAS

	Lots
Wailua	651
Hanapēpē	482
Anahola/ Kamalomalo‘o	1,218
TOTAL	2,351

10.1.1 Priority 1: Wailua

The residential community in Wailua is the first priority of the KIP. This community includes not only 651 homesteads but also the 15 acre community use mauka of the highway.

Wailua was selected as the first priority for several reasons. The area was ranked high by beneficiaries in the survey conducted at the beginning of the planning process. Comments at the working group and community meetings reinforced the popularity of the Wailua area. It is not surprising that beneficiaries prefer this area since it is beautiful and located in close proximity to jobs in Kapa‘a and Līhu‘e and amenities such as Lydgate Beach Park. The relatively flat topography and reasonable infrastructure costs also make it practical to develop a large residential community in this area.

Two major phases of the residential area are recommended (*Figure 10.1)*. The southern phase composed of 231 house lots on 76 acres is suggested as the first phase of development in Wailua. The residential lots will build-out from the defined mauka town center, community use area. This southern area is phased first because it includes the community amenities and is located closer to the major intersection of the Makai Regional Center.

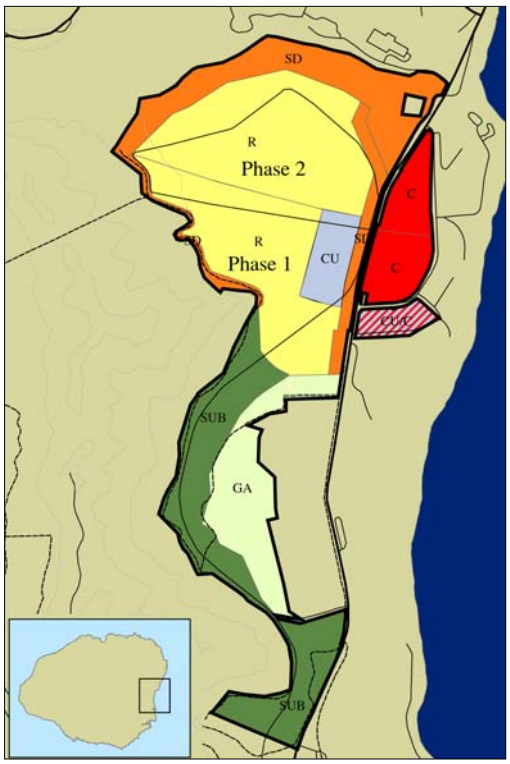


Figure 10.1
Wailua Residential Phasing

The second phase includes 420 residential homesteads on the northern portion of the parcel. Phase 2 is considered a medium priority.

Infrastructure costs are summarized in *Table 10.1.* Both phases require off-site water wells and storage facilities and on-site roads and water and sewage transmission lines. Phase 1 will also require intersection improvements and fill to level a topographic depression. The cost of fill may be up to $9.75 million..

The cost estimates for off-site water improvements are based on drilling a new well and building new water storage facilities. It may be possible to utilize water from Grove Farm's surface water treatment plant which could be substantially cheaper.

The preliminary lotting scheme illustrates a proposed layout of the community (*Figure 10.2).* This scheme is extremely preliminary because there are no detailed topographic maps for this area.

10.1.2 Priority 2: Hanapēpē

The second priority area is Hanapēpē, composed of 482 residential homesteads and 15 acres of Community Use for parks, a school, and other amenities.

Hanapēpē was selected as the second priority largely because the gently sloping topography and existing sewage treatment plant in the area reduces

WAILUA PHASING

Phase 1 - High

- 231 house lots
- 15 acres Community Use

Phase 2 - Medium

- 420 house lots

HANAPĒPĒ PHASING

Phase 1- High

- 40 house lots

Phase 2 - Medium

- 208 house lots

Phase 3 - Low

- 234 house lots
- 15 acres Community

Phase		Water	Sewage	Roads	Electricity	Site Prep	Total	Per lot
Major Factors		New Tanks, wells, & transmission lines	Existing STP & Transmission lines	Roads & Intersection Improve-ments	Transmission lines	4,000 sf pad & fill		
1*	On-site	$ 1.7 M	$ 1.7 M	$ 5.6 M	$ 1.7 M	$ 12.1 M	$26.6M	$ 114,000
	Off-site	$ 3.5M	- -	$ 250,000	- -	- -		
2	On-site	$ 3.5 M	$ 3.5 M	$ 11.6 M	$ 3.5 M	$ 4.2 M	$ 29.8 M	$ 71,000
	Off-site	$ 3.5 M	- -	- -	- -	- -		
	Total	$ 12.2 M	$ 5.2 M	$ 17.5 M	$ 5.2 M	$ 16.3 M	$ 56 M	$ 86,000

** Includes 15 acre Community Use water needs.*

Table 10.1

Wailua Residential Phases Infrastructure Costs

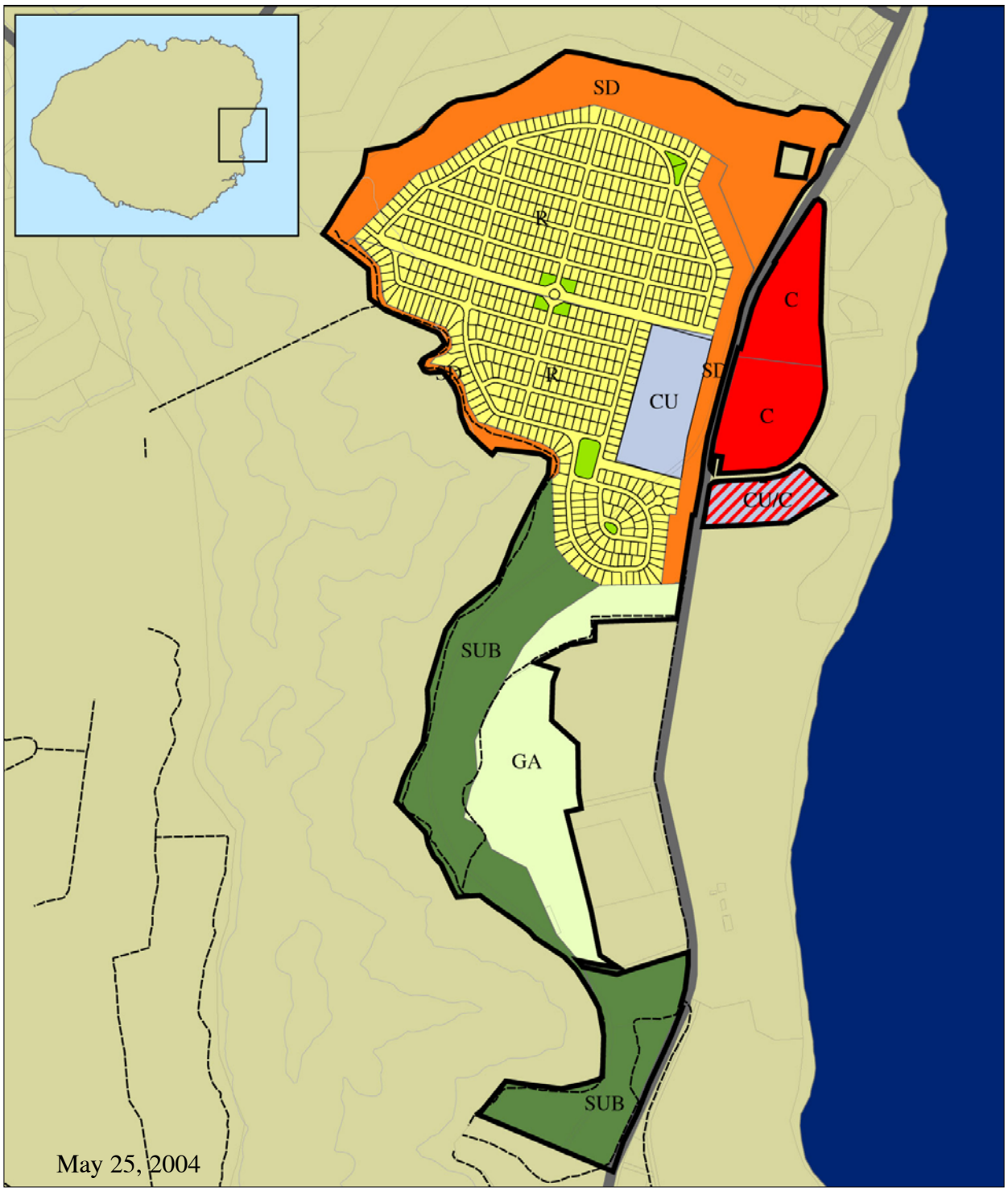


Figure 10.2
Wailua Preliminary Lotting Scheme (651 lots)

development and infrastructure costs. Also, Hanapēpē is a desirable residential location because it is near employment centers in PMRF and Po‘ipū.

Three phases of development are shown in *Figure 10.3*. The first phase of development entails construction of the first 40 houses west of the Hanapēpē Heights neighborhood to take advantage of existing water capacity in the area. This phase is a high priority.

The second phase, located east of the Kulamanu Gulch, includes 208 lots and is a medium priority.

Phase 3 is located west of the gulch and is composed of 234 residential homesteads and 15 acres of community use for neighborhood services, parks, and a school. Since, access to Phase 1 and 2 will be provided via Moi Road and no Community Use areas are designated, it is important that Phase 3 is finished in a timely manner even though it is ranked a low priority.

Infrastructure costs are summarized in *Table 10.2*. Phase 1 can be completed without major off-site infrastructure costs. However, Phases 2 and 3 will require off-site water improvements. A drainage detention basin at a cost estimated at $ 500,000 should be constructed in Phase 2. Also, while there is adequate sewage treatment capacity for the proposed residential development, this assumes no capacity will be required for commercial development or non-DHHL development, which is unlikely. Therefore, depending on the timing, a

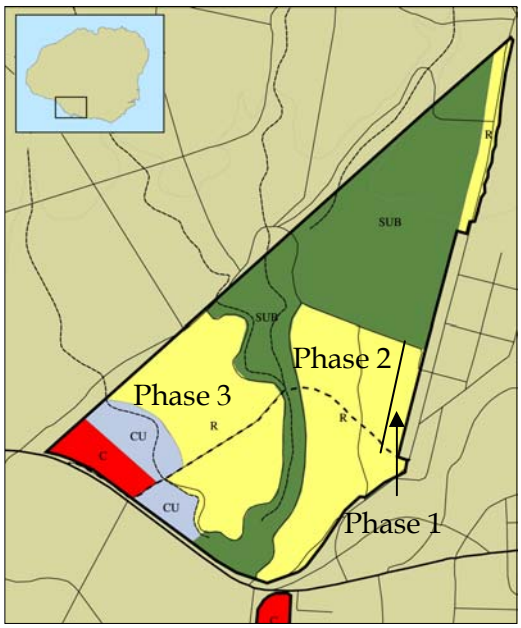


Figure 10.3
Hanapēpē Residential Phasing

Phase		Water	Sewage	Roads	Electricity	Site Prep	Total	Per lot
		40 lots. New well & transmission lines	Use existing STP. Trans-mission lines	Hwy & Moi Rd access. fix cane haul Rd.	Trans-mission lines	4000 sf pad & drainage		
1	On-site	$ 315,000	$ 315,000	$ 1M	$ 315,000	$ 400,000	$2.5 M	$ 62,000
	Off-site	$ 104,000	- -	- -	- -	- -		
2	On-site	$ 1.5 M	$ 1.5 M	$ 5.1 M	$ 1.5 M	$ 2.1 M	$ 14.5M	$ 70,000
	Off-site	$ 2.3 M	$ 0 M	$ 250,000	- -	$500,000		
3*	On-site	$ 1.8 M	$ 1.8 M	$6.2 M	$ 1.8 M	$ 2.3 M	$17 M	$ 73,000
	Off-site	$ 3 M	- -	- -	- -	- -		
	Total	$ 9 M	$ 3.6 M	$ 12.6 M	$ 3.6 M	$ 5.3M	$ 34 M	$ 71,000

** Includes 15 acre Community Use water needs.*

Table 10.2
Hanapēpē Residential Phases Infrastructure Costs

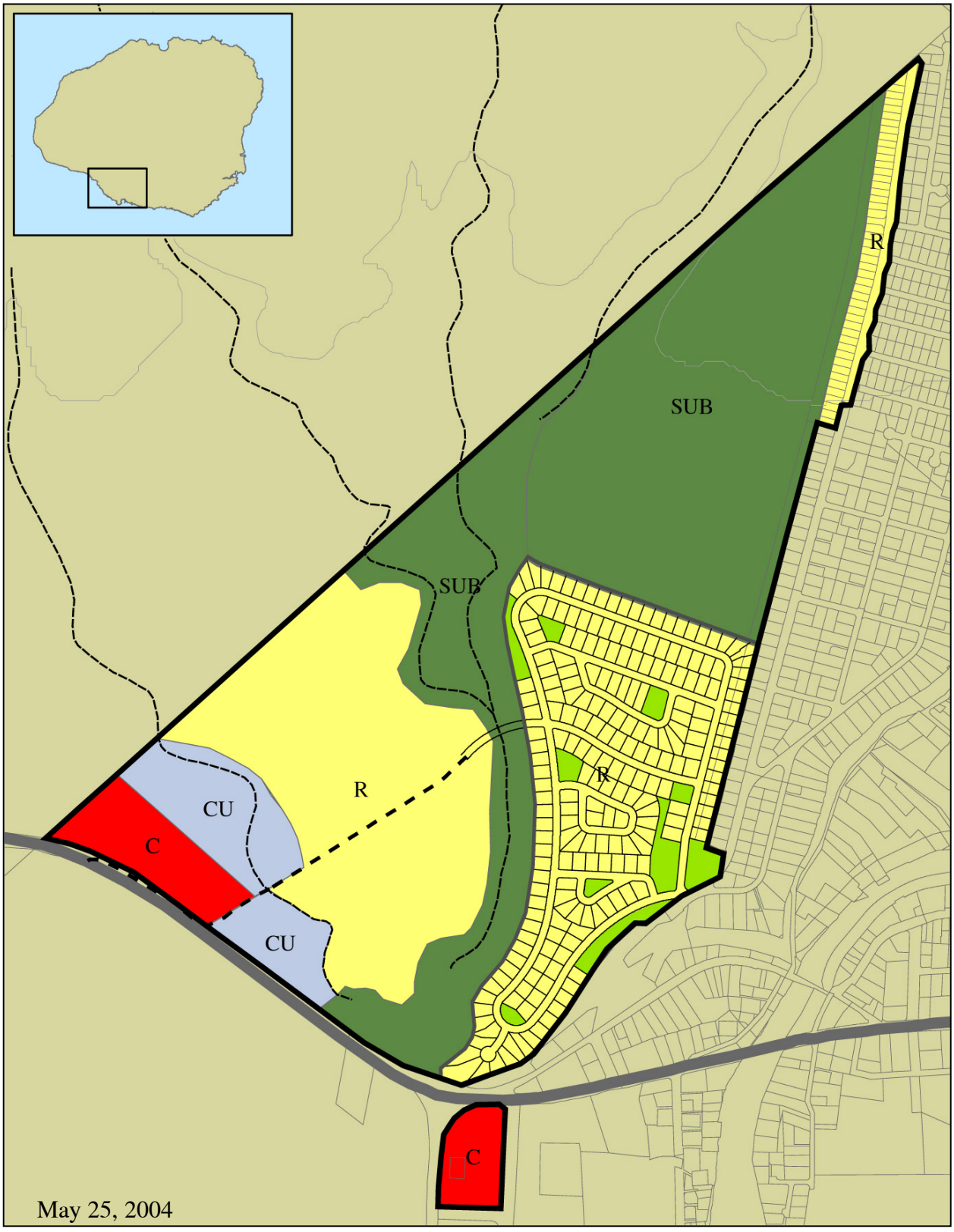


Figure 10.4

Hanapēpē Phase 1 & 2 Preliminary Lotting Scheme (248 lots)

new sewage treatment plant or expansion of the County system's capacity may be required for Phase 3.

The preliminary lotting scheme provides a conceptual layout of the first and second phase of residential development (*Figure 10.4)*. As with Wailua, this lotting scheme is very preliminary since there are no detailed topographic maps for the area.

10.1.3 Priority 3: Anahola/Kamalomalo‘o

Anahola/Kamalomalo‘o, the third priority area will add 1,218 Residential homesteads and 54 acres of Community Use. Although there is a high beneficiary demand for this area, Anahola/Kamalomalo‘o is ranked a lower priority than Wailua and Hanapēpē mainly because, unlike Hanapēpē and Wailua, major new development will require a new sewage treatment plant.

The residential development has been divided into six phases (*Figure 10.5)*.

The first phase includes 350 new residential lots and a Community Use makai of the highway. This area is prioritized because there are larger tracts of undeveloped land that can be served by the existing wells. A sewage treatment plant should be constructed in this phase. It could be sized for this phase only or have capacity for future phases.

Phase 2 will continue the residential development towards the ocean. This phase is composed of 100 lots. Phase 2 and all subsequent phases will require new water facilities.

Phase 3 is located south of the first two phases and includes 158 residential lots.

Phase 4 is the southern most residential development in Anahola. It is composed of 261 lots.

Phase 5, located mauka of the highway includes 349 lots and 50 acres for community and commercial usage.

The northern undeveloped residential area (41 acres above Hundley Road) is ranked sixth because the relatively small size and steep slopes make this area more challenging and expensive to develop.

ANAHOLA/ KAMALOMALO‘O PHASING

Phase 1- High

- 350 lots & 26 acres Community Use

Phase 2 -Medium

- 100 lots

Phase 3 - Medium

- 158 lots

Phase 4 - Medium

- 261 lots

Phase 5 - Medium

- 349 lots & 50 acres Community Use/Commercial

Phase 6 - Low

- Lots on 41 acres

Residential development in Anahola/Kamalomalo'o will require major infrastructure improvements. A sewage treatment plant should be constructed to serve all phases of development and existing residential units that already have dry sewer lines installed. Once the sewage treatment plant is constructed, the 350 homesteads in Phase 1 could be built to take advantage of existing water capacity in the area. Any additional development would require a new well and storage facility.

Infrastructure costs are summarized in *Table 10.3*. The per lot costs for Phase 1 is $67,000 which reflects the usage of existing water capacity. Up-front costs would be higher if a large sewage treatment plant was constructed during this phase to service subsequent phases.

The Phase 2 costs are also $67,000 per lot but costs increase in the other phases to $100,000 per lot. Cost figures for Phase 6 have not been determined.

The total cost, including off-site improvements is $ 101 million.

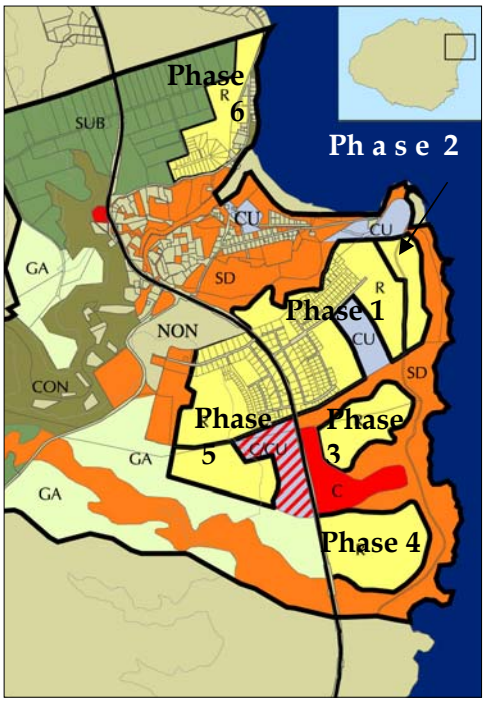


Figure 10.5
Anahola / Kamalomalo'o Residential Phasing

Phase		Water	Sewage	Roads	Electricity	Site Prep	Total	Per lot
		New Tanks, wells, & transmission	STP necessary	Extension & upgrades needed	Trans-mission lines	4,000 sf pad		
1*	On-site	$ 2.5 M	$ 2.5 M	$ 8.5 M	$ 2.5 M	$ 3.5 M	$24 M	$ 67,000
	Off-site	$ 1.8 M	$2.8 M	- -	- -	- -		
2	On-site	$ 660,000	$ 660,000	$ 2.2 M	$ 660,000	$ 1 M	$ 6.7 M	$ 67,000
	Off-site	$ 760,000	$ 800,000	- -	- -	- -		
3	On-site	$ 1.6 M	$ 1.6 M	$ 5.2 M	$ 1.6 M	$ 1.6 M	$14 M	$ 88,000
	Off-site	$1.2 M	$1.3 M	- -	- -	- -		
4	On-site	$ 2.3 M	$ 2.3 M	$ 7.8 M	$ 2.3 M	$ 2.6 M	$ 22 M	$ 82,000
	Off-site	$ 2 M	$ 2.1 M	$ 0 M	- -	- -		
5 **	On-site	$ 3 M	$ 3 M	$ 10.1 M	$ 3 M	$ 3.5 M	$35 M	$ 100,000
	Off-site	$ 4.1 M	$ 8.2 M	$ 0 M	- -	- -		
	Total	$ 20 M	$ 25 M	$ 33.8 M	$ 10 M	$ 12 M	$ 101 M	$ 83,000

** Includes 26 acre Community Use water cost.*
*** Includes water costs for Commercial & Community Use, as well as STP cost for Commercial.*

Table 10.3
Anahola / Kamalomalo'o Residential Phases Infrastructure Costs

Section 11.0
Conclusion

The KIP provides a roadmap for managing DHHL's 20,565 acres of diverse land on Kaua‘i to address strategic goals over the next 20 years.

