EXECUTIVE CHAMBERS

HONOLULU

LINDA LINGLE
GOVERNOR

December 11, 2008

TO: Karen Seddon, Executive Director
Hawaii Housing Finance and Development Corporation

SUBJECT: Acceptance of the Final Environmental Impact Statement of the Keahuolu Affordable Housing Project

With this memorandum, I accept the Final Environmental Statement for the Keahuolu Affordable Housing Project as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statues. The economic, social and environmental impacts, which will likely occur should this project be built, are adequately described in the statement. The analysis, together with the comments made by reviewers, provides useful information to policymakers and the public.

My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws.

I find that the mitigation measures proposed in the environmental impact statement will minimize the negative impacts of the project. Therefore, I direct the Hawaii Housing Finance and Development Corporation and/or its agents to perform these, or alternative and at least equally effective, mitigation measures at the discretion of the permitting agencies. The mitigation measures identified in the environmental impact statement are listed in the attached document.

LINDA LINGLE

Attachment

c: Katherine Puana Kealoha, Office of Environmental Quality Control

ATTACHMENT TO ACCEPTANCE MEMORANDUM
FROM GOVERNOR LINDA LINGLE
TO KAREN SEDDON, EXECUTIVE DIRECTOR, HHFDC
MITIGATION MEASURES
FINAL ENVIRONMENTAL IMPACT STATEMENT
KEAHUOLU AFFORDABLE HOUSING PROJECT

The Keahuolu Affordable Housing Project is planned as a response to the regional needs for housing and the desire to reduce congestion on regional highways due to residents traveling long distances between home and work.

The following list of mitigative measures identified in the Final Environmental Impact Statement will minimize the negative impacts of the project. If the project is implemented, the Hawaii Housing Finance and Development Corporation (HHFDC) and/or its agents should perform these or alternative and at least equally effective mitigation measures at the discretion of the permitting agencies.

GEOLOGY AND TOPOGRAPHY

A grading permit, a National Pollution Discharge Elimination System (NPDES) permit, and other necessary permits would be required prior to construction. An Underground Injection Control (UIC) permit would be required for any dry wells constructed. The contractor would be required to comply with erosion and sedimentation rules and regulations. Runoff flow rates and volume would not be increase from the site to comply with the County of Hawaii's Storm Drainage Standard. Storm drainage filtration devices would be installed to mitigate pollutants from entering the groundwater.

GROUNDWATER, HYDROLOGY, SURFACE WATER, AND DRAINAGE

The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and County Strom Drainage Standards. Storm drain filtration devices and other measures would be employed to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.

NATURAL HAZARDS - EARTHQUAKES

Construction of the improvements would be required to comply with the Uniform Building Code's (UBC) standards for Zone 4.

ARCHAEOLOGICAL AND HISTORIC RESOURCES

Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.

A monitoring plan would be prepared and submitted to the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) prior to groundbreaking on the proposed reservoir site on Department of Hawaiian Home Lands.

ROADWAYS AND TRAFFIC

To address the impacts upon the regional traffic system, the following series of mitigation measures would be followed.

- Intersection 3: Kamakaeha Avenue & Palani Road (SR 190) – Install a traffic signal with the existing lane configuration.
- Intersection 4: Henry Street & Palani Road (SR 190) – Widen the makai-bound approach to provide two left-turn lanes, one through lane, and one shared through/right-turn lane; widen the northbound approach to provide one left-turn lane, one through lane, and one shared through/right-turn lane; and construct the southbound approach with one left-turn lane, one through lane, and one shared through/right-turn lane.
- Intersection 5: Palani Road (SR 190) & Minor Site Access Road – Add a makai-bound deceleration lane into the project site and a makai-bound acceleration lane out from the project, separated by a raised island to channelize traffic. A second makai-bound lane would be added to receive traffic exiting the project site.
- Intersection 7: Ane Keohokalole Highway & Major Site Access Road – Install a traffic signal.
- Intersection 8: Kealaka'a Street/Pahiliholo Street & Palani Road (SR 190) – Widen Palani Road to provide one left-turn lane, one through lane, and one shared through/right-turn lane on the southbound approach and two left-turn lanes and one shared through/right-turn lane on the northbound approach. Widen the southbound departure to two lanes, which would merge into a single land downstream of the intersection.
- Intersection 10: Uluaoa Street & Palani Road (SR 190) – Install a traffic signal within the existing lane configuration.
- Intersection 12: Kealakehe Parkway & Ane Keohokalole Highway – Install a traffic signal within the existing lane configuration.

NOISE

Measures to minimize noise impacts may include limiting work to daytime hours, reducing truck/equipment idling when not in use, using manually adjustable or self-adjusting backup alarms, and fitting generators and equipment with manufacturer-approved exhaust mufflers. Noise from construction activity will be short-term and will be required to comply with Department of Health (DOH) noise regulations.

To buffer the project from the Ane Keohokalole Highway, the conceptual plans for the project provide for commercial uses along the highway and a wide landscaped greenway between the highway and the project site.

Residential and commercial uses within the Keahuolu project site would be required to conform to DOH rules and regulations for noise, which state maximum allowable noise limits at property lines.

AIR QUALITY

A dust control program would be developed and followed to control dust from construction activities. Fugitive dust emissions can be controlled to a large extent by watering active work areas, using wind screens, keeping adjacent paved roads clean, and covering open-bodied trucks. Other measures include limiting the area to be disturbed at any given time, mulching or chemically stabilizing inactive areas, or paving and landscaping areas early in the construction schedule.

INFRASTRUCTURE AND UTILITIES

Off-Site Roadway System. Landowners with frontage to Ane Keohokalole Highway would be expected to share in the cost of constructing the highway. The project would be responsible for satisfying its allocated share of the cost of the improvements including one lane in each direction plus a middle turn lane with drainage but excluding other utilities. A right-in/right-out intersection is proposed along Palani Road. To minimize impacts on traffic along Palani Road, the intersection would include deceleration and acceleration lanes and a raised median to prevent vehicles from attempting to make left turn movements.

Drainage System. The contractor would be required to comply with Chapter 10 – Erosion and Sedimentation Control – of the County Code, the Department of Public Works Storm Drainage Standard, and the NPDES permit requirements, including the Best Management Practices (BMP) plan to contain and control site erosion and to prevent the discharge of sediment from the site. After completion of the project construction, ground surfaces would be stabilized with landscape and hardscape.

The developer would comply with the County's Storm Drainage Standard, runoff flow rates and volume would not be increased from the site. The runoff would be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. Recommended drainage systems would also include storm drain filtration devices to mitigate potential pollutants. Filtration devices may include vegetated swales, bioretention areas, sand, or organic filtering systems or commercially available proprietary products such as catch basin inserts and hydrodynamic devices. The method of filtration would be determined based on available technology and integrated with the system design.

The developer would provide educational materials and programs to residents regarding how they can control and prevent non-point source pollution, including but not limited to, vehicular maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, potential impacts of fertilizer and pesticides on the environment, and alternatives to fertilizers

and pesticides. The developer would also establish community association covenants to include landscape management and vehicle maintenance controls. Landscape management controls would include the use of fertilizers, pesticides and herbicides, a listing of approved fertilizers, pesticides and herbicides, and a listing of preferred landscape plant species including native plant species and those thought to have a low risk of becoming invasive. Vehicle maintenance controls would include vehicle washing and maintenance. The developer would also provide the County Department of Parks and the State Department of Education information on the landscape management controls and vehicle maintenance controls to be used within the Keahuolu site.

Water System. The developer would be required to comply with the NPDES permit requirements, including the BMP plan, and Chapter 10 – Erosion and Sedimentation Control – of the County Code during construction, and prevent the discharge of sediment from the site. The project would be designed to comply with the County's Storm Drainage Standard such that runoff volumes and rates would not increase as a result of site development.

The NPDES permit requirements, including the BMP plan, would require the contactor to manage materials to prevent discharge of pollutants to the ground. During and after development, landscape management practices and community association covenants would be applied in public and private areas to minimize the use of fertilizers, pesticides and herbicides that could potentially enter the groundwater.

Water supply infrastructure, including source wells, storage reservoirs, and distribution lines, would be constructed as required and approved by the County Department of Water Supply. Short-term localized water system shut-downs and road closures may be required as the new water infrastructure is connected to the existing water system.

The developer would implement water conservation measures including installing low flow toilets and showerheads waterless urinals in public restrooms, plant drought tolerant native landscaping and providing residents with information on the importance of water conservation.

To reduce the amount of pollutants from entering the groundwater, the developer would provide educational materials and programs to residents, establish community association covenants and implement BMPs. Educational materials and programs, and community association covenants would include, but not be limited to, landscape management and vehicular maintenance controls. BMPs would include vegetative swales, bioretention areas, storm drain filtration devices, ground stabilization with landscape and hardscape, educational warning signs on the drainage systems, and coordinating environmental educational programs for project area residents with the DOH Clean Water Branch.

Wastewater System. Construction activities would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust

impacts. County fees associated with permission to connect would be applied by the County to upgrade the existing treatment and disposal facilities on an as-needed basis.

Solid Waste. Emphasis for the management of solid wastes generated by the Keahuolu project would be placed on waste diversion and recycling. Solid wastes would be managed in conformance with the applicable DOH and County requirements. The developer would provide educational materials and information on recycling programs to residents to minimize and divert wastes.

Electrical Service. An additional Hawaii Electric Light Company (HELCo) substation would be required to accommodate anticipated loads from the Keahuolu project coupled with the partial buildout of the Villages of La'i'opua and the Queen Liliuokalani Trust's ongoing Makalapua development. The preferred location for the new substation is in the Keahuolu project in the vicinity of the County reservoir near the Palani Road/Ane Keohokalole Highway intersection.

PUBLIC FACILITIES

Civil Defense. The developer would be required to install one outdoor warning siren at a central location within the development.

Education. An elementary school would be located on-site to relieve crowding at Kealakehe Elementary.

Recreation. The project would include approximately 25 acres of park and open space for use by residents, in accordance with County Parks Department requirements.

September 2008

Final Environmental Impact Statement

KEAHUOLU

AFFORDABLE HOUSING PROJECT

Kailua-Kona, North Kona, Island of Hawaii

Volume 1 of 2

PREPARED BY

BelteCollins

PREPARED FOR

Corporation Hawaii Housing Finance & Development
State of Hawaii
1959

September 2008

VOLUME 1 OF 2

KEAHUOLU

AFFORDABLE HOUSING PROJECT

Kailua-Kona, North Kona, Island of Hawaii

THIS ENVIRONMENTAL IMPACT STATEMENT HAS BEEN PREPARED BY BELT COLLINS HAWAII LTD. ACTING AS A CONSULTANT TO THE HAWAII HOUSING FINANCE & DEVELOPMENT CORPORATION

Karen Seddon

KAREN SEDDON
EXECUTIVE DIRECTOR
HAWAII HOUSING FINANCE & DEVELOPMENT CORPORATION

09/18/08
DATE

LEE SICHTER
PRINICPAL PLANNER
BELT COLLINS HAWAII LTD.

Sept. 18, 2008
DATE

PREPARED BY

BeltCollins

PREPARED FOR

HAWAII HOUSING FINANCE & DEVELOPMENT CORPORATION
STATE OF HAWAII
1959

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APENDICES

ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ADA	Americans with Disabilities Act
ALISH	Agricultural Lands of Importance to the State of Hawai‘i
BLNR	Board of Land and Natural Resources (State of Hawai‘i)
BMP	Best Management Practices
BOE	Board of Education
c.	circa
CDP	Community Development Plan
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
County	County of Hawai‘i
CPI	Consumer price index
CPR	Condominium property regimes
CT	Census Tract
~~CTTP~~CTPP	County Transportation Planning Process
CWRM	Commission on Water Resource Management (State)
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Area
DBEDT	Department of Business, Economic Development and Tourism (State of Hawai‘i)
dBA	A-weighted sound level in decibels
DHHL	Department of Hawaiian Home Lands (State of Hawai‘i)
DHS	Department of Homeland Security
DOA	Department of Agriculture (State of Hawai‘i)
DOE	Department of Education (State of Hawai‘i)
DOH	Department of Health (State of Hawai‘i)
DLNR	Department of Land and Natural Resources (State of Hawai‘i)
DPW	Department of Public Works (County of Hawai‘i)
du	Dwelling units
DWS	Department of Water Supply (County of Hawai‘i)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpd	gallons per day
GPS	global positioning system
HAR	Hawai‘i Administrative Rules
HELCo	Hawaii Electric Light Company
HHFDC	Hawaii Housing Finance & Development Corporation
Hiluhilu	Hiluhilu Development LLC
HRS	Hawai‘i Revised Statutes
HTA	Hawai‘i Tourism Authority
HTCo	Hawaiian Telcom
HUD	Housing and Urban Development (U.S. Department of)

ICBO	International Conference of Building Officials
ITE	Institute of Transportation Engineers
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
LSB	Land Study Bureau (University of Hawai‘i)
LUC	Land Use Commission
LUPAG	Land Use Pattern Allocation Guide
Makai	towards the ocean
Mauka	towards the mountains
MG	million gallons
mgd	million gallons per day
msl	mean sea level
MUTCD	*Manual on Uniform Traffic Control Devices*
MW	megawatt
n.d.	no date
NCREIF	National Council of Real Estate Investment Fiduciaries
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service (U.S. Department of Agriculture)
Oceanic	Oceanic Time Warner
OEQC	Office of Environmental Quality Control
OHA	Office of Hawaiian Affairs
P&R	Parks and Recreation (County of Hawai‘i)
PASH	Ppublic Aaccess Sshoreline Hawai‘i
PHRI	Paul H. Rosendahl, Ph.D., Inc.
psi	Pounds per square inch
Planning Act	Hawai‘i State Planning Act 1978
QLT	Queen Lili‘uokalani Trust
RFP	Request for Proposal
rKED	Kaimu extremely stony peatsoil
rLV	soil from A‘a‘a Lava Flows
rLW	soil from Pahoehoe Lava Flows
rPYD	Punaluu extremely rocky peat soil
ROW	Rights-of-Way
SF	Square foot
SHPD	State Historic Preservation Division
SIHP	State Inventory of Historic Places
SMA	Special Management Area
State	State of Hawai‘i
STP	Sewage Treatment Plant
TCP	traditional cultural property
TIAR	Traffic Impact Analysis Report
TMK	Tax Map Key
TOD	Transit-oriented development
UBC	Uniform Building Code
UH	University of Hawai‘i
UIC	Underground Injection Control

USDA	U.S. Department of Agriculture
USDW	underground sources of drinking water
USGS	U.S. Geological Survey
V/C	volume-to-capacity
vog	volcanic haze
WWTP	Wastewater Treatment Plant

~~1~~CHAPTER ONE: INTRODUCTION AND SUMMARY

1.1 PROJECT PROFILE

Project Name:	Keahuolu Affordable Housing Project
Location:	Keahuolu, North Kona, Hawai‘i
Judicial District:	North Kona
Project Site Tax Map Key:	TMK (3) 7-4-021: 020
Project Site:	272.063 acres owned by Hawai‘i Housing Finance & Development Corporation (HHFDC)
Project Site Existing Use:	Vacant undeveloped land
Project Site Existing Land Use Designations:	*State Land Use:* ..... 271.865 acres in Agricultural *State Land Use:* ..... 0.198 acres in Urban *Hawai‘i County General Plan’s Land Use Pattern Allocation Guide (LUPAG): ...* Urban Expansion and Low Density Urban *Hawai‘i County Zoning:* .....Agricultural (A-5a)
State Land Use District Boundary Amendment Area:	271.865 acres of the 272.063-acre Tax Map Key (TMK) (3) 7-4-021:020 is proposed for a state land use district boundary amendment from State Agricultural to State Urban.
Additional Study Area:	Proposed Off-Site Reservoir A proposed off-site reservoir to service the project would be located adjacent to the project site on land owned by the Department of Hawaiian Home Lands (DHHL). The proposed reservoir site is an approximately 7.3-acre area of TMK (3) 7-4-021: por. 021 *State Land Use:* ..... Urban *LUPAG* ..... Urban Expansion and Low Density Urban *Hawai‘i County Zoning:* ..... Residential (RS-15)
Total Environmental Impact Statement (EIS) Study Area:	Approximately 279 acres

Project Site	State Land Use District Boundary Amendment
Permits/Approvals Required (not an exhaustive list):	County Change of Zone National Pollutant Discharge Elimination System Subdivision Approval Plan Approval Grading and Building Permits
Proposing Agency:	Hawaii Housing Finance & Development Corporation 677 Queen Street, Suite 300 Honolulu, Hawaii 96813 Contact: Mr. Stan S. Fujimoto, Project Manager Telephone: 808-587-0541 Fax: 808-587-0600
Accepting Authority:	Office of the Governor c/o Hawaii Housing Finance & Development Corporation 677 Queen Street, Suite 300 Honolulu, Hawaii 96813 Contact: Ms. Janice Takahashi, Chief Planner Telephone: 808-587-0639 Fax: 808-587-0600
EIS Preparer:	Belt Collins Hawaii Ltd. 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 Contact: ~~Mary O'Leary, AICP~~Lee Sichter Telephone: 808-521-5361 Fax: 808-538-7819

1.2 PROJECT OVERVIEW

The Hawaii Housing Finance & Development Corporation (HHFDC) is the State of Hawai‘i (State) agency tasked with developing and financing low- and moderate-income housing projects and administering homeownership programs. The HHFDC is proposing the development of the Keahuolu Affordable Housing P~~p~~roject (also referred to as “Keahuolu” or “project”) to serve the people employed in West Hawai‘i. The project is intended to be a mixed-use community with affordable and market-priced housing, as well as commercial space and public facilities.

In the first half of 2007, the HHFDC undertook a master plan process and developed three alternative conceptual land use plans for the 272-acre housing project site, which is owned by the HHFDC and located along Palani Road mauka of Kailua-Kona town in the North Kona district. The alternative concept plans, which offer single- and multi-family dwelling units in varying densities, differ primarily in the total number of dwelling units (Table 1-1). The concept plans are described in further detail in Chapter 2 of the EIS.

In addition to housing, the three mixed-use concept plans have the following common elements: 197,000 square feet of commercial/retail space, a civic open space at a town center, a site reserved for a school, neighborhood parks, an archeological preserve area, and landscaped buffers and open space.

Table 1-1: Alternative Concept Plans – Housing Unit Totals and Densities

	Alternative Concept Plans		
	A	**B**	**C**
Number of residential units:			
High density - multi-family	400	800	800
Medium density - multi-family	220	440	1,530
Low density - single-family	400	600	None
Total Residential Dwelling Units (du)	**1,020 du**	**1,840 du**	**2,330 du**
Density (dwelling units per acre):			
High density - multi-family	12	24	24
Medium density - multi-family	8	16	12
Low density - single-family	4	6	None

Source: The Keahuolu Affordable Housing Master Plan – June 2007

1.3 LOCATION

The Keahuolu Affordable Housing ~~p~~Project site is located in the ahupua‘a of Keahuolu in the North Kona district on the island of Hawai‘i (Figure 1-1). The project site is bordered by the Department of Hawaiian Home Lands’ (DHHL) Villages of La‘i ‘Opua to the north, future DHHL housing to the east (mauka), Palani Road to the south, and Queen Lili‘uokalani Trust (QLT) lands to the west (makai) (Figure 1-2). The off-site reservoir property, owned by the DHHL, is adjacent to the eastern tip of the project site. The future Ane Keohokalole Highway

(also referred to as the mid-level road or mid-level highway) will be adjacent to the project site's western boundary.

The vacant and undeveloped project site is comprised of lava flows of various ages that are covered mostly by alien-dominated scrub vegetation that has been disturbed in the past. The subject property and adjacent vacant lands are shown in the aerial photo in Figure 1-3.

1.3.1 Project Subdivision Map and Tax Map Key

The project site received final subdivision approval from the County of Hawai'i (County) on September 7, 2006. The 272.063-acre project site is described as Tax Map Key (TMK) 7-4-021: 020 as illustrated in Figure 1-4. The off-site reservoir will be located on TMK 7-4-021: por. 021.

1.3.2 Access to the Project Site

Future Extension of Ane Keohokalole Highway

Primary access to the Keahuolu Affordable Housing ~~project~~ Project will be off of the County's future Ane Keohokalole Highway (Figure 1-2). The County plans to use Ane Keohokalole Highway as the main bus transit corridor for this area. The highway will connect at Henry Street and extend north to the Kona International Airport. The County envisions that the Ane Keohokalole Highway will not only serve as a main bus transit corridor, but will ultimately connect Kailua-Kona to the airport without having to drive on Queen Ka'ahumanu Highway.

At the time of this writing, Ane Keohokalole Highway is planned to be a minor arterial with a 120-foot-wide right-of-way and a posted speed limit of 35 miles per hour. Two lanes are proposed in each direction.

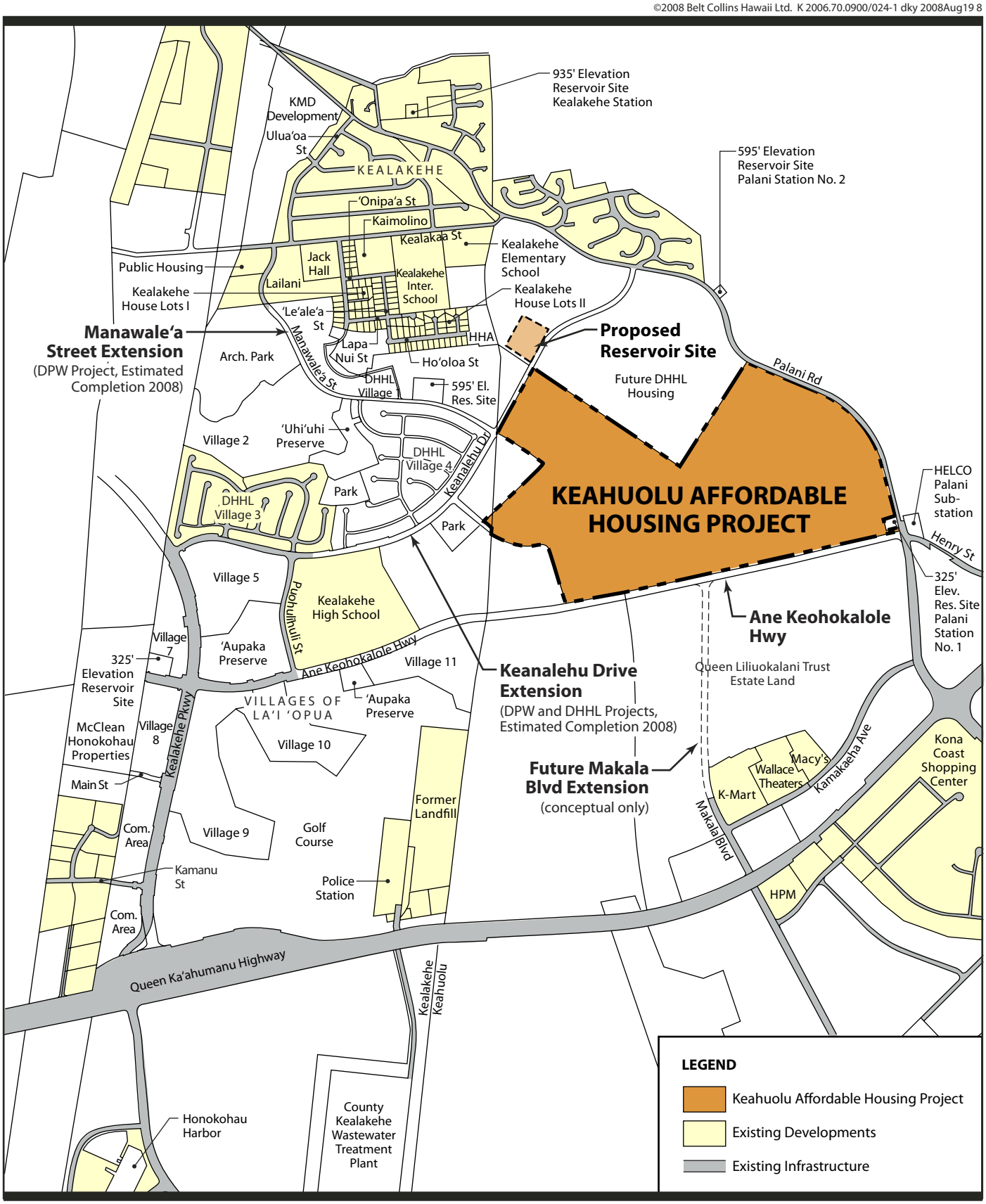
BeltCollins

NORTH

0 3 6 12
SCALE IN MILES

Figure 1-1
LOCATION MAP

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008



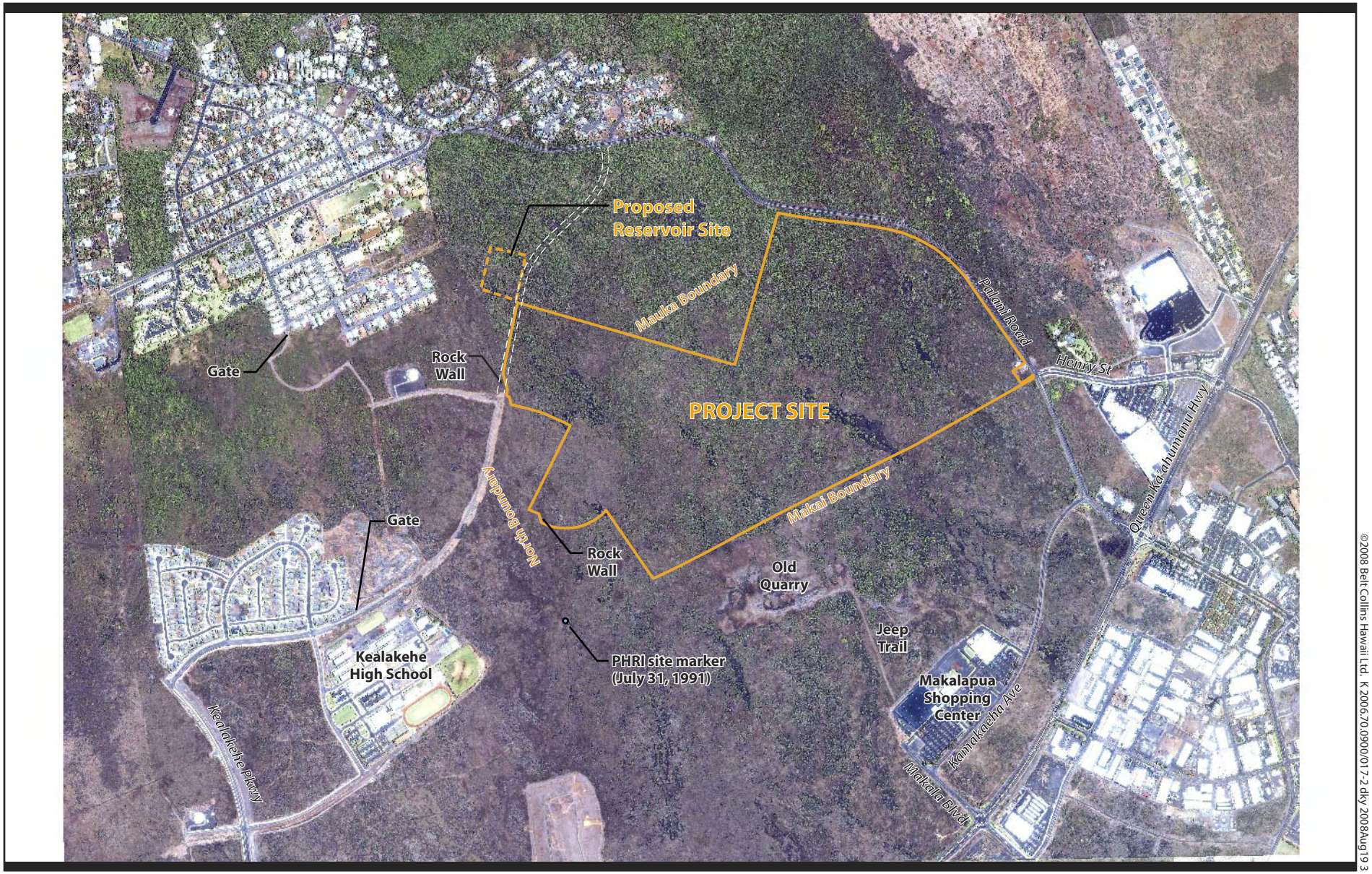
NORTH

0 600 1200 1800

SCALE IN FEET

Figure 1-2
KAILUA-KONA AREA MAP

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008



NORTH

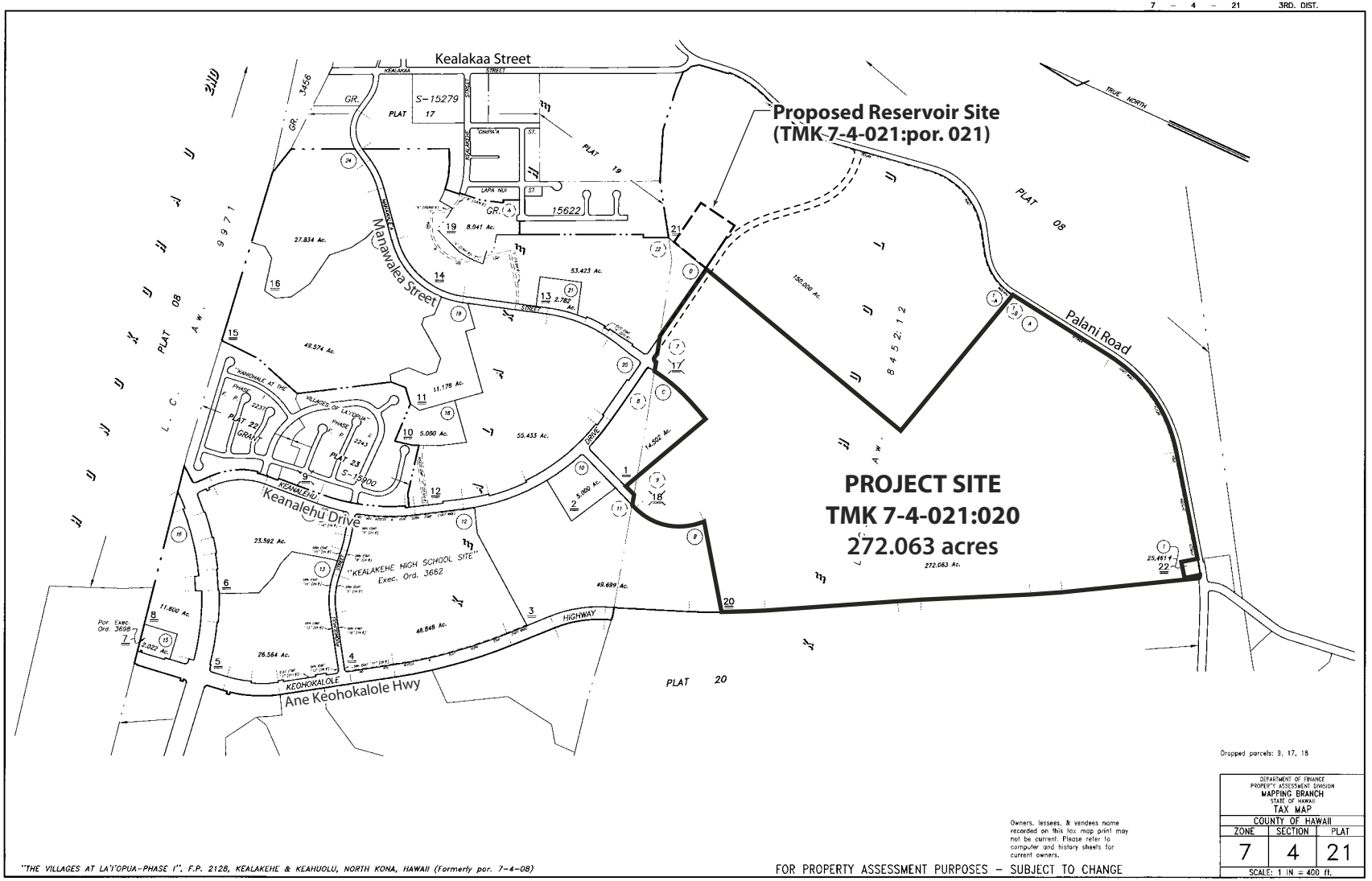
0 500 1000 1500
SCALE IN FEET

LEGEND

Property Line

Figure 1-3
PROJECT SITE AERIAL PHOTO

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008



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NORTH

0 750 1500

SCALE IN FEET

Figure 1-4
PROJECT SITE TAX MAP KEY

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Extension of Keanalehu Drive from Kealakehe High School to Kealaka'a Street

The project site will have access onto the north extension of Keanalehu Drive, which is adjacent to a portion of the project site's northeastern boundary. Access to the off-site reservoir will be via a service road to be located within the alignment of the south extension of Keanalehu Drive. The County has started construction of the extension of Keanalehu Drive and Manawale'a Street from Kealakehe High School to Kealaka'a Street within the Villages of La'i 'Opua. The estimated completion of this roadway is 2008. A short section of the extension of Keanalehu Drive mauka of Kealakehe High School to the entrance of DHHL's Village 4 will be constructed by DHHL.

Future Extension of Makala Boulevard

Access to the project site would also be available via a future extension of Makala Boulevard. The conceptual plans for the Keahuolu Affordable Housing Pproject have a central boulevard mauka of Ane Keohokalole Highway that could link with the future extension of Makala Boulevard makai of Ane Keohokalole Highway. This would link the Keahuolu Affordable Housing project site to Queen Ka'ahumanu Highway via Makala Boulevard.

1.4 PROJECT BACKGROUND

1.4.1 2007 Keahuolu Master Plan

The HHFDC initiated master planning of the Keahuolu Affordable Housing Pproject in early 2007 when it developed alternative land use plans for the project site, including preliminary infrastructure requirements for the alternative plans. The HHFDC's June 2007 "Keahuolu Affordable Housing Master Plan" report contains three alternative concept plans, basic infrastructure plans, and preliminary development costs.

Following the finalization of the master plan report, the HHFDC issued a Request for Proposals (RFP) in July 2007, to prospective developers for the proposed Keahuolu Affordable Housing project. The "Keahuolu Affordable Housing Master Plan" report was included with the RFP documents as a reference.

This ~~Draft~~ EIS evaluates the land use and preliminary infrastructure components of the Master Plan's three alternative concept plans. A "preferred alternative" is not indicated.

While the ultimate developer of this project may have a somewhat different development plan, it will be consistent with and fit within the Master Plan's three alternative concept plans. HHFDC's RFP to prospective developers provided the guidelines for submittal. Therefore, the analysis, potential impacts, and applicable mitigation measures discussed in this EIS apply to the ultimate development project proposed by the selected developer.

1.4.2 Prior Environmental Studies of the Project Site

The entire project site was formerly part of QLT lands ~~which~~ that were studied in the QLT's "Keahuolu Lands of Kailua-Kona - Final Environmental Impact Statement," dated October 1990 and prepared by Belt Collins Hawaii. Some QLT lands, including a portion of the current project site, were acquired by the State in 1992 in order to develop affordable housing. The HHFDC's "Kealakehe Planned Community - Final Environmental Impact Statement," dated September 1990, and prepared by Belt Collins Hawaii, also studied a portion of the current project site. A portion of the former Kealakehe Planned Community P~~p~~roject, located mauka of Queen Ka'ahumanu Highway, is now known as the Villages of La'i 'Opua.