The plan designates appropriate land uses which ensure DHHL land will be developed to its highest potential to meet the needs of native Hawaiian beneficiaries.

Proposed homestead land uses are summarized in *Table 11.1.*

Waimea Bus Tour (January 2004)

11.1 ISLAND PLAN GOALS AND OBJECTIVES

The KIP report fulfills the DHHL's island plan requirements. The KIP identifies:

- Land Designations for all 20,565 acres of DHHL land;
- Priority areas for new Residential homestead development;
- Appropriate areas for Community Use;
- Areas for more Agriculture and Pastoral leases; and
- Limited but adequate areas for income-generating Commercial and Industrial uses.

The plan was prepared using a comprehensive planning process that incorporated substantial beneficiary and community participation.

Wailua Bus Tour (January 2004)

11.2 RESIDENTIAL PRIORITY

The emphasis in the KIP is residential homestead awards. The priority development areas are all residential developments. Furthermore, residential land uses are planned on all of DHHL's Kaua‘i properties except Kapa‘a and Moloa‘a. Residential areas in Wailua, Hanapēpē, and Anahola/Kamalomalo‘o are designated as priority development areas. These three areas will provide 2,351 additional residential homesteads on both the west and east side of the island.

11.3 AGRICULTURE AND PASTORAL

The high cost of planned agriculture and pastoral lots may make development of these areas unrealistic.

Anahola Community Use Area

	Residential			Agriculture			Pastoral			Total	
	Lots	Cost/ Lot ($)	Total Acres	Lots	Cost/ Lot ($)	Total Acres	Lots	Cost/ Lot ($)	Total Acres	Home-steads	Cost ($)
Waimea	141	121,000	202	50	87,000	214	--		475	191	21,500,000
Kekaha	49	82,000	20	--	--	--	--	--	--	49	4,000,000
Hanapēpē	482	71,000	158	49	190,000	158	--	--	--	531	43,500,000
Wailua	651	86,000	216	35	180,000	99	--	--	--	686	62,300,000
Kapa‘a	--	--	--	--	--	--	--	--	--	--	--
Anahola	1,218	83,000	400	103	103,000	292	14	302,000	148	1,335	115,900,000
Moloa‘a	--	--	--	47	177,000	200	--	--	--	47	8,300,000
Total	2,541	--	996	284	--	963	14	--	623	2,839	
Total Cost	212,400,000			38,900,000			4,200,000			255,500,000	

Table 11.1
Summary of Proposed Homestead Land Uses and Costs

For example, the per lot agriculture homestead cost in Hanapēpē, Wailua and Moloa‘a exceeds $ 175,000. However, agriculture costs in Waimea and Anahola are around $ 100,000 per lot or less.

The development costs could be reduced by providing only potable water and gravel roads to homestead areas. This analysis is summarized in *Table 11.2*.

However, while this may make development more feasible it will not meet the beneficiary desire to be able to reside on their agriculture and pastoral homestead awards.

Infrastructure costs throughout the plan are conservative and are provided more to represent the order of magnitude costs. However, as the terrain and topography become better understood, the overall costs may change. It may be discovered that more lots can be created in the agricultural and pastoral areas thus reducing the cost per lot.

11.4 POINTS FOR FUTURE PLANNING STUDIES

Several points emerged during the planning process that should be incorporated into future planning studies and DHHL policies. They are described briefly below:

- Native Hawaiian beneficiaries want opportunities to collectively care for DHHL land. A group focus is more effective for large projects and responsibilities;
- Design guidelines and implementation tools need to be developed for the proposed developments. This will ensure that the envisioned healthy communities are created. Without these design guidelines, the goals and vision of the KIP may not be realized;
- Beneficiaries are eager for entrepreneurial opportunities. Adequate space in future development plans should be provided for entrepreneurial activities; and
- Community services and amenities are important for maintaining good community life. The community use areas designated in the plan are critical to the health of the proposed residential areas.

	KIP Cost Per Lot	Water & Roads Only Cost Per Lot
Wailua Agriculture	$180,000	$106,000
Hanapēpē Agriculture	$190,000	$114,000
Anahola Agriculture	$103,000	$ 45,000
Anahola Pastoral	$302,000	$154,000
Waimea Agriculture	$ 87,000	$ 41,000
Moloa`a Agriculture	$177,000	$ 80,000

KIP= potable water, roads, individual waste systems, site preparation, electricity

Table 11.2
Agriculture &Pastoral Infrastructure Cost Analysis

Section 12.0
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12.2 GIS DATA

DATA SOURCE: Hawai'i Statewide GIS Program, Office of Planning
http://www.state.hi.us/dbedt/gis/download.htm

GIS LAYER NAME	SOURCE	DATE
Agricultural Lands of Importance to the State of Hawai'i (ALISH)	State Department of Agriculture 1:24,000 hand drafted blueline maps. Prepared with the assistance of the Soil Conservation Service, U.S. Department of Agriculture, and the College of Tropical Agriculture, University of Hawai'i.	1977
Coastline	USGS Digital Line Graphs	1983
Elevation Ranges	USGS Digital Elevation Models	2000
Flood Data	Federal Emergency Management Agency (FEMA); Scanned and compiled by FEMA from 1:24,000 Digital Flood Insurance Rate Maps (DFIRMs).	1996
Hawai'i Public Schools	USGS Geographic Names Information System (GNIS) DAGS Planning C&C of Honolulu	1992, 2000 & 2001
Hydrography Lines	USGS Digital Line Graphs	1983
Hydrography Polygons	USGS Digital Line Graphs	1983
LANDSAT images	Pacific Disaster Center	--
Land Study Bureau (LSB) Detailed Land Classification	Land Study Bureau's Detailed Land Classification Aerial Photos were hand drafted onto paper overlays of the U.S.G.S., 1:24,000 topographic and orthophoto quads. Ratings were developed for both over-all productivity, and for specific crops. This layer represents only the over-all productivity ratings.	1967
Major Roads	USGS Digital Line Graphs	1983
Minor Roads	USGS Digital Line Graphs	1983
National Wetlands Inventory Polygons	U.S. Department of the Interior, Fish and Wildlife Service	1978
Overwash from Hurricane Iniki	Aerial Photographs taken shortly after Hurricane Iniki	--
Parks	GDSI parcel data	1998
Perennial Stream Arcs	USGS Digital Line Graphs, & CWRM Hawai'i Stream Assessment database	1983 & 1993

Continued- DATA SOURCE: Hawai'i Statewide GIS Program, Office of Planning http://www.state.hi.us/dbedt/gis/download.htm

GIS LAYER NAME	SOURCE	DATE
Rainfall	Giambelluca, T.W., Nullet, M.A., and Schroeder, T.A. 1986. Hawai'i Rainfall Atlas, Report R76, Hawai'i Division of Water and Land Development, Department of Land and Natural Resources, Honolulu. vi + 267	1990
Special Management Areas	County Planning Department blueline maps; compiled and drafted on USGS quadrangle base	1998.
State Land Use Districts, 2000	State Land Use Commission 1:24,000 Mylar Maps	2000
Threatened and Endangered Plants	Division of Forestry and Wildlife	1992
200 Ft. Contours	USGS Digital Elevation Models	2000

DATA SOURCE: Department of Hawaiian Homelands, Office Of Planning

GIS LAYER NAME	SOURCE	DATE
Awarded Land	DHHL Kaua'i Lessee Database	July 2003
DHHL Land Classification	DHHL Kaua'i Lessee Database	July 2003

DATA SOURCE: County of Kaua'i, Department of Planning

GIS LAYER NAME	SOURCE	DATE
Community Plan	Kaua'i General Plan	2000
DHHL Parcels- Zoning	Kaua'i Planning Dept. designations	2003

Kaua‘i Island Plan

APPENDICES

May 2004

The Department of
Hawaiian Home Lands

State of Hawai‘i

GROUP 70
INTERNATIONAL
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Kaua‘i Island Plan

APPENDICES

May 2004

The Department of
Hawaiian Home Lands

State of Hawai‘i

GROUP 70
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Appendix A
Cost Estimates

Waimea Costs						TOTALS
DESCRIPTION	1 acre Residential Mauka	1 acre Residential Makai	3 acre Sub Ag Mauka	3 acre Sub Ag Makai	Community Use Area	
TOTAL # OF LOTS	89	52	20	30	42 acres	191
Potable Water						
Gallons Required	133,500	78,000	45,000	52,500	504,120	813,120
Per Gallon Cost	$2	$2	$2	$2	$2	$2
Storage Cost	$267,000	$156,000	$90,000	$105,000	$1,008,240	$1,626,240
New Source						
Units served	89	52	20	30	n/a	191
Cost per Unit	$10,500	$10,500	$10,500	$10,500	n/a	$10,500
Source Cost	$934,500	$546,000	$210,000	$315,000	n/a	$2,005,500
Water Transmission						
Pipe Length	11,600	7,800	3,500	5,300	n/a	28,200
Per Linear foot cost	$150	$150	$150	$150	$150	$150
Total cost	$1,740,000	$1,170,000	$525,000	$795,000	n/a	$4,230,000
Roads						
Road Length	8,400	4,600	0	0	0	13,000
Per Linear foot cost	$500	$500	$400	$400	$500	
Road Cost	$4,200,000	$2,300,000	$0	$0	$0	$6,500,000
Wastewater						
IWS	$890,000	$520,000	$200,000	$300,000	n/a	$1,910,000
Gallons Generated	n/a	n/a	n/a	n/a	TBD	0
Cost per Gallon	n/a	n/a	n/a	n/a	$20	$20
STP Cost	n/a	n/a	n/a	n/a	TBD	$0
Wastewater Transmission						
Pipe Length	n/a	n/a	n/a	n/a	n/a	0
Per Linear foot cost	n/a	n/a	n/a	n/a	$150	$150
Total cost	n/a	n/a	n/a	n/a	n/a	$0
Site Preparation						
Total sf to clear	356,000	208,000	80,000	120,000	N/A	764,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$150
Total Cost	$890,000	$520,000	$200,000	$300,000	N/A	$1,910,000
Electricity						
Wire Length	11,600	7,800	3,500	5,300	n/a	28,200
Per Linear foot cost	$150	$150	$150	$150	$150	$150
Total Cost	$1,740,000	$1,170,000	$525,000	$795,000	n/a	$4,230,000
Other Costs						
n/a						
TOTALS	$10,661,500	$6,382,000	$1,750,000	$2,610,000	$1,008,240	**$22,411,740**
COST PER LOT	$119,792.13	$122,730.77	$87,500.00	$87,000.00	n/a	**$117,339**
TOTAL LUD COST	$17,043,500		$4,360,000			
COST/LUD LOT	$120,876		$87,200			

Waimea Cost Assumptions

Water

Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2 million
New Water Source figures a 500 gallons per minute (gpm) well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Gay & Robinson uses an 8 " irrigation line which travels across DHHL property along Kōkeʻe Rd. Possible opportunity

Roads

Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag rd. cost with out utilities = $400 per linear foot.
County Planning also said Kōkeʻe Rd. need not be improved therefore no rd. cost for Ag Lots

Wastewater

Gallons generated is based on 400 gallons per day per housing unit
which assumes that each household has 4 persons who each generate 100 gallons of waste per day
Sewer treatment = $20 per gallon
IWS = $10,000 per residence
Transmission = $150 per linear foot

Site Preparation

Based on a 4,000 SF house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found

Electricity

Transmission = $150 per linear foot

Special Notes

Cost significantly reduced because no Kōkeʻe Rd. improvements & Ag rd. costs used.
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired
Community Use area cost only includes water storage costs since proposed development of area is not well defined
Length of rds./transmission unknown for C/CU

Kekaha Costs		**TOTALS**
DESCRIPTION	Special District Area	
TOTAL # OF LOTS	13 acres	0
Potable Water		
Gallons Required	151,800	151,800
Per Gallon Cost	$2	$2
Storage Cost	$303,600	$303,600
New Source		
Units served	n/a	n/a
Cost per Unit	n/a	n/a
Source Cost	n/a	n/a
Water Transmission		
Pipe Length	300	300
Per Linear foot cost	$150	$150
Total cost	$45,000	$45,000
Roads		
Road Length	300	300
Per Linear foot cost	$500	$500
Road Cost	$150,000	$150,000
Wastewater		
IWS	10,000	$10,000
Gallons Generated	n/a	n/a
Cost per Gallon	n/a	n/a
STP Cost	n/a	n/a
Wastewater Transmission		
Pipe Length	n/a	n/a
Per Linear foot cost	n/a	n/a
Site Preparation		
Total sf to clear	n/a	0
Per sf cost	$2.50	$2.50
Total Cost	n/a	$0
Electricity		
Wire Length	300	300
Per Linear foot cost	$150	$150
Total Cost	$45,000	$45,000
Other Costs		
None		n/a
TOTALS	n/a	**$553,600**
COST PER LOT	n/a	n/a

Kekaha Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source NOT NEEDED
Transmission = $150 per linear foot
Roads
Road with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag rd. cost with out utilities = $400 per linear foot
Wastewater
IWS = $10,000 per residence/unit
Site Preparation
No cost for Community Use or Commercial sites due to uncertainty.
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
Costs are based on one comfort station/pavilion site on Makai, roadside special district property

Hanapēpē Costs										**TOTALS**
DESCRIPTION	10,000 SF Residential East *Priority, Phase I*	10,000 SF Residential East *Priority, Phase II*	10,000 SF Residential West *Priority, Phase III*	3 acre Sub Ag Gulch	2 acre Sub Ag Mauka	Community Use West *Priority*	Community Use East	Commercial Mauka	Commercial Makai	
TOTAL # OF LOTS	40	208	234	13	36	15 acres	7 acres	11acres	6 acres	531
Potable Water										
Gallons Required	0	312,000	351,000	39,750	57,000	186,600	92,160	295,260	267,945	1,601,715
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$0	$624,000	$702,000	$79,500	$114,000	$373,200	$184,320	$590,520	$535,890	$3,203,430
Facilities Reserve*	$104,000									$104,000
New Source										
Units served	0	208	234	13	36	n/a	n/a	n/a	n/a	491
Cost per Unit	$8,147	$8,147	$8,147	$8,147	$8,147	n/a	n/a	n/a	n/a	$8,147
Source Cost	$0		$1,906,398	$105,911	$293,292	n/a	n/a	n/a	n/a	$2,305,601
Water Transmission										
Pipe Length	2,100	10,200	12,300	4,700	6,400	n/a	n/a	n/a	n/a	35,700
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$315,000	$1,530,000	$1,845,000	$705,000	$960,000	n/a	n/a	n/a	n/a	$5,355,000
Roads										
Road Length	2,100	10,200	12,300	4,700	6,400	n/a	n/a	n/a	n/a	35,700
Per Linear foot cost	$500	$500	$500	$400	$400	$500	$500	$500	$500	
Road Cost	$1,050,000	$5,100,000	$6,150,000	$1,880,000	$2,560,000	n/a	n/a	n/a	n/a	$16,740,000
Wastewater										
IWS	n/a	n/a	n/a	$130,000	$360,000	n/a	n/a	n/a	n/a	$490,000
Gallons Generated	16,000	83,200	93,600	5,200	14,400	n/a	n/a	66,000	36,000	314,400
Cost per Gallon	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$20	$20	$20
STP Cost	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$1,320,000	$720,000	$2,040,000
Wastewater Transmission										
Pipe Length	2,100	10,200	12,300	n/a	n/a	n/a	n/a	n/a	n/a	24,600
Per Linear foot cost	$150	$150	$150	n/a	n/a	$150	$150	$150	$150	$150
Total cost	$315,000	$1,530,000	$1,845,000	n/a	n/a	n/a	n/a	n/a	n/a	$3,690,000
Site Preparation										
Total sf to clear	160,000	832,000	936,000	52,000	144,000	N/A	N/A	N/A	N/A	2,124,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$150
Total Cost	$400,000	$2,080,000	$2,340,000	$130,000	$360,000	N/A	N/A	N/A	N/A	$5,310,000
Electricity										
Wire Length	2,100	10,200	12,300	4,700	6,400	n/a	n/a	n/a	n/a	35,700
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$315,000	$1,530,000	$1,845,000	$705,000	$960,000	n/a	n/a	n/a	n/a	$5,355,000
Other Costs										
Detention basin for drainage mitigation										$500,000
Intersection improvement										$250,000
TOTALS	$2,499,000	$12,394,000	$16,633,398	$3,735,411	$5,607,292	$373,200	$184,320	$1,910,520	$1,255,890	**$45,343,031**
COST PER LOT	$62,475	$59,587	$71,083	$287,339	$155,758	n/a	n/a	n/a	n/a	**$85,392**
TOTAL LUD COST	$31,526,398			$9,342,703						
COST/LUD LOT	$60,223			$190,667						

Hanapēpē Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2 million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
*Facilities Reserve Charge= $2,600 in order to hook up to the existing water system to access water credits
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag rd. cost with out utilities = $400 per linear foot
Wastewater
Assumed that transmission lines are all that is needed. Development will hook into existing STP
Transmission = $150 per linear foot
Existing STP only has 200,000gpd capacity remaining. Full build out requires 295,000 gpd. Package plant for 95,000 gallons (commercial area or 238 homes)
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired
Water exists for 40 more units prior to creating new source
Existing STP only has 200,000gpd capacity remaining. Full build out requires 295,000 gpd. Package plant for 95,000 gallons (commercial area or 238 homes)
Community Use and Commercial area cost only includes water storage costs since proposed development of area is not well defined
Length of roads/transmission unknown for C/CU
Commercial STP costs are estimated

Wailua Costs										**TOTALS**
DESCRIPTION	10,000 SF Residential South *Priority, Phase I*	10,000 SF Residential North *Priority, Phase II*	Kupuna Housing *Priority*	3 acre Sub Ag North	3 acre Sub Ag South	Community Use Mauka *Priority*	Com/CU Makai	Commercial N. Makai	Commercial S. Makai	
TOTAL # OF LOTS	231	420	50	22	13	15 acres	11 acres	19 acres	22 acres	736
Potable Water										
Gallons Required	346,500	630,000	277,500	46,500	40,500	338,940	308,460	325,815	339,810	2,654,025
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$693,000	$1,260,000	$555,000	$93,000	$81,000	$677,880	$616,920	$651,630	$679,620	$5,308,050
New Source										
Units served	231	420	50	22	13	n/a	n/a	n/a	n/a	736
Cost per Unit	$5,435	$5,435	$5,435	$5,435	$5,435	n/a	n/a	n/a	n/a	$5,435
Source Cost	$1,255,485	$2,282,700	$271,750	$119,570	$70,655	n/a	n/a	n/a	n/a	$4,000,160
Water Transmission										
Pipe Length	11,200	23,200	TBD	4,500	3,000	TBD	TBD	TBD	TBD	41,900
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$1,680,000	$3,480,000	TBD	$675,000	$450,000	TBD	TBD	TBD	TBD	$6,285,000
Roads										
Road Length	11,200	23,200	TBD	4,500	3,000	TBD	TBD	TBD	TBD	41,900
Per Linear foot cost	$500	$500	$500	$400	$400	$500	$500	$500	$500	
Road Cost	$5,600,000	$11,600,000	TBD	$1,800,000	$1,200,000	TBD	TBD	TBD	TBD	$20,200,000
Wastewater										
IWS	n/a	n/a	n/a	220,000	140,000	n/a	n/a	n/a	n/a	$360,000
Gallons Generated	92,400	168,000	20,000	n/a	n/a	n/a	n/a	54000	114000	280,400
Cost per Gallon	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$20
STP Cost	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wastewater Transmission										
Pipe Length	11,200	23,200	TBD	n/a	n/a	TBD	TBD	TBD	TBD	34,400
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$1,680,000	$3,480,000	TBD	n/a	n/a	TBD	TBD	TBD	TBD	$5,160,000
Site Preparation										
Total sf to clear	924,000	1,680,000	n/a	88,000	52,000	N/A	N/A	N/A	N/A	2,744,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50
Total Cost	$2,310,000	$4,200,000	n/a	$220,000	$130,000	N/A	N/A	N/A	N/A	$6,860,000.00
Electricity										
Wire Length	11,200	23,200	TBD	4,500	3,000	TBD	TBD	TBD	TBD	41,900
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$1,680,000	$3,480,000	TBD	$675,000	$450,000	TBD	TBD	TBD	TBD	$6,285,000
Other Costs										
Intersection improvement										$250,000
*195,000 cubic yards of fill for topographic depression in Residential area										$9,750,000
TOTALS	$14,898,485	$29,782,700	$826,750	$3,802,570	$2,521,655	$677,880	$616,920	$651,630	$679,620	**$64,458,210**
COST PER LOT	$64,496	$70,911	$16,535	$172,844	$193,973	n/a	n/a	n/a	n/a	**$87,579**
TOTAL LUD COST	$44,681,185			$6,324,225						
COST/LUD LOT	$68,635			$180,692						

Wailua Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2 million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag. road cost with out utilities = $400 per linear foot
Wastewater
Assumed that transmission lines are all that is needed. Development will hook into existing STP
Transmission = $150 per linear foot
Site Preparation
Based on a 4, 000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
* Topographic depression 3,500 ft long, 200 ft across, and 15 ft deep = approx 5.25 million cubic feet = 195,000 cubic yards x $50 per cubic yard = $9.75 M
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired
Water cost could be reduced if able to tap into Grove Farm surface water treatment plant. No new source would be required
Community Use and Commercial area cost only includes water storage costs since proposed development of area is not well defined. Length of rds./transmission unknown.

Kapa‘a Costs		**TOTALS**
DESCRIPTION	Industrial Commercial	
TOTAL # OF LOTS	16 acres	0
Potable Water		
Gallons Required	663,829	663,829
Per Gallon Cost	$2	$2
Storage Cost	$1,327,658	$1,327,658
New Source		
Units served	n/a	n/a
Cost per Unit	n/a	n/a
Source Cost	n/a	$2,000,000
Water Transmission		
Pipe Length	1,000	1,000
Per Linear foot cost	$150	$150
Total cost	$150,000	$150,000
Roads		
Road Length	1,000	1,000
Per Linear foot cost	$500	$500
Road Cost	$500,000	$500,000
Wastewater		
IWS	n/a	n/a
Gallons Generated	96,000	n/a
Cost per Gallon	n/a	n/a
STP Cost	n/a	n/a
Wastewater Transmission		
Pipe Length	1000	1000
Per Linear foot cost	$150	$150
Total cost	$150,000	$150,000
Site Preparation		
Total sf to clear	n/a	0
Per sf cost	$2.50	$2.50
Total Cost	n/a	$0
Electricity		
Wire Length	1,000	1,000
Per Linear foot cost	$150	$150
Total Cost	$150,000	$150,000
Other Costs		
n/a		
TOTALS	n/a	**$4,277,658**
COST PER LOT	n/a	n/a

Kapa‘a Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $2,000,000
Transmission = $150 per linear foot
Roads
Rd with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
Wastewater
Assumed that transmission lines are all that is needed. Development will hook into existing STP
Transmission = $150 per linear foot
Site Preparation
No cost for Community Use or Commercial sites due to uncertainty
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
Costs are based on a few new access roads into the site
No in fill factored into costs.

Anahola Costs																		**TOTALS**
DESCRIPTION	10,000 SF Res.Makai Exist & Surround *Priority Phase I*	10,000 SF Beach Lots *Priority Phase II*	10,000 SF Res. Makai of COM *Priority Phase III*	10,000 SF Res. South *Priority Phase IV*	10,000 SF Res. Mauka of C/CU *Priority Phase V*	10,000 SF Res.Mauka Exist & Surround *Priority, Phase V*	10,000 SF Res. North of River *Priority PhaseVI*	Kupuna Housing *Priority*	2 acre Sub Ag New	2 Acre Sub Ag. Exist	10 acre Pastoral	Com S. Makai *Priority*	Com. N. Mauka	COM/CU Mauka *Priority*	CU- 2 in subdivision *Priority Phase I*	CU- 2 near beach	CU- end of valley	
TOTAL # OF LOTS	350	100	158	261	154	195	TBD	25	94	9	14	43 acres	3 acres	45 acres	31 acres	29 acres	44 acres	1360
Potable Water																		
Gallons Required	0	150,000	238,500	391,500	235,500	292500	TBD	258,750	catchment	catchment	catchment	433,365	251,250	443,895	423,720	411,960	530,760	3,118,980
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	catchment	catchment	catchment	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$0	$300,000	$477,000	$783,000	$471,000	$585,000	TBD	$517,500	catchment	catchment	catchment	$866,730	$502,500	$887,790	$847,440	$823,920	$1,061,520	$8,123,400
Facilities Reserve*	$910,000																	$910,000
New Source																		
Units served	0	100	158	261	154	195	TBD	25	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	868
Cost per Unit	$4,609	$4,609	$4,609	$4,609	$4,609	$4,609	n/a	n/a	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	$4,609
Source Cost	$0	$460,900	$728,222	$1,202,949	$709,786	$898,755	n/a	n/a	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	$4,000,612
Water Transmission																		
Pipe Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	catchment	catchment	catchment	TBD	TBD	TBD	TBD	TBD	TBD	67,600
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	catchment	catchment	catchment	$150	$150	$150	$150	$150	$150	$150
Total cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	catchment	catchment	catchment	TBD	TBD	TBD	TBD	TBD	TBD	$10,140,000
Roads																		
Road Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	13,700	1,900	7,200	TBD	TBD	TBD	TBD	TBD	TBD	90,400
Per Linear foot cost	$500	$500	$500	$500	$500	$500	$500	$500	$400	$400	$400	$500	$500	$500	$500	$500	$500	
Road Cost	$8,500,000	$2,200,000	$5,200,000	$7,800,000	$4,050,000	$6,050,000	TBD	TBD	$5,480,000	$760,000	$2,880,000	TBD	TBD	TBD	TBD	TBD	TBD	$42,920,000
Wastewater																		
IWS	n/a		n/a	n/a	n/a	n/a	TBD	TBD	940,000	90,000	140,000	n/a	n/a	n/a	TBD	TBD	TBD	$1,170,000
Gallons Generated	140,000	40,000	63,200	104,400	61,600	78,000	TBD	TBD	n/a	n/a	n/a	258,000	18,000	270,000	TBD	TBD	TBD	1,033,200
Cost per Gallon	$20	$20	$20	$20	$20	$20	TBD	TBD	n/a	n/a	n/a	$20	$20	$20	TBD	TBD	TBD	$20
STP Cost	$2,800,000	$800,000	$1,264,000	$2,088,000	$1,232,000	$1,560,000	TBD	TBD	n/a	n/a	n/a	$5,160,000	$360,000	$5,400,000	TBD	TBD	TBD	$20,664,000
Wastewater Transmission																		
Pipe Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	n/a	n/a	n/a	TBD	TBD	TBD	TBD	TBD	TBD	67,600
Per Linear foot cost	$150	$150	$150	$150	$150	$150	TBD	TBD	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	n/a	n/a	n/a	TBD	TBD	TBD	TBD	TBD	TBD	$10,140,000
Site Preparation																		
Total sf to clear	1,400,000	400,000	632,000	1,044,000	616,000	780,000	N/A	N/A	376,000	36,000	56,000	N/A	N/A	N/A	N/A	N/A	N/A	5,340,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50
Total Cost	$3,500,000	$1,000,000	$1,580,000	$2,610,000	$1,540,000	$1,950,000	N/A	N/A	$940,000	$90,000	$140,000	N/A	N/A	N/A	N/A	N/A	N/A	$13,350,000.00
Electricty																		
Wire Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	13,700	1,900	7,200	TBD	TBD	TBD	TBD	TBD	TBD	90,400
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	$2,055,000	$285,000	$1,080,000	TBD	TBD	TBD	TBD	TBD	TBD	$13,560,000
Other Costs																		
TOTALS	$23,360,000	$6,740,900	$13,929,222	$21,503,949	$11,647,786	$16,488,755	engineer recommends 2 acre lots- no costs	$517,500	$9,415,000	$1,225,000	$4,240,000	$6,026,730	$862,500	$6,287,790	$847,440	$823,920	$1,061,520	**$124,978,012**
COST PER LOT	$66,743	$67,409	$88,160	$82,391	$75,635	$84,558		$20,700	$100,160	$136,111	$302,857	n/a	n/a	n/a	n/a	n/a	n/a	**$91,896**
TOTAL LUD COST	$93,670,612								$10,640,000		$4,240,000							
COST/LUD LOT	$76,842								$103,301		$302,857							

Anahola Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
*Facilities Reserve Charge= $2,600 in order to hook up to the existing water system to access water credits
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag road cost with out utilities = $400 per linear foot
Wastewater
New plant needed for residential. IWS for ag/pastoral
Gallons generated is based on 400 gallons per day per housing unit
which assumes that each household has 4 person who each generate 100 gallons of waste per day
IWS = $10,000 per residence/unit
Transmission = $150 per linear foot
Site Preparation
Based on a 4000SF house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricty
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that catchment is possible
Many ag/pastoral lots could be less costly if cane haul road is in good shape and no paving necessary
Community Use and Commercial area cost only includes water storage and wastewater treatment costs since proposed development of area is not well defined. Length of roads/transmission unknown

Moloa‘a Costs				TOTALS
DESCRIPTION	3 acre Sub Ag Mauka P-Ville	3 acre Sub Ag Mauka- Ana	3 acre Sub Ag Makai	
TOTAL # OF LOTS	13	14	20	47
Potable Water				
Gallons Required	catchment	catchment	catchment	0
Per Gallon Cost	catchment	catchment	catchment	$2
Storage Cost	catchment	catchment	catchment	$0
New Source				
Units served	catchment	catchment	catchment	47
Cost per Unit	catchment	catchment	catchment	n/a
Source Cost	catchment	catchment	catchment	n/a
Water Transmission				
Pipe Length	catchment	catchment	catchment	0
Per Linear foot cost	catchment	catchment	catchment	$150
Total cost	catchment	catchment	catchment	$0
Roads				
Road Length	4,000	2,500	4,500	11,000
Per Linear foot cost	$400	$400	$400	$400
Road Cost	$1,600,000	$1,000,000	$1,800,000	$4,400,000
Wastewater				
IWS	$130,000	$140,000	$200,000	$470,000
Gallons Generated	n/a	n/a	n/a	0
Cost per Gallon	n/a	n/a	n/a	$20
STP Cost	n/a	n/a	n/a	$0
Wastewater Transmission				
Pipe Length	n/a	n/a	n/a	0
Per Linear foot cost	n/a	n/a	n/a	$150
Total cost	n/a	n/a	n/a	$0
Site Preparation				
Total sf to clear	52,000	56,000	80,000	188,000
Per sf cost	$2.50	$2.50	$2.50	$2.50
Total Cost	$130,000	$140,000	$200,000	$470,000
Electricity				
Wire Length	4,000	8,500	7,500	20,000
Per Linear foot cost	$150	$150	$150	$150
Total Cost	$600,000	$1,275,000	$1,125,000	$3,000,000
Other Costs				
n/a				
TOTALS	$2,460,000	$2,555,000	$3,325,000	**$8,340,000**
COST PER LOT	$189,230.77	$182,500.00	$166,250.00	**$177,447**

Moloa‘a Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4000 gal/acre schools or parks, 3000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2 million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Roads
Rd with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage.
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag road cost with out utilities = $400 per linear foot
Wastewater
IWS = $10,000 per residence
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that reservoirs may be in operation

Appendix B
Comments on Plan

TABLE OF CONTENTS

Hui Kako‘o ‘Aina Ho‘opulapula Written Comments submitted on 2/15/04 & 3/22/04		
Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	Expand Community Use above Kūhi‘o Highway.	The plan reflects this suggestion.
	Build Subsistence Agriculture lots out from the existing Residential.	DHHL would like to continue higher density development where possible and encourage groups/hui to farm collectively on General Agriculture land.
	Move some Residential mauka. The makai side requires sewer.	In order to develop the mauka side another water source needs to be developed. Makai side has enough water credits to create approximately 350 more Residential lots. Makai side is the priority, but some Residential will be added mauka of the Project Faith Community Use site.
	Build a complete community. Include adequate Commercial and Community Use lands.	Comment noted. The plan reflects this suggestion.
	Set aside 30 acres for a cemetery.	Comment noted. The plan sets aside land for Community Use.
	Camp Faith special permit should be revisited.	Comment noted.
	Third lane needed. Traffic flow problems.	DHHL can discuss w/ SDOT at the Development Plan phase.
	Create a gymnasium for young people for when it rains.	Comment noted. The plan sets aside land for Community Use.
	Set aside areas for primary health care services.	This is possible within Community Use area and Commercial area.
	Build a meeting space/hall in the Community Use area.	Comment noted- The plan sets aside ample Community Use for the community to develop as they choose.
	Re-evaluate 1995 Anahola Plan for adding 1000+ Residential lots and improve infrastructure.	The plan recommends significant infrastructure improvements.
General	Lot sizes should be 12,500 SF.	Comment noted. 10,000 SF lots are planned because they are less expensive to develop and increase the number of homesteads thus reducing the Residential wait list.
Hanapēpē	Reduce agriculture lot size to 2 acres instead of 4.	Preferred recommendation has both 2 and 3 acre Subsistence Agriculture lots. The 3 acre lots are in the gulch area to ensure that enough land for a house structure is available.
	Change General Agriculture to Subsistence Agriculture.	This change has been made. 3 acre Subsistence Agriculture lots are recommended for the gulch area.
	Move Community Use area on highway behind the Commercial area.	This change has been made. The Community Use area will run to the edge of the gulch with a recreational buffer running along the gulch.
	Let agricultural lands run down to the highway.	Preferred recommendation currently has both agriculture lands and residential lands running down to the highway.
	Designate a Community Use area w/in the Residential are for community facilities	Community facilities will be accessible to residents of both agriculture and residential lots.
	Enlarge Commercial area along highway.	Mauka Community Use road frontage has been increased, yet acreage remains at approximately 11 acres. Makai parcel is 6 acres. Total of approx. 17 acres is designated Commercial.

Subject	***Comment***	***Response***
Kapa‘a	Use property for lo‘i. Iwi may be in area.	Industrial/Commercial more consistent w/ surrounding uses. Areas for lo‘i cultivation are available in other tracts. If development occurs iwi will need to be located.
	Use for Bed-n-breakfast or alternative housing/kūpuna housing. Marshy area for community garden or agriculture activities.	Industrial/Commercial is more consistent w/ surrounding uses. Recommending that Kupuna housing be located in Wailua. Many other agricultural areas exist.
	Find a use for property that will generate more income.	Industrial/Commercial designation would allow for higher revenue generation.
Kekaha	Do an archaeological study of the lands along the road where the sand dunes are located. Involve local families. Perhaps erect a monument acknowledging iwi.	DHHL is aware that burials are in the area and before any development of the Special District area, a professional archaeological survey will occur. Families will be integral in locating the burials.
	School area should rather be for a community facility/meeting place.	Community Use areas are located in the vicinity. This site is designated residential.
	Designate a portion of the roadside Community Use area as Commercial. The flat area before the dunes.	A small informal lunch wagon type operation or water recreation rental could be located in Special District.
Moloa‘a	Designate the area as 3 acre Subsistence Agriculture lots.	Preferred recommendation indicates approx. 130 acres of Subsistence Agriculture use. Steep/sloped areas are in General Agriculture and stream corridor is in Special District.
Wailua	Ensure that SDOT road widening plans do not go near Mala‘e Heiau.	DHHL will proceed w/ development plans that necessitate SDOT does not encroach on their lands.
	Buffer around Mala‘e Heiau should be 15 acres and should encompass the site as a cultural buffer with view planes, information center, protection from the highway.	64 acres has been set aside in Special District along the Wailua river and surrounding Mala‘e Heiau.
	Locate Community Use nearer to the Mala‘e Heiau buffer.	Community Use area is relatively close to Mala‘e Heiau. Special District designation around the heiau does not precluded low impact Community Uses.
	Designate lands along the irrigation ditch as agriculture lands- specifically 2 10-acre Supplemental Agriculture lots and 40+ 3-acre Subsistence Agriculture lots.	Agriculture designation will benefit from close proximity to irrigation water. No Supplemental Agriculture has been designated in order to increase the number of lots that can be awarded.
	Start the subdivision before the river for traffic flow issues.	The Wailua property is located south of the Wailua River.
	Leave commercial area low impact and do not swap out.	Makai land is being planned as a Westside service center for beneficiaries and there are no plans to swap.
	DLNR 9 acres of Mala‘e Heiau should be returned to DHHL.	Currently not part of the Department's plans.
	Create a Community Use green buffer along the highway.	A buffer has been designated along the hwy.

Subject	***Comment***	***Response***
Wailua	Homes built near Mala‘e Heiau should be in keeping w/ the pride of Wailua using village residential design that's consistent w/ Heiau emphasis, respect, pride.	Comment noted. Design standards can be set.
	Build residences back from the Highway so that tidal/tsunami occurrences do not impact.	Residential is Mauka.
	Mitigate fumes from sewage treatment plant so they do not impact residences.	Comment noted. DHHL will work with the County Public Works Dept.
	Coco Palms hotel renovation will also use STP. Make sure DHHL only pays their share.	DHHL will negotiate with County Public Works Dept.
Waimea	Include agricultural, Pastoral, and Residential land uses for area.	Only Residential and Subsistence Agriculture homestead designations exist in the final preferred alternative. Pastoral uses are possible in General Agriculture areas.
	Designate Residential use along the ridges where feasible.	Kōke‘e Rd. Corridor is the most accessible, buildable land. Residential will be focused there.
	Designate Subsistence Ag not just supplemental.	Kōke‘e Rd. Corridor, as the most accessible area, will have 3-acre Subsistence Agriculture lots in response to community sentiment that smaller agricultural lots are better.
	Designate valley floor areas agriculture- good for taro.	The current General Agriculture designation for much of Waimea allows for leasing of the land for agriculture. Also, Special District has been created in the historic Wai‘awa‘awa valley where Taro was originally planted. Agriculture is allowed in Special District.
	Designate 300 acres agriculture in Wai‘awa‘awa Valley below Heiau.	Approximately 700 acres will be designated Special District in order to preserve and protect cultural resources. Agriculture is allowed in Special District.
	Enlarge Commercial area along Kōke‘e Rd.	Commercial would be encouraged as part of the Community Use area as well as on the residential lots along the highway. We recommend split zoned/mixed use for the residential.
	Protect the Heiau in Wai‘awa‘awa Valley.	Heiau is part of a Special District designation and will be protected.
	More Pastoral lands should be opened up.	The department is providing new pastoral lease opportunities in Anahola where water catchment is available. Additionally, DHHL's focus is on increasing residential opportunities. Pastoral activities can be done on General Agriculture lands in Waimea.
Westside	Participants in the Focus Group held on the West side indicated their priority for residential development being: First- Hanapēpē, Second- Kekaha, Third- Waimea.	Priority tracts in the plan reflect this comment.

Working Group Meeting #3- 2/11/04		
Subject	***Comment***	***Response***
Awards	Agricultural lessees are not farming their land. DHHL needs to hold workshops.	To address this issue smaller lots are recommended.
General	The preferred alternatives do not address the agricultural waiting list.	Focus is on reducing the Residential waiting list by providing Residential homesteads. Many agricultural applicants await Residential awards as well.
	Important to have lots larger than 10,000 SF to reflect local lifestyle.	Cost estimates will be developed for larger lots, however the focus is to maximize Residential awards.
Infrastructure	Because of the use of cess pools the ocean is polluted.	Sewage Treatment plant is the preferred alternative to deal with waste.
	Water infrastructure should be turned over to lessees to manage and control.	Organized lessee group can come forward to DHHL with a proposal.
Wailua	Evaluate how to bring the ditch back in Wailua and manage the water.	Comment noted.
	Use existing cane haul roads as bike trails/motorcycle paths in Wailua.	Comment noted. Wailua will primarily be a Residential community.
	Wailua is the most prime spot. Develop it.	It is the first priority for Kaua‘i.
Waimea	Swap the "upper" game mgmt. land in Waimea for Mana Plain/more developable land.	There are developable areas along the Kōke‘e Rd. corridor.
	Use the upper land for an income generating hunting lodge. DLNR can still do game mgmt.	This would be possible under the General Ag. Designation.
	Use the upper land for forestry.	This is possible under the current General Ag. Designation.
	Convert Waimea irrigation ditches into piped water for better control.	This decision would come later in a development plan.
	Cost sharing for water may be possible in Waimea.	This decision would come later in a development plan.
	Is the road to Pu‘u Opa‘e accessible?	It could be upgraded for 4-wheel drive traffic.
Working Group Meeting #2- 11/12/03		
Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	In Anahola, there is a Heaiu located in one of the undeveloped Residential areas.	This will need to be identified.
	In Anahola, there is enough water for 400 more units.	Further discussions revealed that 350 credits for water remain.
	Adding the Residential areas shown in the update to the Anahola Development Plan doubles the amount of housing. Requires new sewer system.	New sewer system is recommended in the plan.
	(400) 1 acre lots could be developed in Anahola immediately. There is enough water for 400 more units and 1 acre lots would not require a sewage treatment system.	Further study revealed that this is not the best alternative, moreover only 350 water credits remain.