These prior EISs and related technical studies were consulted in preparation of this ~~Draft~~ EIS for the Keahuolu Affordable Housing P~~p~~roject. Other technical studies were prepared for the project to assess the existing natural and physical site conditions, potential impacts, and applicable mitigation measures:

- A 2007 report on the findings of the Archaeological Inventory Survey for the 1990 QLT property's EIS.
- A Botanical Survey
- A Civil Infrastructure Study
- A Cultural Impact Assessment (CIA)
- A Traffic Impact Analysis Report (TIAR)

1.5 PURPOSE AND NEED FOR THE PROJECT

The Keahuolu Affordable Housing Pproject responds to the strong demand for affordable homes for working families in and around North Kona. While Kailua-Kona is an employment center, its workforce is scattered throughout West Hawai‘i and even in East Hawai‘i. The County has identified the development of housing near job centers as a planning priority in order to lessen regional road congestion.[1]

The North Kona district has seen continued increases in population, visitor numbers, and commercial areas. The resident population of the North Kona district in 1980 was 13,748; in 1990 it was 22,284. That equates to a 62 percent increase from 1980. The resident population in 2005 was approximately 28,550. That equates to 208 percent of the 1980 district population.

The majority of people working in Kailua-Kona commute from other places on the island. In 2000, some 10,000 persons worked in Kailua-Kona. Of these, 70 percent commuted from other places on the island.[2] In 2000, data for West Hawai‘i zip code areas show that the time spent commuting increases the farther a home is from the job center. The mean travel time to work was an hour. According to the 2006 update of the *Hawaii Housing Policy Study*,[3] more than 7,000 households expect to move in the next few years and want their next home to be in North Kona.

The cost of housing is a significant burden for many Hawai‘i County families. A quarter of households pay 40 percent or more of their monthly income for shelter payments. One eighth of Hawai‘i County households pay 30 to 40 percent of their monthly income for shelter. Renters are especially vulnerable; nearly half of all renters surveyed pay 30 percent or more for shelter.

For all of Hawai‘i County, the median affordable housing payment for survey respondents expecting to move was just under $1,400 per month. The 2006 study update suggests that some

1 *Hawaii County General Plan,* 2005, pages 9-10.

2 This Census calculation is for the Kailua-Kona Census Designated Place. Residents of the subdivisions to the north of Kailua-Kona such as Kona Palisades would count as “commuters” to Kailua-Kona along with residents of more distant areas (US Census data calculated by Department of Business Economic Development & Tourism, available at http://www.hawaii.gov/dbedt/info/census/Folder.2005-10-13.2927/DaytimePop).

3 SMS Research & Marketing Services, Inc. (2007). *Housing Policy Study, 2006.* Prepared for HHFDC and Honolulu, Maui, Hawaii, and Kauai Counties. Honolulu, HI. Posted at http://www.hawaii.gov/dbedt/hhfdc/resources/Reports.

2,500 families in North Kona are likely to move and fall into the affordable housing range (80 percent to 140 percent of median income). More than 7,000 families islandwide fit this range, as shown in Table 1-2:

Table 1-2: Households Expecting to Move, by Housing Payment

Number of house-holds, by monthly housing cost:	Live in North Kona			Islandwide		
	Rent	Own	Total	Rent	Own	Total
Can afford --						
under $500	646	268	914	2,669	1,027	3,696
$500 to $799	431	55	486	1,466	1,399	2,865
$800 to $1,099	126	649	775	821	3,932	4,753
$1,100 to $1,399	352	300	***652***	762	1,821	***2,583***
$1,400 to $1,699	390	725	***1,115***	444	2,837	***3,281***
$1,700 to $1,999	468	265	***733***	656	509	***1,165***
$2,000 to $2,999	55	2,102	2,157	122	4,101	4,223
$3,000 and up		1,514	1,514		2,360	2,360

NOTES: Data from survey weighted to represent the total population.
Rent — Respondents who will move, and intend to rent, move in with friends, or some other tenancy.
Own — Respondents who will move, intend to buy their next unit, or who would buy if it was affordable.
SOURCE: 2006 Hawaii Housing Policy Study, unpublished Hawai'i County tables made available by HHFDC, Table F-32~~.~~, Affordable Housing Cost.

The increase in population in West Hawai'i over the past two decades, and the fact that the majority of workers in Kailua-Kona commute from other places on the island are indicators of the pent-up demand for new housing. Demand exists for both affordable and market-priced housing, as well as expanded residential-oriented commercial and public services closer to Kailua-Kona.

Major new housing projects in the region include County and private projects in Waikoloa and the Palamanui project mauka of Keahole Airport. DHHL plans to expand its La'i 'Opua housing areas next to the HHFDC property. While these and smaller projects will increase housing

inventory and include affordable units for working families, demand still outweighs current and anticipated supply.

1.6 STATEMENT OF PROJECT OBJECTIVES

The proposed Keahuolu Affordable Housing Pproject is intended to create an affordable, livable community based on New Urbanist planning and design principles to serve the North Kona community. The project's primary objective is to provide affordable housing opportunities in response to regional needs for housing and the need to provide affordable housing closer to employment centers in West Hawai'i. This will help to reduce traffic on regional highways caused by residents' traveling long distances between home and work. The objectives of this project are listed below (from June 2007 Master Plan report).

- Provide the maximum number of affordable***** units in the most livable community within the shortest feasible duration.
- Use design principles that will create a walkable, bikable, active-lifestyle community.
- Promote a walkable community that offers multiple modes of transportation options.
- Integrate the project site with the area's current and future transportation network.
- Accommodate the potential for future feasible roadway connections to development on adjacent lands.
- Provide transit-oriented, high density development within easy walking distance (1/4 mile) of future bus transit stops along Ane Keohokalole Highway and the future extension of Makala Boulevard.
- Provide a mixed-use town center in a multi-block area that contains multi-family housing, ground-floor commercial space, and civic open space.
- Provide neighborhood parks.
- Provide an approximately 12-acre site for a school facility.
- Retain the approximately 7-acre archeological preserve area.
- Develop required infrastructure for the project.

***** "Affordable" housing is capped at 140 percent of the area median income established by the U.S. Department of Housing and Urban Development (HUD).

1.7 PURPOSE OF THIS ~~DRAFT~~ ENVIRONMENTAL IMPACT STATEMENT DOCUMENT

The HHFDC, which owns the approximately 272-acre project site, is the proposing agency filing this ~~Draft~~ EIS for the Keahuolu Affordable Housing P~~p~~roject. The HHFDC has proposed this ~~Draft~~ EIS in support of a Land Use District Boundary Amendment Petition that will be submitted by the ultimate developer of the Keahuolu Affordable Housing P~~p~~roject to the State Land Use Commission (LUC).

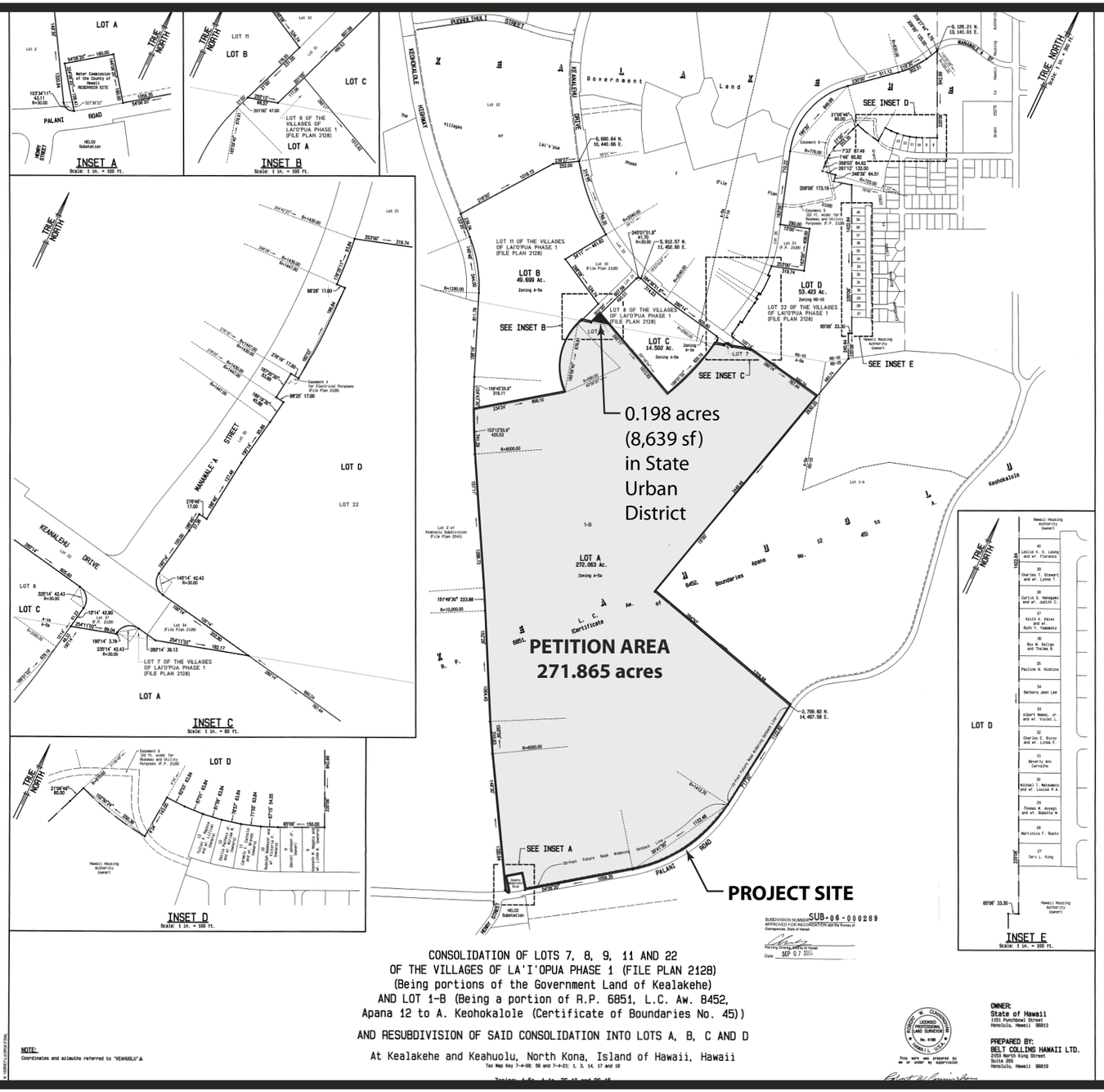
The boundary amendment is necessary to reclassify a majority of the project parcel from State Agricultural to State Urban classification (Figure 1-5). A small portion of the project parcel, 0.198 acres, is in the State Urban district (Table 1-3).

Table 1-3: Proposed State Land Use Boundary Amendment Petition Area

Petition Area	Acres	Land Use
TMK 7-3-021: por.020	271.865	From: State Agricultural To: State Urban
TMK 7-3-021: por.020	000.198	In: State Urban
Project Site Total TMK 7-3-021: 020	272.063	

Hawaii Revised Statutes (HRS), Chapter 343, identifies nine triggers that require the preparation of an environmental assessment or environmental impact statement. The triggers for the Keahuolu Affordable Housing P~~p~~roject include the following:

- The use of State lands for development of an affordable housing project and master planned mixed-use development community; and
- ~~Reclassification of land from the State Land Use Agricultural District to the State Land Use Urban District; and~~
- The use of State lands for the development of off-site infrastructures, some of which may take place within State Rights-of-Way (ROW).



PROPOSED STATE LAND USE BOUNDARY AMENDMENT PETITION AREA

Petition Area	TMK 7-3-021: por. 020	271.865 acres	From	State Agricultural
			To	State Urban
	TMK 7-3-021: por. 020	000.198 acres	In	State Urban
Project Site Total	TMK 7-3-021: 020	272.063 acres		

Belt Collins

NORTH

0 600 1200
SCALE IN FEET

Figure 1-5
BOUNDARY AMENDMENT MAP—PETITION AREA

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

In addition, the development of the Keahuolu Affordable Housing Pproject may involve or impact State and/or County lands or funds relating to infrastructure improvements for public facilities, roadways, water, sewer, utility, drainage, or other facilities.

An Environmental Impact Statement Preparation Notice (EISPN) for the proposed project was prepared and filed with the Hawai'i State Office of Environmental Quality Control (OEQC). Notification of the EISPN's availability for public review was published in OEQC's publication, "The Environmental Notice," on July 23, 2007. A 30-day public review period followed and ended on August 22, 2007. Chapter Nine Ten contains copies of comment letters received on the EISPN and response letters.

The Draft Environmental Impact Statement was prepared and filed with OEQC. Notification of the Draft EIS's availability for public review was published in "The Environmental Notice" on February 23, 2008. A 45-day public review period followed and ended on March 24, 2008. Chapter Ten contains copies of comment letters received on the Draft EIS and response letters.

1.8 RELATIONSHIP TO LAND USE POLICIES

State Land Use Law, Chapter 205, HRS. The majority of the Keahuolu Affordable Housing Pproject site is currently in the State Agricultural district. The developer will need to file a petition with the State LUC to reclassify 271.865 acres of the property to the State Urban district. A small portion of the property, 0.198 acres, is already in the State Urban district. Chapter Five, Section 5.21, discusses this in greater detail.

Hawai'i State Plan, Chapter 226, HRS. The Hawai'i State Plan contains goals, objectives, and policies that serve as long-range guidelines for the growth and development of the State. The Keahuolu Affordable Housing project is relevant to many of the goals, objectives, and policies set forth by the State Plan. Conformance of the project with the State Plan is discussed in detail in Chapter Five, Section 5.32.

State Functional Plans. The Hawai'i State Plan directs State agencies to prepare functional plans for their respective program areas. There are 13 state functional plans that serve as the

primary implementing vehicles for the goals, objectives, and policies of the Hawai~~'~~i State Plan. The functional plans are discussed in Chapter Five, Section ~~5.4~~5.3.

County of Hawai'i General Plan. The General Plan sets forth a policy of comprehensive development for the entire island and incorporates an awareness of the relationship between social, physical, and economic environments. Table 5-5 in Chapter Five presents the goals and policies of the current Hawai'i County General Plan and discusses by element the relationship and applicability, if any, to the proposed project.

Also discussed in Chapter 5 are the Keahole to Kailua Development Plan, the Keahole to Honaunau Regional Circulation Plan, and the Kona Community Development Plan.

Table 1-4: Kona Community Development Plan

KONA COMMUNITY DEVELOPMENT PLAN	CONFORMS		NOT APPLICABLE
	YES	NO	
GUIDING PRINCIPLES			
Protect Kona's natural resources and culture.	X		
Provide connectivity and transportation choices.	X		
Provide housing choices.	X		
Provide recreation opportunities.	X		
Direct future growth patterns toward compact villages, preserving Kona's rural, diverse, and historical character.	X		
Provide infrastructure and essential facilities concurrent with growth.	X		
Encourage a diverse and vibrant economy emphasizing agriculture and sustainable economies.			X
Promote effective governance.	X		
COMMENTARY: This project responds to the critical affordable housing needs in Kona, Hawaii. This project will add to a continuum of housing options for all residents, including low-income and elderly, in Kona, Hawaii. In Kona, Hawaii, rapid population growth has not been accompanied by a growth in affordable housing. Proposed park areas will create new recreational opportunities. The landowner, developer, and county will work together to achieve concurrency in infrastructure development whenever practicable. The project is located in an area long-identified for urban expansion thereby contributing to the preservation of more sensitive environmental and cultural areas.			
PURPOSE			
Articulate Kona's resident's vision for the planning area;	X		
Guide regional development in accordance with that vision, accommodating future growth while preserving valued assets;	X		
Provide a feasible infrastructure financing plan to improve existing deficiencies and proactively support the needs of future growth;	X		

KONA COMMUNITY DEVELOPMENT PLAN	CONFORMS		NOT APPLICABLE
	YES	NO	
Direct growth to appropriate areas;	X		
Create a plan of action where government and the people work in partnership to improve the quality of life in Kona for those who live, work, and visit;	X		
Provide a framework for monitoring the progress and effectiveness of the plan and to make changes and update it, if necessary.			X
COMMENTARY: The purpose of this project is to provide a mixed-use community with affordable and market-priced housing, and commercial space and public facilities to residents of Kona, Hawaii. Ultimately, this project provides a response to the number of households with inadequate housing and the rising costs of monthly income for Hawaii County families.			
GOALS			
TRANSPORTATION: An efficient, safe, and attractive multi-modal transportation system integrated with land use planning that allows movement around and through Kona with minimal reliance on the automobile.	X		
LAND USE: Public policies set the foundation and framework within which the community and private sector work collaboratively towards a shared vision of concentrating growth within urban villages in North Kona, preserving rural character and agricultural lands, protecting significant natural and cultural resources, providing a range of housing opportunities, and a process to constructively, efficiently, and fairly achieve these ends with the best practices and quality.	X		
ENVIRONMENTAL RESOURCES: The natural and cultural resources enhance Kona's character together with the built environment, developed in harmony with ecological principles, where residents and visitors enjoy and interact with nature through a networked system that promotes a healthy active lifestyle, and where the financial and moral commitment reflects the high level of caring that the Kona people have for the land.	X		
CULTURAL RESOURCES: The multi-ethnic cultures of Kona are preserved, protected, and restored in a manner that perpetuates those cultures and all aspects of the Aloha Spirit.	X		
HOUSING: Diversity of housing choices for all segments of the population close to places of employment and/or daily needs.	X		
PUBLIC FACILITIES, INFRASTRUCTURE, AND SERVICES: A community where the public infrastructure and facilities are sustainably built and maintained with innovation and pride, promote sense of community, and support a quality of life where visitors and residents feel safe, healthy, and inspired.	X		
ENERGY: Establish Kona as a model for sustainability and energy self-sufficiency.			X
ECONOMIC DEVELOPMENT: To foster economic diversification, reduce import dependence, and increase employment opportunities that pay living wages.	X		
COMMENTARY: The Keahuolu Affordable Housing project supports the growing population of Kona, Hawaii. This project allows the market to deliver affordably priced homes that are closer to employment job centers, for many of the prospective home occupiers of this affordable housing			

KONA COMMUNITY DEVELOPMENT PLAN	CONFORMS		NOT APPLICABLE
	YES	NO	
project. Additionally, affordable housing close to the urban center of Kailua-Kona is essential to maintain an economical and diverse community. The proposed land use plan attempts to better integrate residential, recreational, and commercial land use to create a more walkable community. The development of the mid-level roadway as part of the proposed project will contribute to multi-modal transportation opportunities in the future.			

1.9 REQUIRED PERMITS AND APPROVALS

The following is a summary of major approvals and permits required for implementation of the proposed project. Additional approvals and permits may be necessary. The HHFDC will not be the developer of the project. The developer will be required to comply with the rules, regulations, ordinances, codes, and standards of the County and any federal and state requirements. It is the intention of the HHFDC that the developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. Chapter 5 includes a more detailed discussion of the project's consistency with federal, state, and local land use plans, policies and controls.

Table ~~1-4~~1-5: Required Permits and Approvals

Permit or Approval	What is Needed	Agency	Status
Chapter 343, HRS Compliance	Acceptance of Final EIS	Office of the Governor	Submitted Final EIS on September 2008. The Office of the Governor acceptance of the Final EIS is pending.
Land Use Boundary Amendment	State Agricultural District to State Urban District	State LUC	Filed under Section 201H-38 HRS. Expected submittal January 1, 2009.
Zone Change	A-5a (Agriculture) to new zoning designation(s) to be determined by selected developer	County of Hawai`i County Council	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1 HRS, pending approval of Land Use Commission
Exemptions from statutes, ordinances charter provisions and/or rules	Approval of exemptions	County of Hawai`i County Council	Pending identification of exemptions
Archaeological Inventory Survey of Queen Lili'uokalani Trust Property by PHRI/Donham in 1990	Approval of archaeologist's work and recommendations	State Historic Preservation Division (SHPD)	SHPD approval letter 2/17/1993 Log. 6839, Doc 9302RC34

Permit or Approval	What is Needed	Agency	Status
Archaeological Mitigation Program for Queen Lili'uokalani Trust Property by PRHI/Jensen in 1992	Approval of archaeologist's work and recommendations	SHPD	SHPD approval letter 10/21/1993 Log 10361 Doc. 9312RC02
Data Recovery Work	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
Site Preservation Plan	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
Archaeological Survey for proposed Water Reservoir	Approval of archaeologist's work and recommendations	SHPD	SHPD approval letter 5/5/2008 Log 2008.1339 Doc. 0805TS02
Monitoring Plan for proposed Water Reservoir	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
National Pollutant Discharge Elimination System (NPDES) Permit	Approval of plans	State Department of Health (DOH)	Expected submittal July 1, 2009
Subdivision Approval	Preliminary and Final approvals	County of Hawai`i	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1, HRS. pending zoning approval
Grading, building, plan approval and other necessary development permits	Approval of plans	County of Hawai`i	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1, HRS pending subdivision approval.
Production Well(s) Construction Permit / Pump Installation Permit	Approval of plans and water allocation by the County of Hawai'i, Department of Water Supply (DWS)	State Department of Land and Natural Resources (DLNR) Commission on Water Resource Management	Expected submittal July 1, 2009

1.10 SUMMARY OF ALTERNATIVES

The alternatives that have been considered are:

1. The "No Action" Alternative;
2. Alternative Locations;
3. The Alternative of Postponing Action Pending Further Study.

None of the alternatives meet HHFDC's objectives to provide for sale affordable housing in West Hawai'i in a timely manner in response to market demand. None of these alternatives would meet the project-specific objectives. An expanded discussion is provided in Chapter 6, Alternatives.

This ~~Draft~~ EIS evaluates the land use and preliminary infrastructure components of the three alternative concept plans in HHFDC's June 2007 "Keahuolu Affordable Housing Master Plan" report. A "preferred alternative" is not indicated because the HHFDC is undergoing a Request for Proposal process and will select the developer of the Keahuolu Affordable Housing Project. The Master Plan was included in the RFP materials. Table 1-5 summarizes the three conceptual plans. Below the table is a list of ~~comment~~ common elements of the three conceptual plans.

Table ~~1-5~~1-6: Alternative Concepts

	Alternative Concepts		
	A	B	C
Residential Units			
High density – multifamily	400	800	800
Medium density - multifamily	220	440	1,530
Low density – single-family	400	600	0
Total	**1,020**	**1,840**	**2,330**
Density (dwelling units per acre)			
High density – multifamily	12	24	24
Medium density – multifamily	8	16	12
Low density – single-family	4	6	n/a

	Alternative Concepts		
	A	B	C
Commercial/retail	**197,000 SF**	**197,000 SF**	**197,000 SF**

Common Elements of the Three Alternative Concept Plans

- Use identical physical roadway and block layouts.
- Provide a minimum of 1,020 to a maximum of 2,330 dwelling units (single-family and multi-family residences). The differences are in housing types and range of densities.
- Provide a mixed-use community center that comprises roughly a six-block area featuring multi-family housing, ground-floor commercial/retail uses, and civic open space.
- Provide 197,000 square feet of commercial/retail space to be located at the community center.
- Provide a site reserved for a school (approximately 12 acres).
- Provide for archaeological preserve areas (approximately 7 acres).
- Provide neighborhood parks (approximately 25 acres), street trees, and a landscaped buffer along Ane Keohokalole. Two large parks are proposed to be centered within each of the north and south neighborhoods.
- Provide on- and off-site infrastructure improvements.
- Create a walkable, bikable, active-lifestyle community.
- Provide a transit-oriented development centered on future northbound and southbound bus stops to be located at the intersection of the proposed Ane Keohokalole Highway and the proposed extension of Makala Boulevard.
- Provide high-density development within easy walking distance (1/4 mile) from the transit stops.
- Accommodate the potential for feasible roadway connections to future development on adjacent lands.

1.11 SUMMARY OF POTENTIAL IMPACTS AND MITIGATION

A summary of the potential impacts and mitigation for the three conceptual plans and the "No Action Alternative" appears in Table 1-6.

Table ~~1-6~~1-7: Summary of Potential Impacts and Mitigation Measures for All Alternatives

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
CLIMATE				
	No impacts on climatic conditions are expected under Alternative A.	No impacts on climatic conditions are expected under Alternative B.	No impacts on climatic conditions are expected under Alternative C.	No impacts on climatic conditions are expected under the No Action Alternative.
GEOLOGY AND TOPOGRAPHY				
	A grading permit and an NPDES permit would be required prior to construction. A Underground Injection Control (UIC) permit would be required for any dry wells constructed. No significant long-term impacts to topography are anticipated. The contractor would be required to comply with erosion and sedimentation rules and regulations. Runoff flow rates and volume would not be increased from the site to comply with the County's Storm Drainage Standard. Precipitation falling on the site would discharge into the ground as it does under pre-development conditions. Storm drainage filtration devices are recommended to mitigate pollutants from entering the groundwater.	Generally the same grading improvements would be required for Alternative B as Alternative A. A grading permit, a National Pollution Discharge Elimination System (NPDES) permit, and other necessary permits would be required prior to construction.	Generally the same grading improvements would be required for Alternative C as Alternative A. A grading permit, an NPDES permit, and other necessary permits would be required prior to construction.	No impacts to geology or topography are anticipated under the No Action Alternative.
GROUNDWATER, HYDROLOGY, SURFACE WATER AND DRAINAGE				
	The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and	The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and	The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and	No impacts to groundwater, hydrology, surface water and drainage are anticipated under the No Action Alternative.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
	County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.	County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.	County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.	
SOILS AND AGRICULTURE POTENTIAL				
	The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative A. No mitigation measures are warranted.	The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative B. No mitigation measures are warranted.	The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative C. No mitigation measures are warranted.	There are no existing agricultural operations on the subject property. No impacts to soils or the potential for agricultural activity are expected under the No Action Alternative.
NATURAL HAZARDS				
Earthquakes	Construction of the improvements will be required to comply with the Uniform Building Code's (UBC)~~'s~~ standards for Zone 4.	Construction of the improvements will be required to comply with the UBC's standards for Zone 4.	Construction of the improvements will be required to comply with the UBC's standards for Zone 4.	Regardless of whether the property remains undeveloped or developed, it is subject to the impacts of earthquakes. No mitigation measures are warranted.
Volcanic Hazards	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.
Tephra	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
Tsunami Inundation	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.
FLORA				
	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	If the subject property is undeveloped, its vegetation will remain undisturbed.
FAUNA				
	The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.	The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.	The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.	There would be no adverse impacts to faunal resources under the No Action Alternative. The project site does not contain any threatened or endangered fauna species. The property does not contain any unusual or unique habitat important to fauna.
ARCHAEOLOGICAL AND HISTORIC RESOURCES				
Archaeological and Historic Resources	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Data recovery and preservation of sites would not occur. Uncontrolled vegetation growth would eventually lead to the gradual loss of sites and decreased accessibility.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
Proposed Reservoir Site on DHHL Land	No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) prior to groundbreaking.	No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the DLNR SHPD prior to groundbreaking.	No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the DLNR SHPD prior to groundbreaking.	Uncontrolled vegetation growth would eventually lead to the gradual loss of sites and decreased accessibility.
CULTURAL RESOURCES				
	Based on the findings of the CIA, the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	Based on the findings of the CIA, the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	Based on the findings of the CIA, the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	No ongoing practices were identified relative to the land proposed for the housing area and the reservoir site.
ROADWAYS AND TRAFFIC				
	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Some improvements to the regional traffic system, such as the mid-level highway, would be required to achieve/maintain the County's desired Level of Service (LOS D) even if the property remains vacant.
NOISE				
	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State Department of Health (DOH) noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	The No Action Alternative would have no impacts on noise quality.
AIR QUALITY				

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national Ambient Air Quality Standards (AAQS). Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	The No Action Alternative would have no impacts on air quality.
VISUAL RESOURCES AND ATTRIBUTES				
	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The No Action Alternative would have no impacts on visual resources.
INFRASTRUCTURE AND UTILITIES				
Roadway System	No significant short- or long-term environmental impacts are anticipated from the development of the roadways within the project site.	No significant short- or long-term environmental impacts are anticipated from the development of the roadways within the project site.	No significant short- or long-term environmental impacts are anticipated from the development of the roadways within the project site.	No impacts are anticipated under the No Action Alternative.
Grading, Drainage and Erosion Control	Site drainage in the long term would be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. The development will be required to comply with the County's Storm Drainage	Site drainage in the long term would be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. The development will be required to comply with the County's Storm Drainage	Site drainage in the long term would be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. The development will be required to comply with the County's Storm Drainage	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
	Standard. Storm drainage filtration devices are recommended to mitigate pollutants from entering the groundwater.	Standard. Storm drainage filtration devices are recommended to mitigate pollutants from entering the groundwater.	Standard. Storm drainage filtration devices are recommended to mitigate pollutants from entering the groundwater.	
Water Supply	Two source wells, numbered 3 and 4 in the *Villages of La'i 'Opua Water Master Plan* (October 26, 2006), have been identified for the project. Alternative A would require development of Well 4.	Two source wells, numbered 3 and 4 in the *Villages of La'i 'Opua Water Master Plan* (October 26, 2006), have been identified for the project. Alternative B would require development of Well 3 and Well 4.	Two source wells, numbered 3 and 4 in the *Villages of La'i 'Opua Water Master Plan* (October 26, 2006), have been identified for the project. Alternative C would require development of Well 3 and Well 4.	No impacts are anticipated under the No Action Alternative.
Wastewater	Extension of the sewer system for the proposed development would not have significant short-term impacts on the environment. The long-term impacts of the project on the sewer system would be the construction of new sewer lines through either the DHHL/Villages of La'i 'Opua lands or the QLT lands to the Kealakehe Wastewater Treatment Plant (~~STP~~WWTP). The impact would be an increase in daily flows to the ~~STP~~ WWTP of 430,598 ~~gpd~~ for Alternative A. Adequate treatment and disposal capacity has been reserved at the Kealakehe ~~STP~~ WWTP for project Alternative A, and no long-term detrimental impacts to the ~~STP~~ WWTP are anticipated.	Extension of the sewer system for the proposed development would not have significant short-term impacts on the environment. The long-term impacts of the project on the sewer system would be the construction of new sewer lines through either the DHHL/Villages of La'i 'Opua lands or the QLT lands to the Kealakehe ~~STP~~WWTP. The impact would be an increase in daily flows to the ~~STP~~ WWTP of 665,436 ~~GPD~~ gpd for Alternative B. Alternative B would require the County to upgrade the ~~STP~~ WWTP to handle the added sewage flows and to mitigate any long-term detrimental impacts to the ~~STP~~WWTP.	Extension of the sewer system for the proposed development would not have significant short-term impacts on the environment. The long-term impacts of the project on the sewer system would be the construction of new sewer lines through either the DHHL/Villages of La'i 'Opua lands or the QLT lands to the Kealakehe ~~STP~~WWTP. The impact would be an increase in daily flows to the ~~STP~~ WWTP of 720,856 ~~GPD~~ gpd for Alternative C. Alternative C would require the County to upgrade the ~~STP~~ WWTP to handle the added sewage flows and to mitigate any long-term detrimental impacts to the ~~STP~~WWTP.	No impacts are anticipated under the No Action Alternative
Electrical, Cable, Phone	Service for this project is anticipated to be from the	Service for this project is anticipated to be from the	Service for this project is anticipated to be from the	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
	existing HELCo's Huehue Substation, which has a capacity of 7.5 megawatt (MW). This project will require an upgrade of capacity from 7.5 MW to possibly 10.0 MW at the Huehue Substation. The upgrade of Huehue substation and the extension of existing electrical distribution systems will not create adverse conditions for HELCo. The project will be served by Oceanic Time Warner Cable, which has existing facilities in the Kona Acres area that could be extended to project. Oceanic Time Warner Cable has sufficient capacity. Hawaiian Telcom's existing system has the capacity to serve the project. The proposed project will require upgrades of the existing electrical transmission system serving the region, as well as the installation of telecommunication facilities. All electrical and telecommunication system lines will be placed underground.	existing HELCo's Huehue Substation, which has a capacity of 7.5 MW. This project will require an upgrade of capacity from 7.5 MW to possibly 10.0 MW at the Huehue Substation. The upgrade of Huehue substation and the extension of existing electrical distribution systems will not create adverse conditions for HELCo. The project will be served by Oceanic Time Warner Cable, which has existing facilities in the Kona Acres area that could be extended to project. Oceanic Time Warner Cable has sufficient capacity. Hawaiian Telcom's existing system has the capacity to serve the project. The proposed project will require upgrades of the existing electrical transmission system serving the region, as well as the installation of telecommunication facilities. All electrical and telecommunication system lines will be placed underground.	existing HELCo's Huehue Substation, which has a capacity of 7.5 MW. This project will require an upgrade of capacity from 7.5 MW to possibly 10.0 MW at the Huehue Substation. The upgrade of Huehue substation and the extension of existing electrical distribution systems will not create adverse conditions for HELCo. The project will be served by Oceanic Time Warner Cable, which has existing facilities in the Kona Acres area that could be extended to project. Oceanic Time Warner Cable has sufficient capacity. Hawaiian Telcom's existing system has the capacity to serve the project. The proposed project will require upgrades of the existing electrical transmission system serving the region, as well as the installation of telecommunication facilities. All electrical and telecommunication system lines will be placed underground.	
Solid Waste	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Alternative Concept Plan A	Alternative Concept Plan B	Alternative Concept Plan C	No Action
	County requirements. The project's full- build out annual occupancy landfill waste percentage of the annual West Hawaii Landfill waste would be estimated to be 4.43% for Alternative A. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	County requirements. The project's full- build out annual occupancy landfill waste percentage of the annual West Hawaii Landfill waste would be estimated to be 6.79% for the development Alternative B. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	County requirements. The project's full- build out annual occupancy landfill waste percentage of the annual West Hawaii Landfill waste would be estimated to be 7.40% for the development Alternative C. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	
SOCIO-ECONOMICS				
	The project is anticipated to be built-out over a 10 year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	The project is anticipated to be built-out over a 10 year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	The project is anticipated to be built-out over a 10 year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	No impacts are anticipated under the No Action Alternative.
PUBLIC SERVICES				
	The project is anticipated to be built out over a 10 year period. The project site provides open space / play area and a site is reserved for a school facility.	The project is anticipated to be built out over a 10 year period. The project site provides open space / play area and a site is reserved for a school facility.	The project is anticipated to be built out over a 10 year period. The project site provides open space / play area and a site is reserved for a school facility.	Demand for school and recreation facilities is strong independent of the project.

1.12 SUMMARY OF SECONDARY AND CUMULATIVE IMPACTS

The Keahuolu Affordable Housing Pproject's primary impacts include an increase in the supply of affordable housing, an increase in commercial floor area in the Kailua-Kona region, population growth, increased traffic, and the demand for potable water, wastewater treatment and disposal, and energy. The project's secondary impacts are effects that are induced by these primary impacts, such as the additional jobs created in the economy and the effects resulting from the project residents' demand for goods and services. As a primarily affordable housing residential development, the cumulative impact of the Keahuolu Affordable Housing Pproject will be its contribution to meet the demand for affordable housing units located in West Hawai'i near employment centers.

1.13 SUMMARY OF IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Development of the subject property as a master-planned community with residential, commercial, and mixed-use development will permanently alter the use and character of the land. Grubbing will remove vegetation and grading will change the topography of the land. Fauna and avifauna will be temporarily displaced from the land during construction. Development of the project will require large amounts of aggregate rock for the construction of roadbeds and house and building foundations, and the production of concrete and asphalt.

Archaeological sites and cultural resources determined to be significant under State criteria will be preserved. Archaeological sites identified for data collection will be further analyzed and recorded in an effort to increase understanding of the historical use of the area. Once this process is completed in accordance with the requirements of the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources (DLNR) and in accordance with the approved mitigation plan, any sites that have been determined to require no further study will be lost. Those sites and cultural resources determined to be significant under State criteria will be preserved.