Subject	***Comment***	***Response***
Awards	Beneficiaries prefer ½ acre – 1 acre awards vs. 10,000 SF.	The plan designates a mix of lot sizes. Mostly 10,000 SF in Residential developments.
	Beneficiaries want a 10,000 SF lot and many might have difficultly maintaining larger lots.	The plan designates a mix of lot sizes.
Eastside	Kūpuna housing suggested for Kapa‘a but prefer a location closer to medical facilities.	Kūpuna housing is important. Plan addresses this need.
General	Conservation should be used as passive open space/parks.	This is an allowed use in Conservation area.
	Suggested growth areas:1) 400 1 acre lots in Anahola, 2)Wailua – satisfy Līhu‘e preference, 3)Hanapēpē - relatively easy to develop, 4)Anahola – Develop more Residential after sewage treatment plant is developed.	Community meetings illuminated different priority areas. Plan indicates the following priority areas: 1- Wailua, 2- Hanapēpē, 3- Anahola.
	Develop least expensive, easiest lots first.	Phasing recommendations are part of the Island Plan.
	Exceed the modest goals of DHHL’s General Plan.	The Plan will exceed the goals of 840 Residential homesteads over 20 years.
	Develop matrix summarizing important factors about each area (beneficiary preferences, infrastructure needs, etc).	Matrix developed.
Hanapēpē	A new option was proposed for Hanapēpē: Change Subsistence Ag to Residential in Alternative 2.	This change was made and brought back to the community. Community indicated it wants to maintain some agricultural land in Hanapēpē because the land is very prime/fertile.
	Best agricultural land in Hanapēpē-designate as agriculture. Homesteads there vs. Anahola.	The plan reflects this suggestion and designates agricultural land in both areas.
	Hanapēpē land should not be General Agriculture.	The plan does not recommend General Agriculture for Hanapēpē.
	Locate commercial activities in most viable area in Hanapēpē; no preference for location of Community Use.	Proposed alternative locates Commercial in visible areas along the highway corridor.
	Are there plans for the Port Allen airport which might impact the future use of Hanapēpē lands?	DOT indicated that there are no major future plans. The airport will continue to be used for helicopters.
	Port Allen as a birthing area for cruise ships?	The port does not have plans to upgrade for cruise ships.
Infrastructure	DHHL may introduce a new rural lot land use category to avoid high infrastructure costs. This category would be for 1 acre lots and some infrastructure such as sidewalks would not be provided.	This action has not taken place- planning has proceeded without a rural land use category.
	There is an island-wide shortage of water.	Most development will require new water sources and storage facilities.

Subject	***Comment***	***Response***
Kapa‘a	Some beneficiaries might prefer living in Kapa‘a. 10,000 SF lots would be appropriate since its more urban living.	The Kapa‘a lands are surrounded by Industrial/Commercial uses which are not compatible with residential development.
	In Kapa‘a, develop affordable rentals or transitional housing for Hawaiians on the waiting list. This idea could be unpopular among beneficiaries but it may be more realistic for those who can’t afford a mortgage, etc. The rentals should be designed to accommodate large families.	Rent-to-Own and other alternative projects have been implemented on Oahu and may be considered for other Islands as appropriated.
Kekaha	Use the Kekaha burial lot for a Community Use such as a cemetery.	The plan suggests Special District for this area and the community can access.
	DHHL may own additional land in Kekaha.	The Department does not own additional Kekaha lands.
Moloa‘a	Moloa‘a land ranks low in Survey. Exchange for land in Līhu‘e.	Moloa‘a lands may become desirable in the future.
Wailua	The Conservation buffer zone along the Wailua River is some of DHHL’s most valuable land. Maximize the income generating potential. A Polynesian Cultural Center type attraction. This idea was supported as long as the development was not intensive. The Special District designation was suggested.	The plan for Wailua reflects this suggestion. The river strip is changed to Special District.
	The future of the by-pass road could impact the Wailua property. Makes planning difficult. Determine most advantageous route for DHHL and lobby for that route.	The plan addresses the route which has the least impact on the Wailua lands.
	Negotiate w/ DOT for an underpass so homesteaders could get to Lydgate Park from the mauka side. This could tie the cultural sites on the makai side with the Wailua River and cultural sites on the mauka side of the highway. DOT could use IST funds since the highway bisects cultural sites.	Connections should be provided.
	Acquire Wailua prison site because it is incompatible with a homestead community.	This is not in DHHLs plans.
	Wailua lands could be used to grow produce for hotels.	Agricultural lots will be made available in Wailua.
	The makai Wailua lands could be used for homesteads to provide beneficiaries close access to Lydgate Park amenities. Commercial development could be moved to the mauka side.	Makai area will remain Commercial.
Waimea	Make Waimea development compatible with the military uses at PMRF.	PMRF has been contacted.
	Research "poison valley."	The Dept. of Health has been contacted and the site has been visited.
	Develop Waimea's flatter, more accessible areas for Pastoral homesteads.	The department is providing new pastoral lease opportunities in Anahola where water catchment is available. Additionally, DHHL's focus is on increasing residential opportunities. Pastoral activities can be done on General Agriculture lands in Waimea.

Subject	***Comment***	***Response***
Waimea	In Waimea, all developable areas could be ½ acre Residential lots	This alternative was considered but it was determined to be too intensive of a use, very expensive, and not enough demand.
	Rim development option is more assessable and water is available.	Development is concentrated on Kōke‘e Road to reduce infrastructure costs.
	Change Waimea's Conservation area to the General Agricultural designation because they could be developed in the future.	This change was incorporated and is reflected in all development alternatives from the date the comment was received.
	Ni‘ihau applicants prefer the Westside (Hanapēpē)?	Comment noted. Many homesteads will be made available on the Westside.
	Kekaha can be the community center for Waimea.	Comment noted. Waimea may develop a community center of its own in the CU area.
Working Group Meeting #1- 9/24/03		
Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	Illegal dumping in Kamalomalo. DHHL should fence off land and restrict access on Kealia Road.	The plan does not address the management of the land.
	Stream diversion issues. Natural stream flows and habitats should be restored.	Plan leaves stream corridors as Conservation.
Awards	Create large lots for lessees to subdivide for their children.	Plan will offer a variety of lot types and sizes.
Burials	Burials will be found on all DHHL parcels. Re-internment sites should be designated on each parcel.	This will be addressed at the Development Planning phase for each site.
	Cemeteries/Grave yards are important uses.	Community use areas lend themselves to this type of development.
General	Preserve appropriate lands for taro planting.	General Agriculture lands are designated through out the plan and can be used for Taro.
	DHHL should utilize partnerships.	Partnerships will become very important for the development of infrastructure for the proposed homestead sites. DHHL has done some creative partnering in the past such as working with Habitat for Humanity to develop self-help housing.
	Health care/medical services should be located near the population.	Many of the proposed development sites are less than 10 miles from the nearest medical facility.
	Use Ahupua‘a concept in planning.	Mauka-makai connection is made in the plan and surrounding uses are taken into account.
	Preserve land as open space for regeneration/recuperation.	Reflected in the development plans. Conservation, Community Use, General Agriculture, and Special District land could be used for these purposes.
	Need shelters for abused people.	Community use areas lend themselves to this type of development.
	Work w/in Ahupua‘a to determine resources.	Planning process accounts for resources on nearby/surrounding lands.
	County’s community planning does not include Native Hawaiians.	Best to contact the County.
	Ag land not taxed as highly as Residential. Make DHHL land Ag.	Kaua‘i flat taxes all DHHL property holders.

Subject	***Comment***	***Response***
General	Include economic development both for DHHL and for Beneficiaries. Create jobs near DHHL lands.	Plan designates land in each area as Commercial for both local community income generation and to make money for the department.
	Need Drug rehab facility.	Community use areas lend themselves to this type of development
	Develop additional house lots .	Creating Residential homesteads is the primary focus of the DHHL Kaua‘i Island Plan
	Acquire new lands/look for land swaps.	Existing parcels have great potential for development, however DHHL is open to land swap
	Hawaiian Service Centers located on both east and west side. Co-locate Hawaiian/ social service agencies.	An eastside service center is addressed in the Wailua Development Plan. Community use land is available on the Westside and could be used for this purpose-specifically Hanapēpē.
	Some parcels are better for certain types of development/non-development.	This is exactly correct and the plan aims to designate the land for the best use possible.
	Agricultural & Pastoral lands should be maintained and protected.	The plan sets aside both agricultural and Pastoral land.
	DHHL should develop a community input system.	The Department has a District Office and the Hawaiian Homes Commission meets on each Island at least once each year.
	Community Patrols should be established in homestead areas.	This can be developed by the homestead community associations.
Kekaha	Golf Course in Kekaha.	Land in Kekaha is limited. Golf Courses often lose money. Residential lots take priority.
	Recycling center could be developed in Kekaha	Land in Kekaha is limited. Recycling center can be addressed in Development Plan or Community Homestead Plan. Partnership w/ county.
Wailua	Showcase/enhance Wailua cultural sites.	The plan suggests leaving the Wailua cultural corridor in Special District which would allow for many different projects/commercial ventures/cultural preservation to take place.
Westside	Waimea-Kekaha garbage dump issues- DHHL beneficiaries want to make decisions about garbage.	Illegal dumping hard to stop. Community can patrol, report dumpers. County should enforce fines.

Report to DHHL Staff- 04/02/04

Subject	*Comment*	*Response*
Anahola/ Kamalomalo‘o	Traffic in the area is very congested. Will County allow further development.	DHHL will have to pay their fair share for regional traffic improvements.
	Too expensive to do infill development. Do not make Anahola a top priority.	Plan reflects this comment.
General	$2 million sounds inexpensive for creating a new well.	Cost verified with Civil Engineer. Civil mentioned that well cost is usually based on depth. $2 million is a standard estimate.
	A well recently developed on another Island by DHHL cost approx. $5.8 million.	This reflects the varying, site by site nature of development/infrastructure costs.
	Discussion about required lot frontage. 65-70 ft? Kaua‘i mandates that there be a 3:1 width /length proportion.	60 foot frontage for 10,000 SF lot is required. Lotting schemes developed for the Plan reflect approx. 80 ft frontages.
	Former sugar cane lands are expensive to grade because of their clay like features.	Grading costs will be developed further along in the planning process.
	Costs should factor in site preparation.	Site preparation is factored in at $2.50 per square foot of clearing and grubbing.
	Confirm all infrastructure costs because they seem low.	Corrections made.
	Priorities should change to- 1) Wailua, 2) Hanapēpē, 3) Anahola.	The plan reflects this comment.
Hanapēpē	12,500 SF lot size is too large, too expensive to develop. Change to 10,000 SF.	The plan reflects this comment.
	Inquire how much existing wells in the Hanapēpē area cost to develop.	Recent well in Hanapēpē cost $2.3 million
Kekaha	No need for another community meeting area. There are existing facilities nearby. Remove the Community Use area from the neighborhood.	The plan reflects this comment.
Wailua	Costs seem low for Wailua. Double-check.	After double checking costs have increased.
	Concern expressed about getting approval to build houses in Wailua due to traffic implications.	DHHL will have to pay their fair share for regional traffic improvements. Intersection upgrade is factored into cost.
	DHHL is trying to partner with the County for affordable housing development. perhaps Wailua could be the site.	This would be desirable.
Waimea	Elevation will be a factor for well development.	Civil engineer states that elevation is not a large factor because water can pool in high places on a volcanic island.

Report to DHHL Staff- 12/03/03

Subject	*Comment*	*Response*
Anahola/ Kamalomalo‘o	Land is abundant in Mauka Anahola. How expensive is it to get water to upper areas versus sewer treatment plant for lower areas?	Easily accessible land should be developed first. In Anahola there is ample land near existing roadways. Mauka land is very challenging and expensive to access.
DHHL	How many people already have a residential award and remain on the waiting list for an agricultural award?	Determined from the excel spreadsheets Joe provided for the survey mail out. There are 267 Residential lessees waiting for another lease, 34 agricultural lessees waiting for another type of lease, and one Pastoral lessee waiting for another type of lease.

Subject	***Comment***	***Response***
Infrastructure	Could DHHL get water from the Pu‘u Lua reservoir which is outside of DHHL’s property?	This would need to be negotiated.
	Different types of sewage treatment options such as package plants will be explored to see if they could reduce costs for Anahola and elsewhere.	Met w/ Aqua Engineers and toured the Puhi Plant on Kaua‘i. Definitely an option for DHHL.
	Rural residential standards versus county standards could reduce infrastructure costs.	Agricultural standards do make road cost less expensive. $400/linear ft. vs. $500/ linear ft.
Kekaha	Could the flood zone in Kekaha create problems for beneficiaries securing mortgages?	All of Kekaha is a flood zone. As long as the pump is operated the area should be fine.
Moloa‘a	County DOW asked for a “right of entry” to do an exploratory well above the Moloa‘a property in the forest service area	We are aware of the County's exploratory wells.
Waimea	There is potable water in Kōke‘e State Park? Group 70 should verify that this water cannot be used for DHHL Waimea parcels.	Kōke‘e State Park uses surface water. Negotiations will need to take place if water sharing is to occur.
	Group 70 will look into the extent of contamination from Amfac’s pesticide warehouse in Waimea	The site was toured. Environmental remediation needs to take place on approx. 1 acre.
	Waimea was extensively used by military in the past.	Plan is mindful of this history and recognizes that before any development takes place area should be well surveyed.
Wailua	What will be impact if the Wailua ditch system is altered?	Wailua ditch is an asset. Plan recommends maintaining ditch and creating a buffer along ditch.
Westside	Is Kekaha desirable to Nihau applicants? Or is just the Westside generally?	Challenge to determine who on the waiting list is from Nihau.

Other DHHL Comments

Subject	***Comment***	***Response***
General	Reserve for certain land for future development outside of the 20-year planning framework.	The Island Plan is taking a longer view than 20 years and has factored in the need for development many years out.
Wailua	A Kaua‘i community group wants to keep the Wailua lands in open space and may oppose any development.	DHHL can be mindful of the non-beneficiary community concerns, however their main goal is to get lands to beneficiaries.

Honolulu Community Meeting -03/23/04		
Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	Kūpuna housing in Anahola is far from the hospital.	Project Faith's plans include a skilled nursing facility.
DHHL	When will Ag lots be available?	Agricultural lots are not in the upcoming budget; there is a much bigger demand for Residential housing. Residential waiting list is given more priority. However, a person can farm presently if they apply for a license or RP on lands designated General Agriculture.
General	Kūpuna awards should be a part of every project area.	The plan recommends Kūpuna housing on both the eastside and Westside.
Hanapēpē	Develop Agricultural lands in Hanapēpē first.	The plan focuses on Residential development because it is a priority. Most beneficiaries want a house on their award.
	Is drainage an issue in Hanapēpē?	It can intermittently become a problem, because of this large lots have been created through the gulch/drainage channel so that the house site can be placed on high ground.
	How is traffic in Hanapēpē?	Moi Rd. can get congested but the Highway is rarely congested.
Wailua	How does the Kapa‘a Bypass Road impact Wailua property?	DHHL has met w/ DOT and their consultants to make them aware of homestead project plans. KIP Wailua designations makes space for the route alternative with the least impact to DHHL property.

Eastside Community Meeting -03/18/04		
Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	Have hui been formed? Where are they going to be? Who is in charge of the hui?	Contact DHHL directly to be connected with those working as a hui in Anahola.
	What about the water in Anahola?	DHHL can access DLNR's water because DHHL has the right to government owned water free of charge.
	North of the river- G1 & G2 What is the timing of this project can you talk about it?	The land remains in Residential as suggested in the original Anahola Development Plan. Much of the land is steep and challenging to develop.
	Did DHHL sell land to people since the 1995 Plan and the current proposed plan?	No, however, the map now indicates the land that never belonged to DHHL.
	I want to start a school. Is the land set aside in the 1995 plan still available for a school?	The land is set aside in Community Use.
	Do not take land from the Hawaiians to create bike path along the beach.	Comment noted. It is not clear whether the County bike path plan referred to hopes to proceed through Anahola.
	EPA thinks cesspools should be eliminated. Anahola must have an STP. We need to be creative and use sustainable infrastructure. If we develop STP more homes can be built.	Comment noted. Future Residential requires a sewage treatment plant.
	We need to look at how a bike path can benefit us. We are responsible to put our position together in advance so when the bike path comes we are ready. Change is inevitable but how can it benefit us.	Comment noted.

Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	Fancy homes are coming on either side of Anahola. We will become the ghetto if we don’t get our act together. We need to get ready and embrace economic opportunities.	DHHL encourages the community to get organized.
	Project Faith utilizes our human resources to work alongside DHHL- judge us on the work we do.	Comment noted.
General	How long will it take to complete Priority #1 before you begin on Priority #2?	They are not mutually exclusive and can happen simultaneously.
	Will this plan satisfy the waitlist for Kaua‘i?	Yes, the Residential waitlist.
	You should advertise your meeting in more places than just the local newspaper. You could get a better turn out.	Comment noted.
	You should be concerned that if you give land away in a long term Commercial lease that the Commercial lessee can contest you in the future and not give you back the land.	Comment noted. Commercial leases will be well defined w/ any lessee.
	Cooperative Home building could dramatically reduce costs; federal money is available in grants for this type of activity, builds capacity in communities.	DHHL encourages the community to get organized.
	We need land in Līhu‘e- why aren’t we in the center of commerce and activity?	Wailua development should satisfy this need.
Hanapēpē	Are you using the Hanapēpē sight as a model for development?	DHHL has learned that those lots are not desirable and will make larger lot sizes.
Infrastructure	If we have our own resources, can we develop our own infrastructure on our leases?	Beneficiaries may be able to make infrastructure improvements but they must meet County and State regulations.
Wailua	Do not allow DOT to cross/take/ use any DHHL lands in Wailua for the Kapa‘a Bypass Rd.	DHHL will support the route which impacts the Wailua land least.

Westside Community Meeting -03/17/04

Subject	***Comment***	***Response***
Awards	What is the target date for the Kūpuna housing in Wailua to be complete?	This will depend largely on community demand and input.
Burials	Are there areas blocked out for cemeteries?	Community Use areas lend themselves to this type of development.
DHHL	Does DHHL have in place methods to make sure the land is better when RP is pau?	There is a “good husbandry” clause written into all RP contracts and that most RP’s are issued for “friendly” uses.
	Can you build a house on agricultural homestead land?	Yes. However you must meet health and safety standards, submit a request to build and plans, the DHHL will review.
	Is their a section or department w/in DHHL that looks into sensitive cultural areas, maps them and knows them?	No, but if people know of sensitive areas they should inform DHHL.
	Does water come with agricultural lots?	DHHL would like to focus agricultural development where catchment is possible.
	Where will DHHL get the dollars to do these plans?	DHHL’s money stream: $30mill from settlement with the state; $8mill generated by DHHL; $10mill from NAHASDA (Native American Housing Assistance Self Determination Act); currently negotiating with US dept. of Agriculture Rural Development.

Subject	***Comment***	***Response***
DHHL	Raw land leases should be made available to young people.	Very few beneficiaries have indicated that they are interested in raw land.
General	Was Group 70 International, Inc. formed just to do this plan? How much has Group 70 International, Inc. been paid? Who is going to profit from this venture- you and your business partners? Why is this land being leased to non Kanaka when Kanakas want to build a house?	The entire contract is for $190,000 and includes other sub consultants. Group 70 has been in existence for over 30 years.
	Kūpuna units should be 50 rather than 25.	Comment noted. This will be determined during Development Planning Phase.
	Kūpuna housing should be available on both the west and east side.	Comment noted. Plan will incorporate this suggestion.
	What is a target date for the possible completion of these projects?	The Island Plan will be completed in May. Then Development Planning would take approx. 1.5 years. Development would begin after that awards could happen in 2-3 years.
Kekaha	The non-DHHL Kekaha parcel is in the flood zone and not suitable for development	Comment noted. DHHL will factor this into their assessment of whether or not to acquire.
Wailua	Where do you get the water for Wailua Residential lots and is the County aware of your plans?	The civil engineer has been in contact w/ the Board of Water Supply and we are aware of Grove Farm’s surface water treatment plans that could provide more water in the area.
Waimea	Beneficiaries with ties tWai‘awa‘awa Valley should be contacted prior to development.	No development plans are in place for Wai‘awa‘awa Valley. Rather it will be protected in the Special District designation.

Westside Community Meeting -01/23/04

Subject	***Comment***	***Response***
Agriculture	Agricultural lot sizes may dictate the type of loan a beneficiary could receive (i.e. USDA loan).	Correct, lot sizes are all 3 acres or less and will qualify for certain USDA rural development loans.
Awards	How many beneficiaries await two different awards?	Approximately 1,150.
	How many beneficiaries have been awarded two lots?	4 people on Kaua‘i hold two leases, meanwhile, 305 people who have received an award await another award.
	Raw land should be awarded. Hawaiians are resourceful.	This has been done in Kahikinui on Maui. DHHL's current focus is to create house lots near centers of employment.
	Hawaiians need to "occupy" the land even if they can't live on it.	DHHL is considering awarding undeveloped lots. Efforts are being made to "vest" land to the beneficiaries so they have rights to the land despite status of development.
	I would like the land to be vested to me so I can pass it on to my children.	DHHL is considering awarding undeveloped lots. Efforts are being made to "vest" land to the beneficiaries so they have rights to the land despite status of development.
Burials	Where are the lessees going to be buried?	Many Community Use areas are proposed which could become cemetery sites.