Development of the project will require the expenditure of energy in the form of fuel for construction vehicles and equipment and the consumption of natural and man-made resources in the form of construction materials (metal, glass, wood, plastic, etc.). Construction of the project will also require the consumption of potable water. Some of the water used for dust control will percolate back into the soil while the remainder will evaporate.

The project will require the investment of human labor that might otherwise be employed elsewhere. The so-called operational phase of the project, that is to say once the project is completed and the houses and commercial buildings have been built and occupied, will require an ongoing commitment of potable water, electrical energy, and fuel for privately owned vehicles and motorized equipment.

1.14 SUMMARY OF UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared. See Chapter ~~Six~~ Seven for a discussion of these unresolved issues.

Final Development Scheme and Schedule: The HHFDC is reviewing proposals from qualified developers to develop the Keahuolu Affordable Housing P~~p~~roject. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing: the total number of housing units; the mix of affordable units and market units; the mix of single-family and multi-family; the mix of low density, medium density, and high density; the total square footage of commercial floor area; and the alignment/route of off-site wastewater lines that will service the project. The Board of Directors of HHFDC approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement. However, until the development agreement is signed, there is the possibility that an agreement may not be reached between HHFDC and Forest City, and thus the search for a developer would continue until one is selected and a development agreement is signed. Until that time, the details of the proposed project and the developer's schedule for the project are not available. That information will become available prior to subsequent permitting processes, which will provide the opportunity

for public and agency input and comment, as well as the opportunity to request additional information.

~~**Kona Community Development Plan:** It is likely that this EIS will be published for public and agency review and comment prior to publication of the first complete draft of the Kona Community Development Plan.~~

Concurrency Ordinance: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and water supply in change of zone actions. According to the County of Hawai'i Planning Department, rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project, and that there would also be standard expectations for water supply for new rezonings.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the concurrency standards would or would not apply. ~~At the time this EIS is being prepared, the Hawai'i County Council is considering a bill for an ordinance that would require the concurrent development of project-related infrastructure. It is unknown if the ordinance will be adopted, what its final language might contain, when it might become effective, and if it might impact the Keahuolu project.~~

County Council Deferred Action on Change of Zone Applications: Since publication of the February 2008 Draft EIS for the Keahuolu Project, the County of Hawai'i Planning Department clarified that Resolution No. 529 08 was adopted on March 12, 2008. According to the County, it extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, whichever occurs first.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai‘i under the expedited approval process provided for under Section 201H-38, HRS. According to the estimated permit schedule in Table 1-4 of this EIS, it is anticipated that a zone change application for the Keahuolu project would at the earliest be submitted to the County on January 1, 2009, which is after the December 1, 2008 deadline for the temporary delay of Council action on rezoning applications. It is unknown whether the County's deadline will be extended and if the Council will continue to defer action on change of zone applications. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the Council's deferral on change of zone applications would or would not apply, if it is still in effect.

~~In early 2007, the Hawai‘i County Council adopted a resolution calling to defer action on any Change of Zone applications prior to adoption of the Kona Community Development Plan. It is unknown when and how this resolution might impact the Keahuolu Affordable Housing project.~~

2CHAPTER TWO: DESCRIPTION OF THE PROPOSED ACTION

2.1 BACKGROUND INFORMATION

This section provides background information and a general description of the Keahuolu Affordable Housing Pproject's master plan process and development of the alternative concept plans, the land use components of the concept plans, HHFDC's Request for ProposalsRFP process, and the preliminary development timetable and costs.

2.1.1 Regional Setting

For much of the twentieth century, West Hawai'i was an agricultural area, with coffee from South Kona, sugar from North Kohala, and cattle from the uplands of South Kohala as its major products. Major public facilities for West Hawai'i – the hospital and the area's first high school – were located in Kealakekua, in the South Kona district.

The visitor industry in North Kona grew after statehood, and the district had the majority of the island's visitor units (as shown for 1980, in Table 2-1). By 1990, however, the South Kohala coastal resorts had become important destinations. With expansion of the coastal resorts, West Hawai'i became more dependent on tourism. Kailua-Kona is now a regional center with commercial, industrial, and resort facilities. The North Kona district has seen continuing increases in population, visitor numbers, and commercial areas. As of 2002, Kailua-Kona had 165 retail establishments, with gross sales of $410 million, 24 percent of the island total. The retail workforce in Kailua amounted to 2,174 persons.

The ratio of visitors to residents in Hawai'i County is about 1 to 6. In West Hawai'i, the ratio is about 1 to 3. (In 2000, West Hawai'i had 56,301 residents and an average daily visitor census of 17,784.)

Table 2-1: Hawai'i County and North Kona Socio-Economic Indicators

	1980	1990	2000	2005
Hawaii County				
Resident population	92,053	120,317	148,677	167,293
Jobcount	37,150	49,000	56,000	64,500
Unemployment rate	6.3%	3.5%	4.8%	3.3%
Average visitor census				
Island	7,195	16,698	21,891	27,579
West Hawaii		13,502	17,784	21,940
Visitor units	6,299	8,952	9,774	11,351
Hotel occupancy rate	51.0%	61.7%	72.8%	72.2%
North Kona district				
Resident population	13,748	22,284	28,543	NA
Share of county	14.9%	18.5%	19.2%	NA
Visitor units	3,774	4,096	4,295	5,053
Share of county	59.9%	45.8%	43.9%	44.5%
Hotel occupancy rate	59.0%	66.8%	72.6%	NA

SOURCES: Hawaii State Data Book, 1985 and 2005; historical and current statistics posted by Hawaii State Department of Labor and Industrial Relations, available at www.hiwi.org.; Visitor Plant Inventory conducted by Hawaii Visitors Bureau, and later by DBEDT.

The HHFDC Keahuolu project is planned as a response to the regional needs for housing and the desire to reduce congestion on regional highways due to residents traveling long distances between home and work. Future residents of Keahuolu are likely to come from West Hawai'i, ranging from Ocean View in Ka'u to North Kohala.[1] Figure 2-1 shows the region and the district and zip code areas of West Hawai'i. Major transportation facilities in the district include the Queen Ka'ahumanu Highway linking Kailua to Kawaihae, the Hawai'i Belt Road (Mamalahoa Highway), the Kona International Airport at Keahole and the Honokohau small boat harbor.

2.1.2 Location

The project site is located on the western slope of Hualalai mountain in the Keahuolu ahupua'a. It is adjacent to Palani Road, approximately one mile north of Kailua-Kona (Figure 1-1).

[1] Hawai'i County is divided into nine judicial districts. North Kohala, South Kohala, North Kona and South Kona are commonly identified as West Hawai'i. However, the Ocean View area in Ka'u, zip code area 96737, is home to many resort workers, and it is given attention here as a potential source for future Keahuolu residents.

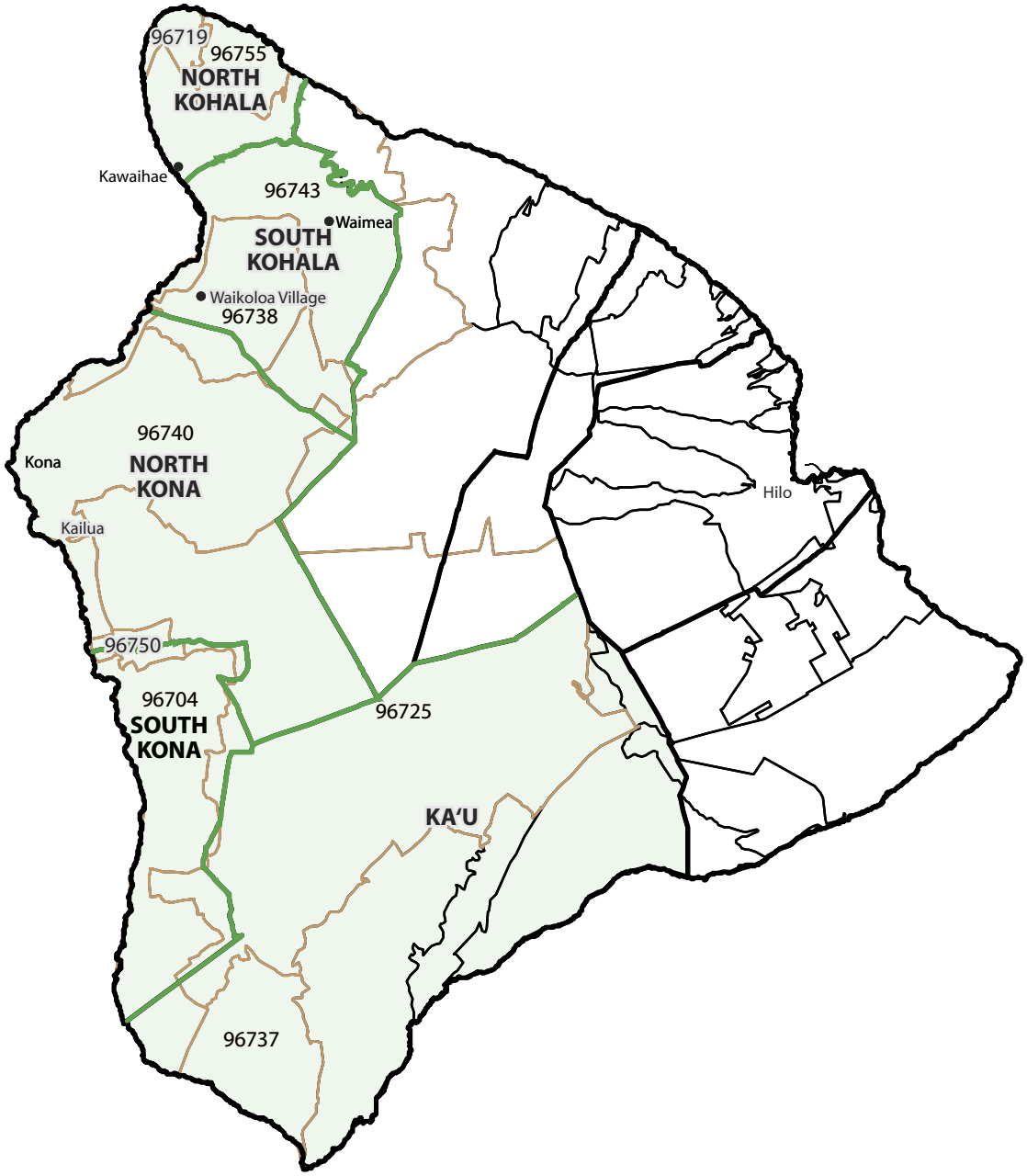


Figure 2-1
WEST HAWAII REGION

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Environmental Impact Statement
September 2008

2.1.3 Ownership

~~The Hawaii Housing Finance & Development Corporation~~HHFDC is the owner of the 272.063-acre project site. The property is identified as TMK (3) 7-4-021: 020.

2.1.4 Surrounding Uses

The HHFDC property is situated between lands to the east (mauka) owned by DHHL and lands to the west (makai) owned by the QLT. Nearby developments include housing at Kealakehe and the initial increment of DHHL's Villages of La'i' Opua. Commercial and light industrial land uses are found to the south across Palani Road and to the west along the Queen Ka'ahumanu Highway corridor. Public facilities in the vicinity include Kealakehe High School to the north, Kealakehe Intermediate and Elementary Schools to the northeast, and the County of Hawai'i wastewater treatment plant (WWTP) and police station to the northwest.

The planned Ane Keohokalole Highway will be adjacent to the western (makai) boundary of the project site. At the time of this writing, plans for Ane Keohokalole Highway place the highway within QLT lands. However, the ongoing highway study is still developing the roadway alignment, profile, and width. It may be possible that the planned Ane Keohokalole Highway improvements could impact the Keahuolu project parcel.

2.1.5 Description of the Property

The Keahuolu Affordable Housing P~~p~~roject site is an irregularly shaped property totaling 272.063 acres. The site is located approximately one mile upslope of Kailua-Kona. The elevation of the property ranges between 300 and 580 feet above mean sea level (msl). Slopes range between 5 to 15 percent. The project site is vacant and undeveloped. The adjacent proposed reservoir site, which is vacant, ranges in elevation from approximately 580 to 640 feet above msl.

2.1.6 State Land Use District

Almost the entire Keahuolu Affordable Housing project site is currently in the State Agricultural District (Figure 2-2). Figure 1-5 illustrates the area for which the developer will have to file a Land Use District Boundary Amendment Petition with the State LUC to reclassify 271.865 acres of the 272.063-acre property to the Urban District.

2.1.7 Hawai‘i County General Plan’s Land Use Pattern Allocation Guide

A majority of the project site is designated Urban Expansion. The remainder is designated Low Density Urban (Figure 2-3).

2.1.8 Hawai‘i County Zoning

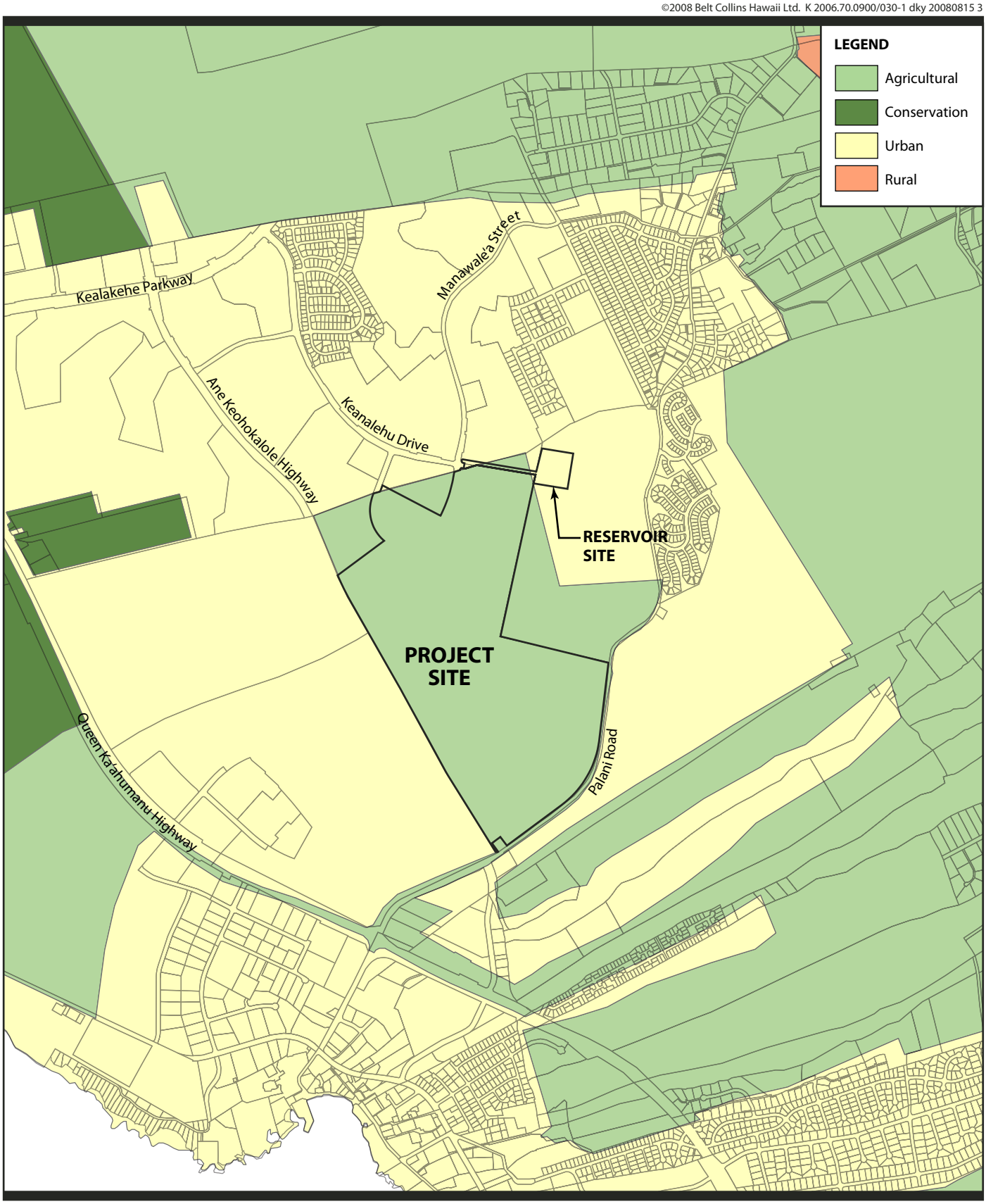
The majority of the property is within the County’s Agricultural (A-5a) zoning district, while a small portion is within the County’s Residential (RS-15) zoning district (Figure 2-4). The developer will be responsible for seeking the appropriate Change of Zone for the project.

2.2 MASTER PLAN PROCESS

In the first half of 2007, the HHFDC developed alternative concept plans for the Keahuolu Affordable Housing Pproject. The master planning process was conducted iteratively with engineers working to identify and evaluate off-site infrastructure requirements for the various approaches and options considered.

2.2.1 Overview of Site Conditions, Opportunities, and Constraints

Site analysis information was gathered during the master plan process and the initial development of the alternative concept plans (Figure 2-5). Since that time, some further detailed information such as the botanical and archeological survey reports have been completed. The information below is more of an overview in nature because it was utilized during the formulation of the concept plans.



Belt Collins

NORTH

0 1000 2000

SCALE IN FEET

Figure 2-2
EXISTING STATE LAND USE DISTRICTS MAP

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September 2008

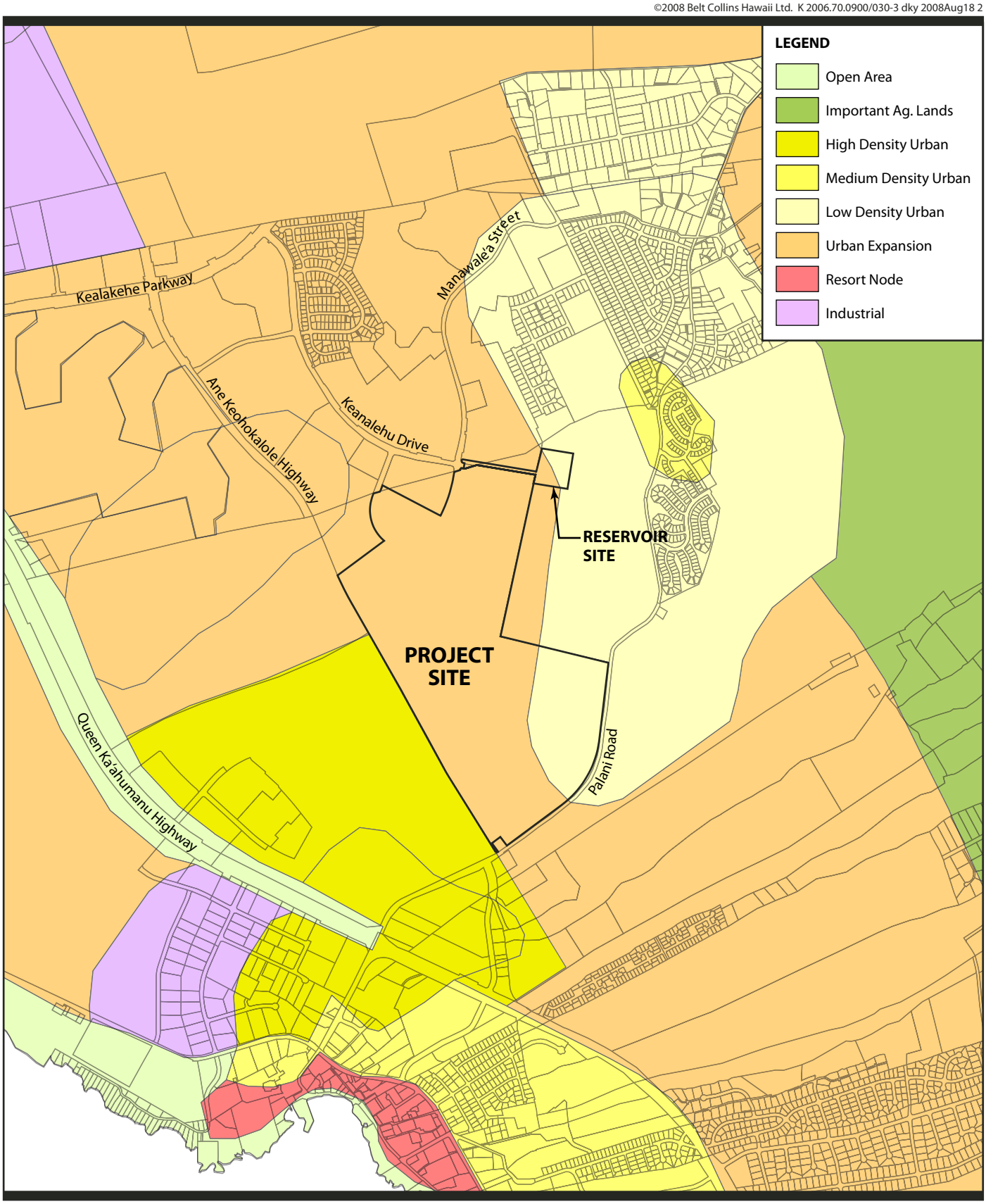

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Figure 2-3
GENERAL PLAN'S LAND USE PATTERN ALLOCATION GUIDE MAP

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September 2008

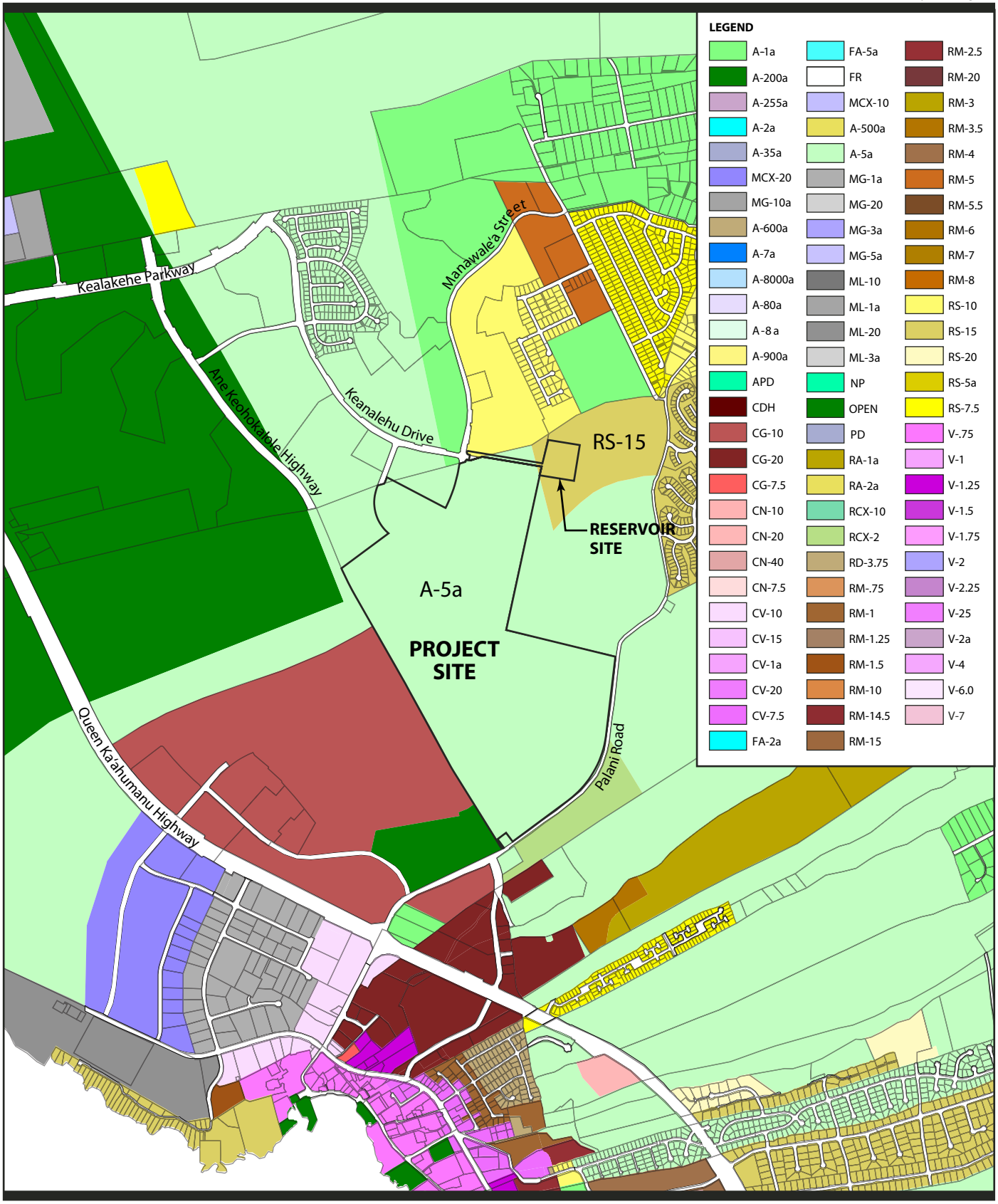

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Figure 2-4
COUNTY OF HAWAI'I ZONING MAP

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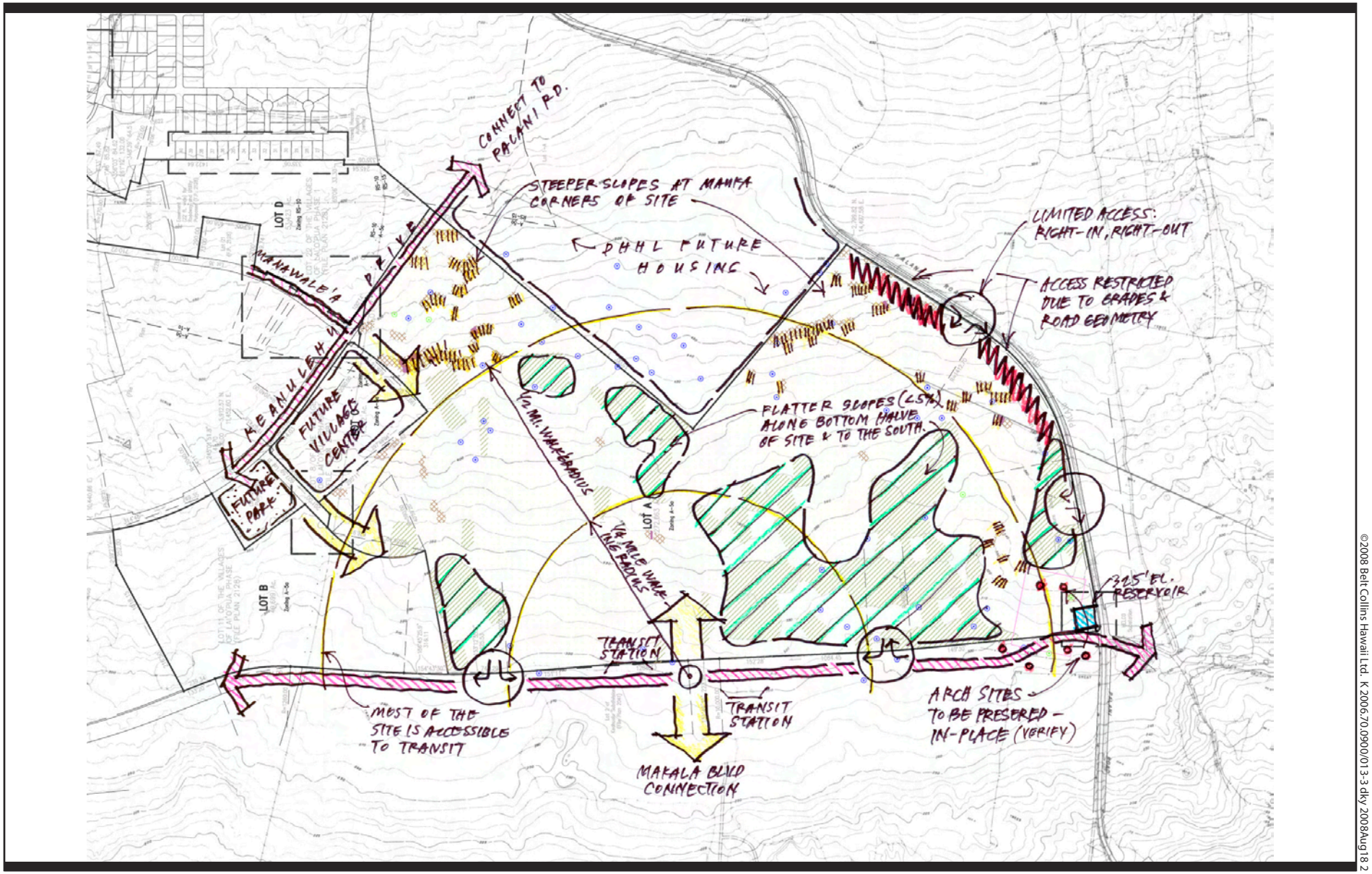
Environmental Impact Statement
September 2008



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SCALE IN FEET

Figure 2-5
SITE ANALYSIS

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Environmental Impact Statement
September 2008

A number of on-site constraints can be resolved with appropriate planning and design. The most significant opportunities are the site's proximity to Kailua-Kona town and access to the proposed Ane Keohokalole multi-modal transportation corridor.

The 272-acre parcel has irregular edges along its north, east, and south boundaries. It is twice as long in the north-south dimension as compared to the east-west dimension. The west boundary is the only regular edge and will serve as frontage to the future Ane Keohokalole Highway.

Most of the adjacent land is vacant but planned for development. Parcels to the north, east, and south are planned by DHHL for residential villages and support uses, including a community center and neighborhood park. QLT is currently planning a major development makai of Ane Keohokalole Highway. The future context of the Ane Keohokalole corridor will be urban, which is consistent with the North Kona Community Development Plan (CDP) now being updated by the County.

Existing site access is limited. Keanalehu Drive provides good access to the northeast portion of the site. The south section along Palani Road may at best be restricted to a right-in/right-out intersection. Ane Keohokalole Highway will provide the primary access to the site with potentially a full-movement intersection and two limited-access intersections. Additionally, to fully optimize access to adjacent development parcels, HHFDC must coordinate alignment of the Makala Boulevard extension with both DHHL and QLT to assure improved mauka-makai access.

The Ane Keohokalole Highway corridor is planned to provide bus transit with one-mile stops along the alignment and local bus service with stops spaced at closer intervals (1/4 mile). A transit stop is proposed at the Keahuolu project site's future intersection with the Makala Boulevard extension, which would be the first stop outbound from Kailua-Kona town. This places HHFDC's Keahuolu development in excellent proximity to the major employment center of Kailua-Kona, as well as regional retail and services, and offers the opportunity to locate a transit-oriented development (TOD) on the site.

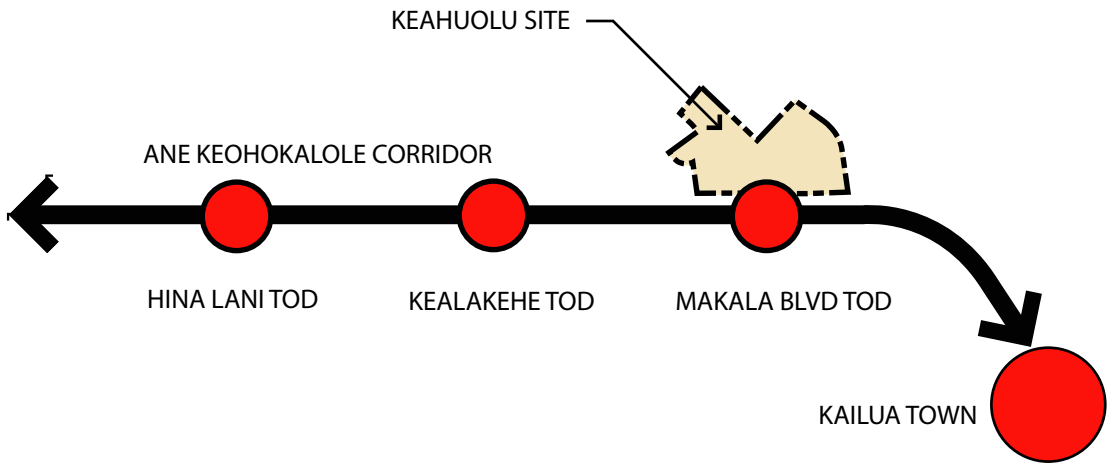
Topography slopes downhill from east to west. The lower or western half of the site is easily developable, with approximately half of the area in less than 5 percent slopes and the remainder in 5-15 percent slopes. The upper or eastern half of the site is steeper; some of the slopes are greater than 15 percent, but the larger portion has slopes less than 15 percent. This organizes the site to be used more intensively in the lower sections with larger footprint uses or higher density residential uses being placed on the flatter areas. The upper sections should be used for smaller footprint residential structures that can accommodate grade changes more easily.

Archaeological sites are generally clustered in the southern and northeastern portions of the parcel. These were identified in an archaeological inventory survey conducted by Paul H. Rosendahl, Ph.D., Inc. (PHRI) for the previous landowner, the QLT, in 1989-1990, and reconfirmed for this project. Sites recommended for preservation include a large habitation-agricultural complex in the northeastern portion of the area and a number of habitation, burial, and possible burial sites in the southwestern portion.

2.2.2 Design Principles of the Alternative Concept Plans

Design principles were formulated for the Keahuolu project during the master plan process. The overriding development concept is to create an affordable, livable community based on design principles that will serve the North Kona community. The following describes the primary design principles that were the basis for the alternative concept plans.

The North Kona Community Development Plan: Integrate the North Kona CDP vision into the Keahuolu project, including a transit-oriented mixed-use development at the intersection of Ane Keohokalole Highway and the future extension of Makala Boulevard. The development concept is laid out using the planning principles of New Urbanism or smart growth to create a compact urban pattern. The concept plans integrate the project site with the surrounding transportation network, which will be necessary to accommodate existing needs and future urban growth, and existing and future land use development plans for the region and adjacent properties (Figure 2-6).



TOD = Transit-Oriented Development

NORTH NOT TO SCALE

Figure 2-6
TRANSIT-ORIENTED DEVELOPMENT—
NORTH KONA COMMUNITY DEVELOPMENT PLAN

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Environmental Impact Statement
September 2008

Walkable Neighborhoods and Connectivity: Create a community composed of walkable neighborhoods with five-minute walking distances from the neighborhood's center to its edge. Each neighborhood would have an open space focal point, such as a neighborhood park or community center green, and a network of interconnected streets and blocks. The highly connected road system provides the greatest number of alternative routes from one part of the neighborhood to another and optimizes access for all modes of travel. This level of access promotes walking, especially when destinations for recreation, goods, and services are conveniently located throughout the community. The Keahuolu community neighborhoods would connect to smaller adjacent parcels via sub-collector roads and to larger adjacent parcels, like Village of La'i 'Opua, with larger collector roads (Figure 2-7).

Multimodal Connectivity: Offer a full array of transportation options using pedestrian, bicycle, and transit connections. Provide pedestrian sidewalks on every street, bike lanes on sub-collector and collector roads, and transit stations and local bus service along Ane Keohokalole Highway. A future circulator or local bus route is shown on the Makala Boulevard extension, connecting mauka and makai areas to the Keahuolu community center and proposed transit station (Figure 2-8).

Mixed Use: Create neighborhoods that have a fine-grain mix of land uses. A community or neighborhood center should have residential, commercial, and public or community uses. Residential neighborhoods should be composed of a variety of residential prototypes that vary somewhat in density (Figure 2-9).

Pedestrian-Scaled Streets: Create pedestrian friendly streets that set the scale for the neighborhood and community. Use buildings to define public spaces, which include parks, greens, and streets. Building placement on lots requires a rigorous structure and order to enhance the human scale and social interaction of the neighborhood. The architectural vocabulary should be human-scaled and feature treatments such as doors, windows, and porches along building frontages rather than blank walls or garage doors. Place parking behind buildings so as not to create large spaces between buildings. The streetscape within the street ~~right-of-way~~ROW is equally important in creating a quality pedestrian experience. Streetscape elements

include narrow streets, on-street parking, street trees, special pavement, traffic calming devices as appropriate, and streetscape furnishings (Figure 2-10).