Subject	***Comment***	***Response***
DHHL	Do RP recipients submit business plans?	Yes. The civil is looking into existing irrigation systems and catchment.
	RP recipient may mismanage land.	DHHL has a good stewardship clause and can revoke permit at any time.
	Beneficiaries want access to RP land- cultural sites.	Beneficiaries should have access to cultural sites.
General	Are County plans accounted for?	Yes.
Infrastructure	Look at non-traditional infrastructure (i.e. composting toilets, hydroelectric power, etc.).	Innovative technology and non-traditional infrastructure is being explored.
Kekaha	Award all Kekaha lands now! Economic development ideas- golf course, quarry blue rock from Makahoa Ridge (good fill lands, Grove farm used to sell those rocks before.)	A residential area in Kekaha is being developed now.
Moloaʻa	Make Moloaʻa a Residential priority because land is so beautiful.	Moloaʻa is not a priority development location, due to the substantial investment in infrastructure that will need to be made.
Survey	Survey under-represents Westside demand. Beneficiaries weren't aware of the amount of west land.	Surveys are just one tool and an imperfect one at that. DHHL is aware that had beneficiaries known more about the land on the Westside they may have been more likely to choose it as a preferred location for an award.
	Re do the survey because beneficiaries are more informed now.	Existing results are useful; survey is one planning tool; community input also considered.
Wailua	Designate more Commercial in Wailua- it will become a Commercial corridor.	Ample Commercial land is set aside in Wailua, specifically 47 acres.
Waimea	Waimea Mauka Village concept supported. Tour buses suggest market for Hawaiian products on Kōkeʻe Rd.	This suggestion is factored into plans for the area.
	Distribute raw land in Waimea.	The department is focusing on distributing improved land because it is highly demanded by beneficiaries.
	Swap Waimea lands for flatter lands w/ better access to infrastructure (i.e. Mānā Plain).	Kōkeʻe Rd. provides access to flatter areas for development.
	ATV tour business on DHHL Waimea lands.	DHHL wants to be good stewards of their land and manage erosion.
Westside	Major Westside development will impact area's character.	Planning goal to maintain the special rural character of Kauaʻi.
	Is Blue Rock Quarry (Makaloa Ridge) on DHHL property?- Good economic dev. Opportunity.	No- just Makai of DHHL property

Eastside Community Meeting -01/09/04

Subject	***Comment***	***Response***
Anahola/ Kamalomaloʻo	Real name of Kealia stream should be in report.	Comment noted.
	Kealia Kai subdivision is taking free water from the Kamalomaloʻo area.	Comment noted.
	When will developed lots in Anahola be available.	Anahola is the third priority in the plan, therefore lots in both Wailua and Hanapēpē may become available first.
	There should be economic development opportunities for the Hawaiian people in Anahola.	Commercial and Community Use sites are a part of the plan.

Subject	***Comment***	***Response***
Anahola/ Kamalomalo‘o	What are the differences between the 1987 and 1995 plans.	The differences are in the number of house lots. The 1995 update changes some Subsistence Agriculture lots to house lots on the makai Kamalomalo‘o area.
	Could the Island Plan make changes to the 1995 plan?	Yes, the plan recommends some changes.
Awards	Older people should be given priority on the waiting list.	This would require a change in DHHL regulations.
	Awarding paper lots gives a fake sense of progress when many who were awarded lots in the 1980s still have not been able to move on the land.	DHHL is working to provide lots. The Island Plan is a step in the process.
	The goal of 42 lots per year and 840 over 20 years is not ambitious enough. More homesteads should be provided.	The plan will recommend for more than 840 Residential leases.
DHHL	Will financing be available for new Residential developments?	DHHL can assist beneficiaries with locating financing.
	Do Hawaiians own the land or does the State?	The State owns the land in trust for Native Hawaiians.
	I want to lease Commercial or Industrial land. Please advise if lots are available.	The land management division deals with revocable permits and leases and will be able to assist.
	The requirement of 50% Hawaiian ancestry for Hawaiian home land eligibility is too restrictive. It should be expanded to include 25% ancestry.	This requires a change to DHHL regulations which is not dealt with in the Island Plan.
General	Use DHHL land for homesteads not schools.	DHHL is working to build communities. Educational facilities are important to the community.
	How will the proposed alternatives impact the Kaua‘i General Plan?	The General Plan has been considered but not all proposed designation are consistent w/ the County's general plan designations.
	Evacuation planning is important and should be considered in the planning.	Roads will be built to county standards and will account for evacuation.
	Why have large landowners been consulted during the planning process?	Two reasons, first, to understand whether it would be appropriate to exchange DHHL parcels for other parcels more desirable for homestead awards. Second, part of the planning process includes examining the future uses of neighboring land to examine whether they are compatible with the proposed uses for DHHL parcels.
	The meeting should be recorded.	Detailed notes have been taken.
	The planning process is too short. May is an unrealistic deadline. The community should have more time to comment on the plan because the plan will guide future homestead development.	Comment noted.
	What are the priority areas? Which areas will be developed first?	Priority is a topic of discussion for the Island Plan and smaller projects can be done while bigger projects are scheduled.
	Major concern about lack of planning in area of Community Use when subdivisions come up.	More detailed plans for Community Use areas will be addressed at the development planning phase.
	Not enough areas for recreation and cultural activities.	Community Use land lends itself to these types of activities, as well as Special District, General Agriculture, and Conservation.
	Have microphones at beginning of meeting. Hold questions after presentation.	Based on this recommendation a P.A system was used at the second community mtg.

Subject	***Comment***	***Response***
Infrastructure	Can beneficiaries drill their own wells after their homestead is awarded?	Following County rules, regulations, and code, a person can do what they like with their property.
	Who has the water rights to Hawaiian Home Lands and specifically in Anahola.	If the source is on DHHL land it belongs to DHHL. DHHL has first rights to water from all State lands.
	Beneficiaries could work together to maintain the ditches if the department cannot afford the cost of maintenance. Does the Island Plan include maps of the ditch system?	Some ditches are shown in the island plan. It would be up to the beneficiaries to work w/ DHHL to organize a ditch maintenance program.
	Agricultural and Pastoral lands need water.	Yes. The civil is looking into existing irrigation systems and catchment.
	We don't want to repeat West Hawaiʻi (Kona) traffic problems. Please consider when determining site locations and densities.	Roads and traffic will be thoroughly planned for at the Development Planning phase.
	Water rights should be resolved to ensure that DHHL and homesteaders have water. There is concern that private land owners are stealing all the water.	DHHL has first rights to water from all state lands.
	Proper infrastructure must be in place.	The plan recommends priority development of those parcels in which infrastructure is easy to provide.
	Are the canals in Kapaʻa manmade or natural?	The canals are man made.
Kapaʻa	Does the Kapaʻa tenant encroach onto the wetland areas?	Kapaʻa has no land designated as wetland, however there are lands prone to flooding.
	Does the proposed Industrial/Commercial use in Kapaʻa conform to surrounding uses?	Yes, the surrounding land uses are mostly warehouses.
	What is the current lease rent? What are the conditions of the current lease? Will the tenant have to take the gravel away?	The lease is a month-to-month revocable permit. DHHL Land Management Division has additional information regarding the terms of all revocable permits.
	How much backfill would be necessary to improve the site conditions in Kapaʻa?	An estimated 4-6 feet would be needed to get the site above flood grade but further studies are required.
	Is the Kapaʻa area designated as a wetland?	The area has not been formally designated as a wetland. FEMA has designated part of the property as located in a flood zone.
	The Kapaʻa land should be used primarily for Residential.	Limited Residential preference shown for this area. It is surrounded by Industrial/Commercial uses.
	Revenue generation in Kapaʻa.	The plan recommends a designation for Kapaʻa which would generate income.
Moloaʻa	Are there any flat areas in Moloaʻa?	There are some flatter areas but the topography is generally rolling hills.
	What is the current lease rent for Moloaʻa?	This is public information available from the DHHL's Land Management Division.
	Is there water available now in Moloaʻa.	The County is planning two wells off-site on nearby properties. Water may be available when the wells are developed but there may be some transmission costs. However, catchment is feasible in the area.

Subject	***Comment***	***Response***
Wailua	The plan should consider relocating the proposed agricultural homesteads from along the highway to near ditch. The ditch could be a community element. Beneficiaries may not be able to do organic farming along the highway because of pollutants. A park strip should be provided along the highway to buffer Residential homesteads from the road. Who would be responsible for the maintenance of this buffer area?	Wailua land will be maximized for Residential development, however ditch system and highway buffer will be maintained.
	Is there really excess capacity at the Wailua Sewage Treatment Plant? Wind direction should be considered if package sewage treatment plant is needed.	Yes, total capacity is 1.2 mgd whereas only .6 mgd is currently being used.
	Where does water for Wailua development come from?	Various wells in the area, however most likely a new well will need to be developed or a surface water treatment plant utilizing the ditch and reservoir water.
	There are a lot of cultural sites in the Wailua area. A cultural center is needed for Kūpuna to meet and to host people from other areas. The Mala‘e Heiau has several important features including burials and evidence of house sites. It is a symbol of the Hawaiian culture, buildings, and the social system.	The Wailua cultural corridor will be designated Special District in order to allow for thoughtful development and preservation.
	The highway should be kept in the existing corridor.	This is what DHHL will advocate for, however it is not likely.
	The area around the jail would be a good place for aquaculture.	It is proposed to be General Agriculture. Aquaculture could take place there if a beneficiary initiated a plan.
	What would be the impact of the proposed development on traffic in the area? The impact on traffic flows should be studied further.	Traffic Impact studies come further along in the development process.
	Does the plan include a fire station?	It includes Community Use sites which could be developed into a fire station if one is needed.
	I support housing on the Mauka side of Kūhi‘o Highway in the Wailua area.	The plan proposes houses on the mauka side of Kūhi‘o Highway.
	Will a resort be located on the Makai Wailua land?	It is not currently proposed, however as income generating commercial land market forces will factor into the development decisions.
	Wailua- Development of Hawaiian Immersion Schools Kula Kaiapuni (DOE).	Community use areas are set aside and lend themselves to this type of development.

County of Kaua‘i, Dept. of Planning written comments submitted 03/19/04

Subject	*Comment*	*Response*
Anahola/ Kamalomalo‘o	These lands are master planned and are Kaua‘i's largest DHHL project.	DHHL would now like to shift focus to new, master planned communities in other areas. Incremental development will likely continue in Anahola.
	It is important that the mauka irrigation system be preserved and/or maintained since these lands are a vital link in the eastside irrigation system.	Ideally, the irrigation system will be preserved and made operational. However, the agricultural homestead areas designated in the plan are deliberately located in zones where water catchment is possible.
	It is anticipated that infrastructure development to develop this project will be immense, therefore it is important that the development of infrastructure (water in particular) be coordinated with the County of Kaua‘i. Maybe cost sharing or other options would be available.	Cost sharing is preferred and will be pursued when the time is right. Both new water sources and a new sewage treatment plant are needed.
Hanapēpē	Second access to Hanapēpē Heights is important for traffic circulation and public safety.	This is understood and the plan designates an existing cane haul road for potential upgrade.
	Commercial use along Highway is questionable since it could conflict with the revitalization of Hanapēpē town.	Revitalization of Hanapēpē Town is worthwhile and would improve the quality of life for all residing in the area including Hawaiian homes beneficiaries. Commercial planning will work to complement the efforts to revitalize Hanapēpē Town.
	Commercial use on the corner of Lele Rd and Kaumuali‘i highway is an important opportunity to examine. Commercial land uses on this site should enhance opportunities for Hanapēpē town, not conflict w/ efforts to revitalize Hanapēpē town.	Efforts will be made to enhance Hanapēpē's revitalization efforts. Plans for the commercial areas will be market and community driven.
Kapa‘a	These lands are ideal for industrial use as proposed.	Comment noted.
	Would these lands be available for the general public to lease if developed into industrial parks?	Yes, the department would like to generate revenue by leasing these lands.
	Our long range planning efforts reflect a need for industrial lands in Kapa‘a mainly to service the resort development on the eastside and Princeville. However, there is a lack of inventory of Industrial zoned lands in Kapa‘a.	DHHL lands will add to the inventory of industrial lands available for lease in Kapa‘a. We are encouraged that the County is supportive of this designation.
	Would DHHL consider land exchange with the State of Hawaii in the event there is a need for industrial lands and DHHL is not ready to move. The State of Hawaii may be able to develop and dispose of these lands for industrial use faster than DHHL. Not sure, but these lands are valuable from the standpoint that Kapa‘a has limited amount of available industrial lands.	DHHL is open to exchange of land if the terms and conditions are suitable.
Kekaha	We question the roadside commercial designation on the corner of the Kaumuali‘i Highway and Akialoa St. This site is undesirable for commercial use due to spot zoning and traffic concerns.	The Commercial designation in this site has been changed to Special District, which will require closer review of issues and constraints before any activities are allowed. The community expressed desire was for a small lunch wagon or beach/water sport rental.
	Kekaha plans are a logical expansion.	Comment noted.

Subject	***Comment***	***Response***
Moloa‘a	Infrastructure development (water in particular) is important. Like Anahola- must discuss w/ DOW to see if opportunities to share resources and costs may be possible. Water master plan for Moloa‘a was done for DOW. There are many properties in Moloa‘a which do not have county water service. Coordinate.	Moloa‘a is not a priority development location, but DHHL will coordinate with the DOW to stay abreast of water service opportunities. Moreover, it is thought that catchment would be a viable water source thereby not obligating DHHL to develop a new well.
Wailua	Be mindful of the Kapa‘a Bypass road project by DOT. These lands may perform a vital role in the by pass project.	DHHL and SDOT have met. DHHL will offer their comments to the Draft EIS which will outline the proposed routes. DHHL has a preferred route option, that which impacts DHHL land the least.
	May not be the ideal place for residential development due to archaeological sites and access from the highway.	Wailua ranks highest with DHHL beneficiaries as a priority residential area to develop due to its proximity to population centers and jobs. DHHL will preserve and protect any substantial archaeological finds. Thorough traffic studies would be conducted prior to any development.
	One of the alternatives for the Wailua Golf course expansion involves use of these lands. DHHL may want to consider discussing exchange, purchase, and/or lease of these lands with the County to allow for golf course expansion.	Development of the Wailua lands is the priority project for DHHL on Kaua‘i. If the area for golf course expansion does not impact the planned residential development DHHL may consider.
	The expansion of the correctional facility has been a potential project for many years. This matter should be discussed with the State Correctional people since the lands needed for expansion are owned by DHHL.	DHHL will proceed with plans. Correctional facility has not informed DHHL of any desire to acquire DHHL lands. At present there are no plans to expand beyond, nor relocate from, the current site.
	Should discuss w/ the Sewer division of Public works the possibility of sewage treatment plant w/in these lands. Most times the sewer division may not like the location- but never can tell.	DHHL intends to hook into the existing STP. The understanding is that the facility has a capacity for 1.2 million gpd and currently only .6 is being used.
	Lands on the makai side of highway are intended more for resort development. Residential development may not be the most appropriate use. Suggest exchange, sale or lease of these lands for resort development.	DHHL does not intend to use makai lands for residential development but rather commercial in order to serve the many resorts, tourists, and communities in the area.
	Lands abutting the golf course may be needed for golf course use or resort type development. Suggest discussing development of this piece w/ the Wailua golf course people. These lands are also ideal for exchange lease or sale to resort developers. Therefore, the use potential for these lands for income generation is very high.	DHHL intends to maximize income generation potential for these lands. Development will be driven by market forces.
Waimea	Adjacent to this property are State lands that are proposed for a winery and a visitor center.	DHHL's proposed development can compliment these activities.
	Residential and Agriculture subdivision development, especially further mauka, will have infrastructure concerns and could conflict with the Kōke‘e visitor experience in terms of visual impacts.	DHHL hopes the residential community will enhance the visitor experience.
	Any interest expressed by Olokele Sugar Co. for sugar cane cultivation?	Not aware of any interest.

Appendix C
Working Group & Community Meeting Attendees

Working Group Meeting #1- September 24, 2003

Name	City/State	Organization
Kaipo Kincaid	Kailua, HI	Hui Kako‘o Aina Ho‘opulapula
Jose Villa	Honolulu, HI	OHA
Sharon Pomroy	Anahola, HI	Anahola Hui
Audrey Loo	Anahola, HI	Anahola Farm Lands Assn
Richard Kanahele	Waimea, HI	Kekaha Hawaiian Homestead Assn
Thomas Oi	Lihue, HI	DLNR - Land
Marlene Kali	Kekaha, HI	K.H.H.A. VP
Leah Pereira	Waimea, HI	K.H.H.A.Tres.
Tom McCloskey	Anahola, HI	McCloskey & Co.
Linda Rosehill	Honolulu, HI	McCloskey & Co./Rosehill & Assoc.
Jeffrey Rivera	Kealia, HI	Kauai Ranch
Joseph Manini	Waimea, HI	Homesteader
Joe Chu	Honolulu, HI	DHHL Planning
Robin Danner	Anahola, HI	Ahupua‘a O Kaua‘i
Annette Creamer	Lihue, HI	Alu Like
Kaui Castillo	Lihue, HI	QLCC
Roland Licona	Lihue, HI	DHHL Kaua‘i District Supervisor
Gregg Fujikawa	Lihue, HI	DOW
Tom Contrades	Kapaa, HI	HHC
Rudy Raralio	Lihue, HI	State DOT Highways
L. Haulani Fernandez	Anahola, HI	Anahola Village
Donna Aana-Nakahara	Lihue, HI	KS
Robert S Ishikawa	Lihue, HI	USDA-FSA

Working Group Meeting #2- November 12, 2003

Name	City/State	Organization
Kipukai Kuali‘i	Lihue, HI	Hui Kako‘o Aina Ho‘opulapula
Jose Villa	Honolulu, HI	OHA
Thomas Oi	Lihue, HI	DLNR - Land
Linda Rosehill	Honolulu, HI	McCloskey & Co./Rosehill & Assoc.
Annette Creamer	Lihue, HI	Alu Like
Roland Licona	Lihue, HI	DHHL Kaua‘i District Supervisor
Edward Doi		DOW
Galen Gokan	Lihue, HI	Kodani and Associates
Glenn Yamamoto	Lihue, HI	DOT

Working Group Meeting #3- February 11, 2004

Name	City/State	Organization
Winifred Cummings	Anahola, HI	
Amanda Kaleiohi	Anahola, HI	Pres., Anahola Hawaii. Hms. Assoc.
Richard Kanahele	Waimea, HI	Pres., Kekaha Hawaii. Hms. Assoc.

Working Group Meeting #3- February 11, 2004
(CONTINUED)

Name	City/State	Organization
Kaipo Kincaid	Kailua, HI	Hui Kako‘o Aina Ho‘opulapula
Kipukai Kuali‘i	Lihue, HI	Hui Kako‘o Aina Ho‘opulapula
Audrey Loo	Anahola, HI	Anahola Farm Land Association
Roland Licona	Lihue, HI	DHHL Kaua‘i District Supervisor
Donna Aona Nakahara	Lihue, HI	Kamehameha Schools
Jeffrey Rivera	Kealia, HI	Kaua‘i Ranch
Dutchi Kapu Saffery	Keaau, HI	Hui Kako‘o Aina Ho‘opulapula
Jose Villa	Honolulu, HI	OHA
Glenn Yamamoto	Lihue, HI	DOT

Eastside Community Meeting (Development Alternatives)- January 9, 2004

Name	City/State
Lonor Aei	Kapaa, HI
Juliet Aiu	Kapaa, HI
Stewart Kopa Akaha	Kapaa, HI
Valentine Ako	Kapaa, HI
Mary L. Akui	Anahola, HI
Eddie Alapai	Lihue, HI
Miely Alaua	Kaneohe, HI
Liberta Albao	Kapaa, HI
Wayne & Jeanne Alonzo	Kapaa, HI
Ivy H. Andrade	Kilauea, HI
Althea Arinaga	Kealia, HI
Crystal Caga	Lihue, HI
Milton Ching	Kapaa, HI
Raynette Chun	Lanai, HI
Winifred E. Cummings	Anahola, HI
Edith Defries	Anahola, HI
Edwina & Dana Demello	Kapaa, HI
Frances Dinnan	Lihue, HI
Bernadine Enrique	Anahola, HI
L. Haulani Fernandez	Anahola, HI
Stuart Hanchett	Kapaa, HI
Cynthia K. Haumea	Nanakuli, HI
Emmaline Hooikaika	Anahola, HI
Gary Hooser	Kapaa, HI
Amanda Kaleiohi	Anahola, HI
Lame Kaleiolu	Anahola, HI
Madonna Leilani Kalilimoku	Kilauea, HI
Opa Kalwahu	Anahola, HI
Nobleen Kamaunu	Kapaa, HI
LaFrance Kapaka	Anahola, HI

Eastside Community Meeting (Development Alternatives)- January 9, 2004 (CONTINUED)

Name	City/State
Elma L. Kaueahua	Kapaa, HI
Sabra Kauka	Lihue, HI
Annabelle K. Kawaihalau	Lihue, HI
Kani K Keanaaina	Kurtistown, HI
Kaipo Kincaid	Kailua, HI
Kipukai Kualii	Lihue, HI
Henry Kupihea	Kealia, HI
Roland Licona	Lihue, HI
John Noa Limahai	Waimanalo, HI
Charles K. Mahehana	
Raimie Mardonada	Kapaa, HI
Alan Merton	Lihue, HI
Rowin Morrisugu	Kapaa, HI
Creighton Nakamura	Kapaa, HI
E. K. Namilo	Kapaa, HI
Montgomery L. Pia	Kapaa, HI
Robert PiPa	Hanalei, HI
Sam Powell	Anahola,
Jocelyn Powers	Kapaa, HI
Francine & Rudy Ramos	Lihue, HI
James K. Reyes	Anahola, HI
Amber Rivera	Anahola, HI
Shannon Rodgers	Hanalei, HI
Bill Rowan	Anahola, HI
Ian & Mahealani Rowland	Kapaa, HI
Thelma & Laurie Ruiz	Koloa, HI
Eleanor C. Ruua	Anahola, HI
Caroline Saronitman	Kapaa, HI
Lorraine Scarpace	Kapaa, HI
Shawn Shimabukuro	Kapaa, HI
Marlyn Siaw	Lihue, HI
Sharlyn Silva	Kealia, HI
H'Kaulana Smith	Anahola, HI
James Torio	Anahola, HI
Denise & Desiree Tung-long	Kapaa, HI
Flynn Aiu Wood	Anahola, HI
Maggie Wood	Anahola, HI
Kaiopua	Lihue, HI
Kulamanu	Anahola, HI