2.2.3 Master Plan Report

Two preliminary land use concept plans for the project site were distributed in April 2007 to more than 50 stakeholders with a request for comments and suggestions (the list of stakeholders is in Appendix A). As a result of feedback received, a third concept plan with a lower overall total of housing units than the original two was also developed.

In June 2007, the HHFDC issued the final "Keahuolu Affordable Housing Master Plan Report," which contains the three alternative concept plans that are evaluated in this EIS. A "preferred alternative" is not identified.

The alternative concept plans, which offer single- and multi-family dwelling units in varying densities, differ primarily in the total number of dwelling units (see Table 2-2). In addition to housing, the three mixed-use concept plans have a number of common elements such as the development of commercial floor area, provision of parks and open space, and a site reserved for a school. The concept plans and land use components are described further in Sections 2.4 and 2.5.

Table 2-2: Alternative Concept Plans – Housing Unit Totals and Densities

	Alternative Concept Plans		
	A	**B**	**C**
Number of residential units:			
High density – multi-family	400	800	800
Medium density – multi-family	220	440	1,530
Low density - single-family	400	600	None
Total Residential Dwelling Units (du)	**1,020 du**	**1,840 du**	**2,330 du**
Density (dwelling units per acre):			
High density – multi-family	12	24	24
Medium density – multi-family	8	16	12
Low density - single-family	4	6	None

Source: The Keahuolu Affordable Housing Master Plan – June 2007

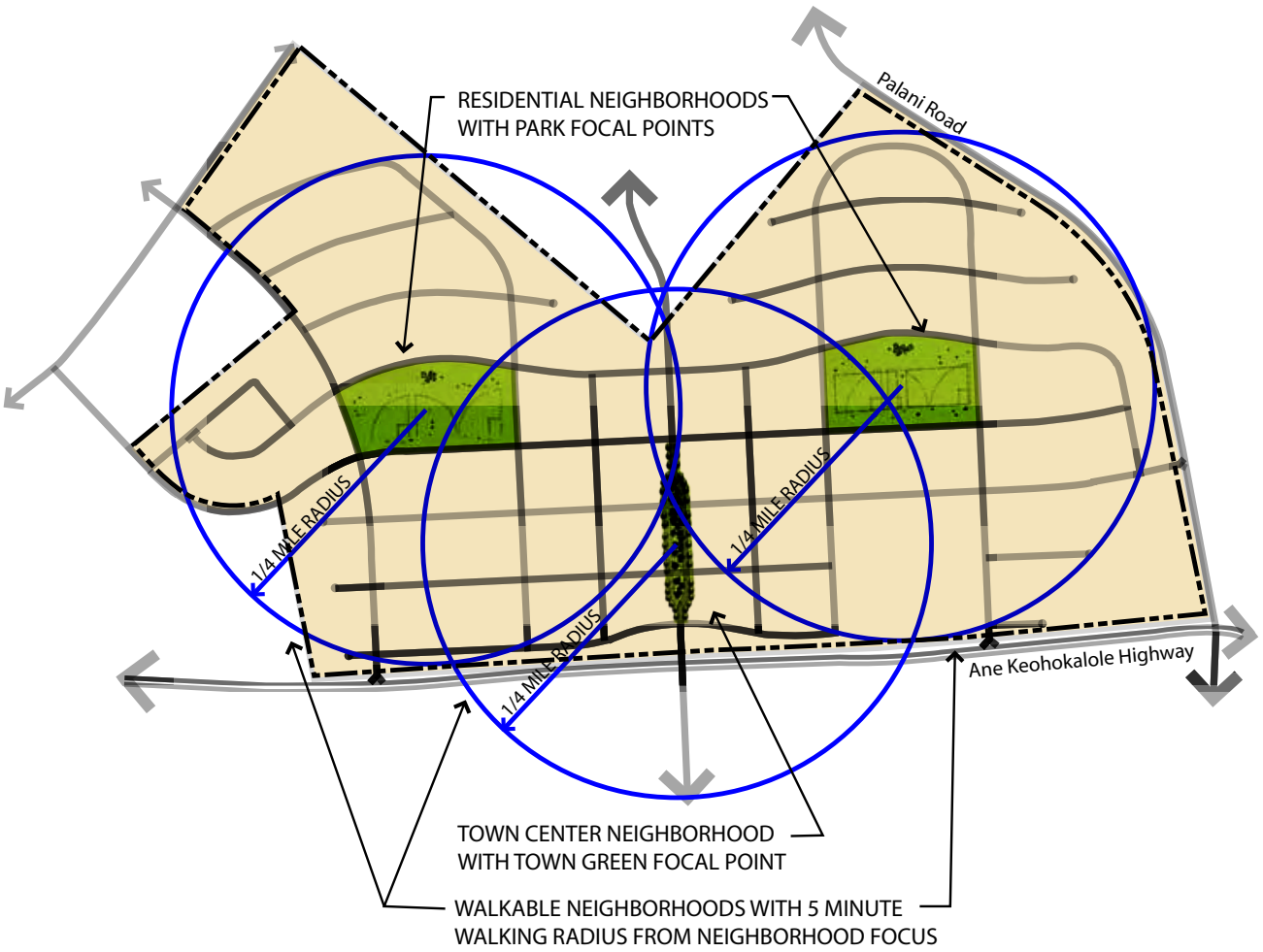

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Figure 2-7
WALKABLE NEIGHBORHOODS AND CONNECTIVITY

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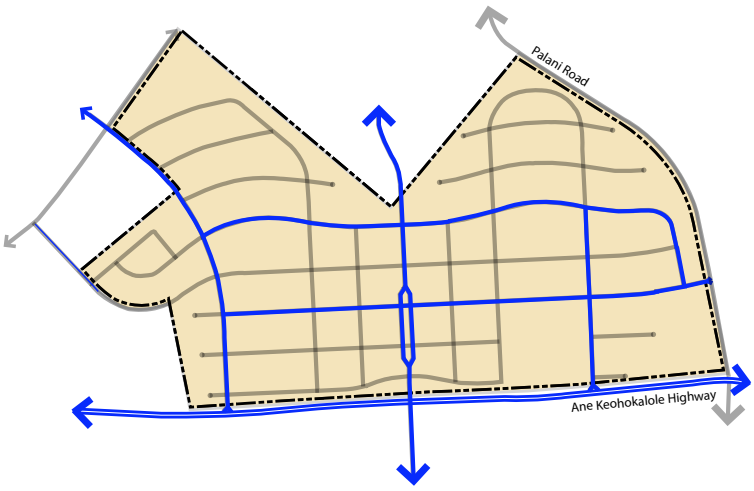
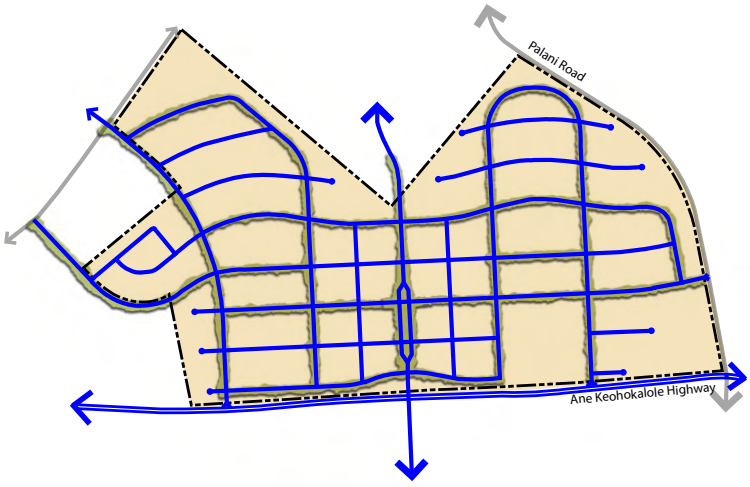
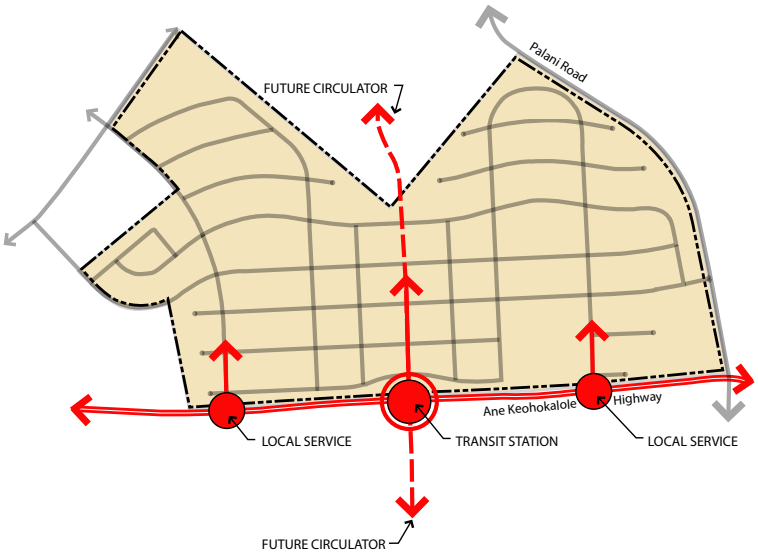


Bike Lanes



Sidewalks



Bus Mass Transit & Local Service

NORTH

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Figure 2-8
MULTI-MODAL CONNECTIVITY

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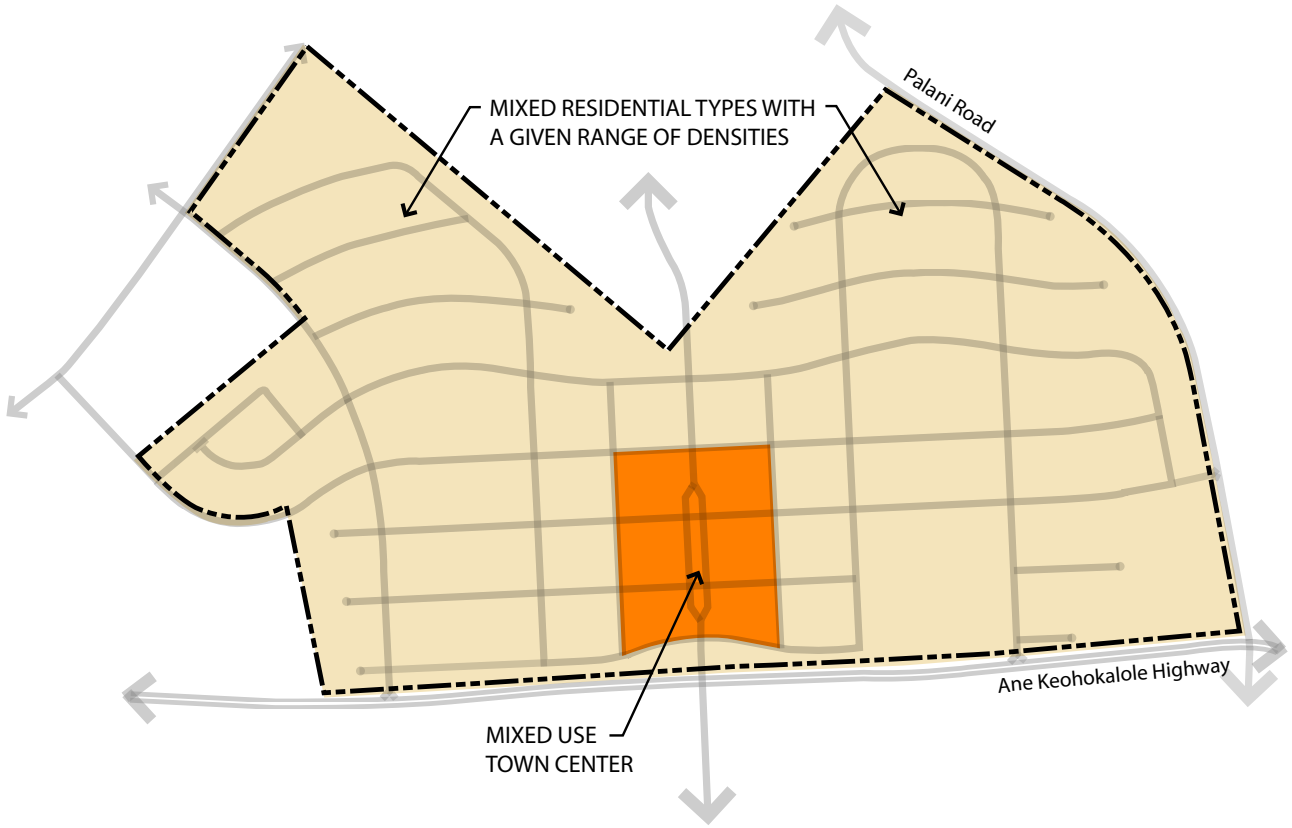

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Figure 2-9
MIXED USES

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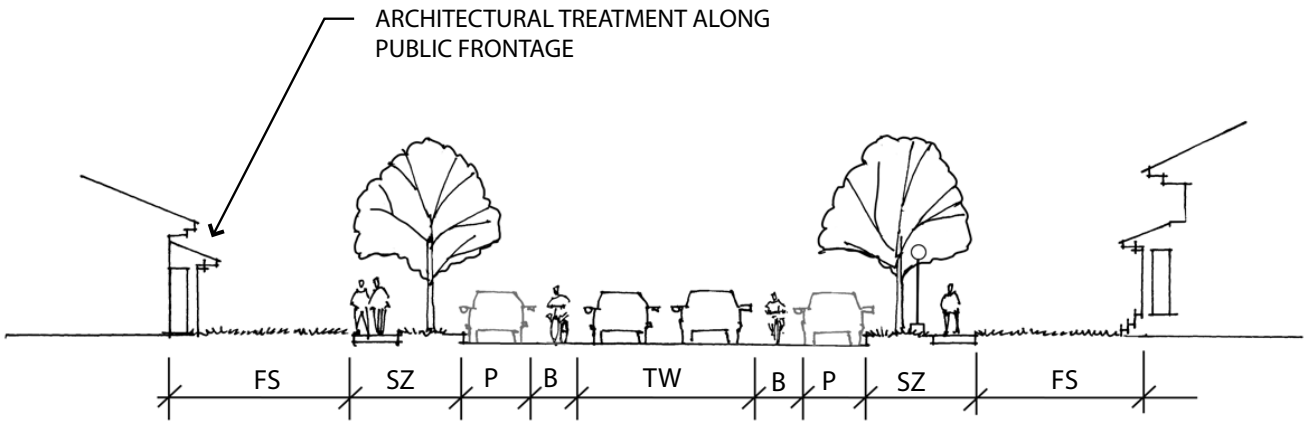

TW - Travelway
B - Bike lane
P - Parking (on-street)
SZ - Streetscape Zone
FS - Front Setback

NORTH NOT TO SCALE

Figure 2-10
PEDESTRIAN-SCALED STREETS

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September 2008

2.3 HHFDC'S RFP PROCESS – SELECTION OF A DEVELOPER

Following completion of the Master Plan process on July 23, 2007, the HHFDC issued a ~~Request for Proposals~~RFP for the purpose of soliciting proposals from interested developers who meet the qualifications set forth by the HHFDC to plan, design, and develop "mixed income rental and/or for sale units" on the approximately 272-acre vacant and undeveloped project site. The HHFDC RFP document states that the submitted proposal is expected to be conceptual in nature. The total number and mix of affordable and market-priced housing units, as well as the final configuration of the various land uses, will be determined in the course of the HHFDC's RFP process and HHFDC's selection of the ultimate developer and development scheme.

The RFP document states that the "Keahuolu Affordable Housing Master Plan" report is included as part of the RFP for reference "but is not a requirement." The HHFDC's RFP objective is as follows:

> *The objective of this RFP is to produce the maximum number of affordable units in the most livable community within the shortest feasible duration.*
>
> *"Affordable" housing is capped at 140% of the median income established by the U.S. Department of Housing and Urban Development (HUD).*

2.3.1 Selection of the Developer

According to HHFDC's July 23, 2007 RFP document, selection of the developer will be subject to approval of the HHFDC Board of Directors. The Selection Committee will make a recommendation approximately 60 calendar days from the deadline for submittal of the RFP proposals, which was December 14, 2007. The timing of the recommendation is an estimate and is subject to change by HHFDC. The Selection Committee will pick a developer and the developer's conceptual proposal based on the developer's response to the RFP.

2.3.2 HHFDC Evaluation Criteria

The proposals submitted to HHFDC in response to the July 23, 2007 RFP will be evaluated in accordance with the following criteria taken from the RFP:

1. Development qualifications, including development and management experience and capacity of the developer and his team to undertake the type of project proposed - 20 pts;
2. Maximum number of affordable units - 15 pts;
3. Most livable community - 15 pts;
4. Earliest feasible completion dates for the affordable units - 15 pts;
5. Feasibility of overall project and proposal - 15 pts;
6. Range and mix of affordability - 10 pts;
7. Minimum Use of State Resources* - 10 pts;
8. Maximum number of affordable rental units, with a preference for family rental units (up to a maximum of 35% rental units of the total units in the project) - 5 pts;
9. Maximum number of affordable rental units with three bedrooms or more (up to a maximum of 20% of the total rental units in the project) - 5 pts;
10. Compliance with RFP and Application requirements - 5 pts.

    Total Points - 115 pts.

* For purposes of the RFP, the "use of State resources" does not include the following:
   a. Use of the property pursuant to the RFP;
   b. Use of State tax exempt bond authority; and
   c. Use of non-competitive 4% tax credits.

2.3.3 Relationship Between the Developer and HHFDC

According to the RFP, HHFDC will not be the developer, nor landlord or a seller of dwelling units. The RFP stipulates that there will be no partnership, joint venture, employer and employee, master or servant or other agency relationship between HHFDC and the developer.

The developer ultimately selected by HHFDC for the project will be responsible for all on-site and off-site infrastructure improvements, costs and expenses associated with, and required for

the development, ownership, management and operation of the project, including planning, design, permit fees, utility charges, operation, management and sales expenses.

2.4 THE CONCEPT PLANS

The three alternative concept plans were developed based on the design principles and the analysis of site opportunities and constraints as described in previous sections. All three concept plans have multi-family housing and commercial uses concentrated around a centrally located community center and civic green space. Single-family and medium-density housing neighborhoods are indicated on the perimeter, while high-density housing is centrally located. All three plans provide neighborhood parks, an archaeological preserve near Palani Road, and an approximately 12-acre area reserved for a future school facility. The existing County water reservoir tank located along Palani Road is not part of the project property and is expected to remain in place.

The three concept plans integrate the project site with the area's existing and future transportation network. Primary access to the Keahuolu project site will be from the new Ane Keohokalole Highway. Access is also proposed along the extension of Keanalehu Drive, and there is the potential for a right-turn-in/right-turn-out along Palani Road.

The concept plans have several elements in common:

Common Elements of the Three Alternative Concept Plans

- Feature identical physical roadway and block layouts.
- Provide a minimum of 1,020 to a maximum of 2,330 dwelling units (single-family and multi-family residences). The differences are in housing types and range of densities.
- Provide a mixed-use community center that comprises roughly a six-block area featuring multi-family housing, ground-floor commercial/retail uses, and civic open space.
- Provide 197,000 square feet of commercial/retail space to be located at the community center.
- Provide a site reserved for a school (approximately 12 acres).
- Provide for archaeological preserve areas (approximately 7 acres).

- Provide neighborhood parks (approximately 25 acres), street trees, and a landscaped buffer along Ane Keohokalole. Two large parks are proposed to be centered within each of the north and south neighborhoods.
- Provide on- and off-site infrastructure improvements.
- Create a walkable, bikable, active-lifestyle community.
- Provide a TOD centered on future northbound and southbound bus stops to be located at the intersection of the proposed Ane Keohokalole Highway and the proposed extension of Makala Boulevard.
- Provide high-density development within easy walking distance (1/4 mile) from the transit stops.
- Accommodate the potential for feasible roadway connections to future development on adjacent lands.

Table 2-3 identifies the various land use components and their relative scope for each concept plan. The individual concept plans are described in the following sections.

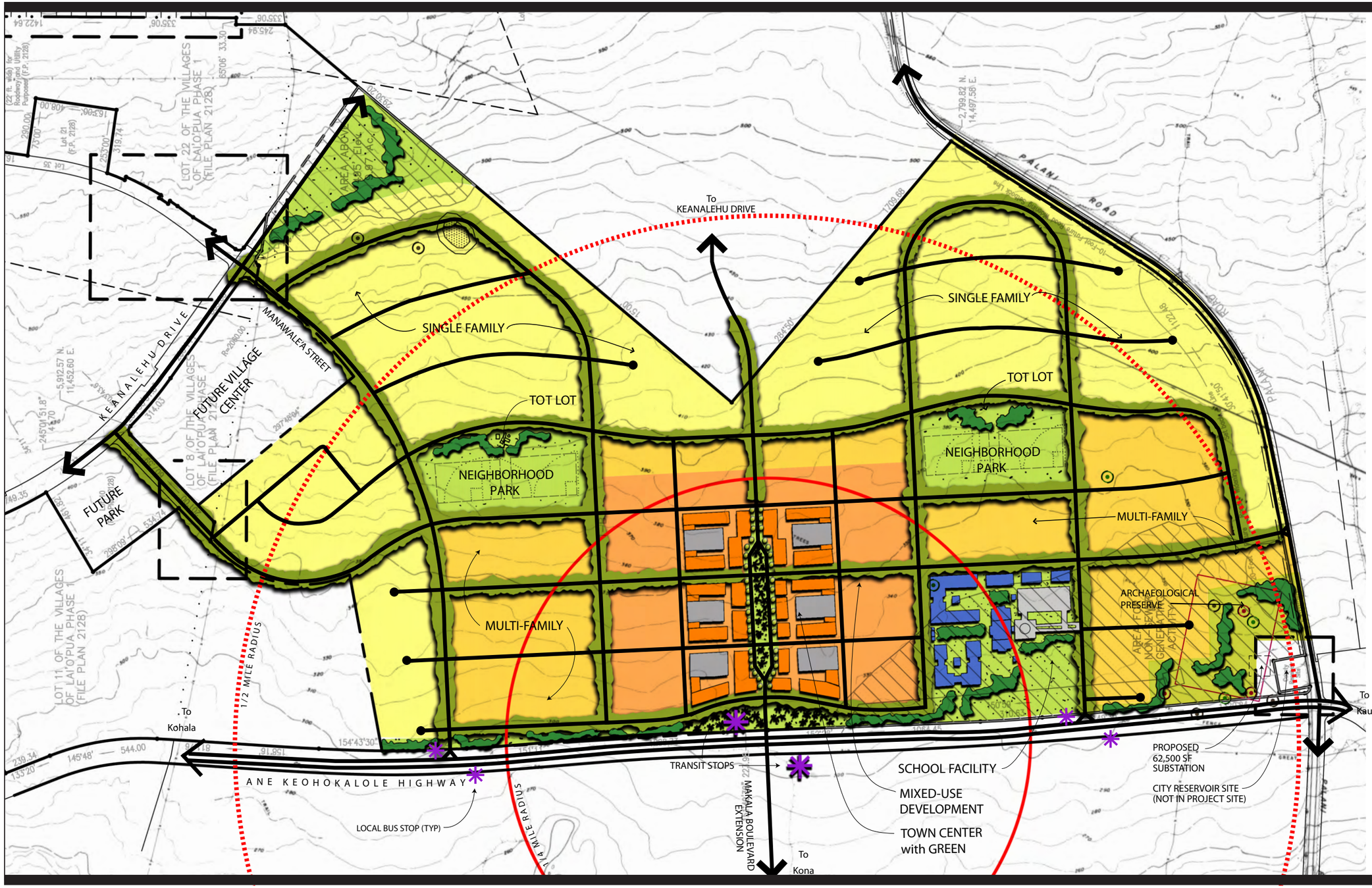
Table 2-3: Alternative Land Use Concept Plans

Uses	Concept A		Concept B		Concept C	
	Quantity	Acres	Quantity	Acres	Quantity	Acres
Single-Family - Low Density	400 du	100.88	600 du	100.88	--	--
Multi-Family – Medium Density	220 du	27.83	440 du	27.83	1,530 du	128.71
Multi-Family – High Density	400 du	33.66 *	800 du	33.66 *	800 du	33.66 *
Commercial	197,000 sf	*	197,000 sf	*	197,000 sf	*
School Facility		11.82		11.82		11.82
Archaeological Preserve		7.23		7.23		7.23
Open Space		25.18		25.18		25.18
Internal Roads		65.40		65.40		65.40
Total Dwelling Units	**1,020 du**		**1,840 du**		**2,330 du**	
Total Commercial SF	**197,000 sf**		**197,000 sf**		**197,000 sf**	
Project Site		**272 acres**		**272 acres**		**272 acres**

* The multi-family high-density land use area contains the commercial floor area in all three concept plans.
du dwelling units
sf square feet
Source: *The Keahuolu Affordable Housing Master Plan, June 2007*

2.4.1 Concept Plan A – 1,020 Dwelling Units

Concept Plan A has a total of 1,020 dwelling units (Figure 2-11). It has a mix of low-density single-family housing and multi-family housing. The multi-family housing is in both medium-



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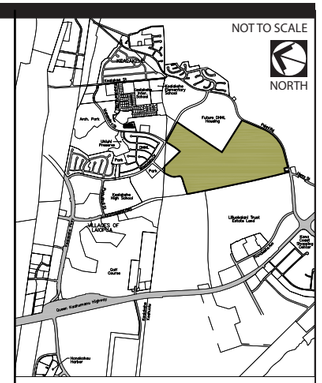

KEY MAP

LAND USE LEGEND

	HHFDC Program Land Use	Ac.	Quantity
	Single Family-Low Density	100.88	400 du
	Multi-Family Medium Density	27.83	220 du
	Multi-Family High Density	33.66*	400 du
	Commercial		197,000 sf
	School Facility	11.82	
	Archaeologial Preserve	7.23	
	Open Space	25.18	
	Roads	65.40	
	Subtotal	272.00	1,020 du 197,000 sf

* The Multi-Family High Density land use area contains the Commercial land use area.

BeltCollins

NORTH

0 100 200 300 400 500
SCALE IN FEET

1 Acre

Figure 2-11
CONCEPT PLAN A

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Environmental Impact Statement
September 2008

and high-density configurations. Single-family homes, at a density of 4 dwelling units per acre, would be built in the mauka and northernmost areas of the project site. Multi-family homes, at a density of 8 dwelling units per acre, would surround the community center. The central mixed-use and high-density residential areas would be located closest to the bus transit stops. The highest density multi-family housing would be 12 dwelling units per acre and would be located in and around the community's center.

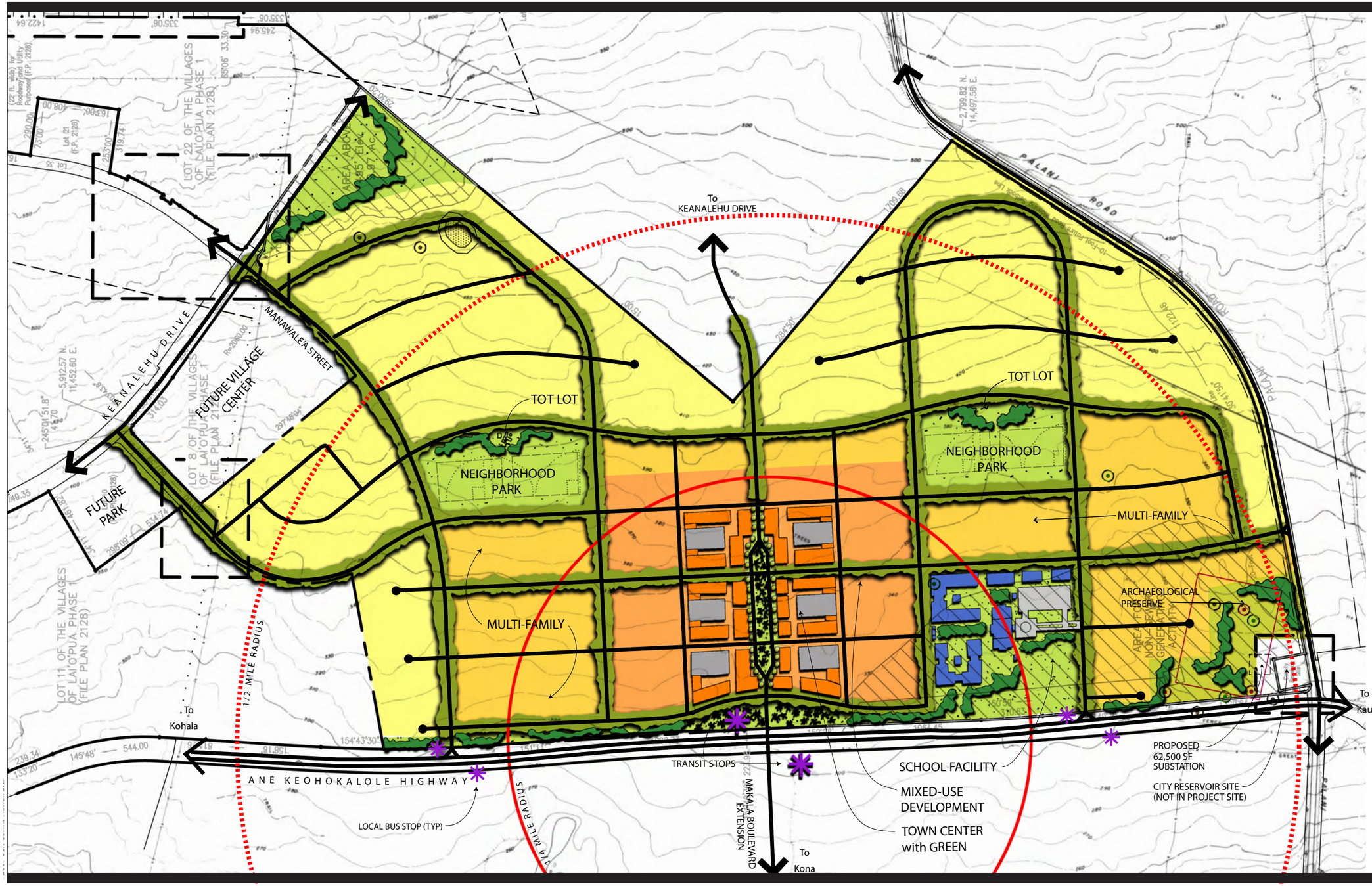
As noted previously, all three concept plans have 197,000 square feet of centrally located commercial floor area, neighborhood parks, an archaeological preserve near Palani Road, and an approximately 12-acre area reserved for a future school facility.

2.4.2 Concept Plan B – 1,840 Dwelling Units

Concept Plan B has a total of 1,840 dwelling units (Figure 2-12). All of the land use components are in the same general location as Concept Plan A. Concept Plan B has more dwelling units in all categories of housing types: more low-density single-family housing, more medium-density multi-family housing, and more high-density multi-family housing. Concept Plan B also has higher densities in all categories of housing types. Highest densities are found in the central mixed-use area with 24 dwelling units per acre, while surrounding multi-family housing would be 16 dwelling units per acre, and the perimeter single-family housing would be 6 dwelling units per acre. The remaining land use components are the same as Concept Plan A.

2.4.3 Concept Plan C – 2,330 Dwelling Units

Concept Plan C has a total of 2,330 dwelling units (Figure 2-13). All of the land use components are in the same general location as Concept Plans A and B. The significant difference is that Concept Plan C has only multi-family dwelling units and no single-family housing units. The central mixed-use community center has the highest density of all three concept plans with 24 dwelling units per acre, while surrounding multi-family housing would be 12 dwelling units per acre. The remaining land use components are the same as Concept Plans A and B.



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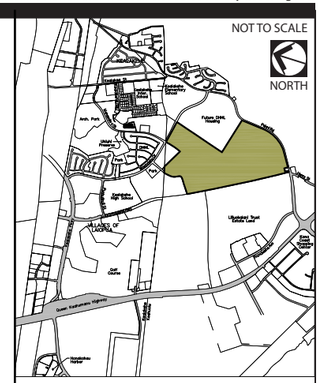

KEY MAP

LAND USE LEGEND

	HHFDC Program Land Use	Ac.	Quantity
	Single Family-Low Density	100.88	600 du
	Multi-Family Medium Density	27.83	440 du
	Multi-Family High Density	33.66*	800 du
	Commercial		197,000 sf
	School Facility	11.82	
	Archaeologial Preserve	7.23	
	Open Space	25.18	
	Roads	65.40	
	Subtotal	272.00	1,840 du 197,000 sf

* The Multi-Family High Density land use area contains the Commercial land use area.

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NORTH

0 100 200 300 400 500
SCALE IN FEET

1 Acre

Figure 2-12
CONCEPT PLAN B

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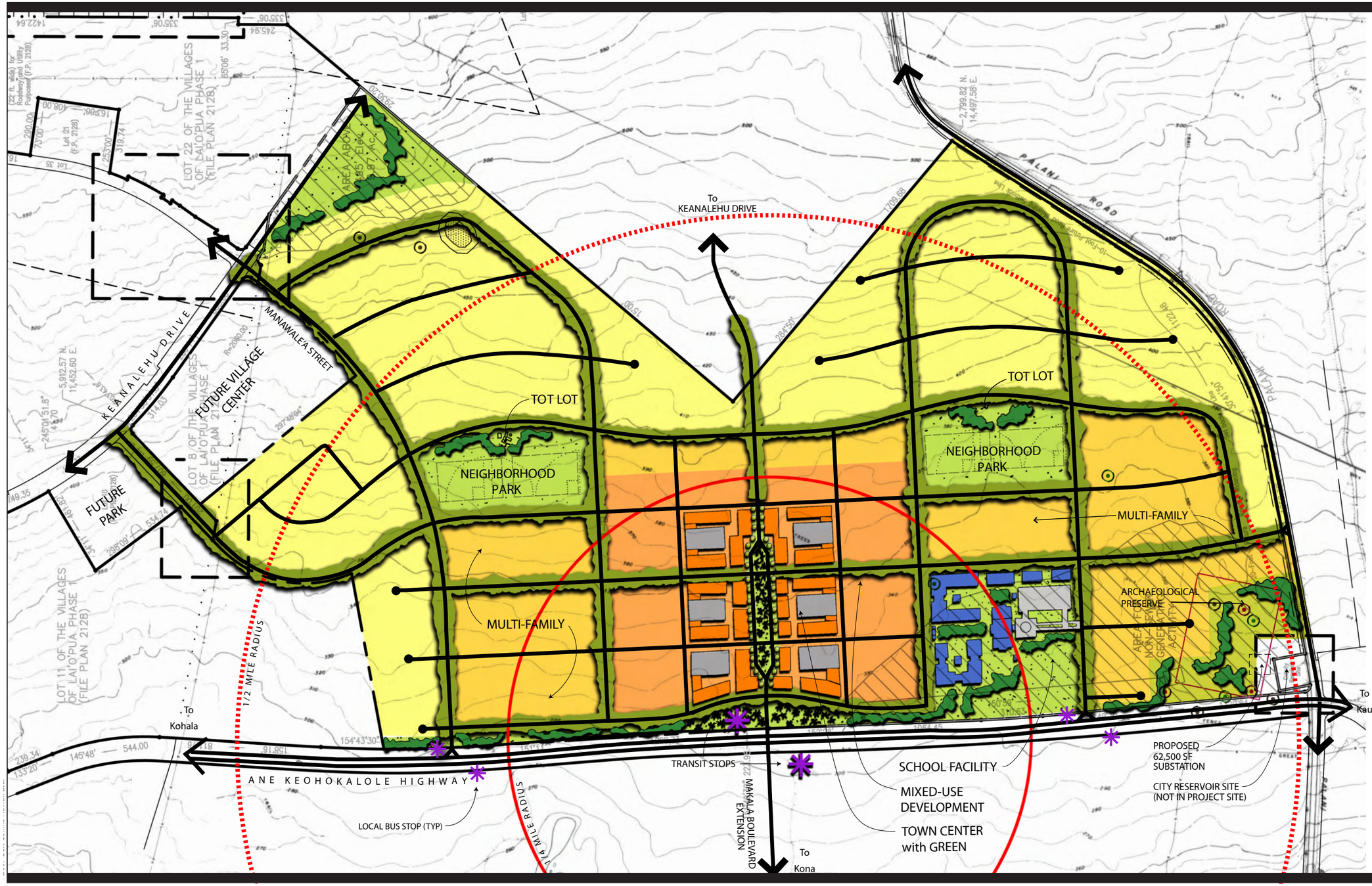
Environmental Impact Statement
September 2008



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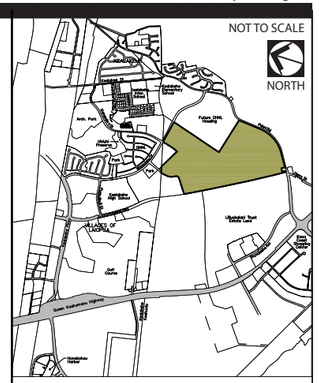

KEY MAP

LAND USE LEGEND

	HHFDC Program Land Use	Ac.	Quantity
	Single Family-Low Density	–	–
	Multi-Family Medium Density	128.71	1,530 du
	Multi-Family High Density	33.66*	800 du
	Commercial		197,000 sf
	School Facility	11.82	
	Archaeologial Preserve	7.23	
	Open Space	25.18	
	Roads	65.40	
	Subtotal	272.00	2,330 du 197,000 sf

* The Multi-Family High Density land use area contains the Commercial land use area.