Westside Community Meeting (Development Alternatives)- January 23, 2004

Name	City/State
Kamuela Aea	Koloa, HI
Laolu Aea	Koloa, HI
Ellen Albarado	Hanapepe, HI
Cyrilla Aquan	Kekaha, HI
Amos Arashiro	Kekaha, HI
Winifred Basques	Lanai City, HI
Sherlin & John Beniamina	Makaweli, HI
Tracey A. Betts	
Odetta Boria	Kekaha, HI
Myrna Bucosas	Waimea, HI
L. Haulani Bustillos	Eleele, HI
Yolanda K. Cabral	Eleele, HI
Gweneth Cardejon	Kekaha, HI
Merrell Cardejon	Kekaha, HI
Justin Chandler	Kekaha, HI
Sam Chandler	Kekaha, HI
Ana Davey	Makaweli, HI
A'alona Dela Cruz	Waimea, HI
Blossom Feisteira	Wailuku, HI
L. Haulani Fernandez	Anahola, HI
Jerome Freitas	Kapaa, HI
Kehaulani Frimoita	
Nani Fukino	Waimea, HI
Kaleo Hookano	Waimea, HI
Dutchie Kapu Jaffery	Keeau, HI
Marlene Kali	Kekaha, HI
Peter Kama	Waimanalo, HI
John Kanahele	Kekaha, HI
Joseph Kanahele	Makaweli, HI
Richard Kanahele	Waimea, HI
Sabra Kauka	Lihue, HI
Anya Kazennova	Lihue, HI
Ruby Kekahu	Koloa, HI
Kaipo Kincaid	Kailua, HI
Ray & Jinx Klein	Kekaha, HI
Kipukai Kualii	Lihue, HI
Al & Pauline Kupo	Waimea, HI
Stevenette Lee	Waimea, HI
Thomas K. Matsuyoshi	Eleele, HI
James Nakaahiki	Kekaha, HI
Heely Nanbu	Kilauea, HI
Sonny A. Niau	Kekaha, HI
Liela Nitta	Lawai, HI

Westside Community Meeting (Development Alternatives)- January 23, 2004 (CONTINUED)

Name	City/State
Leah Pereira	Waimea, HI
Bruce Pleas	Waimea, HI
Joe & T. Reyes	Eleele, HI
Johnathan Rivera	Eleele, HI
Rose Vaivao	Waimea, HI
Van Warren	Eleele, HI

Westside Community Meeting (Draft Plan)- March 17, 2004

Name	City/State
Roland Licona	Lihue, HI
Sandra Kanahele	Makaweli, HI
Emalia Kanahele	Eleele, HI
Ambrore Kanahele	Makaweli, HI
Debbie Kanahele	Makaweli, HI
Jaylynn Kanahele	Makaweli, HI
Shereen Peleras	Hanapepe, Hi
Betsy K. Moonihoawa	Kekaha, HI
Christopher Kauahi	Kalaheo, HI
Amos Arashiro	Kekaha, HI
Momi Leon Niheu	Kekaha, HI
Pauline Kupo	Waimea, HI
Richard Kanahele	Waimea, HI
Mary Girod	Waimea, HI
Mr. & Mrs. Joseph Reyes	Eleele, HI
Wilma Holi	Hanapepe, HI
Shirley Ann Kauahi	Kalaheo, HI
Elama Kanahele	Makaweli, HI
Myrnadette Bucosas	Waimea, HI
Michael DeMatti	Hanapepe, HI
Kaipo Kincaid	Kailua, HI
Fred Patricio	Kekaha, HI
James Nahaahili	Kekaha, HI
Nani Fukino	Waimea, HI
Jody Nakaahiki	Eleele, HI
Hollianne Nakaahiki	Eleele, HI
Isaac Koa Vegas	Eleele, HI
Eric Arizo	Wiamea, HI
Nani Hookano	Waimea, HI
Nellie Nunice	Kalaheo, HI
Ninda Collins	Waimea, HI
Roland Saguan III	Waimea, HI

Westside Community Meeting (Draft Plan)- March 17, 2004 (CONTINUED)

Name	City/State
Blossom Kanahele	Makaweli, HI
Joseph Kanahele Jr.	Makaweli, HI
Sylvia Nakaahiki	Kekaha, HI
Healani Trembath	Lihue, HI

Eastside Community Meeting (Draft Plan)- March 18, 2004

Name	City/State
James Kimokeo	Anahola, HI
Gordon Maio	Kapaa, HI
Violet Maio	Kapaa, HI
Herb Ellegano	Koloa, HI
Mark Nanbu	Kilauea, HI
Robert	Kapaa, HI
Charles & Diana Spencer	Hanalei, HI
Ryant Rowe	Koloa, HI
Stanley Kaluahine	Kapaa, HI
Kaipo Kincaid	Kailua, HI
Lani Kaleiohi	Anahola, HI
Opie Kaleiohi	Anahola, HI
Liberta Alkao	Kapaa, HI
Roland Licona	Lihue, HI
Shawn Conant	Kilauea, HI
Diana Trazon	Anahola, HI
Puanani Rogers	Kapaa, HI
Vern Kauanui	Kapaa, HI
Jerome Freitas	Kapaa, HI
James & Marie Tovio	
John Kaneholani	Anahola, HI
Keone Kaneholani	Anahola, HI
Darrell Yagodich	Honolulu, HI
Thomas Contrades	Kapaa, HI
Milton Ching	Kapaa, HI
Kipukai Kualii	Lihue, HI
Kale Kelekoma	Anahola, HI
George Rapozo	Anahola, HI
Avery Young	Kapaa, HI
Nebra Kekaualua	Kapaa, HI
Kai'I Caliza	Anahola, HI
Abi Rita	Anahola, HI
Ipo Kamsay Dealelco	Kapaa, HI
Oana DeMello	Kapaa, HI
Rowin Moritsuga	Kapaa, HI

Oahu Community Meeting (Draft Plan)- March 23, 2004

Name	City/State
Cynthia Haumea	Nanakuli, HI
Mikala Snook	Honolulu, HI
Bene Kaiwi	Honolulu, HI
Diana Basque	Honolulu, HI
Mary Sueoka	Honolulu, HI

Appendix D

Examination of Two Non-DHHL Parcels

NON DHHL PARCELS

BACKGROUND

Planning assessments have been conducted for two parcels not owned by DHHL in order to determine their suitability for residential development.

The first parcel is on the westside of the island adjacent to the existing DHHL Kekaha tract while, the second parcel is located on the eastside just south of the DHHL Wailua tract.

The assessment evaluates existing conditions, identifies constraints and opportunities, and recommends whether the parcel is suitable for homesteads.

KEKAHA PARCEL

This parcel, TMK 1-2-02:32, is a 28.63 acre agricultural property. It is currently owned by the State of Hawaii, Department of Land and Natural Resources (DLNR). The parcel is directly adjacent to DHHL's existing, westernmost Kekaha parcel and like the existing parcel it is bound by undeveloped agricultural land to the north and west with Kaumuali‘i Highway and the beach to the south. The location of the parcel is illustrated on the map *(Figure 1.)*

Figure 1
Non-DHHL Kekaha Parcel

Existing Conditions

The following is a summary of the existing conditions of the Kekaha parcel:

Topography - The parcel is lowland and coastal, not rising higher than 200 ft above sea level. The landscape is flat to rolling with a slope range from 0-8%.

Soils - The Land Study Bureau Detailed Land Classification system rates the agricultural potential of the parcel as least productive while the land is described as “other” under the Agricultural Lands of Importance to the State of Hawai‘i (ALISH) rating system. There are two predominant soil types in the area, Jaucus, which consists of loamy fine sand and Dune Land, made up of hills and drifts of sand-size particles. See *Figure 2*.

Natural Hazards and Flooding - While the parcel is relatively near the coast, no portion of the parcel is located within the hurricane inundation zone. A small strip of land along the mauka border of the parcel is located in the flood zone. See *Figure 3.*

Flora, Fauna, and Threatened and Endangered Species – There are no threatened or endangered species on the property. The land has been used for sugar cultivation for many years.

Wetlands – No part of the property is classified as wetlands.

Rainfall – Annual precipitation in the area is less than 10 inches and no streams run through the property.

Land Use Designations - The State Land Use Designation for the land is agricultural. The County of Kaua‘i General Plan designates the area agricultural as well.

Culture/History – There may be burial or historic sites on the property.

Opportunities and Constraints

The opportunities and constraints relating to the parcel are similar to those for the DHHL Kekaha Lands (Chapter 4 of the Kaua‘i Island Plan.) In terms of opportunities, the location is accessible and near an existing DHHL community, the topography is flat and easy to develop, and a range of existing community facilities are located nearby.

Development of the parcel may be constrained by the fact that there is no sewage system in the area and it is susceptible to flooding.

Recommendation

This Kekaha parcel adjacent to DHHL’s would be suitable for residential homesteads.

PLANNING CONSIDERATIONS

Opportunities

- Location
- Flat, easy to develop topography
- Community Resources

Constraints

- No sewage system
- Flooding

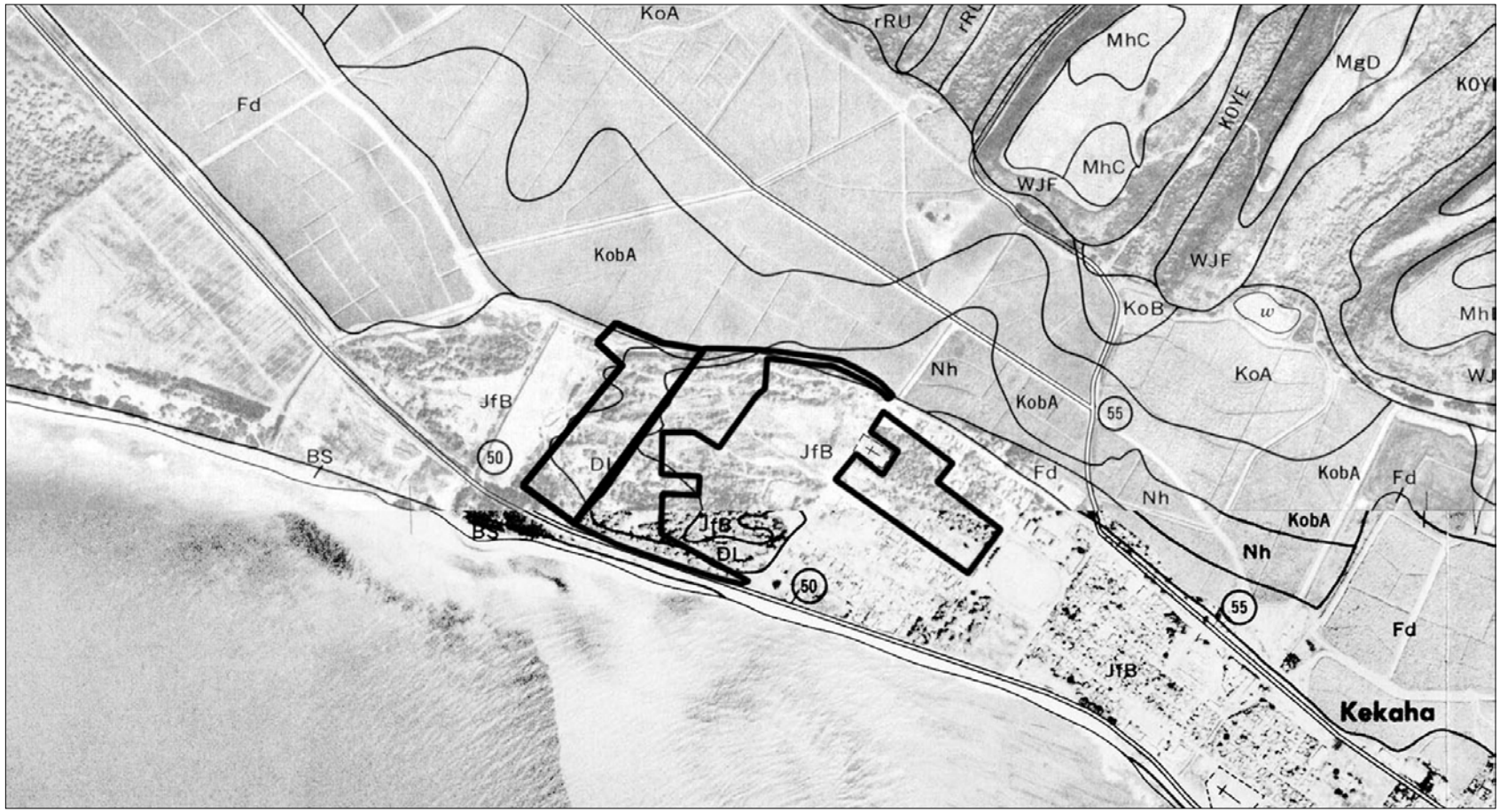

Figure 2
Non-DHHL Kekaha Parcel Soil Map

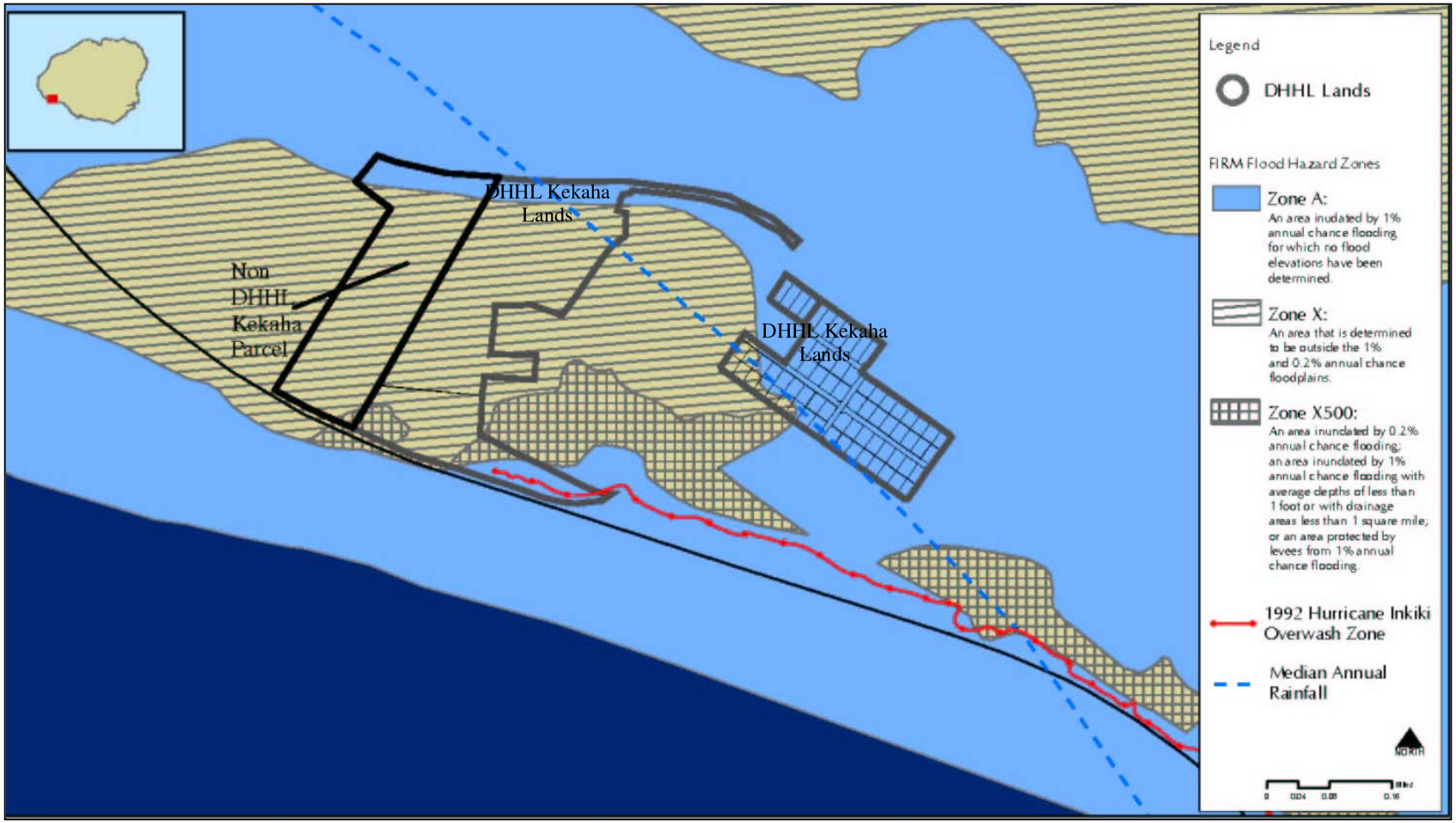

Figure 3
Non-DHHL Kekaha Parcel Flood Map

WAILUA PARCEL

Grove Farms owns TMK 3-9-05:06 under consideration in the Wailua area. The 55.3 acre parcel is now vacant but it was historically used for sugar cane. Located adjacent to the southern boundary of the DHHL Wailua tract it is even closer to the population center of Līhu‘e. The makai side of the parcel fronts on Kūhiō Highway, the mauka side follows along Kālepa Ridge and its southern border is defined by an old cane haul road and former sugar cane land. See the map below *(Figure 4.)*

Existing Conditions

Background research on the Wailua parcel revealed the following information:

Topography - The parcel is relatively flat to rolling with views to the ocean. The elevation of the property is below 200 feet.

Soils - The majority of the parcel is rated by the Land Study Bureau Detailed Land Classification system as B on a scale of A to E with A being the most productive agriculturally. It is prime agricultural land of importance to the state of Hawai‘i (ALISH.) The most prevalent soil type is LhC of the Līhu‘e soil series described as dusky, red, silty clay which is good for home sites or buildings. See *Figure 5.*

Natural Hazards and Flooding - No portion of the parcel is located within the hurricane inundation zone or the flood zone. Streams do not run through the property. See *Figure 6.*

Figure 4
Non-DHHL Wailua Parcel

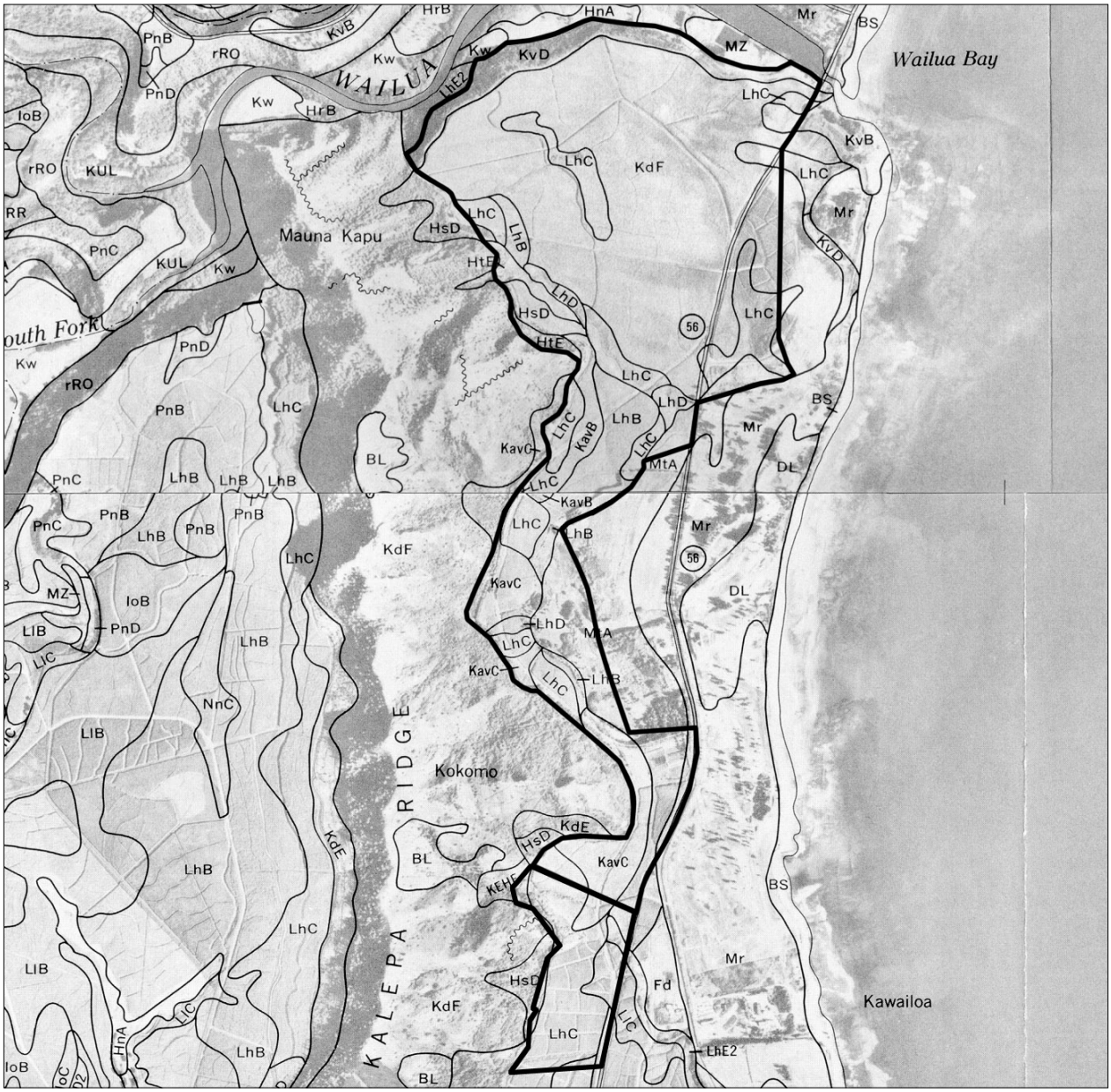

Figure 5
Non-DHHL Wailua Parcel Soil Map

Figure 6
Non-DHHL Wailua Parcel Flood Map

Flora, Fauna, and Threatened and Endangered Species - No threatened or endangered species are located on the property.