BeltCollins

NORTH

0 100 200 300 400 500

SCALE IN FEET

1 Acre

Figure 2-13
CONCEPT PLAN C

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Environmental Impact Statement
September 2008

2.4.4 Preliminary Development Schedule

Development of the master-planned community is anticipated to begin as soon as all of the entitlement and permitting approvals have been received. Site preparation may begin as early as 2008/2009 with full build-out projected to be within 10 years or by year 2020.

The timing and phasing of the actual construction of the project's improvements depend on factors beyond this environmental review document. The HHFDC's RFP process and its selection of the ultimate developer and development scheme will determine the actual development schedule for the Keahuolu Affordable Housing Pproject.

Table 2-4 illustrates a conceptual development schedule provided by the HHFDC for planning purposes. This conceptual development schedule has been used for planning purposes in this environmental review document.

Table 2-4: Conceptual Development Schedule
Housing Units and Commercial Floor Area

Year	Alternative Concept Plans			Commercial (SF)
	A	B	C	
2010	300	300	300	
2011	300	300	300	
2012	300	300	300	
2013	120	300	300	
2014		300	300	
2015		300	300	
2016		40	300	
2017			230	
2018				100,000
2019				
2020				97,000
Total	**1,020** dwelling units	**1,840** dwelling units	**2,330** dwelling units	**197,000 SF**

Source: Hawaii Housing Finance and Development Corporation

The conceptual development schedule estimates that approximately 300 housing units would be built per year. Based on that, the development schedule varies between the concept plans due to the total number of housing units provided. Concept Plan A would have the shortest duration

with completion in 2013. Concept Plan B would be completed in 2016. Concept Plan C would be completed in 2017.

The commercial floor area conceptual development schedule is the same for all three concept plans. By 2018, 100,000 square feet of commercial floor area would be completed. The remaining 97,000 square feet would be completed by 2020.

2.5 LAND USE COMPONENTS OF THE CONCEPT PLANS

The following is a description of the various land use components of the three concept plans. The HHFDC RFP documents provide guidance and parameters to potential developers about the ultimate development scheme. An overview of the parameters of the land use components is provided below with information and details taken from the RFP.

2.5.1 Housing Units

According to HHFDC's RFP, the development of the project may be in fee or leasehold. Transfer of the project site in fee will be by quitclaim deed. HHFDC acknowledges that the selected developer may develop the project site as "for-sale market and/or affordable single-family or condominium projects and that the residential units being offered for sale may need to be in fee simple." Transfer of the fee or leasehold title from HHFDC to the developer will be subject to the following:

1. Subdivision of the applicable phase of the site to be conveyed is to be completed.

2. HHFDC reserves the right to convey title in phases and to withhold conveyance of title until after the approval of the last discretionary approval for the project, e.g., zoning exemptions and/or ~~Land Use Commission~~LUC approval.

3. Rental, commercial, and commercial mixed-use projects are to be developed on a separately subdivided parcel, such as the community center concept shown in the plans, and are to be developed under a ground lease with a ~~65~~ 65-year lease of $1.00/year lease rent fixed for 65 years.

4. The duration of affordability for any residential rental project is to be the duration of the ground lease.

5. The developer is to be responsible for preparation of the legal descriptions of the parcel(s) to be conveyed to the developer.

For-Sale or Rental Projects. Development may include residential for-sale or rental projects. The developer's entire sales and rental programs may be monitored by HHFDC to ensure compliance with HHFDC's requirements. At a minimum, the developer's for-sale program will be subject to the following:

1. For-Sale Market Units. A preference shall be given to qualified residents pursuant to ~~Hawaii Revised Statutes (~~HRS~~)~~, Sections 201H-47(g) and 201H-32.

2. For-Sale Affordable Units. Each unit shall be subject to a buy-back restriction and HHFDC's Shared Appreciation Equity Program in favor of HHFDC, pursuant to HRS Sections 201H-47, and Hawaii Administrative Rules (HAR), Sections 15-174-121 to -130.

   For-~~S~~sale affordable units shall be offered to households with a range of incomes. The proposed affordable sales prices under this RFP shall be based on the area median income as established by the ~~U.S. Department of Housing and Urban Development (~~HUD~~)~~ as adjusted for family size.

   For purposes of determining maximum affordable sales prices under this RFP, the following shall be assumed: 33 percent of the HUD median income adjusted for family size according to the affordable unit types shown below, a down payment of 5 percent of the sales price, and a monthly payment based upon the prevailing interest rate for a 30-year fixed-rate loan and an appropriate customer trust fund which shall include real property tax, condominium association maintenance fees, mortgage insurance, homeowner's insurance, and any average monthly Community Facilities District payments:

Unit Type	Household Size
Studio	1 person
1-bedroom	2 persons
2-bedroom	3 persons
3-bedroom	4 persons
4-bedrooms	5 persons

3. For-Sale Single-Family Projects. Proposals with single-family dwelling units of 50 units or more shall first offer a minimum of 10 percent of the total number of single-family units to owner-builders or to non-profit organizations assisting owner-builders in accordance with HRS Section 201H-40.

4. A Community Land Trust Model. In concept, the ground lease of the land for this model of an affordable for-sale project is conveyed to a community land trust, which then sells leasehold ownership in the affordable units to homebuyers. Upon resale, the homeowner is required to resell the unit back to the community land trust at a maximum cap of the consumer price index (CPI) over the homeowner's initial sale price (less depreciation of the improvements). The land trust then resells the leasehold unit to another affordable buyer. If a community land trust model is proposed by a prospective developer, title to the land shall be conveyed to the land trust by ground lease for a ~~65~~ 65-year lease at $1.00/year lease rent fixed for 65 years.

Other Considerations. The developer shall, on its own behalf or in conjunction with a non-profit or other entity acceptable to HHFDC, own, operate, and manage any rental units. The developer shall be responsible for the operation and maintenance of all common areas not dedicated to the County or applicable condominium associations. The HHFDC Keahuolu Master Plan is included as a part of the RFP as a reference and is not a requirement.

2.5.2 Commercial Space

All three concept plans of the Keahuolu Master Plan contain 197,000 square feet of commercial space located in the community's center. The commercial space is intended to primarily serve the local residential market of the Keahuolu Affordable Housing P~~p~~roject. At the time of this writing, the tenants/tenant types of the commercial space are not known.

2.5.3 School Facility Site

An approximately 12-acre school site is designated along Ane Keohokalole Highway. There is a deed reservation for a school facility site to be conveyed in fee for set-aside to the Department of Education (DOE).~~The HHFDC RFP states that a variety of options could be explored for fulfilling the on-site school facility land use component. Currently, there is a deed reservation for a school facility site to be conveyed in fee for set-aside to the Department of Education (DOE). However, passed by Act 245, the 2007 Legislature allows various approaches to fulfilling educational facility requirements. Therefore the RFP states that both traditional and nontraditional facilities (e.g., charter school, day care center, early learning center, etc.) should be explored by the developer. Any educational facility should preferably be sensitive to minimizing vehicular traffic hazards to pedestrian student traffic.~~

2.5.4 Archaeological Preserve

An approximately 7-acre archeological preserve is designated in the lower southwest corner of the project site near the intersection of Palani Road with Henry Street. As described in the QLT EIS and the HHFDC Keahuolu Master Plan, significant archaeological sites have been identified in this area of the project property. The HHFDC RFP states that the developer is to be responsible for identifying and completing the historic preservation requirements for the project area.

Mitigation work must be implemented. This involves further archaeological data recovery work (detailed recording and possible excavations) at identified sites within the project area and within Block E, a 400-square-foot sample block in the southern portion of the project area, near Palani Road. The Block E data recovery work will entail vegetation clearing within the block, detailed recording of the archaeological features within the block, and preparing a report on the overall data recovery work. Burial testing must be conducted at possible burial sites in the project area. If any burials are identified, a burial treatment plan must be prepared, approved by the Burial Council, and implemented. Finally, a site preservation plan needs to be prepared to current regulatory standards and the plan must be approved by the State Historic Preservation Division (SHPD) and implemented.

The RFP stipulates that in the event that any sites or remains such as shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings or walls are encountered during construction, the developer and its contractors shall stop work and contact SHPD and comply with its requirements.

2.5.5 Parks and Open Space

The HHFDC RFP states that the developer will be responsible for providing parks in accordance with requirements of the County of Hawai‘i Department of Parks and Recreation (P&R).

1. Park lands shall be planned at a rate of 5 acres of net usable area for active recreation and its supporting infrastructure and amenities per 1,000 persons projected for the development (person count to be rounded up to the next highest full thousand). Net usable area does not include hillsides, ravines, archaeological sites, restrictive easements, and other similar land features that would be of no recreational value to the

community or an undue burden on the County. Minimal landscape buffers can be considered appurtenant to the active recreation sites; stand alone landscape buffers and those not physically a part of an active recreation site will not be considered. Also, P&R prefers to not assume responsibility for detention basins and similar flood control features. The factors used for determining the development's person count is based on dwelling type using a predetermined ratio. These ratios are 3.5 persons per single-family or duplex dwelling unit and 2.1 persons per multi-family dwelling unit.

P&R would prefer multiple Neighborhood Parks to be developed in this type of large-scale residential development, adequately dispersed throughout the development. Neighborhood Parks consist of sites that are 5 acres of net usable area minimum, are fully grassed and landscaped, and have perimeter fencing, on-site parking, a comfort station with pavilion, a combination of sports fields (baseball/softball field, soccer field, outdoor tennis/basketball courts), and children's playground equipment and similar amenities. Neighborhood Parks also may contain some passive uses such as picnicking and landscaped areas, but those would be subservient to the active recreational needs.

2. P&R would be willing to accept dedication of appropriately sized, designed, and constructed Neighborhood Parks and similar park sites with active recreation as their main purpose.

3. Archaeological sites are not related to active recreation and therefore shall not be included in park lands for dedication to the County.

4. Linear parks may be acceptable for dedication to the County but are dependent upon the uses they encompass. If strictly a greenway or pedestrian/bicycle trail (i.e., alternate transportation corridor), such a park may not be acceptable to the P&R; however, the developer may approach the County Department of Public Works (DPW) if they would be agreeable to accept such areas. If used to link active recreation venues or incorporate active recreation fields and such into it, or as its periphery/buffer, then it is probably acceptable to P&R. Greenways are not active recreation parks and should be left to the community association to care for. Alternative transportation corridors are more likely to be under ~~Department of Public Work~~DPWs' jurisdiction, and they should be approached on acceptance of these types of lands/improvements.

5. P&R may be willing to entertain the development of a larger community park to serve the development and its surrounding neighborhoods. However, that does not negate the need for other future developments on neighboring lands to provide their share of parks based on the same criteria noted in paragraph 1 (above).

   If the concept of a community park is pursued, it would need to be more centrally located in the community it is serving than a Neighborhood Park. It would have the same amenities as the Neighborhood Park but would include a multi-purpose community recreation center and possibly a gymnasium. It could also have some passive uses/amenities.

6. The concept of smaller "pocket" parks should be encouraged to benefit the residents and facilitate a social fabric in that neighborhood. They could include smaller and more passive amenities such as gazebos, picnic tables, benches, and playgrounds. P&R supports the development of such sites; however, P&R feels that those sites should be managed and cared for by the community associations representing surrounding residents (as opposed to the County). The overall park land requirement should not be significantly impacted (reduced) by the lands assigned to create these "pocket" parks.

Over 25 acres of open space areas will be provided in the form of public neighborhood parks, a central green public space in the middle of the community's center, and a space along the Keanalehu Drive extension, which is not recommended for development due to site constraints, such as a steep slope. Green spaces, such as walkways with street trees, are also illustrated in the concept plans along all of the interior roadway corridors and along the project's frontage with Ane Keohokalole Highway.

2.5.6 Internal Roads, Pedestrian Walkways, and External Roads

The HHFDC RFP states that the developer is to be responsible for development of the roads within the project site. The developer is to provide connection points between the internal collector roads and Ane Keohokalole Highway for eventual connection through QLT property to Makala Boulevard and Manawale'a Street and Keanalehu Drive, as shown in the HHFDC Keahuolu Master Plan's conceptual plans. Unless otherwise approved by HHFDC, these roads are to be constructed to County standards and dedicated to the County.

The developer is to accommodate the 80-foot ~~right-of-way~~ROW of the Keanalehu Drive extension along the northern boundary of and within the project site and is to dedicate the roads to the County upon completion.

The RFP states that the developer is advised that due to maintenance, sight distance, and Americans with Disabilities Act (ADA) compliance concerns, the County will not accept any street trees within roadways which will be dedicated to the County unless the developer executes a maintenance agreement to maintain the street trees.

The HHFDC Keahuolu concept plans also indicate a proposed connection to Palani Road, which would be limited to a right-turn-in and right-turn-out only.

The County plans to use Ane Keohokalole Highway as the main transit route for this area, which will eventually serve as a primary arterial road that will connect at Henry Street and extend north to the Keahole Airport area. The current preliminary engineering studies and environmental assessment for Ane Keohokalole Highway are being prepared for the section between Henry Street and Hina Lani Street.

The County plans to finance construction of Ane Keohokalole Highway using Community Facilities District financing. The HHFDC RFP states that the developer of Keahuolu is to be responsible for any allocable share of the cost of Ane Keohokalole Highway that is attributable to the Keahuolu Affordable Housing Pproject. The HHFDC RFP advises the developer that the 50 percent allocable share used in the HHFDC Keahuolu Master Plan is an arbitrary assumption for planning purposes.

The Keahuolu Affordable Housing Pproject's concept plans provide a regional bus transit stop at the future intersection of Ane Keohokalole Highway and Makala Boulevard, and bus stops are provided along Ane Keohokalole Highway for local circulator buses that will serve the Keahuolu project's neighborhoods.

2.5.7 Other Project Considerations Contained in the HHFDC RFP

The following information was provided in the HHFDC RFP to prospective developers of Keahuolu regarding energy and design considerations and infrastructure service for the project.

2.5.7.1 Energy and Design Considerations

According to HHFDC's July 23, 2007 RFP, to the extent possible, the project shall comply with HRS Section 196-9 and the Governor's Administrative Directive No. 06-01, dated January 20, 2006, as follows:

1. Design and construct buildings to meet and receive certification for U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards. As appropriate for the type of construction, the buildings should meet LEED Silver certification for new commercial construction and major renovation, LEED for existing building operations, and LEED for commercial interiors.

2. Incorporate energy efficiency measures to prevent heat gain in residential facilities of one to three stories by providing R-19 or equivalent insulation on roofs, R-11 or equivalent in walls, and high-performance windows to minimize heat gain and, if air conditioned, to minimize cool air loss. Where possible, orient buildings to maximize natural ventilation and day lighting without heat gain, and optimize building roof exposure for solar water heating.

3. Incorporate design features to conserve energy and water usage pursuant to Chapter 344, HRS (State Environmental Policy) and Section 226-18, HRS, of the Hawaii State Plan. If the project does not incorporate solar water heating into its design, the developer shall submit to HHFDC, either a written approval of a cost-benefit comparative analysis by the Energy Branch of the Department of Business, Economic Development and Tourism (DBEDT), or a cost-benefit comparative analysis bearing the stamp and signature of a licensed mechanical engineer, concluding that the use of the proposed conventional water heating system for the project is more cost effective than a solar water heating system. The analysis shall be based on the projected life-cycle costs to purchase and operate the water heating systems. If the life-cycle analysis is positive, the facility shall incorporate solar water heating. If water heating entirely by solar is not cost-effective, the analysis shall also evaluate the life-cycle, cost-benefit of solar water heating for preheating water.

4. Implement water and energy efficiency practices in operations to reduce waste and increase conservation.

5. Incorporate principles of waste minimization and pollution prevention: reduce, reuse, and recycle as a standard operating practice, including programs for construction and demolition waste management and office paper and packaging recycling programs.

6. Use life cycle cost-benefit analysis to purchase energy efficient equipment such as Energy Star products and use utility rebates, where available, to reduce the purchase and installation costs. Energy Star products meet strict efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy.

7. Procure environmentally preferable products, including but not limited to recycled and recycled-content, bio-based, and other resource-efficient products and materials.

2.5.7.2 Infrastructure, Maintenance and Coordination Considerations

According to HHFDC's July 23, 2007 RFP for Keahuolu, the developer will be required to provide and/or develop adequate infrastructure to service the project.

~~Potable~~ Drinking Water. The developer shall be responsible for obtaining ~~potable~~ drinking water for the project, including a ~~potable~~ drinking water allocation from the DLNR and payment of any Department of Water Supply~~'s~~ (DWS) water facilities charges.

Wastewater. The developer shall be responsible for securing adequate sewage treatment capacity at the Kealakehe ~~Wastewater Treatment Plant~~WWTP and connection approvals from the County and the payment of any facilities charges for such connections or capacities required for the project. HHFDC agrees to quitclaim to the project any rights HHFDC may have to sewage treatment capacity from the Kealakehe ~~Wastewater Treatment Plant~~WWTP under HHFDC's agreement with the County, dated March 19,1992, for development of the project, up to a maximum of an average of 431,360 gallons per day. As indicated in the HHFDC Keahuolu Master Plan, sewage from this project may be conveyed to the Kealakehe ~~Wastewater Treatment Plant~~WWTP~~:~~ (1) by an alignment through the DHHL's Village of La'i 'Opua project in the northerly direction, (2) by an alignment through QLT property to the west, or (3) by a combination of alignments through La'i 'Opua and QLT properties.

The developer shall satisfy the respective requirements of DHHL and QLT for alignments through the applicable projects.

The developer shall also be responsible for accommodating offsite County sewage from the Queen Lili'uokalani Village project from Palani Road, either within the ~~right-of-way~~ROW of the Keanalehu Drive extension, or from Palani Road to the most convenient connection to the onsite project sewer system.

Maintenance of the Project Site. The developer shall be responsible for any maintenance of the project site, as well as the area from the project boundary to the adjacent street curb, commencing six months from the date of HHFDC Board of Directors' approval of the project.

Coordination of Construction. The developer shall coordinate construction of the project with other activities taking place in the area. The developer shall be responsible for repairing or paying for the costs of repairing any damage that its activities may cause to any improvements, including Palani Road or the adjacent Villages of La‘i ‘Opua project.

Accessibility. The project shall be accessible to and usable by persons with disabilities in compliance with HRS Section 103-50, and the developer shall submit written evidence to HHFDC that the project plans have been approved by the Disability and Communication Access Board, prior to start of construction. This requirement is in addition to any other applicable requirement for accessibility such as the Fair Housing Amendments Act of 1988 (Pub. L. 100-430, approved September 13, 1988) and the Fair Housing Accessibility Guidelines (24 Code of Federal Regulations [CFR] Chapter 1).

2.6 PRELIMINARY PROJECT COSTS

Preliminary project costs are not available at the time of this writing because the developer and the final project development scheme have not been determined. Preliminary off-site infrastructure costs are discussed in Chapter 4 in Section 4.8.

2.7 PERMITS AND APPROVALS

The HHFDC RFP states that the project shall comply with the rules, regulations, ordinances, codes, and standards of the County of Hawai‘i and any federal and state requirements. If there is a conflict between requirements, the more restrictive requirement shall control.

3CHAPTER THREE: DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

3.1 CLIMATE

3.1.1 Existing Conditions

Regional temperatures range from the mid-60s in the winter to the mid-80s in the summer. The annual rainfall in the region averages 20 to 40 inches per year. Unlike most areas in Hawai‘i, rainfall in Kona is heavier in the summer than in winter. Trade winds in Hawai‘i typically blow from the northeast direction. The local Hualalai and Mauna Loa volcanoes influence the wind pattern on the Kona side of the island of Hawai‘i. The prevailing winds blow toward the ocean in the early morning and from the ocean toward the island in the afternoon (Juvik, 1998).

3.1.2 Potential Impacts and Mitigation Measures

The proposed Keahuolu Affordable Housing Pproject is not expected to have any impacts on climate. No mitigation measures are warranted.

The Impacts of the Alternatives on Climate

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			No impacts on climatic conditions are expected under the No Action Alternative.
2. Alternative A	✓			No impacts on climatic conditions are expected under Alternative A.
3. Alternative B	✓			No impacts on climatic conditions are expected under Alternative B.
4. Alternative C	✓			No impacts on climatic conditions are expected under Alternative C.

3.2 GEOLOGY AND TOPOGRAPHY

3.2.1 Existing Conditions

The project site consists of approximately 272 acres extending northward from Palani Road. The elevation of the property ranges between 300 and 580 feet above msl. The adjacent proposed reservoir ranges in elevation from approximately 580 to 640 feet above msl. Situated on the western slope of Hualalai volcano, the subject properties are composed of prehistoric lava flows estimated to be from 3,000 to 5,000 years old.

The lower or western half of the housing site is easily developable with approximately half of the area in less than 5 percent slopes and the remainder in 5 to 15 percent slopes. Topography slopes downhill from east to west. The upper or eastern half of the site is steeper; some of the slopes are greater than 15 percent. However, the larger portion of the property has slopes less than 15 percent. This organizes the site to be used more intensively in the lower (makai) sections of the property with larger footprint uses or higher density residential uses being placed on the flatter areas. The upper (mauka) sections should be used for smaller footprint residential structures that can accommodate grade changes more easily.

3.2.2 Potential Impacts and Mitigation Measures

A grading permit must be approved from the ~~State DLNR Historic Preservation Division~~SHPD, County Planning Department and ~~Department of Public Works (~~DPW~~)~~ before construction can begin on either the housing site or the reservoir site. All grading operations will be conducted in compliance with dust and erosion control requirements of county, state, and federal regulations. During the grading permit review and approval, the grading plans for the site will be reviewed by the County DPW and SHPD.

The existing topography would be altered to the extent necessary for construction of the proposed improvements. It is anticipated that cut and fill quantities would generally balance as construction progresses. During all phases of construction, erosion control practices will comply with state, county and federal regulations. National Pollutant Discharge Elimination System (NPDES) general permit coverage authorizing discharges of storm water associated with

construction activities will be required for the project from the State DOH, Environmental Management Division, Clean Water Branch. Best management practices (BMP) to control erosion during construction will be a component of the NPDES permit.

Potential Short-Term Impacts:

During grading activities, portions of the site would be disturbed and the potential for site erosion would increase. The contractor will be required to comply with Chapter 10 – Erosion and Sedimentation Control - of the County Code, the DPW Storm Drainage Standard, and the NPDES permit requirements, including the ~~best management practices (~~BMP~~)~~ plan to contain and control site erosion and to prevent the discharge of sediment from the site. Based on the requirement for construction activities to comply with county requirements and the approved NPDES permit, the short-term environmental impacts from grading activities are anticipated to be mitigated and insignificant.

Potential Long-Term Impacts:

Long-term impacts of the project on drainage and erosion are not anticipated to be significant. The increase of impermeable surfaces resulting from site development would have the effect of increasing storm water runoff quantities on the site. To comply with the County's Storm Drainage Standard, runoff flow rates and volume from the site will not increase. The runoff will be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. Thus, precipitation falling on the site will discharge into the ground as it does under pre-development conditions. An underground injection control (UIC) permit will be required by the State DOH to construct and operate the dry wells. It is recommended that the drainage systems also include storm drain filtration devices to mitigate potential impacts from pollutants. Filtration devices may include vegetated swales, bio-retention areas, sand or organic filtering systems, or commercially available proprietary products such as catch basin inserts and hydrodynamic devices. The method of filtration would be determined based on available technology and integrated with the system design.

The Impacts of the Alternatives on Geology and Topography

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			No impacts to geology or topography are anticipated under the No Action Alternative.
2. Alternative A		✓		A grading permit and an NPDES permit would be required prior to construction. A UIC permit would be required for any dry wells constructed. No significant long-term impacts to topography are anticipated. The contractor would be required to comply with erosion and sedimentation rules and regulations. Runoff flow rates and volume would not be increased from the site to comply with the County's Storm Drainage Standard. Precipitation falling on the site would discharge into the ground as it does under pre-development conditions. Storm drainage filtration devices are recommended to mitigate pollutants from entering the groundwater.
3. Alternative B		✓		Generally the same grading improvements would be required for Alternative B as Alternative A. A grading permit, an NPDES permit, and other necessary permits would be required prior to construction.
4. Alternative C		✓		Generally the same grading improvements would be required for Alternative C as Alternative A. A grading permit, an NPDES permit, and other necessary permits would be required prior to construction.

3.3 GROUNDWATER, HYDROLOGY, SURFACE WATER AND DRAINAGE

3.3.1 Existing Conditions

3.3.1.1 Groundwater and Hydrology

Kona's regional water resources are classified in three distinct reserve types: basal groundwater, brackish basal groundwater, and dike-impounded perched groundwater. The region's rainfall pattern is responsible for the recharge of the basal aquifer that extends from the upper slopes of Hualalai to the shoreline. Seawater intrusion at the shoreline results in the creation of brackish water. The extent of brackish water inland is highly variable within the Kona region and depends on the character of rainfall, specific terrain, and geologic formations. Dike-impounded

perched groundwater may exist at higher elevations on Hualalai. The specific configuration of groundwater resources in the project area is unknown. The development of off-site water sources to support the proposed project is discussed in Chapter 4, Section 4.8.

3.3.1.2 Surface Water and Drainage

There are no perennial streams, existing drainage facilities, or defined natural drainage ways on the project property or the reservoir site. The high permeability of the existing soils is evident by the absence of any natural storm water channels or gullies in the project area. No floodways ~~or flood zones~~ have been identified in the project area. The project site is located in Flood Zone X according to the Flood Insurance Rate Map (FIRM). The National Flood Insurance Program does not have any regulations for developments within Zone X. In general, because of the high permeability of the soil types on the project lands, drainage of surface waters is relatively rapid.

3.3.2 Potential Impacts and Mitigation Measures

Potential Short-Term Impacts:

On-site precipitation currently percolates to the underlying groundwater. This would continue to be the case during and after site development. The NPDES permit requirements, including the BMP plan, will require contractors to manage materials to prevent the discharge of pollutants into the ground. It is recommended that during and after development, landscape management practices be applied in public and private areas to minimize the use of fertilizers and pesticides that could potentially enter the groundwater. The developer and its contractor will be required to conform to NPDES permit requirements during construction. The use of BMPs, such as storm drainage filtration devices, are recommended to prevent pollutants from entering the groundwater. It is anticipated that short-term impacts upon the local groundwater quality would not be significant.

There are no surface water bodies on or near the project site. The developer will be required to comply with NPDES permit requirements, including the BMP plan and Chapter 10 – Erosion and Sedimentation Control - of the County Code during construction to prevent the discharge of sediment from the site. As areas of the site are developed, drainage systems would collect runoff

that would discharge to the subsurface. The project would be designed to comply with the County's Storm Drainage Standard, such that runoff volumes and rates would not increase as a result of site development. The project would have no significant short-term effects on surface waters because there would be no increase of runoff from the site.

Potential Long-Term Impacts:

It is recommended that the developer implement measures to reduce the amount of pollutants from entering the groundwater by including BMPs such as storm drain filtration devices, ground stabilization with landscape and hardscape, educational warning signs on the drainage systems with wording such as "DUMP NO WASTES. GOES TO GROUNDWATER AND OCEAN. HELP PROTECT HAWAI'I'S ENVIRONMENT," and coordinating environmental educational programs for the project area residents with the DOH Clean Water Branch.

Rainfall runoff from the developed site would collect in the drainage systems and percolate into the ground in the on-site seepage areas, seepage wells, and dry wells. Runoff volumes and rates would not increase as a result of site development in compliance with the County's Storm Drainage Standard, and the project would have no significant long-term effects on surface waters.

The Impacts of the Alternatives on Groundwater ~~and~~, Hydrology, Surface Water and Drainage

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			No impacts to groundwater, surface water and drainage are anticipated under the No Action Alternative.
2. Alternative A		✓		The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.
3. Alternative B		✓		The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
				impacts to groundwater. Runoff volumes and rates would not increase.
4. Alternative C		✓		The project would be required to comply with the NPDES permit requirements, County Erosion and Sedimentation Control and County Storm Drainage Standards. Storm drain filtration devices and other measures are recommended to reduce potential impacts to groundwater. Runoff volumes and rates would not increase.

3.4 SOILS AND AGRICULTURE POTENTIAL

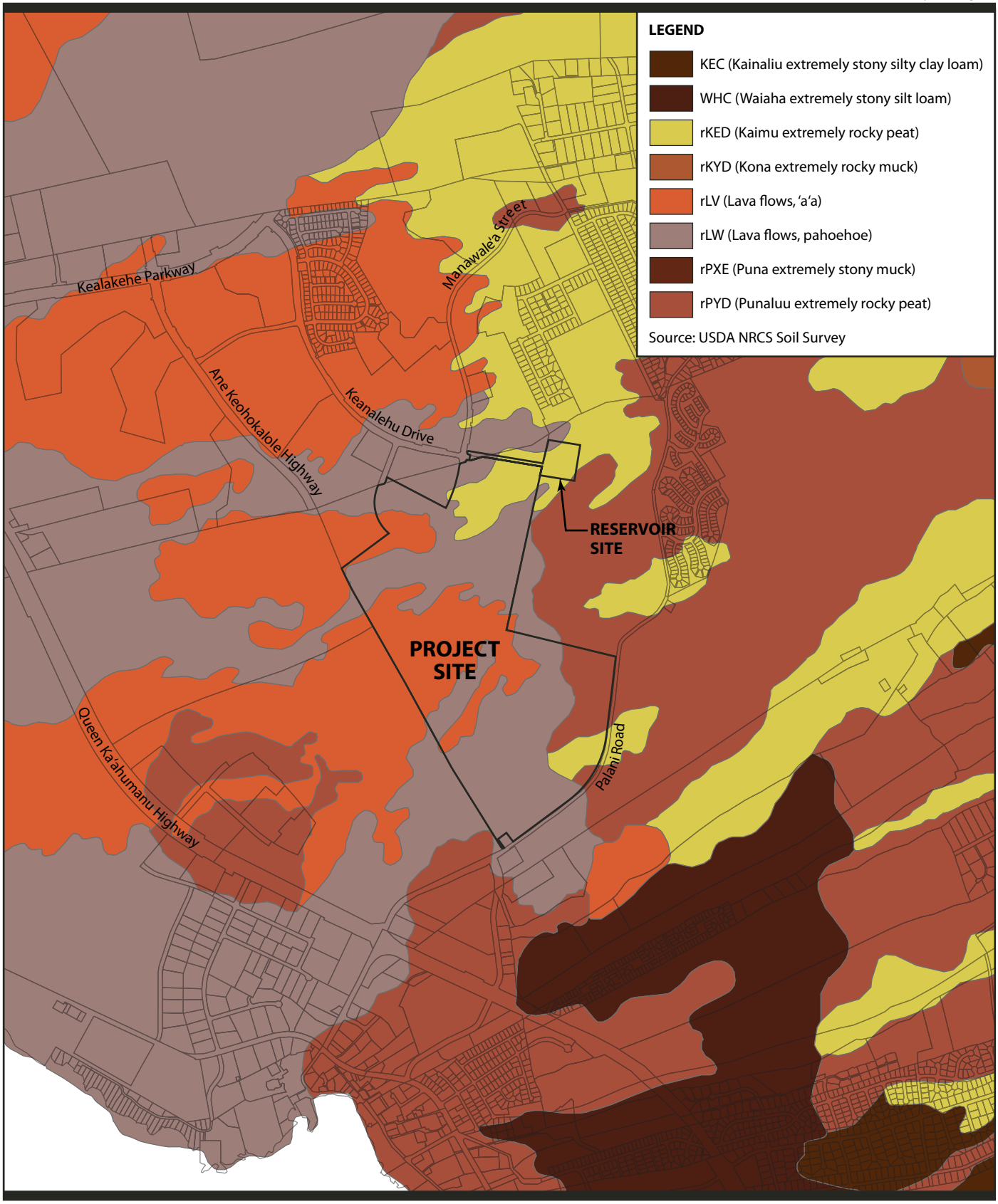
Three soil suitability studies have been prepared for lands in Hawai‘i: (1) the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey, (2) the State Department of Agriculture’s (DOA) Agricultural Lands of Importance to the State of Hawai‘i (ALISH), and (3) the University of Hawai‘i (UH) Land Study Bureau (LSB) Overall Productivity Rating. These reports describe the soils’ physical attributes and evaluate the relative productivity of different soil types for agricultural production purposes.

3.4.1 Existing Conditions

The project site and the reservoir site have poor agronomic conditions. Generally, the terrain is primarily characterized by bare ‘a‘a L~~l~~ava F~~f~~lows and bare P~~p~~ahoehoe L~~l~~ava F~~f~~lows ranging in age from 3,000 to 5,000 years old. Soils are extremely rocky, rainfall is low, and water is not available for crop farming. There are no existing irrigation improvements. No agricultural activities are taking place on the project site.

3.4.1.1 Housing Project Site

USDA NRCS Soil Survey: The USDA NRCS classifies the soils on the subject property as ‘a‘a Lava Flows (rLV), Pahoehoe Lava Flows (rLW), Kaimu extremely ~~rocky~~ stony peat (rKED), and Punaluu extremely rocky peat (rPYD), representing the Punaluu series of well-drained, thin organic soils that have developed over pahoehoe lava bedrock; they are found on uplands and are rapidly permeable, with slow run-off, and a slight erosion hazard. The bare ‘a‘a L~~l~~ava F~~f~~lows and bare P~~p~~ahoehoe L~~l~~ava F~~f~~lows predominate (Figure 3-1).