Wetlands - The property is not classified as a wetland.

Rainfall - Precipitation in the area is 5 inches or less each month.

Land Use Designations - The State Land Use Designation for the land is agricultural. The County of Kaua‘i General Plan also designates the area agricultural.

Culture/History - While the parcel is relatively near to the mouth of the Wailua River, known as one of the most culturally and historically rich areas within the Hawaiian Islands, no known cultural or historic sites are located on the subject parcel. It is unlikely that any historic sites will be found on the property since it has historically been used for sugar cane cultivation.

Opportunities and Constraints

Because site conditions are much the same as the DHHL parcels to the north the opportunities and constraints are similar (Chapter 6 of the Kaua‘i Island Plan.)

The land is rated productive for agriculture, it is relatively flat and easy to develop, wastewater treatment is available, and its location is ideal for community development.

Like the DHHL parcel to the north, off-site water improvements would be required if the area was developed as a residential homestead area. Also, the proposed Kapa‘a by-pass route could impact this property. Some by-pass routes proposed by the Department of Transportation would completely bisect the DHHL parcel to the North, yet this parcel would only be impacted due to road widening directly adjacent to the property.

Recommendation

The parcels conditions, opportunities, and constraints make it suitable for residential or agricultural homesteads.

CONCLUSION

Both the Kekaha and Wailua parcels would be suitable for homestead development. However, DHHL holds property on Kaua‘i, which is also suitable for development. Prior to purchasing or swapping land for the parcels discussed in this section, DHHL can first develop land it already owns detailed in the Kaua‘i Island Plan.

PLANNING CONSIDERATIONS

Opportunities

- Good agricultural land
- Flat easy to develop property
- Wastewater treatment available
- Near major population centers & jobs
- Near recreational amenities

Constraints

- Kapa`a Bypass route
- Water upgrades needed

Appendix E

Analysis of Agriculture Infrastructure Costs

	More Infrastructure		Water & Gravel Roads Only	
	Cost Per Lot	Total cost	Cost Per Lot	Total Cost
Wailua Ag	$ 180,000	$6,300,000	$ 106,000	$3,700,000
Hanapēpē Ag	$ 190,000	$9,300,000	$ 114,000	$5,600,000
Anahola Ag	$ 103,000	$10,600,000	$ 45,000	$4,600,000
Anahola Pastoral	$ 302,000	$4,200,000	$ 154,000	$1,500,000
Waimea Ag	$ 87,000	$4,400,000	$ 41,000	$2,100,000
Moloa‘a Ag	$ 177,000	$8,300,000	$ 80,000	$3,800,000
TOTAL	--	$43,100,000	--	$21,300,000

More Infrastructure = potable water, roads, individual waste systems, site preparation, electricity

Numbers assume the use of catchment water for Anahola & Moloa‘a

Agricultural & Pastoral Infrastructure Cost Analysis

Waimea Costs - Minimum Infrastructure for Ag						TOTALS
DESCRIPTION	1 acre Residential Mauka	1 acre Residential Makai	3 acre Sub Ag Mauka	3 acre Sub Ag Makai	Community Use Area	
TOTAL # OF LOTS	89	52	20	30	42 acres	191
Potable Water						
Gallons Required	133,500	78,000	45,000	52,500	504,120	813,120
Per Gallon Cost	$2	$2	$2	$2	$2	$2
Storage Cost	$267,000	$156,000	$90,000	$105,000	$1,008,240	$1,626,240
New Source						
Units served	89	52	20	30	n/a	191
Cost per Unit	$10,500	$10,500	$10,500	$10,500	n/a	$10,500
Source Cost	$934,500	$546,000	$210,000	$315,000	n/a	$2,005,500
Water Transmission						
Pipe Length	11,600	7,800	3,500	5,300	n/a	28,200
Per Linear foot cost	$150	$150	$150	$150	$150	$150
Total cost	$1,740,000	$1,170,000	$525,000	$795,000	n/a	$4,230,000
Roads						
Road Length	8,400	4,600	0	0	0	13,000
Per Linear foot cost	$500	$500	$300	$300	$500	
Road Cost	$4,200,000	$2,300,000	$0	$0	$0	$6,500,000
Wastewater						
IWS	$890,000	$520,000	n/a	n/a	n/a	$1,410,000
Gallons Generated	n/a	n/a	n/a	n/a	TBD	0
Cost per Gallon	n/a	n/a	n/a	n/a	$20	$20
STP Cost	n/a	n/a	n/a	n/a	TBD	$0
Wastewater Transmission						
Pipe Length	n/a	n/a	n/a	n/a	n/a	0
Per Linear foot cost	n/a	n/a	n/a	n/a	$150	$150
Total cost	n/a	n/a	n/a	n/a	n/a	$0
Site Preparation						
Total sf to clear	356,000	208,000	n/a	n/a	N/A	564,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$150
Total Cost	$890,000	$520,000	n/a	n/a	N/A	$1,410,000
Electricity						
Wire Length	11,600	7,800	n/a	n/a	n/a	19,400
Per Linear foot cost	$150	$150	$150	$150	$150	$150
Total Cost	$1,740,000	$1,170,000	n/a	n/a	n/a	$2,910,000
Other Costs						
n/a						
TOTALS	$10,661,500	$6,382,000	$825,000	$1,215,000	$1,008,240	**$20,091,740**
COST PER LOT	$119,792.13	$122,730.77	$41,250.00	$40,500.00	n/a	**$105,192**
TOTAL LUD COST	$17,043,500		$2,040,000			
COST/LUD LOT	$120,876		$40,800			

Waimea Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Gay & Robinson uses an 8 " irrigation line which travels across DHHL property along Kōke‘e Rd. Possible opportunity
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag rd. cost with out utilities = $400 per linear foot
Road cost is further reduced if only gravel road provided = $300/linear foot
County Planning also said Kōke‘e Rd. need not be improved therefore no rd. cost for Ag. Lots
Wastewater
Gallons generated is based on 400 gallons per day per housing unit
which assumes that each household has 4 person who each generate 100 gallons of waste per day
Sewer treatment = $20 per gallon
IWS = $10,000 per residence
Transmission = $150 per linear foot
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found.
Electricity
Transmission = $150 per linear foot
Special Notes
Cost significantly reduced because no Kōke‘e Rd. improvements & Ag. road costs used.
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired.
Community Use area cost only includes water storage costs since proposed development of area is not well defined.
Length of roads/transmission unknown for C/CU

Hanapēpē Costs - Minimum Infrastructure for Ag										**TOTALS**
DESCRIPTION	10,000 SF Residential East *Priority, Phase I*	10,000 SF Residential East *Priority, Phase II*	10,000 SF Residential West *Priority, Phase III*	3 acre Sub Ag Gulch	2 acre Sub Ag Mauka	Community Use West *Priority*	Community Use East	Commercial Mauka	Commercial Makai	
TOTAL # OF LOTS	40	208	234	13	36	15 acres	7 acres	11acres	6 acres	531
Potable Water										
Gallons Required	0	312,000	351,000	39,750	57,000	186,600	92,160	295,260	267,945	1,601,715
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$0	$624,000	$702,000	$79,500	$114,000	$373,200	$184,320	$590,520	$535,890	$3,203,430
Facilities Reserve*	$104,000									$104,000
New Source										
Units served	0	208	234	13	36	n/a	n/a	n/a	n/a	491
Cost per Unit	$8,147	$8,147	$8,147	$8,147	$8,147	n/a	n/a	n/a	n/a	$8,147
Source Cost	$0		$1,906,398	$105,911	$293,292	n/a	n/a	n/a	n/a	$2,305,601
Water Transmission										
Pipe Length	2,100	10,200	12,300	4,700	6,400	n/a	n/a	n/a	n/a	35,700
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$315,000	$1,530,000	$1,845,000	$705,000	$960,000	n/a	n/a	n/a	n/a	$5,355,000
Roads										
Road Length	2,100	10,200	12,300	4,700	6,400	n/a	n/a	n/a	n/a	35,700
Per Linear foot cost	$500	$500	$500	$300	$300	$500	$500	$500	$500	
Road Cost	$1,050,000	$5,100,000	$6,150,000	$1,410,000	$1,920,000	n/a	n/a	n/a	n/a	$15,630,000
Wastewater										
IWS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$0
Gallons Generated	16,000	83,200	93,600	5,200	14,400	n/a	n/a	66,000	36,000	314,400
Cost per Gallon	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$20	$20	$20
STP Cost	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$1,320,000	$720,000	$2,040,000
Wastewater Transmission										
Pipe Length	2,100	10,200	12,300	n/a	n/a	n/a	n/a	n/a	n/a	24,600
Per Linear foot cost	$150	$150	$150	n/a	n/a	$150	$150	$150	$150	$150
Total cost	$315,000	$1,530,000	$1,845,000	n/a	n/a	n/a	n/a	n/a	n/a	$3,690,000
Site Preparation										
Total sf to clear	160,000	832,000	936,000	n/a	n/a	N/A	N/A	N/A	N/A	1,928,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$150
Total Cost	$400,000	$2,080,000	$2,340,000	n/a	n/a	N/A	N/A	N/A	N/A	$4,820,000
Electricity										
Wire Length	2,100	10,200	12,300	n/a	n/a	n/a	n/a	n/a	n/a	24,600
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$315,000	$1,530,000	$1,845,000	n/a	n/a	n/a	n/a	n/a	n/a	$3,690,000
Other Costs										
Detention basin for drainage mitigation										$500,000
Intersection improvement										$250,000
TOTALS	$2,499,000	$12,394,000	$16,633,398	$2,300,411	$3,287,292	$373,200	$184,320	$1,910,520	$1,255,890	**$41,588,031**
COST PER LOT	$62,475	$59,587	$71,083	$176,955	$91,314	n/a	n/a	n/a	n/a	**$78,320**
TOTAL LUD COST		$31,526,398		$5,587,703						
COST/LUD LOT		$60,223		$114,035						

Hanapēpē Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2 million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
*Facilities Reserve Charge= $2,600 in order to hook up to the existing water system to access water credits
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag road cost with out utilities = $400 per linear foot
Road cost is further reduced if only gravel rd. provided = $300/linear foot
Wastewater
Assumed that transmission lines are all that is needed. Development will hook into existing STP
Transmission = $150 per linear foot
Existing STP only has 200,000gpd capacity remaining. Full build out requires 295,000 gpd. Package plant for 95,000 gallons (commercial area or 238 homes)
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired
Water exists for 40 more units prior to developing new source
Existing STP only has 200,000gpd capacity remaining. Full build out requires 295,000 gpd. Package plant for 95,000 gallons (commercial area or 238 homes)
Community Use and Commercial area cost only includes water storage costs since proposed development of area is not well defined
Length of roads/transmission unknown for C/CU
Commercial STP costs are estimated

Wailua Costs- Minimum Infrastructure for Ag										**TOTALS**
DESCRIPTION	10,000 SF Residential South *Priority, Phase I*	10,000 SF Residential North *Priority, Phase II*	Kupuna Housing *Priority*	3 acre Sub Ag North	3 acre Sub Ag South	Community Use Mauka *Priority*	Com/CU Makai	Commercial N. Makai	Commercial S. Makai	
TOTAL # OF LOTS	231	420	25	22	13	15 acres	11 acres	9 acres	19 acres	711
Potable Water										
Gallons Required	346,500	630,000	258,750	46,500	40,500	338,940	308,460	325,815	339,810	2,635,275
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$693,000	$1,260,000	$517,500	$93,000	$81,000	$677,880	$616,920	$651,630	$679,620	$5,270,550
New Source										
Units served	231	420	25	22	13	n/a	n/a	n/a	n/a	711
Cost per Unit	$5,435	$5,435	$5,435	$5,435	$5,435	n/a	n/a	n/a	n/a	$5,435
Source Cost	$1,255,485	$2,282,700	$135,875	$119,570	$70,655	n/a	n/a	n/a	n/a	$3,864,285
Water Transmission										
Pipe Length	11,200	23,200	TBD	4,500	3,000	TBD	TBD	TBD	TBD	41,900
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$1,680,000	$3,480,000	TBD	$675,000	$450,000	TBD	TBD	TBD	TBD	$6,285,000
Roads										
Road Length	11,200	23,200	TBD	4,500	3,000	TBD	TBD	TBD	TBD	41,900
Per Linear foot cost	$500	$500	$500	$300	$300	$500	$500	$500	$500	n/a
Road Cost	$5,600,000	$11,600,000	TBD	$1,350,000	$900,000	TBD	TBD	TBD	TBD	$19,450,000
Wastewater										
IWS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$0
Gallons Generated	92,400	168,000	10,000	n/a	n/a	n/a	n/a	n/a	n/a	270,400
Cost per Gallon	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	$20
STP Cost	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wastewater Transmission										
Pipe Length	11,200	23,200	TBD	n/a	n/a	TBD	TBD	TBD	TBD	34,400
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$1,680,000	$3,480,000	TBD	n/a	n/a	TBD	TBD	TBD	TBD	$5,160,000
Site Preparation										
Total sf to clear	924,000	1,680,000	n/a	n/a	n/a	N/A	N/A	N/A	N/A	2,604,000
Per sf costs	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50
Total Cost	$2,310,000	$4,200,000	n/a	n/a	n/a	N/A	N/A	N/A	N/A	$6,510,000.00
Electricity										
Wire Length	11,200	23,200	TBD	n/a	n/a	TBD	TBD	TBD	TBD	34,400
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$1,680,000	$3,480,000	TBD	n/a	n/a	TBD	TBD	TBD	TBD	$5,160,000
Other Costs										
*195,000 cubic yards of fill for topographic depression in Residential area										$9,750,000
Intersection improvement										$250,000
TOTALS	$14,898,485	$29,782,700	$653,375	$2,237,570	$1,501,655	$677,880	$616,920	$651,630	$679,620	**$61,699,835**
COST PER LOT	$64,496	$70,911	$26,135	$101,708	$115,512	n/a	n/a	n/a	n/a	**$86,779**
TOTAL PER LUD	$44,681,185			$3,739,225						
COST/LUD LOT	$68,635			$106,835						

Wailua Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit.
2,500 gal/acre for agriculture, 4000 gal/acre schools or parks, 3000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs.
New Water Source = $ 2 million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day.
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Roads
Road with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas.
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag. road cost with out utilities = $400 per linear foot.
Road cost is further reduced if only gravel road provided = $300/linear foot.
Wastewater
Assumed that transmission lines are all that is needed. Development will hook into existing STP
Transmission = $150 per linear foot
Site Preparation
Based on a 4000SF house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found.
* Topographic depression 3,500 ft long, 200 ft across, and 15 ft deep = approx 5.25 million cubic feet = 195,000 cubic yards x $50 per cubic yard = $9.75 M
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that existing lines could be repaired.
Water cost could be reduced if able to tap into Grove Farm surface water treatment plant. No new source would be required.
Community Use and Commercial area cost only includes water storage costs since proposed development of area is not well defined. Length of roads/transmission unknown.

Anahola Costs- Minimum Infrastructure for Ag & Pastoral																		
DESCRIPTION	10,000 SF Res.Makai Exist & Surround *Priority Phase I*	10,000 SF Beach Lots *Priority Phase II*	10,000 SF Res. Makai of COM *Priority Phase III*	10,000 SF Res. South *Priority Phase IV*	10,000 SF Res. Mauka of C/CU *Priority Phase V*	10,000 SF Res.Mauka Exist & Surround *Priority, Phase V*	10,000 SF Res. North of River *Priority PhaseVI*	Kupuna Housing *Priority*	2 acre Sub Ag New	2 Acre Sub Ag. Exist	10 acre Pastoral	Com S. Makai *Priority*	Com. N. Mauka	COM/CU Mauka *Priority*	CU- 2 in subdivision *Priority Phase I*	CU- 2 near beach	CU- end of valley	**TOTALS**
TOTAL # OF LOTS	350	100	158	261	154	195	TBD	25	94	9	14	43 acres	3 acres	45 acres	31 acres	29 acres	44 acres	1360
Potable Water																		
Gallons Required	0	150,000	238,500	391,500	235,500	292,500	TBD	258,750	catchment	catchment	catchment	433,365	251,250	443,895	423,720	411,960	530,760	4,061,700
Per Gallon Cost	$2	$2	$2	$2	$2	$2	$2	$2	catchment	catchment	catchment	$2	$2	$2	$2	$2	$2	$2
Storage Cost	$0	$300,000	$477,000	$783,000	$471,000	$585,000	TBD	$517,500	catchment	catchment	catchment	$866,730	$502,500	$887,790	$847,440	$823,920	$1,061,520	$8,123,400
Facilities Reserve*	$910,000																	$910,000
New Source																		
Units served	0	100	158	261	154	195	TBD	25	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	868
Cost per Unit	$4,609	$4,609	$4,609	$4,609	$4,609	$4,609	n/a	n/a	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	$4,609
Source Cost	$0	$460,900	$728,222	$1,202,949	$709,786	$898,755	n/a	n/a	catchment	catchment	catchment	n/a	n/a	n/a	n/a	n/a	n/a	$4,000,612
Water Transmission																		
Pipe Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	catchment	catchment	catchment	TBD	TBD	TBD	TBD	TBD	TBD	67,600
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	catchment	catchment	catchment	$150	$150	$150	$150	$150	$150	$150
Total cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	catchment	catchment	catchment	TBD	TBD	TBD	TBD	TBD	TBD	$10,140,000
Roads																		
Road Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	13,700	1,900	7,200	TBD	TBD	TBD	TBD	TBD	TBD	90,400
Per Linear foot cost	$500	$500	$500	$500	$500	$500	$500	$500	$300	$300	$300	$500	$500	$500	$500	$500	$500	
Road Cost	$8,500,000	$2,200,000	$5,200,000	$7,800,000	$4,050,000	$6,050,000	TBD	TBD	$4,110,000	$570,000	$2,160,000	TBD	TBD	TBD	TBD	TBD	TBD	$40,640,000
Wastewater																		
IWS	n/a		n/a	n/a	n/a	n/a	TBD	TBD	n/a	n/a	140,000	n/a	n/a	n/a	TBD	TBD	TBD	$140,000
Gallons Generated	140,000	40,000	63,200	104,400	61,600	78,000	TBD	TBD	n/a	n/a	n/a	258,000	18,000	270,000	TBD	TBD	TBD	1,033,200
Cost per Gallon	$20	$20	$20	$20	$20	$20	TBD	TBD	n/a	n/a	n/a	$20	$20	$20	TBD	TBD	TBD	$20
STP Cost	$2,800,000	$800,000	$1,264,000	$2,088,000	$1,232,000	$1,560,000	TBD	TBD	n/a	n/a	n/a	$5,160,000	$360,000	$5,400,000	TBD	TBD	TBD	$20,664,000
Wastewater Transmission																		
Pipe Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	n/a	n/a	n/a	TBD	TBD	TBD	TBD	TBD	TBD	67,600
Per Linear foot cost	$150	$150	$150	$150	$150	$150	TBD	TBD	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	n/a	n/a	n/a	TBD	TBD	TBD	TBD	TBD	TBD	$10,140,000
Site Preparation																		
Total sf to clear	1,400,000	400,000	632,000	1,044,000	616,000	780,000	N/A	N/A	n/a	n/a	56,000	N/A	N/A	N/A	N/A	N/A	N/A	4,928,000
Per sf cost	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50
Total Cost	$3,500,000	$1,000,000	$1,580,000	$2,610,000	$1,540,000	$1,950,000	N/A	N/A	n/a	n/a	n/a	N/A	N/A	N/A	N/A	N/A	N/A	$12,320,000.00
Electricity																		
Wire Length	17,000	4,400	10,400	15,600	8,100	12,100	TBD	TBD	n/a	n/a	7,200	TBD	TBD	TBD	TBD	TBD	TBD	74,800
Per Linear foot cost	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Total Cost	$2,550,000	$660,000	$1,560,000	$2,340,000	$1,215,000	$1,815,000	TBD	TBD	n/a	n/a	n/a	TBD	TBD	TBD	TBD	TBD	TBD	$10,140,000
Other Costs																		
TOTALS	$23,360,000	$6,740,900	$13,929,222	$21,503,949	$11,647,786	$16,488,755	engineer recommends 2 acre lots- no costs	$517,500	$4,110,000	$570,000	$2,160,000	$6,026,730	$862,500	$6,287,790	$847,440	$823,920	$1,061,520	**$117,218,012**
COST PER LOT	$66,743	$67,409	$88,160	$82,391	$75,635	$84,558		$20,700	$43,723	$63,333	$154,286	n/a	n/a	n/a	n/a	n/a	n/a	**$86,190**
TOTAL LUD COST	$93,670,612								$4,680,000		$2,160,000							
COST/LUD LOT	$76,842								$45,437		$154,286							

Anahola Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
*Facilities Reserve Charge= $2,600 in order to hook up to the existing water system to access water credits
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag rd. cost with out utilities = $400 per linear foot.
Rd. cost is further reduced if only gravel road provided = $300/linear foot
Wastewater
New plant needed for residential. IWS for ag/pastoral
Gallons generated is based on 400 gallons per day per housing unit
which assumes that each household has 4 person who each generate 100 gallons of waste per day
IWS = $10,000 per residence/unit
Transmission = $150 per linear foot
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that catchment is possible
Many ag/pastoral lots could be less costly if cane haul road is in good shape and no paving necessary
Community Use and Commercial area cost only includes water storage and wastewater treatment costs since proposed development of area is not well defined. Length of rds./transmission unknown.