BeltCollins

NORTH

0 1000 2000

SCALE IN FEET

Figure 3-1
SOIL TYPES

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

‘A‘a Lava Flows (rLV). ‘A‘a lava has practically no soil cover and is generally bare of vegetation except for mosses, lichens, ferns, and a few ‘ohi‘a trees. The surfaces of ‘a‘a flows are masses of clinkery, hard, sharp pieces piled in tumbled heaps that are difficult to traverse on foot. It has been demonstrated that the clinkery ‘a‘a surface can be easily moved and crushed by bulldozers into relatively smooth surface cobbles 1 to 4 inches in size. In areas of higher rainfall, the ‘a‘a surface contributes substantially to the underground water supply and is used for watershed.

Pahoehoe Lava Flows (rLW). Pahoehoe Llava Fflows, similar to the ‘a‘a flows, are also a miscellaneous soil type. This lava has a billowy, glassy surface that is relatively smooth. In some areas, the surface is rough and broken with hummocks and pressure domes. Pahoehoe lava generally has no soil cover and is typically bare of vegetation except for mosses and lichens. Soil is, however, found in cracks and depressions that have been transported there by wind and storm runoff. In areas of higher rainfall, this lava contributes to the groundwater supply through percolation.

Punaluu extremely rocky peat (rPYD). This soil type is found on the lower leeward side of Mauna Loa. Rock outcrops occupy 40 to 50 percent of the structure. In a representative profile the surface layer is black peat about 4 inches thick and underlain by pahoehoe lava bedrock. This soil type is medium acid. The peat is rapidly permeable while the pahoehoe lava is very slowly permeable, although water moves rapidly through the cracks. Runoff is slow and the erosion hazard is slight. This soil is used for pasture land.

Kaimu extremely stony peat (rKED). This soil type is generally found on the lower slopes of Mauna Loa. In a representative profile, the surface layer is very dark brown, extremely stony peat about 3 inches thick. It is underlain by fragmental ‘a‘a lava and the soil is neutral in reactions. Permeability is rapid, runoff is slow, and the erosion hazard is slight. This soil is not suitable for cultivation.

Agricultural Lands of Importance to the State of Hawai‘i: The ALISH ratings were developed in 1977 by the NRCS, the UH College of Tropical Agriculture and Human Resources, and the State DOA. Land is classified into four broad categories (1) Prime agricultural land,

which is land best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (2) Unique agricultural land, which is non-Prime agricultural land used for the production of specific high-value crops (e.g., coffee and taro); (3) Other agricultural land, which is non-Prime and non-Unique agricultural and that is important to the production of crops; and (4) Unclassified which are lands that are not rated.

The vast majority of the subject property is "Unclassified." A portion of the subject property is rated as "Other" (Figure 3-2).

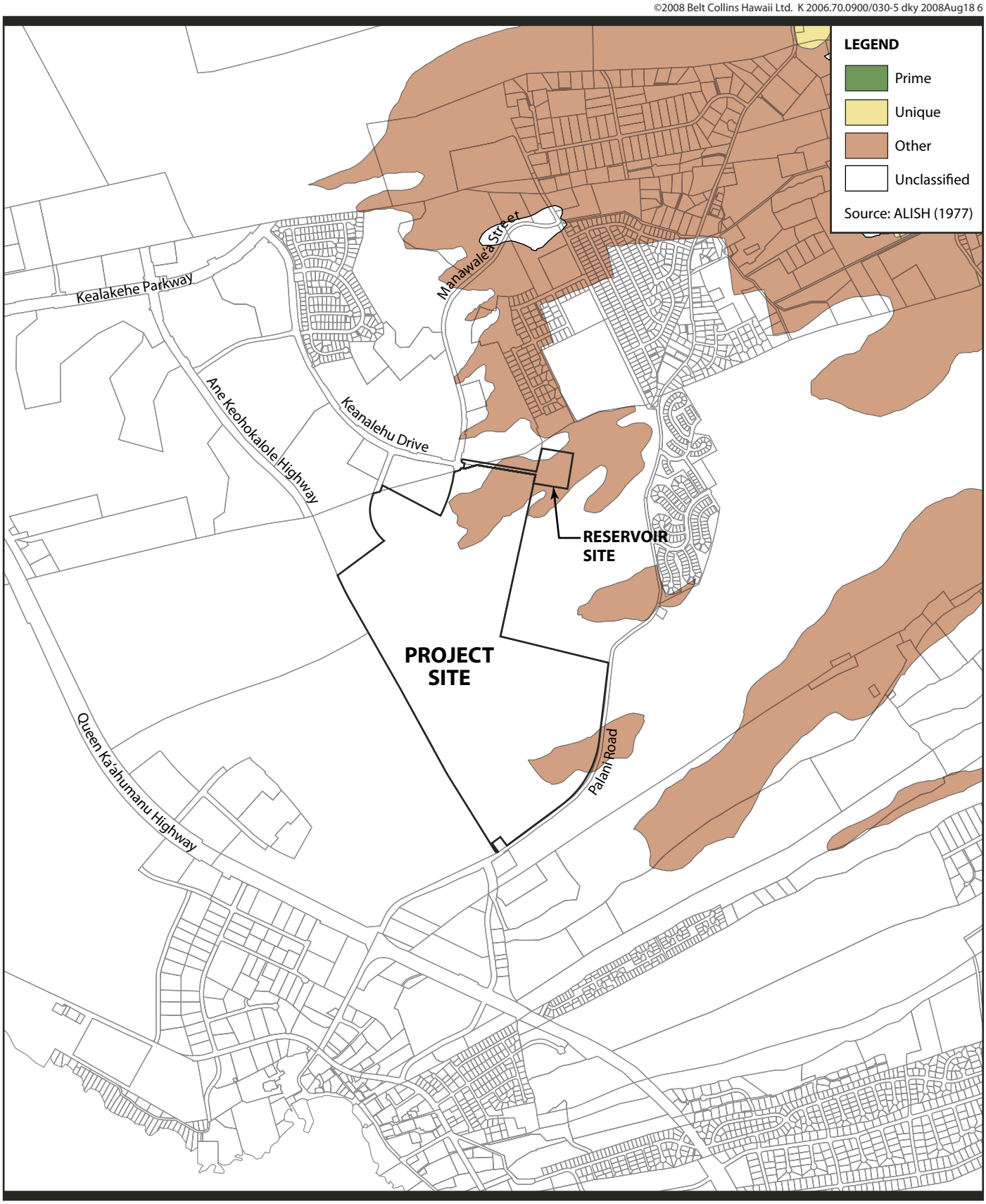
Land Study Bureau Detailed Land Classification: In 1972, the UH LSB developed the Overall Productivity Rating, which classifies soils according to five levels of productivity using the letters A, B, C, D, and E. The letter A represents the highest class of productivity and E the lowest class of agricultural productivity.

The entire subject property is classified as level "E" soils, which is the lowest agricultural productivity rating (Figure 3-3).

3.4.1.2 Reservoir Site

USDA NRCS Soil Survey: The USDA NRCS classifies the soils on the reservoir property as primarily Kk~~k~~aimu extremely ~~rocky~~ stony peat (rKED). A very small portion is Pp~~p~~ahoehoe Ll~~l~~ava Ff~~f~~lows (rLW) (Figure 3-1).

Kaimu extremely stony peat (rKED). This soil type is generally found on the lower slopes of Mauna Loa. In a representative profile, the surface layer is very dark brown, extremely stony peat about 3 inches thick. It is underlain by fragmental ‘a‘a lava and the soil is neutral in reactions. Permeability is rapid, runoff is slow and the erosion hazard is slight. This soil is not suitable for cultivation.



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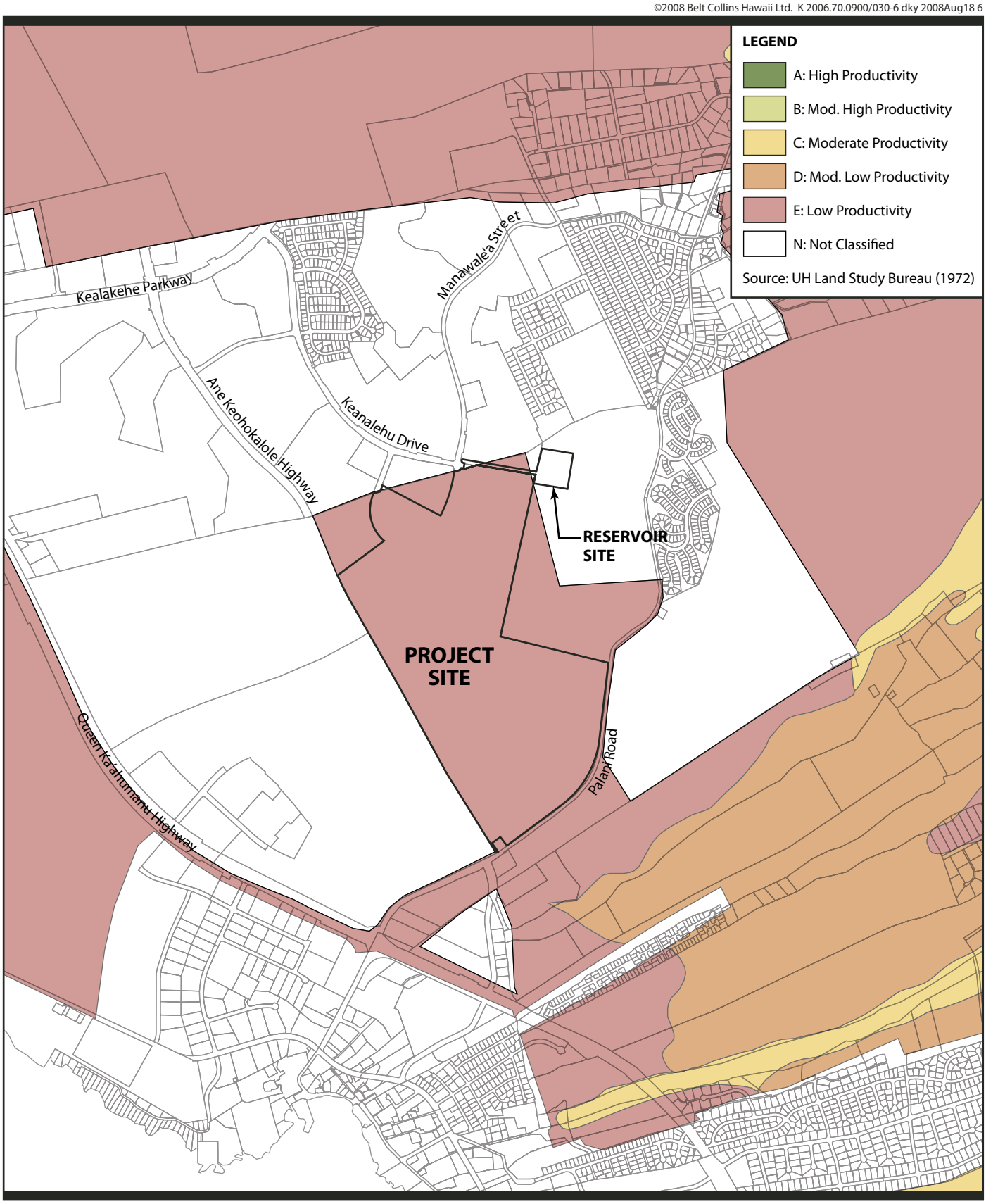
SCALE IN FEET

Figure 3-2
AGRICULTURAL LANDS OF IMPORTANCE

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008



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SCALE IN FEET

Figure 3-3
SOIL PRODUCTIVITY

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Pahoehoe Lava Flows (rLW). Pahoehoe ~~lava~~ Lava F~~f~~lows, similar to the ‘a‘a flows, are also a miscellaneous soil type. This lava has a billowy, glassy surface that is relatively smooth. In some areas, the surface is rough and broken with hummocks and pressure domes. Pahoehoe lava generally has no soil cover and is typically bare of vegetation except for mosses and lichens. Soil is, however, found in cracks and depressions that have been transported there by wind and storm runoff. In areas of higher rainfall, this lava contributes to the groundwater supply through percolation.

Agricultural Lands of Importance to the State of Hawai‘i: Under ALISH, most of the reservoir site is classified as “Other” agricultural land, which is non-Prime and non-Unique agricultural land that is important to the production of crops (Figure 3-2).

Land Study Bureau Detailed Land Classification: The reservoir site is designated as “Not Classified” (Figure 3-3).

3.4.2 Potential Impacts and Mitigation Measures

The project site and reservoir sites are comprised of poor, low-quality, and extremely rocky soils. The soils are predominately bare ‘a‘a L~~l~~ava F~~f~~lows and bare P~~p~~ahoehoe L~~l~~ava F~~f~~lows. The land is unfavorable for commercial crop production. Because the subject properties are not currently used for agricultural activities, the proposed project would not have any impact on existing agricultural activities. The commitment of the Keahuolu project land to housing and other related development would not adversely affect agricultural activities.

The Impacts of the Alternatives on Soil and Potential for Agriculture

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			There are no existing agricultural operations on the subject property. No impacts to soils or the potential for agricultural activity are expected under the No Action Alternative.
2. Alternative A	✓			The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative A. No mitigation measures are warranted.

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
3. Alternative B	✓			The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative B. No mitigation measures are warranted.
4. Alternative C	✓			The subject properties have poor soils and lack irrigation water. The land is unsuitable for commercial crop production. No adverse impacts to soils or the potential for agricultural activity are anticipated under Alternative C. No mitigation measures are warranted.

3.5 NATURAL HAZARDS

The potential natural hazards to which the project area could be subjected include earthquakes, volcanic eruptions, and tsunamis. Because of the nature of the land and soil types, floods due to rainwater surface runoff are unlikely to occur.

3.5.1 Earthquakes

3.5.1.1 Existing Conditions

The County of Hawai‘i is one of the most seismically active areas on Earth with more destructive earthquakes than in any other comparably sized area in the United States. The Kona area is subject to earthquakes with intensities up to VIII on the Modified Mercalli Scale.[1]

The most recent damaging earthquakes to impact Hawai‘i occurred on October 15, 2006. According to the Hawaiian Volcano Observatory:

> “…two damaging earthquakes struck the northwest side of Hawai‘i Island early on Sunday morning, October 15, 2006. The first was a magnitude-6.7 that occurred at 7:07 AM HST and was located 20 km northeast of the Kona airport at a depth of 38 km. Seven minutes later, a second earthquake, assigned a magnitude-6.0, struck 44 km north of the Kona airport at a depth of 20 km. While the two were events

[1] According to the Federal Emergency Management Agency, during an earthquake with an intensity of VIII on the Modified Mercalli Scale, drivers have trouble steering. Houses that are not bolted down might shift on their foundations. Tall structures such as towers and chimneys might twist and fall. Well-built buildings suffer slight damage. Poorly built structures suffer severe damage. Tree branches break. Hillsides might crack if the ground is wet. Water levels in wells might change.

only 7 minutes apart, the difference in depths means that the M6.0 may not be an aftershock of the M6.7 and that they are independent quakes.

Over 80 aftershocks with magnitudes greater than 1.7 were recorded in the first 24 hours after the quake. The largest was a magnitude 4.2 that occurred at 10:35 AM HST on October 15. Like the second earthquake, preliminary locations for most of the aftershocks placed them at depths less than 20 km.

These earthquakes were felt statewide but most strongly in the North Kona and Kohala areas. The shaking was strong enough to cause power generators to trip offline in Hawai'i, Maui, and O'ahu counties. Damage was reported mostly on the west side of Hawai'i island but also on Maui and O'ahu. There were no reported fatalities." (http://hvo.wr.usgs.gov)

3.5.1.2 Potential Impacts and Mitigation Measures

The Uniform Building Code (UBC), prepared by the International Conference of Building Officials (ICBO), recommends that the entire island of Hawai'i meet the UBC standards for Seismic Zone 4 (the highest on the code's range from 0 to 4). All structures will be constructed in compliance with the UBC standards for Zone 4.

The Impacts of Earthquakes on the Alternative

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action		✓		Regardless of whether the property remains undeveloped or developed, it is subject to the impacts of earthquakes. No mitigation measures are warranted.
2. Alternative A		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 4.
3. Alternative B		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 4.
4. Alternative C		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 4.

3.5.2 Volcanic Hazards

3.5.2.1 Existing Conditions

The project site is situated on the ~~west~~ west-facing flank of the Hualalai volcano. Of the three active volcanoes on the island of Hawai'i, Hualalai is considered to be the least active. Its last

eruption in 1801 produced lava flows that inundated the Ka‘upulehu and Keahole areas of North Kona. Hualalai is considered by geologists to be representative of a post-shield stage of Hawaiian volcanism, which is characterized by a marked decrease in the eruption rate as the volcano drifts off the Hawaiian hotspot. The estimated lava production rate for Hualalai over the past 3,000 years is about 2 percent of the current rate of Kilauea volcano.

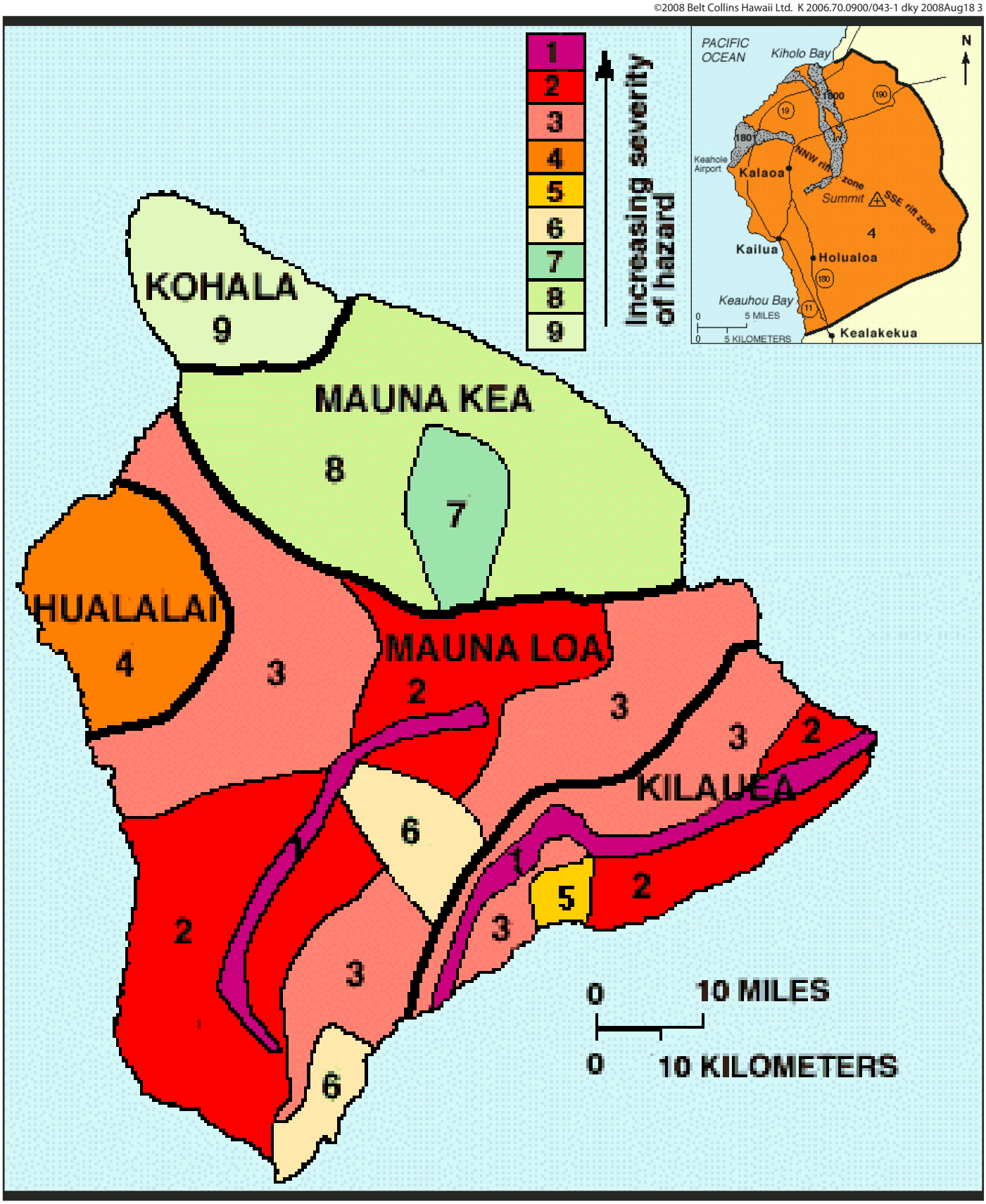
The last volcanic eruption of Hualalai in the area of the project lands occurred in 1800-1801. Lavas emerged from the northwest volcanic rift zone at about the 1,600-foot elevation (in the vicinity of the Puhi-a-Pele Cinder Cone, just makai of Mamalahoa Highway), creating a flow that entered the ocean north of Keahole Point. Although lava flows on Hualalai have typically covered large areas, the rift zones of the volcano do not seem to have a distinctly higher degree of hazard than do its flanks. As such, lava flow hazards for the project site are relatively low.

Lava Flows

Hualalai volcano is identified as being fully contained in Ll~~l~~ava Hh~~h~~azard Zz~~z~~one 4. Maps showing volcanic hazard zones on the island of Hawai‘i were first prepared in 1974 by Donald Mullineaux and Donald Peterson of the U.S. Geological Survey and were revised in 1987. The current map (Figure 3-4) divides the island into zones that are ranked from 1 through 9 based on the probability of coverage by lava flows, with 9 being the lowest. The subject properties are located in Hh~~h~~azard Zz~~z~~one 4. Other direct hazards from eruptions, such as tephra fallout and ground cracking and settling, are not specifically considered on the hazard map; however, these hazards also tend to be greatest in the areas of highest hazard from lava flows.

Tephra

In addition to lava-flow hazard zones, hazard zones for tephra falls (ashfall) have also been defined for Hawai‘i (Mullineaux, et al., 1987). The hazard from tephra fall for all of Hualalai Volcano is ashfall-Hh~~h~~azard Zone 2, which indicates that tephra falls from lava fountains could be frequent but thin. Tephra is a general term for fragments of volcanic rock and lava that are blown into the air by explosive volcanic eruptions, hot gases in eruptive columns, or by lava



Source: http://pubs.usgs.gov/gip/hazards/maps.html

Figure 3-4
BIG ISLAND LAVA ZONES

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

fountains. Large-sized tephra typically falls back to the ground close to the erupting vent, forming a cinder cone, while smaller-sized tephra can be carried on the wind as volcanic ash. The largest volcanic eruptions that have occurred on Earth, such as Krakatoa in Indonesia in the early 1800s, and Mount Saint Helens in Washington State in the 1980s, ejected volcanic ash into the upper atmosphere that was then carried around the planet by winds and remained suspended there for years.

3.5.2.2 Potential Impacts and Mitigation Measures

Lava Flows

According to Drs. John P. Lockwood and Michael O. Garcia in their recent report on geological conditions at the Hawaii Electric Light Company's (HELCo) Keahole Generating Plant (about a mile northwest of the Keahuolu project), Hualalai is a geologically active volcano with clusters of eruptions occurring about every 500 years. Thus, the probability is relatively high that Hualalai could erupt somewhere within the next few centuries. However, the odds are low that such an eruption would threaten the subject property (Keahole Generating Station, Final EIS, January 2005).

The Impacts of Lava Flows on the Alternatives

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.
2. Alternative A	✓			Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.
3. Alternative B	✓			Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.
4. Alternative C	✓			Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.

Tephra

According to the geological study conducted in 2005 for the Keahole Generating Station, there is no evidence that tephra has fallen in low-lying areas away from Hualalai's summit and rift zone. As the project is over nine miles downslope from Hualalai's summit, it is outside of the volcano's high summit area. While it is possible that a high fountaining episode during some future eruption of Hualalai could produce ash fall, based on the eruptive character of Hualalai, this hazard is expected to be slight in relation to the subject property.

The Impacts of Tephra on the Alternatives

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight.
2. Alternative A	✓			Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.
3. Alternative B	✓			Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.
4. Alternative C	✓			Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.

3.5.3 Tsunami Inundation

3.5.3.1 Existing Conditions

The most severe tsunami to impact the Hawaiian Islands in historic times struck on April 1, 1946. Maximum runups were reported to be 55 feet at Pololu Valley in Kohala. Waves surged inland more than a mile and a half in some areas.

The lowest portion of the Keahuolu project area is about one mile inland from the shoreline and is situated on the west facing slope of Hualalai, with the housing site at elevations ranging from 300 to ~~500~~ 580 feet above sea level, and the reservoir site at elevations ranging from 580 to 640 feet above sea level.

3.5.3.2 Potential Impacts and Mitigation Measures

Due to the project's location, probable impacts from tsunami are highly unlikely. No mitigation measures are warranted.

The Impacts of Tsunami Inundation on the Alternatives

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			The subject property is located outside the coastal tsunami evacuation area.
2. Alternative A	✓			The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.
3. Alternative B	✓			The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.
4. Alternative C	✓			The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.

3.6 TERRESTRIAL FLORA

3.6.1 Existing Conditions

3.6.1.1 Keahuolu Project Site - TMK (3) 7-4-21: 20

Botanical field surveys were conducted on the project site in 1989 and 2007. No threatened or endangered species were found in the 1989 or the 2007 botanical field survey. No sensitive types of vegetation such as wetlands or dryland forest were found within the 272-acre project site. The area is comprised of lava flows of various ages which are covered mostly by an alien-dominated scrub vegetation that has been highly disturbed in the past.

The 1989 botanical survey was conducted by Char and Associates for the QLT "Keahulou Lands of Kailua-Kona, Hawaii" 1990 EIS. The 1989 Char survey covered an area of 1,100 acres. The current 272-acre project site was within the much larger area surveyed by Char, which extended west of the current project site and makai of the Queen Ka'ahumanu Highway.

Art Whistler, Ph.D. conducted the 2007 botanical field survey from April 4 - 7, 2007. All plant species encountered during the survey were recorded. Particular care was taken in areas of ʻa'a lava since this is where most of the native species and all of the endangered species have been reported elsewhere in the region. A copy of the 2007 botanical report is included in Appendix B. The following is a summary of the report.

Based upon Whistler's 2007 survey of the project site, there are four main kinds of vegetation at the site: (1) Managed Land Vegetation along Palani Road, dominated by alien species; (2) *Prosopis* Woodland dominated by kiawe (*Prosopis pallida*) and koa haole (*Leucaena leucocephala*) along the southern boundary of the property; (3) *Leucaena* Scrub dominated by koa haole (*Leucaena leucocephala*) in combination with alaheʻe (*Psydrax odoratum*) and fountain grass (*Pennisetum setaceum*) in the lower part of the property and on soil on the upper part; and (4) *Schinus*/*Psydrax* scrub dominated by Christmas berry (*Schinus terebinthifolius*) and alaheʻe (*Psydrax odoratum*) on or near lava flows.

Managed Land Vegetation. This comprises areas of the parcel that are under periodic or frequent management, such as the edges of roads. This is a relatively minor component of the overall vegetation on the project site because only the roadsides of Palani Road are currently being managed.

***Prosopis* Woodland.** This type of vegetation, which is dominated by the tall alien tree species kiawe (*Prosopis pallida*), is found only in an indistinct zone north of and paralleling Palani Road. There is an open woodland with few other tree species besides the koa haole (*Lucaena leucocephala*). Two other trees that are more common outside of this zone are occasional here, Christmas berry (*Schinus terebinthifolius*) and the native alaheʻe (*Psydrax odoratum*). The ground cover is sometimes dense, dominated mostly by Guinea grass (*Panicum maximum*) and Philippine violet (*Barleria cristata*), two species otherwise uncommon at the study site. Talinum (*Talinum triangulare*), a succulent weed, is also often common in places. Other than the alaheʻe, few native species are found here, mostly because of the dominance of the kiawe. This type of vegetation was called "Kiawe woodland" by Char and Associates (1989).

***Leucaena* Scrub.** *Leucaena* scrub is classified as disturbed, since fires periodically sweep through the area and goats are known to be present. These two factors account for the dominance of alien species, which are better adapted to these disruptive conditions than are the native species. According to some sources, fountain grass is rapidly expanding its range in the Kona district of Hawai‘i.

The *Leucaena* scrub vegetation is found on areas of older lava flows dominated by the alien scrubby tree koa haole (*Leucaena leucocephala*). It is not a homogeneous type of vegetation since with increasing elevation going eastward up the slope its density and the species associated with it change. On the lower portions of the study site, koa haole is mostly one to three meters in height, scattered in an open-to-dense matrix of *Pennisetum setaceum* (fountain grass). Also significant here is the native shrub or small tree alahe‘e (*Psydrax odoratum*), which in some places is almost a co-dominant.

Several other trees and shrubs are found here, but in low numbers. This includes the alien tree Christmas berry (*Schinus terebinthifolius*) and the alien shrub klu (*Acacia farnesiana*). Fountain grass dominates most of the open areas having some soil, but a number of other herbaceous species are found in the shade of koa haole or on pahoehoe rocks free of fountain grass, particularly talinum (*Talinum triangulare*), air plant (*Kalanchoë pinnata*), lantana (*Lantana camara*), and carrion flower (*Stapelia gigantea*).

Two indigenous vines are found in the area, huehue (*Cocculus trilobus*), which is common, and kowali-‘awa (*Ipomoea indica*), which is uncommon. The native herb ‘ala‘ala-wai-nui (*Peperomia leptostachya*) is occasional on rocks. At higher elevations, koa haole is generally less dominant and is gradually replaced with Christmas berry (*Schinus terebinthifolius*). On deeper soils, however, it extends up to higher elevations. This vegetation was called “Scrub” by Char and Associates (1989).

***Schinus/Psydrax* Scrub.** This is the type of vegetation on more recent lava flows, ones that are decidedly composed of ‘a‘a lava. It is the same vegetation described by Char in 1989 as “*Canthium*/Christmas Berry Shrubland” (*Canthium* is the old name for *Psydrax*). It is found in a patchy distribution within the site in areas comprised of lava flows of various ages and stages of

development into soil. This vegetation gradually increases in frequency with increasing elevation, particularly above the 400-foot elevation because this vegetation is dominated by species that do better in the somewhat wetter conditions found upslope.

The main species dominating this community is the alien tree Christmas berry (*Schinus terebinthifolius*) along with the indigenous tree alahe‘e (*Psydrax odoratum*). These two species are also found at lower elevations mostly on or near ‘a‘a lava flows. At higher elevations on the project site these species are ~~dominate~~ dominant rather than being of secondary importance to koa haole (*Leucaena leucocephala*). The third most prevalent tree in this community is the koa haole, which, as noted above, sometimes forms nearly pure strands on some soil types. The fourth most prevalent tree is the introduced shrub or small tree klu (*Acacia farnesiana*). Other tree species found include the uncommon endemic ‘ohe (*Reynoldsia sandwicensis*), the uncommon indigenous shrub pua pilo (*Capparis sandwichiana),* the somewhat more common endemic shrub or tree mamane (*Sophora chrysophylla*), the occasional indigenous shrub ‘a‘ali‘i (*Dodonaea viscosa*), and the introduced (by Polynesians) noni (*Morinda citrifolia*).

The ground cover is also sparse in this type of vegetation, with scattered clumps of fountain grass (*Pennisetum setaceum*) found mostly in pockets of soil or pahoehoe, and perhaps being the most common species found here. The ground cover is particularly sparse under the dense canopy of the Christmas berry trees. Second in prevalence is probably the air plant (*Kalanchoë pinnata*), which forms a dense undergrowth in some places but is entirely lacking in others. There are many patches of huehue (*Cocculus trilobus*) and a few patches of kowali-‘awa (*Ipomoea indica*) and the native fern kupukupu (*Nephrolepis exaltata*), as well as the thorny alien shrub lantana (*Lantana camara*). In a few places at the highest elevations, the endemic subshrub *Bidens micrantha* ssp. *ctenophylla* occurs. This species was a candidate for federal listing as endangered or threatened but was never classified as such, and hence has no protected status. It is occasional in other areas of similar vegetation at about the same elevation in the area (Whistler 2006).

Like *Leucaena* Scrub, the *Schinus/Psydrax* Scrub vegetation is classified as disturbed, since fires periodically sweep through the area, and goats are known to be in the area. It somewhat matches the description of the “Lowland Dry Shrublands,” which is described as occurring in leeward

situations on most of the main islands at 330- to 2,000-foot elevation and as being open and not exceeding 10 feet in height.

A comprehensive list of the 83 plant species recorded within the 272-acre project site is in Table 3-1. Of the 83 plant species, 17 are native and of those native species, 6 are endemic and 11 indigenous. Endemic plants are species restricted to a single region or area; in the case of Hawai‘i, they are found only in Hawai‘i. Indigenous plants are species that are native to a region or place, but are also found elsewhere other than Hawai‘i. No species federally listed as threatened or endangered were found during either the 1989 or 2007 botanical field surveys.

One endemic shrub found within the project site, ko’oko’olau (*Bidens micrantha* ssp. *ctenophylla*), was at one time considered a candidate species for federal listing as endangered or threatened, but it was never classified as such and hence has no protected status. It occurs in other places north of Kona, where it is sometimes even found in disturbed places such as quarries.