Moloa‘a Costs- Minimum Infrastructure				TOTALS
DESCRIPTION	3 acre Sub Ag Mauka P-Ville	3 acre Sub Ag Mauka- Ana	3 acre Sub Ag Makai	
TOTAL # OF LOTS	13	14	20	47
Potable Water				
Gallons Required	catchment	catchment	catchment	0
Per Gallon Cost	catchment	catchment	catchment	$2
Storage Cost	catchment	catchment	catchment	$0
New Source				
Units served	catchment	catchment	catchment	47
Cost per Unit	catchment	catchment	catchment	n/a
Source Cost	catchment	catchment	catchment	n/a
Water Transmission				
Pipe Length	catchment	catchment	catchment	0
Per Linear foot cost	catchment	catchment	catchment	$150
Total cost	catchment	catchment	catchment	$0
Roads				
Road Length	4,000	2,500	4,500	11,000
Per Linear foot cost	$300	$300	$300	$300
Road Cost	$1,200,000	$750,000	$1,350,000	$3,300,000
Wastewater				
IWS	n/a	n/a	n/a	$0
Gallons Generated	n/a	n/a	n/a	0
Cost per Gallon	n/a	n/a	n/a	$20
STP Cost	n/a	n/a	n/a	$0
Wastewater Transmission				
Pipe Length	n/a	n/a	n/a	0
Per Linear foot cost	n/a	n/a	n/a	$150
Total cost	n/a	n/a	n/a	$0
Site Preparation				
Total sf to clear	n/a	n/a	n/a	188,000
Per sf cost	$2.50	$2.50	$2.50	$2.50
Total Cost	n/a	n/a	n/a	$470,000
Electricity				
Wire Length	n/a	n/a	n/a	0
Per Linear foot cost	$150	$150	$150	$150
Total Cost	n/a	n/a	n/a	$0
Other Costs				
n/a				
TOTALS	$1,200,000	$750,000	$1,350,000	**$3,770,000**
COST PER LOT	$92,307.69	$53,571.43	$67,500.00	**$80,213**

Moloa‘a Cost Assumptions
Water
Gallons required is based on an average daily demand of 500 gallons per housing unit
2,500 gal/acre for Ag, 4,000 gal/acre schools or parks, 3,000 gal/acre commercial
In general the gallons required is multiplied by a factor of 3 to account for fire flow needs
New Water Source = $ 2million
New Water Source figures a 500 gpm well supplies 720,000 gallons per day
More than one well needed when average daily demand exceeds 720,000 gallons per day
Storage = $2 per gallon
Transmission = $150 per linear foot
Irrigation lines = $10 per linear foot to repair (COST NOT INCLUDED)
Roads
Rd. with out utilities costs approx $500 per linear foot. This includes pavement, grading, & drainage
After talking to the County Planning Dept. it was determined that DHHL can do Ag standard rd. in Ag areas
Therefore, cost can be reduced by 20% (24 ft pavement down to 16-18 ft)
Amended Ag road cost with out utilities = $400 per linear foot
Road cost is further reduced if only gravel road provided = $300/linear foot
Wastewater
IWS = $10,000 per residence
Site Preparation
Based on a 4,000 sf house site/pad being cleared for each lot
Clearing and grubbing only, no grading cost included
Assumes an area with a slope of 0-10 % would be found
Electricity
Transmission = $150 per linear foot
Special Notes
No irrigation costs included in this cost analysis. Assumption is that reservoirs may be in operation

Appendix F
Fact Sheets

Kaua‘i Island Fact Sheet

Land Area:	• Kaua‘i - 352,000 acres • DHHL - 20,565 acres (6% of total land area of Kaua‘i) • Homesteading - 815 acres (4% of DHHL Kaua‘i land)
DHHL Beneficiary Lessees:	• 465 residential; 47 agricultural; 2 pastoral
DHHL Beneficiary Applicants:	• 1,477 residential; 1,781 agricultural; 189 pastoral
Population: *	• Kaua‘i - 59,000 individuals • Native Hawaiian - 5,369 individuals • Hawaiian Homesteaders - 540 households; 2,018 total population
Economic Profile:	• ***Overall job growth in the Kaua‘i economy will be 3.6% this year, (3% rate expected for state as a whole) • ***Real personal income will expand more than 4% this year and 3.3% in 2004 • ***Unemployment rate - 6.5% • *Median Family Income - $51,378 • *Percent of Families below poverty line - 8.4% (poverty line determined by Fed. Gov based on family size)
Tourism: * **	• Largest industry, generating 1/3 of the County’s real income in a typical year • Tourism has largely recovered from mild slowdown that followed 9/11 • 1,007,000 visitors in 2002; Visitor arrivals will expand more than 6% next year • Importance of timeshare industry: 1,599 units (37% of state total)
Agriculture: * **	• Smaller but visible part of economy • Major crops - Sugar, Coffee, Macadamia Nuts • Closure of AMFAC’s Lihue Plantation in 2000 led to loss of agricultural jobs • Gay and Robinson operations are strong and actually expanding
High Tech:* **	• Expansion of activities at Pacific Missile Range but the impact on official job statistics is limited so far
Housing:	• *Homeownership rate - 61.4% • **Median price of single family homes - $410,000; Median price of condominiums - $420,000 • **Home prices have risen 29% in the past year and condo prices have risen 85% • ***Increase in purchase of homes by off-island individuals and new residents
Significant Natural Resources:	Kawaikini the highest peak on Wai‘ale‘ale, Hoary Head or Hā‘upu Mountain, Anahola Mountains, Waimea Canyon, Alaka‘i Swamp, Na Pali Coast, Waimea River, Hanalei River, Wailua River, Great Beaches, Marine Preserves
Significant Cultural Resources:	Many significant Heiau such as those at the Wailua River Heiau Complex where the first Ali‘i from Tahiti are said to have arrived, burial sites, ‘Auwai- ancient ditch systems, Historic Salt ponds, Russian Fort Elizabeth & Capt. Cook’s landing site, numerous petroglyph sites, sacred caves – i.e., Maha‘ulepu, Hōlua Slide Area, Taro Terraces, Fishponds

* Source: Census 2000
** Source: “Kaua‘i housing prices ‘insane’,” Honolulu Advertiser, March 25, 2004
*** Source: “Kaua‘i Economic Outlook,” UH Economic Research Organization, June 30, 2003

Waimea Fact Sheet

Total Acreage:	15,061 acres
Current Use:	• Approximately 475 acres awarded to two pastoral lessees (3 % of total area) • Military leases 26 acres • Gay & Robinson holds revocable permit (RP) for 923 acres for sugarcane, RP to Wally Johnson for 20 acres of diversified agriculture • DLNR utilizes 13,000 acres for game management and public hunting
State Land Use:	Agricultural
County General Plan:	Open
Soils:	• Soil is mostly unproductive but there is a small area of productive soil which is used for sugar cultivation • Small area of land just above the Mānā plain is suitable for building, specifically MgC soil type
Topography:	• 2/3 of area is steep, mountainous terrain and isolated valleys • Elevation – ranges from 200 ft-2800 ft above sea level • Slope – small 0-10 flat areas used for agriculture, mostly 10-20% and >20% steep and marginal
Hazards:	• Rockslide/mudslide hazard in excessive rain/storm weather resulting from steep slopes • PMRF missile testing
Rainfall:	• Dry, leeward side of Kaua‘i • 25 inches per year. at lower elevation • 40 inches per year in upper mauka sections
Flora and Fauna:	• Lowland Dry and Semi-Dry Forest/ Shrub land with some cultivated land • Low concentration of threatened and endangered species
Significant Natural Resources:	• Streams are intermittent with natural flow reaching the coastal plain only during periods of high rain fall • Waimea Canyon in the vicinity, dramatic topography and good views • Kōke‘e/Alaka‘i Swamp, Pu‘u ‘Ōpae Reservoir
Cultural Resources:	• 4 Heiau on DHHL land, two of which are named– Makahoa and Hauola • Ahupua‘a - Mānā, Niu, Wai‘awa
Infrastructure:	• Roads - limited, main road on the perimeter of the land, Access bad • Water - Kōke‘e Ditch System inadequate for further development, not serviced with potable water • Sewer – not available • Electricity – limited, only along roadways • Communications – limited, only along roadways
Community Facilities:	• Medical Services - West Kaua‘i Medical Center (Waimea Town) • Fire & Police – Fire Station 7 (Waimea Town) • Schools –High school in Waimea Town and Elementary School in Kekaha • Parks & Recreation – Waimea Canyon State Park, Polihale State Park, Kōke‘e State Park

Kekaha Fact Sheet

Total Acreage:	52 acres
Current Use:	Two non-adjacent tracts of land • 31 acres (TMK 1-2-002:44 & 45) were recently acquired from DLNR • 20 acres (Parcel # 44) is under development as a 42 house lot site for beneficiaries • 11 acres (Parcel # 45) will not be used for house lots due to presence of cultural layer and burials • Non-adjacent 19 acres subdivided into 70 house lots leased to beneficiaries
State Land Use:	Urban
County General Plan:	Residential
Soils:	• Land not rated for agricultural production • All features of the land are favorable for building
Topography:	• Lowland coastal area • Elevation – 10-100 feet above sea level • Slope – 0-8% flat and rolling
Natural Hazards:	Eastern parcel located in flood hazard zone
Rainfall:	10 inches per year
Flora and Fauna:	• Land altered by residential development • No known threatened or endangered species
Significant Natural Resources:	Close proximity to the coast/ocean
Cultural Resources:	• Cultural layer and burials exist on TMK 1-2-02: 45 and 1-3-02:17, 47-50 • Ahupua‘a - Poki‘i
Infrastructure:	• Roads – Available, paved County roads • Water – Available, serviced by wells/tanks with plans to construct a new tank to satisfy fire flow concerns • Sewer – Serviced by IWS (individual wastewater system) • Electric – Available- serviced by hydroelectric plant in Waimea • Communications – available, new fiber optic cable along Highway from Sandwich Isles Communications, phone by Verizon, cable by Oceanic
Community Facilities:	• Medical Services - West Kaua‘i Medical Center • Fire & police - Fire Station 7 (Waimea), Waimea Police Sub-station • Schools - Kekaha School (K-5), Waimea Canyon School (6-8), Waimea High School (9-12) • Parks & Recreation – Public Park in the vicinity

Hanapēpē Fact Sheet

Total Acreage:	365 acres
Current Use:	• 30 residential leases on 7 acres • Gay & Robinson holds revocable permit (RP) for 347 acres for sugarcane • 5 acre RP for pasture, 0.4 acre RP for bus parking, 0.5 acre RP for storage, and 0.5 acre RP for parking • Land makai of Highway is industrial
State Land Use:	Agricultural
County General Plan:	• Residential • Agricultural
Soils:	• Much of the land is prime and productive for agriculture. Small non-productive area • Land is suitable for buildings, specifically the soil types LIC, LIB, and MgC
Topography:	• Flat gentle slope • Elevation – approximately sea level to 200 feet • Slope – 0-10% Flat areas and gradual slope
Natural Hazards:	Southern corner of land abuts flood hazard zone
Rainfall:	• Less than 30 inches per year
Flora and Fauna:	• Land historically cultivated for sugar production • No known threatened or endangered species
Significant Natural Resources:	• Hanapēpē River • Fertile soil
Cultural Resources:	• Salt ponds, Historic Hanapēpē Town, and 2 Heiau all within vicinity • Ahupua‘a - Hanapēpē
Infrastructure:	• Roads - access around the periphery via Kaumuali‘i Hwy and Moi Rd. • Water – available, storage capacities adequate through 2020 • Sewer – available, subject to connections and expansion of wastewater treatment plant in Ele‘ele, or new plant in Hanapēpē • Electric – available, electric power plant in Port Allen • Communications – Sandwich Island fiber optic along Highway and Moi Rd. in Hanapēpē, phone by Verizon, cable by Oceanic
Community Facilities:	• Medical Services – nearest in Waimea • Fire & Police – Fire Station 6 (Hanapēpē) • Schools –Elementary School in Hanapēpē, Intermediate/High school in Waimea • Parks & Recreation - Hanapēpē Park, Salt Pond Park, Swinging Bridge

Wailua Fact Sheet

Total Acreage:	526 acres (52 acres makai of Kuhiō Highway and 474 acres mauka of Kuhiō Highway)
Current Use:	• 11.5 acres makai of Kuhiō Highway under revocable permit (RP) for grazing, planned as commercial center • 45 acre revocable permit (RP) for pasture mauka of Kuhiō Highway • 10 acre RP for diversified agriculture
State Land Use:	• Agriculture • Urban – (11.5 acres, TMK 3-9-06:11)
County General Plan:	• Agricultural • Open - surrounding Male‘a Heiau
Soils:	• Much of land is prime and productive for agriculture • Approximately 50% of land is good for buildings, specifically soil type LhB and LhC
Topography:	• Both flat and rolling with views to the ocean • Elevation – 10-200 feet above sea level • Slope - 0-10% flat and rolling
Natural Hazards:	• Borders flood hazard zone - wetland area on the northern and eastern edges of the parcels most prone. Area around Kaua‘i Community Correctional Facility, which borders a portion of the eastern edge of the parcels, is known as one of Island’s worst flood prone areas
Rainfall:	Less than 60 inches per year
Flora and Fauna:	• Wetlands area bordering the northern edge of the parcel and the eastern edge near the correctional facility • Lowland Dry and Semi-Dry Forest/Shrub land, some land previously cultivated • No known threatened and endangered species
Significant Natural Resources:	• Wailua River , Wailua Bay, Coastal areas, and Wetland areas • Kālepa Ridge
Cultural Resources:	• Hikin akalā Heiau, Pu‘uhonua o Hauola, Malae Heiau & Petroglyphs • Mouth of Wailua river is landing place of the first ali‘i from Tahiti • Ahupua‘a - Wailua
Infrastructure:	• Roads- Mauka land not very accessible, former cane haul roads could provide some access • Sewage- Wailua treatment plant, cess pools and private treatment • Water – highly interconnected system in need of additional source and future storage capacity • Electricity – Adequate- serviced by power plant in Līhu‘e • Communications – poles/cables follow Kuhiō Highway, Sandwich Island fiber optic, phone by Verizon, cable by Oceanic
Community Facilities:	• Medical Services - Wilcox Hospital in Līhu‘e • Fire & Police – Fire Station 2 (Kapa‘a) or Fire Station 3 (Līhu‘e) • Schools – King Kaumuali‘i Elementary School (Hanamā‘ulu), Kapa‘a Middle School and High School • Parks & Recreation – Lydgate Park, Wailua Beach Park, Wailua Golf Course • Other – Kauai Community Correctional Facility

Kapa‘a Fact Sheet

Total Acreage:	17 acres
Current Use:	Two non-adjacent tracts of land • 1.87 acre parcel TMK 4-5-05:06 under revocable permit (RP) for school bus parking & other parking • 6.5 acres of approx. 15 acre more northern parcel under RP for mini storage and parking
State Land Use:	Urban
County General Plan:	Urban Center
Soils:	• Land not rated for agricultural production. Mostly fill land used for urban development • Portions of the land have a high water table with a shallow surface layer which can impede building
Topography:	• Lowland Coastal Area • Elevation – sea level to 100 feet • Slope - flat 0-5 %
Natural Hazards:	• Drainage canal Moikeha (just north of DHHL land) was initially constructed to alleviate flood problems, however it is now poorly maintained with considerable silt and debris build-up • Hurricane Iniki over wash zone just to the east on the opposite side of Kuhiō Hwy • Smaller southern parcel in flood hazard zone
Rainfall:	• 60 inches per year or less
Flora and Fauna:	• Nearby Kapa‘a Stream finds an abundance of native aquatic species. • Wetlands nearby Waikaea Canal which is adjacent to DHHL parcels • No known threatened and endangered species
Significant Natural Resources:	Nearby canals and wetlands
Cultural Resources:	• No known historic properties on DHHL parcels • Historic Kapa‘a Town and Historic Buildings in vicinity • Ahupua‘a - Kapa‘a
Infrastructure:	• Road – adequate but congested along Kuhiō Highway • Water – available, highly interconnected yet in need of future storage capacity • Sewer - available, serviced by County of Kaua‘i wastewater plant in Wailua • Electricity – available, power plant in Līhu‘e • Communications – available, Sandwich Island fiber optic, phone by Verizon, cable by Oceanic
Community Facilities:	• Medical Services - Samuel Mahelona Memorial Hospital • Fire & Police - Kapa‘a Town has one of Kaua‘i’s three police sub-stations and one of the 7 Fire Stations • Schools - Kapa‘a Middle School, Kapa‘a High School & Elementary school. St. Catherine School (private) • Parks & Recreation - Kapa‘a Ballpark and Kapa‘a Town Park. • Other - New Kapa‘a Park Cemetery

Anahola/Kamalomalo‘o Fact Sheet

Total Acreage:	4,228 acres
Current Use:	• Approx. 359 residential leases (100 acres) and 49 Agricultural leases (225 acres) • 3025 acre general lease to Līhu‘e Plantation expired 12/14/02- lands now vacant • remainder of lands undeveloped and other community uses- i.e. Project Faith
State Land Use:	• Majority Agricultural • Urban (small portion) • Conservation (small portion)
County General Plan:	• Residential, Agricultural, and Open
Soils:	• The soil is largely productive for agriculture in the makai areas and moving up Kamalomalo stream valley. • Upper mauka and some makai pockets of land unproductive • Much of lowland and coastal areas are suitable for buildings, specifically LhB & LhC soils. On the remaining land, steep slope or high water table creates building issue
Topography:	• Both flat lying regions and rugged cliffs rising above the coastal plain • Elevation – sea level to +/- 800 ft • Slope – majority of the land flat to rolling hills, some marginal and steep; approx. 3200 acres <10% slope, approx. 425 acres 10-20% slope, approx 635 acres >20% slope
Natural Hazards:	• Flood hazard in low lying areas near the shoreline and along the river; coastal erosion issues • Ground termite infestations
Rainfall:	• 50 inches per year on lower mauka and makai land • 100 inches per year on upper mauka land
Flora and Fauna:	• Wet Forest/Woodland in portions of upland area, Cultivated land in lowland areas • No known threatened and endangered species
Significant Natural Resources:	• Anahola, Kaupaku, and Kamalomalo Streams with dramatic mountain backdrop to the land • Substantial coastal and marine resources
Cultural Resources:	• Anahola Dune Burials, Aikanaka Heiau, Paeaea Heiau, Kuhua Heiau, Taro Terraces • Within the ahupua‘a of Anahola and Kamalomalo
Infrastructure:	• Road- adequate, agricultural lands access is via dirt roads • Water - systems need significant improvements, supply and storage adequate • Sewer –future development dependent on installing collection and treatment system • Electricity – adequate and available, power plant in Līhu‘e • Communications- Fiber optic from Sandwich Island Communications, phone by Verizon, cable by Oceanic
Community Facilities:	• Medical Services - Kapa‘a • Fire & Police - Kapa‘a • Schools – Kapa‘a (High school, Intermediate, Elementary) • Parks & Recreation - Anahola Beach Park

Moloa‘a Fact Sheet

Total Acreage:	316 acres
Current Use:	All 316 acres under revocable permit (RP) for pasture
State Land Use:	Agricultural
County General Plan:	Open
Soils:	• Soil mostly unproductive for agriculture • Conditions for building are not favorable due to slope, water table, stream over flow, and shrink swell
Topography:	• Flat plateaus cut by streams and gulches • Elevation – 200-760 ft • Slope - Makai of Hwy flat to rolling hills, Mauka of Hwy mostly marginal and steep; 125 acres <10% slope, 30 acres 10-20% slope, 160 acres >20% slope.
Natural Hazards:	• Riverside flooding • Slope failure in steep areas
Rainfall:	• 60 inches per year on makai land • Up to 100 inches per year on mauka land
Flora and Fauna:	• Wet Forest/Woodland in portions of upland area • No known threatened and endangered species, however southern border of land near medium concentration area • Pasture lands
Significant Natural Resources:	• Moloa‘a Stream cuts along the north boundary • Kīlauea Point Natural Preserve
Cultural Resources:	• Registered Archaeological Site in the vicinity • Ahupua‘a – Moloa‘a • Kīlauea Lighthouse
Infrastructure:	• Roads – land bisected by Kuhiō Hwy, but limited accessibility • Water – undeveloped • Sewer - undeveloped • Electricity – available along highway • Communications – available along highway
Community Facilities:	• Medical Services - approximately 12 miles away in Kapa‘a • Fire & Police – Hanalei • Schools – Elementary School in Kīlauea, Middle School and High School in Kapa‘a • Parks & Recreation - Anahola Beach Park is nearest developed park- approx 6 miles