Table 3-1: Plant Species Found on the Keahuolu Project Site TMK 7-4-21:20

Species	Common Name	Status
FERNS AND FERN ALLIES		
NEPHROLEPIDACEAE (Sword Fern Family)		
Nephrolepis exaltata (L.) Schott	kupukupu	I
POLYPODIACEAE (Common Fern Family)		
Phymatosorus grossus	laua‘e	X
(Langsd. & Fisch.) Brownlie PSILOTACEAE (Psilotum Family)		
Psilotum nudum L.	moa	I
MONOCOTS		
COMMELINACEAE (Spiderwort Family)		
Rhoeo spathacea (Sw.) Stearn	oyster plant	X
POACEAE (Grass Family)		
Chloris barbata (L.) Sw.	swollen fingergrass	X
Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.	pili grass	I?
Panicum maximum Jacq.	Guinea grass	X
Pennisetum setaceum (Forssk.) Chiov.	fountain grass	X
Rhynchelytrum repens (Willd.) C.E. Hubb.	Natal redtop	X

Species	Common Name	Status
DICOTS		
ACANTHACEAE (Acanthus Family)		
Barleria cristata L.	Philippine violet	X
ANACARDIACEAE (Mango Family)		
Schinus terebinthifolius Raddi	Christmas betty	X
APOCYNACEAE (Periwinkle Family)		
Catharanthus roseus (L.) G. Don	Madagascar periwinkle	X
ARISTOLOCHIACEAE (Dutchman's Pipe Family)		
Aristolochia littoralis Parodi	pelican flower	X
ARALIACEAE		
Reynoldsia sandwicensis A. Gray	ʻohe	E
Schefflera actionphylla (Endl.) Harms	octopus tree	X
ASCLEPIADACEAE (Milkweed Family)		
Stapelia gigantea N.E. Brown	carrion flower	X
ASTERACEAE (Sunflower Family)		
Bidens cynapiifolia Kunth	West Indian beggar's-tick	X
Bidens micrantha Gaud. ssp. *ctenophylla* (Sherff) Nagatga & Ganders	---	E
Bidens pilosa L.	beggar's-tick	X
Emilia sonchifolia (L.) DC.	pualele, emilia	X
Pluchea carolinensis (Jacq.) G. Don	pluchea	X
Tridax procumbens L.	coat buttons	X
BIGNONIACEAE (Bignonia Family)		
Jacaranda mimosifolia D. Don	jacaranda	X
Spathodea campanulata P. Beauv.	African tulip tree	X
BUDDLEIACEAE (Butterfly-bush Family)		
Buddleia asiatica Lour.	dogtail, heuloʻilio	X
CACTACEAE (Cactus Family)		
Opuntia ficus-indica (L.) Mill.	prickly pear, panini	X
CANNABACEAE (Marijuana Family)		
Cannabis sativa L.	pakalolo, marijuana	X
CAPPARACEAE (Caper Family)		
Capparis sandwichiana DC	pua pilo	E
Cleome gynandra L.	African spider flower	X
CARICACEAE (Papaya Family)		
Carica papaya L.	papaya	X
CLUSIACEAE (Mangosteen Family)		
Clusia rosea Jacq.	autograph tree	X

Species	Common Name	Status
CONVOLVULACEAE (Morning-Glory Family)		
Ipomoea indica (J. Burm.) Merr.	koali-'awa	I
Ipomoea obscura (L.) Ker-Gawl.	bindweed	X
CRASSULACEAE (Stonecrop Family)		
Kalanchoë pinnata (Lam.) Pers.	air plant	X
Kalanchoë tubiflora (Haw.) Raym.-Hamet	chandelier plant	X
CUCURBITACEAE (Gourd Family)		
Coccinea grandis (L.) Voigt	ivy gourd	X
Momordica charantia L.	wild bittermelon	X
CUSCUTACEAE (Dodder Family)		
Cuscuta sandwichiana (Cuscutaceae)	kauna 'oe	E
EUPHORBIACEAE (Spurge Family)		
Aleurites moluccana (L.) Willd.	candlenut, kukui	P
Chamaesyce hirta (L.) Millsp.	garden spurge	X
Euphorbia heterophylla L.	kaliko	X
Phyllanthus debilis Klein ex Willd.	phyllanthus weed	X
Ricinus communis L.	castor bean	X
FABACEAE (Pea Family)		
Abrus precatoris L.	rosary pea	X
Acacia farnesiana (L.) Willd.	klu	X
Chamaecrista nictitans (L.) Moench	partridge pea, lau-ki	X
Crotalaria pallida Aiton	smooth rattlepod	X
Desmodium tortuosum (Sw.) DC.	Florida beggarweed	X
Erythrina sandwicensis	wiliwili	E
Indigofera suffruticosa Mill.	indigo, 'iniko	X
Leucaena leucocephala (Lam.) de Wit	koa haole	X
Macroptilium lathyroides (L.) Urb.	cow pea	X
Pithecellobium dulce (Roxb.) Benth.	'opiuma, Manila tamarind	X
Prosopis pallida (Humb. & Bonpl.ex Willd.) Kunth	kiawe, mesquite	X
Samanea saman (Jacq.) Merr.	monkeypod	X
Senna occidentalis (L.) Link	coffee senna	X
Sophora chrysophylla (Salisb.) Seem.	mamane	E
LAMIACEAE (Mint Family)		
Hyptis pectinata (L.) Poir.	comb hyptis	X
MALVACEAE (Mallow Family)		
Malvastrum coromandelianum (L.) Garcke	false mallow	X
Sida fallax Walp.	'ilima	I
Sida spinosa L.	prickly sida	X

Species	Common Name	Status
MENISPERMACEAE (Moonseed Family)		
Cocculus trilobus (Thunb.) DC.	huehue	I
MORACEAE (Mulberry Family)		
Ficus microcarpa L. f.	Chinese banyan	X
Ficus ribiginosa Desf.	Port Jackson fig	X
Morus alba L.	mulberry	X
MYRTACEAE (Myrtle Family)		
Psidium guajava L.	guava	X
NYCTAGINACEAE (Four-o'-Clock Family)		
Boerhavia coccinea Mill.	---	X
Bougainvillea glabra Choisy	bougainvillea	X
PASSIFLORACEAE (Passionflower Family)		
Passiflora foetida L.	love-in-a-mist	X
PHYTOLACCACEAE (Polkweed Family)		
Rivina humilis L.	rouge plant	X
PIPERACAEAE (Pepper Family)		
Peperomia leptostachya Hooker & Arnott	ʻalaʻala-wai-nui	I
PLUMBAGINACEAE (Leadwort Family)		
Plumbago zeylanica L.	ʻilieʻe	I
PORTULACACEAE (Purslane Family)		
Portulaca oleracea L.	common purslane	X
Portulaca pilosa L.	ʻihi	X
Talinum triangulare (Jacq.) Willd.	talinum	X
PROTACEAE (Protea Family)		
Macadamia ternifolia F. Muell.	macadamia	X
RUBIACEAE (Coffee Family)		
Morinda citrifolia L.	Indian mulberry, noni	P
Psydrax odoratum (Forst. f.) A.C. Sm. & S. Darwin	alaheʻe	I
SAPINDACEAE (Soapberry Family)		
Dodonaea viscose Jacq.	ʻaʻaliʻi	I
STERCULIACEAE (Cacao Family)		
Waltheria indica L.	ʻuhaloa	I
VERBENACEAE (Verbena Family)		
Lantana camara L.	lantana	X
Stachytarpheta cayennensis (Rich.) Vahl	blue rat's-tail	X

E = endemic (found only in Hawaiʻi). **I** = indigenous (native to Hawaiʻi as well as other geographic areas). **P** = Polynesian introduction (introduced to Hawaiʻi by Polynesians before the advent of the Europeans). **X** = Introduced or alien (not native; introduced to Hawaiʻi, either accidentally or intentionally, after the advent of the Europeans).

3.6.1.2 Keahuolu Reservoir Site - TMK (3) 7-4-21: por. 14 and por. 21

The approximately seven-acre reservoir site, located along the northeast corner of the project site, ranges in elevation from approximately 580 to 640 feet above msl. The botanical field survey of the reservoir site was conducted by Art Whistler, Ph.D. on December 5th and 15th, 2007. No threatened or endangered species were found and no sensitive types of vegetation such as wetlands or dryland forest were found within the reservoir site. The site is currently covered with scrubby vegetation dominated by native and alien shrub and tree species on lava flows of various ages.

A total of 40 plant species was recorded on the reservoir site. Of these, 10 native species were found – 2 endemic and 8 indigenous species. However, the majority of the species encountered during the survey are naturalized "alien" plants that were accidentally or intentionally introduced to Hawai'i, but which have now become established in the islands and can spread on their own.

Only two types of vegetation are found on the reservoir site: (1) Managed Land Vegetation, and (2) *Schinus/Psydrax* Scrub.

Managed Land Vegetation. This comprises land that is under periodic or frequent management, such as dirt roads or recently bulldozed tracks. It is a relatively minor component of the overall vegetation on the reservoir property. There is a recently bulldozed track dominated mostly by weeds, particularly the alien subshrub coffee senna (*Senna occidentalis*), fountain grass (*Pennisetum setaceum*), koa haole (*Leucaena leucocephala*), and talinum (*Talinum triangulare*).

***Schinus/Psydrax* Scrub.** This type of vegetation covers the whole reservoir site and along the proposed temporary access road. This vegetation type is characteristic of more recent lava flows, particularly ones that are decidedly composed of ʻaʻa lava. The amount of the alien koa haole (*Leucaena leucocephala*) present is nearly equal to that of the other two main species—the alien Christmas berry (*Schinus terebinthifolius*) and the indigenous alaheʻe (*Psydrax odoratum*).

Other less common native tree and shrub species found here include mamane (*Sophora chrysophylla*), ʻaʻaliʻi (*Dodonaea viscosa*), ʻilima (*Sida fallax*), and the endemic subshrub *Bidens micrantha* ssp. *ctenophylla.* Several other alien tree and shrub species are also occasional to uncommon here, including silk oak (*Grevillea robusta*), jacaranda (*Jacaranda mimosifolia*), autograph tree (*Clusia rosea*), Chinese banyan (*Ficus microcarpa*), monkey pod (*Samanea saman*), guava (*Psidium guajava*), klu (*Acacia farnesiana*), and the Polynesian-introduced noni (*Morinda citrifolia*).

The ground cover is sparse in this type of vegetation, with scattered clumps of fountain grass (*Pennisetum setaceum*) found mostly in pockets of soil or pahoehoe. The ground cover is particularly sparse under the dense canopy of the Christmas berry trees. Second in prevalence in the ground cover is Natal redtop (*Rhynchelytrum repens*), which occurs mostly in patches. The indigenous herbaceous vine huehue (*Cocculus trilobus*) is common climbing over the low trees, and the indigenous vine kowali-ʻawa (*Ipomoea indica*) occurs in a few patches. Scattered pockets or individuals of the thorny alien shrub lantana (*Lantana camara*) are also present. Other native species present include the herbs ʻalaʻala-wai-nui (*Peperomia leptostachya*) and spurflower (*Plectranthus parviflorus*), and the subshrub ʻuhaloa (*Waltheria indica*). Other alien ground cover species include the succulent air plant (*Kalanchoë pinnatum*), partridge pea (*Chamaecrista nictitans*), and Madagascar periwinkle (*Catharanthus roseus*).

This vegetation is classified as disturbed because of the high number of alien species present. The main disturbance is caused by fires that periodically sweep through the area, and goats are probably in the area. A list of the native plant species recorded within the reservoir site are in Table 3-2. A complete list of all plant species found on the reservoir site is in Appendix B.

Table 3-2: Native Plant Species ~~F~~found on the Proposed Reservoir Site TMK 7-4-21: por. 014 and por. 21

Species	Common Name	Status
Endemic Species		
Bidens micrantha ssp. *ctenophylla*	----------	E
Sophora chrysophylla	mamane	E
Indigenous Species		
Cocculus trilobus	huehue	I
Dodonaea viscosa	ʻaʻaliʻi	I
Ipomoea indica	koali-ʻawa	I
Peperomia leptostachya	ʻalaʻala-wai-nui	I
Plectranthus parviflorus	spurflower	I
Psydrax odoratum	alaheʻe	I
Sida fallax	ʻilima	I
Waltheria indica	ʻuhaloa	I

E = endemic (found only in Hawaiʻi).
I= indigenous (native to Hawaiʻi as well as other geographic areas).

3.6.2 Potential Impacts and Mitigation Measures

There are no botanical impediments to the proposed project. Because no species are federally listed as threatened or endangered, no mitigation is needed.

3.6.2.1 The Housing Project Site

No federally listed threatened or endangered species were found on the project site. A total of 83 plant species were recorded on the 272-acre Keahuolu project site (Table 3-1). Of these, 17 are native species - 6 endemic species and 11 indigenous species. The majority of the 83 species encountered during the survey are naturalized "alien" plants that were accidentally or intentionally introduced to Hawaiʻi, but ~~which~~ that have now become established in the island and can spread on their own. In a few places at the highest elevations, the endemic subshrub *Bidens micrantha* ssp. *ctenophylla* occurs. This species was a candidate for federal listing as endangered or threatened, but was never classified as such, and hence has no protected status.

3.6.2.2 The Reservoir Site

No federally listed threatened or endangered species were found on the reservoir site. A total of 40 plant species were recorded on the reservoir site. Of these, 10 are native species - 2 endemic species and 8 indigenous species (Table 3-2). The majority of the 40 species encountered during the survey are naturalized "alien" plants that were accidentally or intentionally introduced to Hawai'i, but ~~which~~ that have now become established in the island and can spread on their own. One endemic subshrub was present, *Bidens micrantha* ssp. *ctenophylla*. This species was a candidate for federal listing as endangered or threatened, but was never classified as such, and hence has no protected status.

The Impacts of the Alternatives on Terrestrial Flora

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			If the subject property is undeveloped, its vegetation will remain undisturbed.
2. Alternative A		✓		No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.
3. Alternative B		✓		No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.
4. Alternative C		✓		No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.

3.7 TERRESTRIAL FAUNA

3.7.1 Existing Conditions

Phillip Bruner conducted a field survey in May 2008 of the proposed Keahuolu Affordable Housing Project and Reservoir site [TMK (3) 7-4-021: 020 and TMK (3) 7-4-021: Por. 021]. The goals of this field survey were:

1. Documentation of the species of birds and mammals currently on the property.

2. Examination of the site for the purpose of identifying the natural resources available to wildlife in this region.

3. Devoting special attention to documenting the presence and possible use of this property by native and migratory species particularly those that are listed as threatened or endangered.

The property examined is presently covered in dense, second growth forest composed of primarily alien species of trees, brush, and grass. The surrounding land contains residential, commercial, schools, and other similar undeveloped property.

The field survey was conducted over two consecutive days (May 27-28, 2008). The observations were made in the early morning and late in the day when the birds are most active. The property was covered on foot and all birds seen or heard were documented.

Native Land Birds:

No native land birds were observed during this field survey. The only species that might be seen, on occasion, in this area is the endangered Hawaiian Hawk (*Buteo solitarius*) and the Hawaiian Short-eared Owl (*Asio flammeus sanwichensis*). The Hawaiian Short-eared Owl is not listed as endangered or threatened on the island of Hawai‘i. Aside from the Hawaiian Hawk, no other native land birds would be expected to occur on this property.

Native Waterbirds:

No native waterbirds were recorded and would not be expected on this site. No wetland habitat was found on this survey.

Seabirds:

No nesting seabirds were seen during the field survey and would not be expected to nest in this area due to the human disturbance and predators.

Migratory Birds:

No migratory shorebirds were observed. No habitat suitable for shorebirds currently occurs on this site.

Alien (Introduced) Birds:

Nineteen alien species were observed during the course of this survey. None of the birds are listed as threatened or endangered.

Mammals:

The skeletal remains of a feral pig (*Sus scrofa*) and two live adult pigs were observed on May 27, 2008. No rats (*Rattus spp.*), mice (*Mus musculus*), or cats (*Felis catus*) were seen but likely occur on and around the property. No endangered Hawaiian Hoary Bats (*Lasiurus cinereus semotus*) were detected by the ultrasound device during a night search on the property on May 27, 2008.

3.7.2 Potential Impacts and Mitigation Measures

Potential impacts to the various species were evaluated. All habitats on the property were thoroughly surveyed. The birds and mammals found were those to be expected in this region. The endangered Hawaiian Hawk and the non-endangered Hawaiian Short-eared Owl occur in man-altered as well as native habitats throughout the island of Hawai‘i. A change in the land use at this site will produce small, local increases and decreases in the populations of alien birds.

Ultimately, there are no avifaunal or feral mammal impediments to carrying out the proposed project.

~~3.7TERRESTRIAL FAUNA~~

~~3.7.1Existing Conditions~~

~~Phillip Bruner conducted a survey in 1989 of avifauna and feral mammals for the QLT's "Keahulou Lands of Kailua-Kona, Hawaii" 1990 EIS. The 1989 Bruner survey covered an area of 1,100 acres. The current 272-acre project site was within the much larger area surveyed by Bruner, which extended west of the current project site and makai of the Queen Ka'ahumanu Highway.~~

~~No threatened, endangered, or native species of birds or mammals were observed on the 1,100 acres during faunal field surveys conducted in 1989. No native species of land or water/sea birds were recorded during the site survey. Although the short-eared owl or pueo (*Asiofammeus sandwichensis*) was not recorded during the survey, it has been found in similar habitat elsewhere on the west side of the island of Hawai'i. Of all of the shorebird species that winter in Hawai'i, the Pacific Golden Plover (*Pluvialis fulva*) is the most abundant. No plover were recorded during the faunal survey, likely due to the time of year and the lack of suitable habitat. Some exotic (introduced) species of birds were recorded within the project area during the 1989 survey, with the most abundant being the Japanese white-eye (*Zosterops japonica*), nutmeg mannikin (*Lonchura punctulata*), and zebra dove (*Geopelia striata*).~~

~~The terrestrial fauna of the 1,100-acre area was surveyed in late June to early July 1989. The complete results of that survey are included in Appendix C. The following summarizes the information contained in the report.~~

~~Resident Endemic (Native) Land and Water Birds – No endemic species were recorded during the site survey. The short-eared owl or pueo might be expected to occasionally occur within the project boundaries. The species is relatively common on the island of Hawai'i, particularly at higher elevations. This species is listed by the State DLNR, but not the U.S. Fish and Wildlife~~

Service, as endangered on O'ahu but not on other Hawaiian islands. Although not recorded during the survey, pueo have been found in similar habitat elsewhere in West Hawai'i. No other endemic birds would be expected in the project area given the location and nature of the habitats available.

Migratory Indigenous (Native) Birds – Migratory shorebirds winter in Hawai'i between the months of August through May. Of all the shorebird species that winter in Hawai'i, the Pacific Golden Plover is the most abundant. This species prefers open areas such as mud flats, lawns, pastures, plowed fields, and roadsides. The birds are site-faithful and many establish foraging territories that are defended vigorously. The populations tend to remain fairly stable over many years. No plover were recorded during the survey, probably due to the time of the year and the lack of suitable habitat within the 1,100-acre area.

Resident Indigenous (Native) Birds and Seabirds – No indigenous species were recorded nor would any be expected at the project site given the nature of the habitat available. No seabirds were seen within the 1,100-acre study area. Some native seabirds nest and roost in barren lava flows in Hawai'i, but at a much higher elevation than the area surveyed.

Exotic (Introduced) Birds – A total of 17 species of exotic (introduced) species were recorded during the survey. A listing of the species, their relative abundance, and general habitat preferences is included in Table 1 of Appendix C.

In summary, the most abundant species were the Japanese White-eye (*Zosterops japonica*), Nutmeg Mannikin (*Lonchura punctulata*), and Zebra Dove (*Geopelia striata*). Black and Gray Francolin (*Francolinus francolinus* and *F. pondicerianus* respectively) were also common within the 1,100-acre study area. The following exotic bird species may also occur on or near the project area: Erckel's Francolin (*Francolinus erckelii*), California Quail (*Callipepla californica*), Japanese Quail (*Coturnix japonica*), and Northern Mockingbird (*Mimus polyglottos*). Unexpected species sightings included the Lavender Waxbill (*Estrilda caerulescens*) and a parrot that was too far away to positively identify.

Feral Mammals - A total of 18 Small Indian Mongoose (*Herpestes auropunctatus*) were seen during the survey. Two cats were also recorded along with the skeletal remains of pigs and cows. Evidence of rats and mice were also found. No individuals of the endemic and endangered Hawaiian Hoary Bat (*Lasiurus cinerus semotus*) were observed during the survey, despite attempts to sight the species. This species roosts solitarily in trees and has been sighted in West Hawai'i.

The reservoir site was not within the 1989 study area. However, the approximately seven-acre reservoir site is adjacent to the 1,100-acre area originally surveyed. It is assumed here for assessment purposes that the avifaunal and feral mammal species expected to be observed on the reservoir site would be similar to those actually surveyed on the 1,100 acre original study area.

3.7.2Potential Impacts and Mitigation Measures

The Keahuolu habitat provides a limited range of living spaces that are utilized by the typical array of exotic species of birds expected to occur at the project site and reservoir site. Potential impacts to the bird and mammal species that occur or might occur on both sites have been evaluated in terms of increasing or decreasing population levels, loss of available habitat, and potential impacts to endangered or threatened species.

The proposed development would create a more urban environment that might increase the abundance of some species such as the Common Myna (*Acridotheres tristis*) and House Sparrow (*Passer domesticus*). The significance of these potential bird population increases is somewhat subjective, depending on the reviewer's like or dislike of these particular species. The population levels of these species are not particularly threatened. However, any increase in population levels is not expected to positively or adversely affect either the population levels of other species or the nature of the proposed project. Other species populations, such as Japanese White-eye, Warbling Silverbill (*Lonchura malabarica*), and some game birds like Black Francolin, may decline as a result of the project. This could be seen by some as an adverse impact. However, other habitat opportunities are available on the island and in the West Hawai'i area. As such, in this instance, the impact is viewed as insignificant. As noted above, no

endangered or threatened species of birds or mammals were observed within the area surveyed. No impacts to these species would occur as a result of the project.

Given the lack of adverse impacts, mitigation measures to minimize potential adverse impacts do not appear warranted. Project landscaping will replace some of the natural habitat to be lost (creating lawns favored by Pacific Golden Plover), while increased human activities will reduce some species populations. The majority of the bird and mammal life to be impacted is exotic species, for which other habitat opportunities in West Hawai'i exist.

The Impacts of the Alternatives on Terrestrial Fauna

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			There would be no adverse impacts to faunal resources under the No Action Alternative. The project site does not contain any threatened or endangered fauna species. The property does not contain any unusual or unique habitat important to fauna.
2. Alternative A	✓			The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.
3. Alternative B	✓			The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.
4. Alternative C	✓			The proposed uses should pose no threat to the relative abundance of birds and mammals in this region of the island of Hawai'i. These properties are not known to contain any threatened or endangered fauna species, nor contain any unusual or unique habitat important to fauna. No mitigation measures are warranted.

3.8 INVERTEBRATE SURVEY

SWCA Environmental Consultants conducted a biological survey of lava tube caves on the project site. The survey report is included in Appendix H. The study's objectives included: (1) conducting a biological survey of caves within the project area; (2) specifically identifying biologically significant caves; (3) compiling a list of faunal species found in the caves,

particularly invertebrates; and (4) providing management recommendations for the more biologically significant caves.

3.8.1 Existing Conditions

SWCA entered onto the project site and conducted a series of cave surveys from June 18-20, 2008. Surface reconnaissance surveys were first conducted to locate and document known cave entrances and any previously unidentified features on the site. Once reconnaissance surveys were completed, a list of cave sites proposed for more detailed inventory survey was developed. The focus of these inventory surveys was to develop a general understanding of the troglobitic[2] cave fauna within the Keahuolu project site.

The SWCA study team found eight cave openings at Keahuolu, of which three caves appeared to have a suitable habitat for troglobitic arthropods. SWCA found a total of 14 distinct species of arthropods within four caves. Of these 14 species, SWCA collected and examined 13 species. Current State and Federal regulations provide no special (or specific) protection for any of these species.

Only two possible native cave species are represented in SWCA's findings: the Rhagidiid mite, which belongs to a group with two known blind cave species and an eyed species known from fumaroles near Kilauea, and the cave moth (*Schrankia* species). The remaining eleven species are classified as alien invaders. The full list of species is located in Table 2 of Appendix H and summarized below.

Acari (Mites): Only one species of mite was identified. The Rhagidiidae is described as a pale predatory mite with conspicuous eyespots.

Araneae (Spiders): Six species of spiders were identified by SWCA during the survey.

Collembola (Springtails): One species of Springtails was discovered (Entomobryidae: Genus species [unidentified]).

[2] Troglobitic animals live entirely in the dark parts of caves and are adapted for life in total darkness.

Insecta (Insects): Five species of insects were identified.

3.8.2 Potential Impacts and Mitigation Measures

The lava tubes and caves in the Keahuolu project site contain a variety of invertebrates. SWCA concluded that these biological resources do not present a regulatory obstacle to development. None of the identified species is listed as threatened or endangered.

Potential impacts to these species were evaluated. Ultimately, the disposition of the surveyed caves will depend upon whether they contain significant archaeological or cultural material. Mitigation measures are recommended for those caves and/or lava tubes identified for preservation by the SHPD. A determination as to the preservation of caves and/or lava tubes containing no archaeological or cultural resources will be made by the developer pursuant to the final development plan. In all likelihood, caves and/or lava tubes containing no significant archaeological or cultural resources will be destroyed during site grading and preparation, as the invertebrates inventoried in them do not warrant preservation. Furthermore, the caves pose a liability to the landowner if someone should enter one and become injured. In some instances, a cave or lava tube containing no archaeological or cultural resources may be preserved by the developer because the area surrounding it may not require mass grading. In those cases, the entrance will likely be blocked or hidden to prevent intentional or unintentional trespassing.

SWCA made the following recommendations to minimize impacts on caves, particularly those known to contain cultural resources:

- Minimize adding topsoil or impermeable material to the surface directly above known caves and preserves.
- Control invasive plant species within the preserves. For landscaping, utilize native plants and avoid aggressive, fire-prone, non-native grasses.
- Exercise care to minimize surface disturbance during construction within the general vicinity of known caves.

- Prevent wildfires and develop a rapid response plan to fires within the proposed project area.
- If unsurveyed caves are encountered during construction and the caves are accessible, allow a biological survey if appropriate.

4CHAPTER FOUR: DESCRIPTION OF THE EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES – HOUSING PROJECT SITE

Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological survey and prepared a preliminary ~~cultural impact assessment (~~CIA~~)~~ for the proposed Keahuolu Affordable Housing Pproject site, comprised of approximately 272 acres. The CIA study is discussed in Section 4.3. The overall objective of the archaeological survey and the CIA is to comply with the current historic preservation requirements of the Hawai'i ~~State Historic Preservation Division (~~SHPD~~)~~.

The specific objectives of the survey were fourfold: (a) ~~to identify all potentially significant~~ to re-identify and re-locate specific archaeological remains present within the study area; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains. The PHRI archaeological survey report is ~~summarized~~ excerpted below. Appendix D contains the complete report.

4.1.1 Historical Background

4.1.1.1 Early Land Uses

The area of North Kona between Kailua Bay and Keauhou Bay to the south is generally recognized as containing the population core and the most fertile agricultural area of North Kona (Kirch 1985:166; Kelly 1983). To the north of Kailua Bay, beginning at Honokohau, is the relatively dry Kekaha district of North Kona, with its barren lava inlands and coastal fishponds (Springer 1986:121). Keahuolu is situated in the transition zone between these two contrasting

environmental districts, and is immediately north of Kailua Bay, a center of both political and economic activities since before Western contact.

The southern boundary of Keahuolu, at the shoreline, is located at Mahaihale. Between Kukailimoku Point and the Keahuolu boundary is a narrow strip of coastal land that is within Lanihau ahupua'a (where much of the old Kona Airport is located). Consequently, the shoreline of Keahuolu is considerably narrower than expected, given the width of the ahupua'a less than a half-mile inland of the coast. About 1.2 miles of Keahuolu lands (north-south) are fronted by Lanihau along the shoreline.

Kukailimoku Point and the coastal sand dunes to the north and south were apparently repeatedly used during the prehistoric and early historic periods as burial grounds. Jackson's 1883 survey map locates graves at Kukailiomoku and a relatively large burial ground at Kaliliki Point to the south. Jackson referred to one massive masonry tomb as Kamehameha's Tomb (Neller 1980:5). Reinecke located additional graves in Lanihau and Keahuolu in 1930, and more recently Neller reported on exposed human remains at nine different locations along the coast~~,~~ : five in Lanihau and four at the Lanihau/Keahuolu boundary (Neller 1980:11-13). Historic period burials were also recently identified at Pawai Bay by Neighbor Island Consultants (1973).

According to Ellis:

> The environs were cultivated to a considerable extent; small gardens were seen among the barren rocks on which the houses are built, wherever soil could be found sufficient to nourish the sweet potatoe (sic), the watermelon, or even a few plants of tobacco, and in many places these seemed to be growing literally in the fragments of lava, collected in small heaps around their roots (Ellis 1963:31).

The ahupua'a of Keahuolu was awarded to Ane Keohokalole during the Mahele of 1848. According to testimony documented during the Mahele, two walled houselots in Keahuolu had been held by Keohokalole's ancestors "from very ancient times" (Foreign Testimony 3:573). At least one of these lots was located along the shoreline. Keohokalole sold portions of her 15,000-20,000-acre grant to the government and other parties, with the balance being transferred to her heir, Lili'uokalani.

There is little historic information concerning traditional Hawaiian land use for the inland portion of the project area in Keahuolu, and no kuleana grants were awarded there. Nineteenth century descriptions of inland Keahuolu by government surveyors reflect the same general environmental conditions present in the barren lava lands of Kekaha to the north. Emerson surveyed the area in the 1880s, and his map (Reg. Map 1280) denotes "rough pahoehoe, little vegetation" in the Keahuolu ahupua'a. David Kalakaua (1869) described the lower inland portions of Keahuolu as being suitable for livestock grazing, an assessment found in numerous nineteenth century descriptions of North Kona ~~kula~~ Kula lands.

No historic references specifically describing traditional agricultural activities in inland Keahuolu have been located~~;~~, but~~,~~ it is apparent from the archaeological record observed at Keahuolu, Kealakehe, and Honokohau 2nd~~,~~ that agricultural activities (apparently prehistoric) were relatively intense in the area designated historically as grazing land.

Comparisons by Kelly (1983) between the kuleana lands claimed and lands actually awarded in North Kona indicate to her that dryland agriculture was being conducted historically until the time of the Mahele, when vast expanses of Kula lands were granted to Konohiki, who utilized it as livestock grazing land (Kelly 1983:67). Kelly found that garden land claims located in the Kula zone were generally not awarded to the claimants.

The forested upland area of Keahuolu was historically the primary agricultural zone and the location of kuleana grants. In a letter dated July 8, 1869, from David K. Kalakaua to his sister, Lili'uokalani, a detailed description of Keahuolu is provided. Kalakaua writes:

> This land is situated in the District of North Kona, bounded by the ahupua'a of Lanihau (in Kailua) belonging to Prince Lunalilo on the Ka'u side, and on the Kohala side, by Kealakehe, a government land and Honokohaniki belonging to Ke'elikolani. Keahuolu runs clear up to the mountains and includes a portion of nearly one half of Hualalai mountains. On the mountains the koa, kukui and 'ohi'a abounds in vast quantities. The upper land or inland is arable, and suitable for growing coffee, oranges, taro, potatoes, bananas etc. Breadfruit trees grow wild as well as the Koli oil seed. The lower land is adopted for grazing cattle, sheep, goat, &c. The fishery is very extensive and a fine grove of cocoanut trees of about 200 to 300 grows on the beach. The flat land near the sea beach is composed chiefly of lava, but herbs and shrubbery grows on it and [it is] suitable for feed of sheep and goats. It is estimated at 15,000 to 20,000 acres or more.

During Emerson's 1880 Government Survey of North Kona, he identified the makai (seaward) edge of a forest zone, which he described as "lava covered with scattering forest and dense masses of ki root" (Kelly 1983:58). The land below this forest edge was described as "rocks covered with long grass" (Kelly 1983:58). According to Kelly's estimations, the forest edge occurred at an average elevation of 550 to 650 feet around Kailua and to the south (1983:58). However, it appears that the forest edge was somewhere between 750 and 800 foot elevation in Keahuolu (see reproduction of Emerson's map in Kelly 1983:59). This approximation places the nineteenth century forest edge very close to the eastern (mauka) boundary of the entire QLT project area. According to Emerson's documentation of nineteenth century vegetation, the project area would be within the Kula zone.

It was shortly after the systematic delineation of Kula lands as grazing land that the Kuakini Wall was constructed. This wall extends from Kahalu'u Bay to the southern portion of Keahuolu, at an average distance of about 1 mile from the coastline. At the northern end in Keahuolu, the wall is at an elevation of 220 feet; further to the south, its average elevation is 160 feet. The purpose of the wall, as proposed by Kelly (1983:75), was to keep the free-ranging livestock contained within the Kula zone, and out of the coastal settlements and gardens. Kuakini Wall does not cross Keahuolu, but extends about 600 feet north of Palani Road, at which point it turns west (or a later western extension was added) for a distance of approximately 1,200 feet. Why the wall ends where it does, rather than at an ahupua'a boundary, trail, or some type of land division feature, is unknown. There is a definite concentration of habitation and agricultural features at the end of the wall, to the south of the western extension.

Sometime during the late 1890s, a sisal mill was established in Keahuolu along the south side of the old Palani Road corridor. This mill location is shown on a 1924 U.S. Geological Survey (USGS) topographic map, at 428 feet above msl. Kelly reports that a 500-acre tract of land was cultivated in sisal, and was known as the McWayne sisal tract (Kelly 1983:89). Recent informant interviews conducted by Wong-Smith indicate that as much as 1,000 acres may have been in sisal cultivation in Keahuolu and Kealakehe. According to informant Mr. Minoru Inaba, the mill was surrounded by sisal fields and was in operation until 1924.

The location of the sisal tract is yet to be determined; if, however, it surrounded the mill, as indicated by Mr. Inaba, it would have been near the current project area. There are scattered clumps of sisal near the project area, and a very concentrated growth along a section of the old Palani Roadbed, at 600 feet above msl. In the area of the concentrated sisal are a series of walled enclosures and ramps that abut the old roadbed (State Inventory of Historic Places [SIHP] Site 13435). This site is apparently at too high an elevation to correlate with the mill; it may, however, be associated with the sisal transport operations.

In comparing Keahuolu land use with Kealakehe to the north, it appears that Keahuolu was exposed to far less livestock grazing than Kealakehe. Lands in Kealakehe between 200 and 600 feet above msl appear to have been used in this manner for about a century. The absence of ranching features and the relatively good preservation of most surface features in Keahuolu attest to a more limited use of the area for cattle.

4.1.1.2 Regional Settlement Pattern

Several general settlement pattern models have been generated by researchers such as Cordy (1981, 1995, 2000), Newman (1970a), Kelly (1983), and others. Though differing in detail, these models generally divide up the region into five basic environmental zones: the Shoreline, Kula, Kaluʻulu, ʻApaʻa, and ʻAmaʻu.

The Shoreline zone extends, typically, from the high-tide line inland approximately 200 meters. In Kailua this is the area from the shore to approximately Aliʻi Drive. In this zone, permanent settlement began in Kona c. A.D. 1000-1200 (Cordy 2000:248). Several large and densely populated royal centers were situated at several locations along the shoreline between Kailua and Honaunau (Cordy 1981;1995) such as Kailua, Holualoa, Kahaluʻu, and Kealakekua (Cordy 2000:248). These included dwellings for rulers, chiefs, and the supporting populace, places of refuge, and other structures. Within these residential areas, large and small heiau, sporting areas, and burial clusters are present. These may extend beyond the Ss~~s~~horeline zone. Burials occur in caves, within finely built platforms, rock mounds, and houses in the shoreline, and are more often to be found in the near-shore Kula zone (Cordy 1995; Haun et al. 1998; Schilt 1984; Tainter 1973). Fishing and farming, of course, were the major exploitation avenues, with

clearings in the forest uplands and small garden plots in the Kula zone. Thus, trails existed to facilitate transportation between the shoreline and the upper regions.

The Kula zone consists primarily of dry and open land with few trees and considerable grass cover. Soil development in Central Kona is limited, however, with a fair amount of exposed lava bedrock. This land was planted primarily in scattered sweet potato patches. However, behind Kailua, breadfruit, taro, and forest banana were also grown in this zone (Cordy 2000:255), at least in the historic period. Use of this zone appears to have occurred as early as AD 1000s to 1300s. It is considered to extend to the 500 foot elevation mark, ~~although~~ but it may extend further, to approximately the 600-800 foot elevation, the 40-50 inch rainfall line (c.f. Cordy 1995:17). Archaeologically, this zone is characterized by stone planting/clearing mounds, terraces, small soil clearings, and planting pits. Some permanent habitations are found, but at a much lower density than at the shore. Permanent habitation may have first started in the 1400s to 1600s, at least in the adjacent ahupua‘a of Pua‘a (Cordy 2000:255).

The Kalu‘ulu zone is referred to as the breadfruit zone. Early explorers described this zone as breadfruit with sweet potatoes and wauke (paper mulberry) underneath (cf. Menzies 1920:75-76). It may have been perhaps one-half mile wide (Kelly 1983:62). Here walled fields occur at the 600-800 foot elevation, which may be start of ~~this~~ the breadfruit zone in this area.

The ‘Apa‘a zone is described as a dryland taro and sweet potato zone. In historic accounts it is described as an area divided by low stone and earth walls into cleared rectangular fields in which sweet potato and dryland taro were planted. On the edges of the walls, sugarcane and ti were planted (cf. Menzies 1920:75-76). Bananas and wauke were also present (cf. Ellis 1963:32). Newman estimated that this zone began at the 1,000 foot elevation and extended to the 2,500 foot elevation, although recent archaeological research has found formal walled fields beginning more commonly at the 600-800 foot elevation. In reality, it has been found that there is much variation within the Kona Field System (cf. Cordy 1995:10-13).

The ‘Ama‘u zone is the banana zone, which may extend from the 2,000 foot ~~elevation~~ to the 3,000 foot elevation, and is characterized by bananas and plantains being grown in cleared forest areas.

4.1.1.3 Chronology

This brief chronology uses terminology developed by Burtchard (1993) and Haun et al. (1998). The Kona Field System was not brought to Kona as a fully developed system. Rather, it grew out of, and integrated with, the evolving socio-political structure and increasing population in the island chain. The first inhabitants of the island of Hawai‘i probably arrived by at least AD 600, and focused habitation and subsistence activity on the windward side of the island (Burtchard 1993; Kirch 1985; Hommon 1976). To date, there is no archaeological evidence for occupation of the Kona region during this initial, or Colonization (AD 300 to 600) stage of island occupation.

There is also little indication that during the subsequent period, Early Expansion (AD 600 to 1100), much activity was taking place in Kona (Burtchard 1993). Through the first half of the Early Expansion Period, permanent habitation was still concentrated on the windward side. It is likely that windward residents traveled to the leeward Kona coast to fish and collect other resources (Cordy 1995). By the latter half of the Early Expansion Period, permanent habitation was beginning in Kona (Cordy 1981, 1995; Schilt 1984). Habitation was concentrated along the shoreline and lowland slopes, and informal fields were probably situated in the Kula and higher elevations, areas with higher rainfall.

Agricultural fields and habitation areas expanded across the slopes and coastal area of Hualalai during the Late Expansion Period (AD 1100 to 1400) (Burtchard 1993; Cordy 1995). The earliest fields may have been located in the southern portion of the system (Schilt 1984; Wolforth and Rosendahl 1998), with new fields expanding northward over time (Haun et al. 1998).

The development of the extensive formal walled fields sometime during the initial stages of the Intensification Period (AD 1400 to 1600) is taken as a mark of the initiation of the Kona Field System (Schilt 1984). The development of formal walled fields may be in part a by-product of the need to extract more subsistence resources from an increasingly limited agricultural base, since the population in Kona had increased dramatically during this period. Radiocarbon dates from habitation structures, shelter caves, and agricultural soils are plentiful from this period

(Burtchard 1995; Haun et al. 1998; Schilt 1984). During this period, the stratified chiefdom structure becomes clearly developed in the archaeological record. Large residential complexes and heiau reflect the segregation of places and power for the growing hierarchy of high and lower chiefs, and ceremonial stewards (Cordy 1981; Haun et al. 1998; Hommon 1976). The produce from the formal walled fields was distributed to higher chiefs through a hierarchy of lower chiefs responsible for management and collection of the cultivated and wild resources.

By the time of the Competition Period (AD 1600 to 1800), the chiefly centers and larger heiau were in place, reflecting the growth in power of the rulers and chiefs in the region (Barrera 1971; Hammatt and Folk 1980). Resources may have reached their maximum carrying capacity, resulting in social stress between neighboring groups. Hostility between groups is reflected archaeologically with the development of refuge caves during this period (Schilt 1984). This volatile period was probably accompanied by internal rebellion and territorial annexation (Hommon 1986; Kirch 1985). It is thought by some researchers that population declined during this period, but several researchers, e.g. Cordy (1995), contend that population continued to grow up to the time of European contact (Burtchard 1993).

Afterwards, during the next time period, that of the last of the ruling chiefs (1800 to 1819), settlement and land use patterns stayed primarily the same as previously. But the ~~next~~ subsequent period, the period of the merchants and missionaries~~,~~ (1820 to 1847), saw the introduction of foreign ideas, plants, animals, diseases, religion, and trade, and the end of the kapu system. The royal centers were no longer functioning as focal points for religious and political activity, and the population at the royal centers and the population of the commoners dropped overall.

During the next period, the Great Mahele and Its Legacy~~,~~ (1848-1899), the implementation of privately owned land resulted in major changes to the settlement and land use patterns in Kona. By the end of this period, foreign landowners and business people had greater control over broad land use practices. The upland agricultural fields were modified to coffee growing, and permanent habitations were built with modern materials upland and along the shore. The population, due to disease, reached a low during this period, but began to climb as foreign laborers and more business people arrived. Finally, during the last period (1900-1959), the

Territorial Period, the population remained relatively stable and lowland occupation was concentrated in the small villages of Kailua and Keauhou, with permanent residences with gardens and pens scattered along the shoreline, while upland habitation was associated with agricultural and ranching pursuits (Haun et al. 1998).

4.1.2 Existing Conditions – Archaeological Survey

4.1.2.1 Field Methods

The archaeological field survey of the housing project site began on March 1, 2007, and concluded on July 9, 2007. Conducting the survey were PHRI Supervisory Archaeologist Alan B. Corbin, M.A., assisted by Field Technician Leonard Kubo, B.A. During the course of the survey, twelve archaeological sites that had been previously identified during ~~the course of~~ an archaeological survey conducted in 1990 by Donham were re-located and re-identified.

The initial stage of site re-location involved the study of previously compiled site inventory maps, overall project maps, and aerial photos in order to determine the probable locations of sites that had been previously identified during the inventory stage. If the site was not found at its probable location, further methodology was employed. Using office-compiled distance and bearing from known points in the landscape, compass and tape were used in the field to estimate the site's probable location. If the site was not found at that location, a circular grid was established at that point, and surveyors walked transects that radiated in all directions out from that point. In this manner, despite extremely overgrown and dense vegetation that limited visibility to less than ten feet at times, all sites but one (Site 13396) were eventually located. All re-located sites were flagged with white-and-red stripped flagging. Subsequent to the re-location and flagging, all re-located sites were located using global positioning system (GPS) equipment. Sites were located with GPS as single points for smaller, single-feature sites, or by multiple points that established a polygonal area.

4.1.2.2 Findings

As stated above, during the course of the survey, twelve (12) archaeological sites that had been identified in previous archaeological surveys were re-identified and re-located within the project area. These sites are shown in Figure 4-1~~Figure 41~~ and are listed in Table 4-1.

These sites had been previously identified during the course of an archaeological survey conducted in 1990, during which time significance assessments and recommendations for the sites were presented (Donham 1990) (SHPD approval letter of 2/17/93, Log 6839, Doc. 9302RC34; see Appendix D of this EIS).

The assessments and recommendations were reiterated in an archaeological mitigation plan that was approved by the SHPD (Jensen et al. 1992) (SHPD approval letter of 12/21/93, Log 10361, Doc. 9312RC02; see Appendix D of this EIS).

Later, the archaeological mitigation plan was amended by PHRI Letter Report 1152-052493, which outlined the sampling block methodology to be used during mitigation (dated June 10, 1993~~; –~~, PHRI Letter 1152-052493, to D. Hibbard, SHPD, from A. Walker, PHRI; SHPD approval letter dated 7/28/1993, Log 8976, Doc 9307RC40; see Appendix D of this EIS).

The final significance assessments and recommendations are summarized in Table 4-1.

One of the sites slated for preservation and interpretive development, Site 13396, a platform originally located a short distance west of Sites 13394 and 13395, was not relocated during the course of the survey. It was apparently destroyed by construction of a firebreak road corridor subsequent to the original Donham survey.

Four sites (Sites 13395, 13408, 13409, and 13410) are located within Sample Block E (Figure 4-1~~Figure 41~~). Block E was established as a sample block of the QLT mitigation plan (Jensen et al. 1992). Block E, which is 400 feet by 400 feet, was chosen so that data collected from it could be compared with similar sized sample blocks (Blocks A-D and F), which are not on the Keahuolu Affordable Housing P~~p~~roject site.

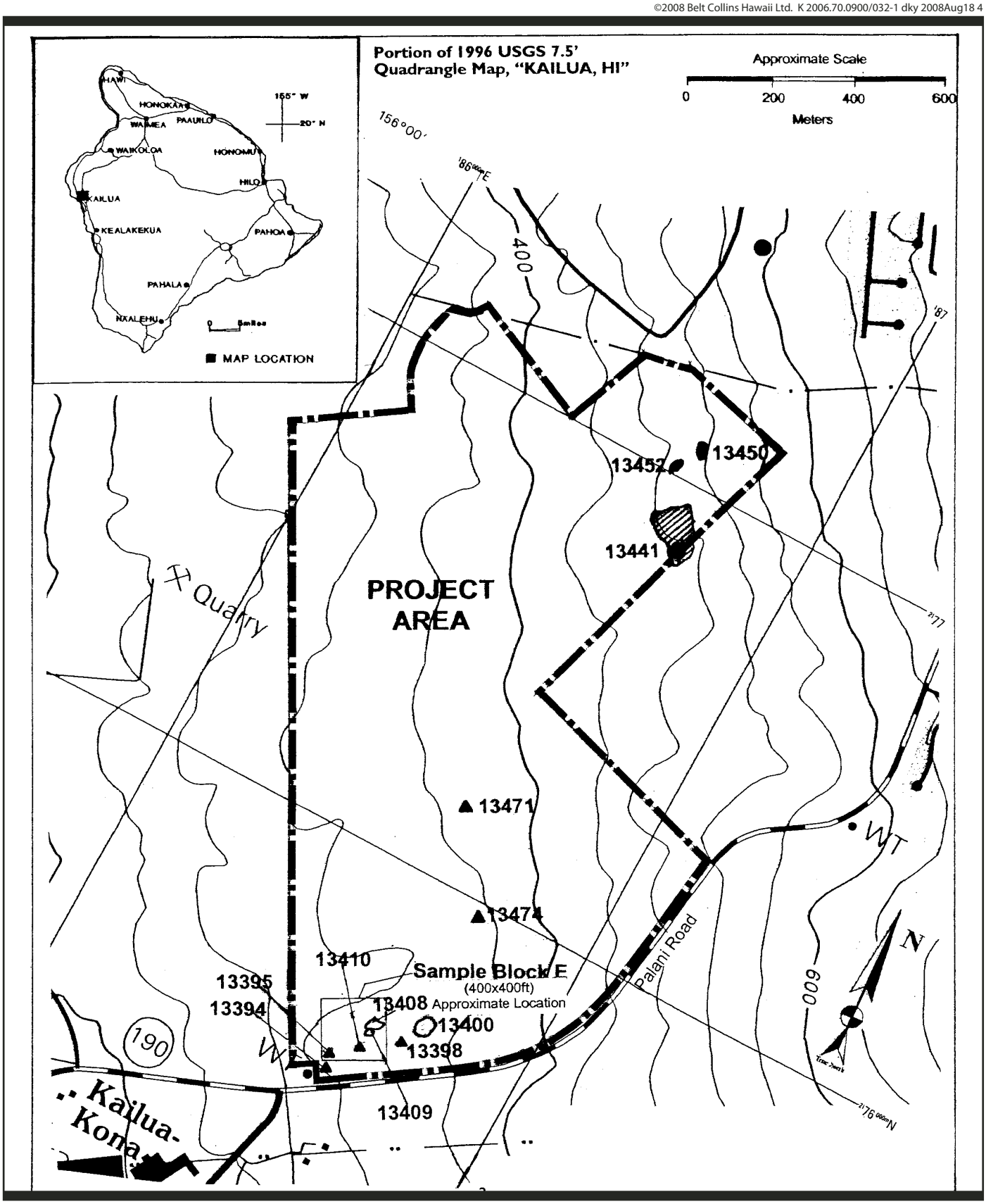


Figure 4-1
PROJECT SITE ARCHAEOLOGICAL SITE LOCATIONS

Source: Paul H. Rosendahl, Ph.D., Inc. November 14, 2007

Table 4-1: Summary of General Significance Assessments and Recommended General Treatments – Project Site

SIHP Site Number	Formal Site Type	Functional Interpretation	Significance Category					General Recommendations			
			A	B	C	D	E	FDC	NFW	PID	PAI
13394	Alignment	Agriculture				D		FDC			PAI
13395	Platform	Habitation/possible burial			C	D	E*	FDC		PID	PAI *
13398	Platform, wall, cairn	Habitation/agricultural			C	D		FDC		PID	
13400	Wall, enclosure	Agricultural/land division			C	D		FDC		PID	
13408	Platform, terrace, five walls, two enclosures, 10+ *pahoehoe* excavations	Habitation/agricultural/ possible burial			C	D	E*	FDC		PID	PAI *
13409	Three platforms, two walls, an enclosure, and three terraces	Habitation/agricultural/ possible burial			C	D	E*	FDC		PID	PAI *
13410	Platform	Habitation			C	D		FDC		PID	
13441	Seven platforms, five terraces, wall remnant, wall, mound, cave, enclosure	Habitation/agriculture			C	D			NFW	PID	
13450	Steppingstone trail	Transportation				D		FDC			
13452	Paved trail	Transportation				D		FDC			
13471	Upright, platform, cave	Habitation/agricultural/ ceremonial				D		FDC			
13474	Cave	Habitation				D		FDC			

Notes:

General Significance Categories:

A = Important for historical contribution to significant events and/or broad patterns of history

B = Important for association with the lives of important individuals in history

C = Excellent example of site type at local, region, island, state, or national level

D = Important for information content

E – Culturally significant

Recommended General Treatments:

FDC~~CD~~ = Further data collection necessary (detailed recording, surface collections, and limited excavations, and possibly subsequent data recovery/mitigation excavations)

NFW = No further work of any kind necessary, sufficient data collected, archaeological clearance recommended, no preservation potential

PID = Preservation with some level of interpretive development recommended (including appropriate related data recovery work)

PAI = Preservation "as is," with no~~r~~ further work (and possible inclusion into landscaping), or possible minimal further data collection necessary

* = Provisional assessment; definite assessment pending completion of further data collection

These results in turn could then be compared to similar sized sample blocks placed on the adjacent ahupua‘a of Kealakehe. The blocks were selected so that they would, as a group, incorporate a wide variety of the site and feature types, and would incorporate various soil and bedrock types at different elevation levels.

4.1.3 Potential Impacts and Mitigation Measures

At the time of this writing, SHPD has approved the 1990 archaeological inventory survey and the 1993 archaeological mitigation plan for the project area. A copy of the SHPD approval letters are in Appendix D of this EIS.

The 1993 archeological mitigation plan outlines all of the data recovery work that remains to be done in the project area. Data recovery work (detailed recording, surface collections, possibly excavations) needs to take place at eleven of the twelve sites within the project boundary. In addition, the entire Sample Block E needs to be recorded in detail (definition of the block, vegetation clearing, and detailed mapping ~~of the entire block~~).

The data recovery work would also include burial testing at Sites 13395, 13408, and 13409. If human remains are found at any of the sites, a burial treatment plan for the project area would be needed. This plan will be prepared in consultation with the SHPD and the Hawaii Island Burial Council and requires the final approval of these two agencies. This plan would include a search for lineal and cultural descendents, detailed descriptions of each burial, and burial treatments, including preservation buffers and possible structural protection measures.

Seven of the twelve sites are recommended for “preservation with some level of interpretive development recommended.” Four of the twelve sites are recommended for “preservation as is.” A preservation plan detailing treatments (preservation buffer zones, interpretation measures, maintenance, etc.) for all preservation sites needs to be prepared and approved by the SHPD.

The Impacts of the Alternatives on the Project Site's Archaeological and Historic Resources

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			Data recovery and preservation of sites would not occur. Uncontrolled vegetation growth would eventually lead to the gradual loss of sites and decreased accessibility.
2. Alternative A		✓		Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.
3. Alternative B		✓		Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.
4. Alternative C		✓		Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.

4.2 ARCHAEOLOGICAL AND HISTORIC RESOURCES – RESERVOIR SITE

Rechtman Consulting, LLC conducted an archaeological inventory survey for the proposed reservoir site and associated service road within Keahuolu and Kealakehe ahupua'a, North Kona District, island of Hawai'i. The proposed reservoir and service road are part of the off-site development of infrastructure facilities associated with the proposed Keahuolu Affordable Housing Pproject. The reservoir site is adjacent to the housing project site. The historical background information prepared by Rechtman is generally similar to that prepared by PHRI. Therefore, the historical background information for the reservoir site and surrounding area are not repeated below. The Rechtman archaeological inventory survey report is summarized below. Appendix E contains the entire report.

The reservoir site is located makai of Palani Road and is situated approximately 595 feet above sea level, with an associated service road that extends west from the reservoir site. The reservoir

and service road are located on undeveloped land owned by the State DHHL and encompass an area measuring roughly 7.3 acres within TMK (3) 7-4-21: por. 014, por. 020, and por. 021.

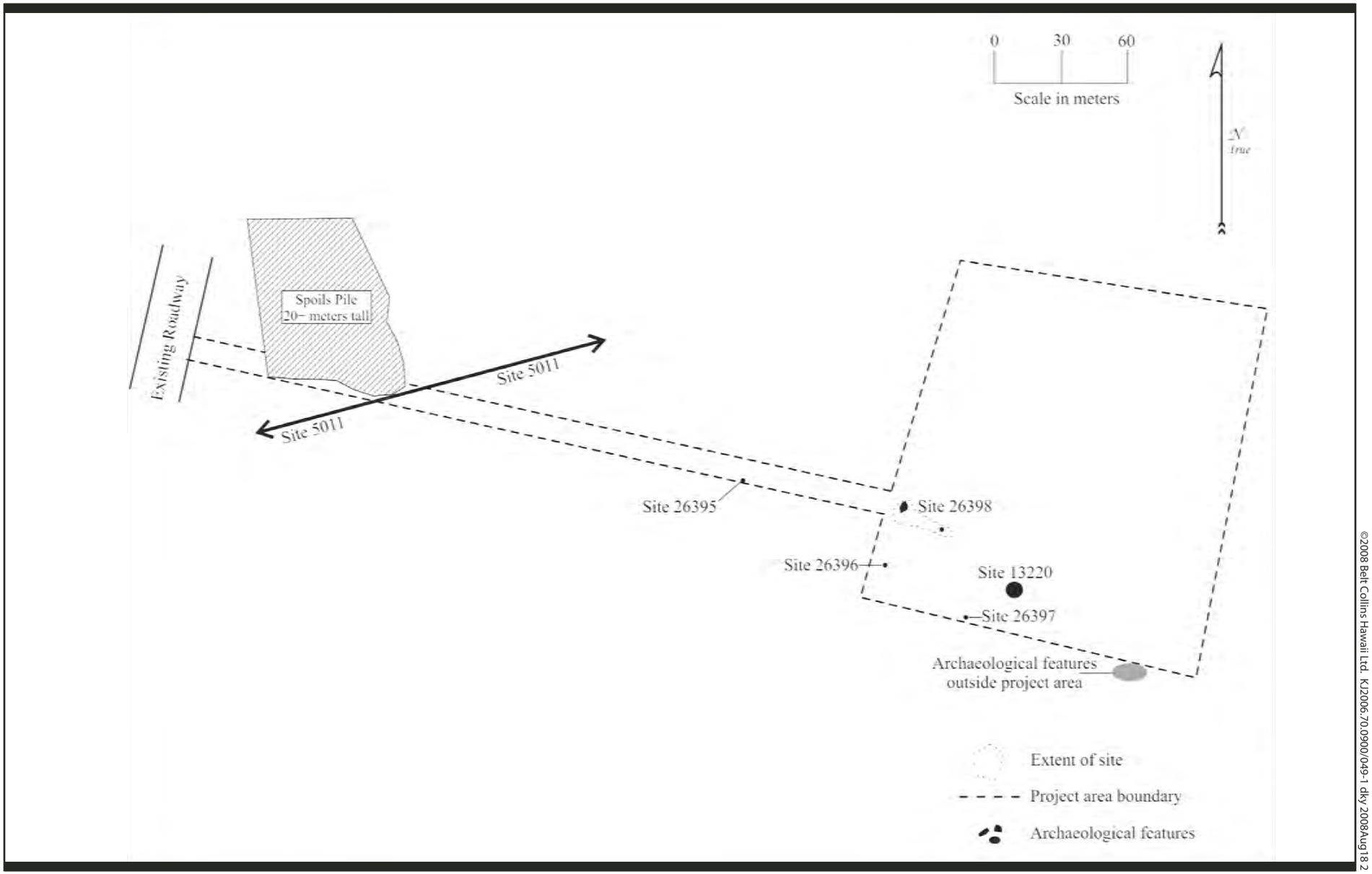
4.2.1 Existing Conditions - Archaeological Survey

Fieldwork for the current inventory survey was conducted on December 18-20, 2007 with ~~follow~~ follow-up subsurface testing on January 9, 2008. Six sites were recorded as a result of the current inventory survey~~; ~~, four newly recorded sites and two previously recorded sites ~~were identified~~. The sites' locations are depicted on Figure 4-2~~Figure 42~~.

The previously recorded sites include an agricultural complex (SIHP Site 13220) and a boundary wall (SIHP Site 5011) (Donham 1990a). The newly recorded sites consist of three cairns (SIHP Sites 26395, 26396, and 26397), and a multi-feature site (SIHP Site 26398). All of the sites with the exception of Site 5011 appear to have been constructed and/or utilized during the Precontact P~~p~~eriod. SIHP Site 5011 is a core-filled boundary wall and because of its construction method was likely built during the Historic Period.

During the current survey, a triangular stacked mound was observed outside of the project area, along the eastern end of the southern boundary. As this site was outside the project area, it is not detailed in the current study and was not assigned an SIHP site number. It is shown on Figure 4-2~~Figure 42~~ to facilitate its protection during any future development activities that may occur in association with the construction of the reservoir and service road.

The six sites - Sites 5011, 13220, 26395, 26396, 26397, and 26398 - are all considered significant under Criterion D for information they have yielded relative to past use of the current project area. It is proposed, however, that the information collected during the previous and current inventory surveys is sufficient to document these sites and to mitigate any potential negative impacts resulting from the proposed development of the reservoir and service road. No further work is recommended for the six sites. The significance and recommended treatments for the four sites are presented in Table 4-2.



Belt Collins

NORTH

Figure 4-2
PROPOSED RESERVOIR SITE ARCHAEOLOGICAL SITE LOCATIONS

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Table 4-2: Site Significance and Treatment Recommendations — Proposed Reservoir Site on DHHL Land

SIHP No.	Function	Temporal Association	Significance	Recommended Treatment
5011 *	Boundary wall	Historic	D	No further work
13220 *	Agricultural complex	Precontact	D	No further work
26395	Cairn	Precontact	D	No further work
26396	Cairn	Precontact	D	No further work
26397	Cairn	Precontact	D	No further work
26398	Cairn	Precontact	D	No further work

* While these sites have been previously subject to evaluation and recommendation, the current study provides a re-evaluation relative to the current project area.

4.2.2 Potential Impacts and Mitigation Measures

The sites recorded were assessed for their significance based on criteria established by the DLNR SHPD and contained in the HAR 13513-284-6. These significance evaluations should be considered as preliminary until DLNR-SHPD provides concurrence.

No further work is recommended for the six sites. However, it is recommended that an archaeological monitor be present during the initial grubbing and grading associated with this project in an effort to insure the protection of nearby archaeological features observed during the original survey of the project area (see Figure 4-2~~Figure 42~~). A monitoring plan for the proposed development area should be prepared and submitted to the DLNR SHPD prior to any groundbreaking activities.

The Impacts of the Alternatives on the Proposed Reservoir Site on DHHL Land Archaeological and Historic Resources

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			Uncontrolled vegetation growth would eventually lead to the gradual loss of sites and decreased accessibility.
2. Alternative A		✓		No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the DLNR SHPD prior to groundbreaking.
3. Alternative B		✓		No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the DLNR SHPD prior to groundbreaking.
4. Alternative C		✓		No further work is recommended by the archaeologist. A monitoring plan should be prepared and submitted to the DLNR SHPD prior to groundbreaking.

4.3 CULTURAL RESOURCES

4.3.1 Purpose, Background and Objectives

A ~~Cultural Impact Assessment (~~CIA~~)~~ was conducted by PHRI for the Keahuolu Affordable Housing Pp~~roject. The area of study for the CIA includes the housing site and reservoir site. The PHRI CIA report is in Appendix D of this EIS.

The purpose of this CIA is to comply with the requirements of HRS Chapter 343, as amended by ~~H.B~~House Bill. No.2895 H~~.~~D~~.~~1 of the Hawai‘i State Legislature (2000) and approved by the Governor as Act 50 on April 26, 2000, and which among other things requires that environmental assessments (EAs) and EISs identify and assess the potential effects of any proposed project upon the "…cultural practices of the community and State…." HRS Chapter 343 was amended by the State Legislature because of the perceived need to assure that the environmental review process explicitly addressed the potential effects of any proposed project upon "…Hawai‘i's culture, and traditional and customary rights." Guidelines previously prepared and adopted by the State OEQC (1997) provide compliance guidance. Both Act 50 and the OEQC Guidelines for Assessing Cultural Impacts mandate consideration of all the different groups comprising the multi-ethnic community of Hawai‘i. This inclusiveness, however, is

generally understated, and the emphasis, intent, and evolution of both the legislative action and the guidelines —is clearly meant to be primarily upon aspects of Native Hawaiian culture – particularly traditional and customary access and use rights.

Cultural resources include a broad range of often overlapping categories of cultural items – places, behaviors, values, beliefs, objects, records, stories, and so on. A traditional cultural property (TCP) is one specific type of cultural resource that falls within the purview of the historic preservation review process. A TCP is a historic property or place that is important because it possesses "traditional cultural significance":

> "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices....
>
> A traditional cultural property, then, can be defined generally as one that is...[important/significant]...because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1990:1).

In addition, it is important to realize that sometimes a TCP may not have a visible physical manifestation:

> Although many traditional cultural properties have physical manifestations that anyone walking across the surface of the earth can see, others do not have this kind of visibility, and more important, the meaning, the historical importance of most traditional cultural properties can only be evaluated in terms of the oral history of the community (Sebastian 1993:22).

There are at least two significant differences that distinguish TCPs as a subset within the larger sphere of cultural resources. First, while cultural resources such as practices and beliefs may be spatially associated with general types of geographical areas, such as the exposed lava lands of the Keahole Point area, a TCP is a specific physical entity or feature with a definable boundary, such as a specific location within the current project site. Second, while cultural resources such as practices and beliefs can include general cultural behaviors such as the gathering of various

natural resources for general subsistence, industrial, or ceremonial uses, a TCP is a specific place or feature directly associated with specific behaviors, the continuity of which over time, in either actual practice or remembrance, can be demonstrated.

Based on these two significant distinctions, it is possible to suggest three types of practitioner claims relating to cultural practices, beliefs, and features that are likely to be encountered in the course of conducting a CIA study. These claims can be referred to as (a) TCP claims, (b) traditional and customary cultural practice claims, and (c) contemporary, or neo-traditional, cultural practice claims.

TCP claims would be those ~~which~~ that lie within the purview of the current historic preservation review process (DLNR 2001a,b); that is, they are claims involving the traditional practices and beliefs of a local ethnic community or members of that community that (a) are associated with a definable physical property (an entity such as a site, building, structure, object, or district), (b) are founded in the history of the local community, (c) contribute to the maintenance of the cultural identity of the community, and (d) demonstrate a historical continuity of practice or belief up to the present through either actual practice or historical documentation. Furthermore, to qualify as a legitimate TCP within the historic preservation context, a potential TCP must be able to demonstrate its historical significance in terms of established evaluation criteria, such as those of the National Register of Historic Places and/or the Hawai‘i Register of Historic Places.

Traditional and customary cultural practice claims would be those Native Hawaiian claims ~~which~~ that lie within the purview of Article XII, Section 7, of the Hawai‘i State Constitution (“Traditional and Customary Rights”) and various other state laws and court rulings, particularly as reaffirmed in 1995 by the Hawai‘i State Supreme Court in the decision commonly referred to as the “PASH decision,” and as further clarified more recently in its 1998 decision in State of Hawai‘i v. Alapa‘i Hanapi and its 2000 decision in Ka Pa‘akai o Ka ‘Aina et al. v. Land Use Commission, State of Hawai‘i et al. The notable points of the decisions in PASH and in Hanapi can be summarized as follows: (a) the reasonable exercise of ancient Hawaiian usage is entitled to protection under Article XII, Section 7, of the Hawai‘i State Constitution; and (b) those persons claiming their conduct is constitutionally protected must prove that they are ~~a~~ Native Hawaiian as defined in PASH, that the claimed right is constitutionally protected as a traditional

or customary Native Hawaiian practice, and that the exercise of the right is occurring on undeveloped or less than fully developed property. Ka Pa'akai generally reaffirms the same points as in the PASH and Hanapi decisions and, in addition, (a) indicates the explicit responsibility of the regulatory agency involved in any application review to arrive at affirmative and substantive conclusions regarding potential impacts upon traditional and customary Native Hawaiian cultural practices and resources, and (b) suggests an "analytical framework" for the identification of and potential impacts upon any such cultural practices and resources.

Traditional Native Hawaiian cultural practices can be categorized as two general types: (a) practices with active behaviors involving both observable activities with material results and their inherent values or beliefs; and (b) practices with more passive behaviors that seek to produce nonmaterial results. The former type of behaviors, practices with active behaviors, for example, would involve practices like the gathering and collecting of different animal and plant resources for various purposes, such as subsistence, medicinal, adornment, social, ceremonial, and possibly other uses. Uses such as these usually have associated beliefs and values (both explicit and implicit) relating to a pervasive general theme that flows throughout traditional Native Hawaiian culture and binds it together. To Native Hawaiians, the natural elements of the physical environment – the land, sea, water, winds, rains, plants, and animals, and their various embodied spiritual aspects – comprise the very foundation of all cultural life and activity – subsistence, social, and ceremonial. To Native Hawaiians, the relationship with these natural elements is one of family and kinship. The latter type of behaviors – practices with more passive behaviors – involves more experiential activities focused on "communing with nature", that is, behaviors relating to spiritual communication and interaction that reaffirm and reinforce familial and kinship relationships with the natural environment.

While TCP claims, as defined above, would certainly fall within the general domain of traditional and customary cultural practice claims, not all traditional and customary cultural practice claims would necessarily qualify as TCP claims. Traditional and customary cultural practice claims subsume a broad range of cultural practices and beliefs associated with a general geographical area or region, rather than a clearly definable property or site ~~for example~~, such as the gathering of marine resources from along a section of shoreline for traditional subsistence or

ceremonial purposes, in contrast to the gathering of a specific marine resource species for a specific use by current generation members of a family that had obtained the same resource from the same recognized site for several generations.

Contemporary, or "neo-traditional," cultural practice claims overlap with neither traditional property claims nor traditional and customary practice claims. Contemporary cultural practice claims would be those made by cultural practitioners relating to current practices or beliefs for which no clear specific historical basis in traditional culture can be clearly established or demonstrated; for example, this might be the conducting of ritual ceremonies of uncertain authenticity at sites or features for which no such prior use can be demonstrated.

The specific purpose of the present CIA study is to assess the potential impacts of the proposed project upon the cultural resources – the practices, features and/or beliefs of Native Hawaiians or any other ethnic group that might be associated with the project area. To accomplish this purpose, several specific objectives were established:

1. Identify any Native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners or groups;
2. Collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices;
3. Assess the potential impacts of the proposed project upon identified cultural practices; and
4. Recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.

Thus, the overall goal or objective of the present CIA study was to identify any Native Hawaiian or other cultural practices currently being conducted within or immediately adjacent to the present project area that might potentially be in some manner constrained, restricted, prohibited, or eliminated if the proposed project were to be approved. The types of practices to be identified would be inclusive, that is, claims for all three types of practices – TCP, traditional and customary cultural practices, and contemporary cultural practices – would be identified and considered. More specifically, the objectives of the CIA were to determine the following: (a) if the project area is currently being accessed by Native Hawaiian cultural practitioners for any traditional and customary cultural uses; (b) if the proposed project would have any adverse

impacts upon any identified current native Hawai‘i cultural uses of the area; and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current Native Hawaiian uses of the area.

4.3.2 Basic Guidance Documents

Several references are available to serve as basic guidance documents for carrying out CIA studies of various scopes and intensities. The principal sources are the following:

1. The OEQC *Guidelines for Assessing Cultural Impacts* (OEQC 1997);
2. *The Native Hawaiian Rights Handbook* (MacKenzie 1991), and more specifically the discussions of traditional and customary rights contained in the two chapters on access rights (Lucas 1991a) and gathering rights (Lucas 1991b);
3. The Report on Native Hawaiian Traditional and Customary Practices Following the Opinion of the Supreme Court of the State of Hawai‘i in Public Access Shoreline Hawaii v. Hawai‘i County Planning Commission prepared by the PASH/Kohanaiki Study Group (1998);
4. The text of several relevant decisions of the Hawai‘i Supreme Court, including the decision commonly referred to as the “PASH decision” (1995), and the more recent decisions in State of Hawai‘i v. Alapa‘i Hanapi (1998) and Ka Pa‘akai o Ka ‘Aina et al. v. Land Use Commission, State of Hawai‘i et al. (2000);
5. The federal regulations of the Advisory Council on Historic Preservation for the National Register of Historic Places (CFR 1981) and the Protection of Historic Properties (CFR 1986);
6. National Register Bulletin No. 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (Parker and King 1990); and
7. Recently approved versions of the SHPD administrative rules (effective December 11, 2003), including Chapter 275: Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS (DLNR 2002a), and Chapter 284: Rules Governing Procedures for Historic Preservation Review to Comment on Chapter 6E-42, HRS, Projects (2002b), as well as an earlier draft Chapter 284-Rules Governing Procedures for Ethnographic Inventory Surveys, Treatment of Traditional Cultural Properties, and Historical Data Recovery (DLNR n.d.).

Attempts to address various issues relating to Native Hawaiian traditional and customary access and land use rights within the State environmental impact review process resulted in the current OEQC “Guidelines for Assessing Cultural Impacts” (OEQC 1997b).

The relationship of the OEQC guidelines to the State Supreme Court "PASH decision" was clearly stated on the front page of the September 8, 1997 issue of the OEQC bulletin, "*The Environmental Notice,*" when the draft guidelines were first issued for public review and comment:

> For years, a controversy has simmered over developer's responsibility to perform a "Cultural Impact Study" prior to building a project. The recent Supreme Court "PASH" decision reaffirmed the state's duty to protect the gathering rights of native Hawaiians. In light of these events, the Environmental Council has drafted a guidance document to provide clarity on when and how to assess a project's impacts on the cultural practices of host communities.

The most recent attempt to address various issues relating to Native Hawaiian traditional and customary access and land use rights within the State environmental impact review process resulted in the amendment to *Chapter 343 (Haw. Rev. Stat.),* as amended by H~~.~~ouse B~~.~~ ill No.2895, H~~.~~D~~.~~1 of the Hawai State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. While no specific administrative rules for the implementation of this amendment have been adopted, it is generally accepted that the ~~*Guidelines*~~ guidelines previously prepared and adopted by the State OEQC (1997) are meant to provide general compliance guidance.

The OEQC guidelines~~*Guidelines*~~ consist of three basic sections. The first section is an introduction ~~which~~ that notes the various statutory and other bases for addressing potential impacts upon cultural resources within the context of the environmental assessment review process, and "...encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area" (OEQC 1997:1). The second section of the guidelines discusses methodological considerations for conducting CIAs, and presents a recommended six-step protocol to be followed by the assessment preparers. The third section of the guidelines outlines eleven topics or "matters" that a cultural assessment should address; these topics basically represent the desired content and organization of a CIA report.

As "guidelines," the OEQC ~~Guidelines~~ guidelines would seem to have neither the specific statutory authority of law, nor the regulatory authority of administrative rules. They represent

general suggestions and recommendations as to how to approach the assessment of potential cultural impacts and provide little or no guidance relative to many important questions, perhaps the most significant of which are listed below:

1. How would project-specific determinations be made as to whether or not a CIA study might even be necessary or appropriate given the specific nature and location of a proposed project?
2. If a CIA study is to be conducted, how does one determine what constitutes an appropriate project-specific level of effort, that is, the general scope of work or objectives for the study, and the specific tasks or activities required to accomplish the scope of work or objectives?
3. What criteria are to be used for determining the credibility and reliability of potential cultural information sources (generally referred to as "informants" or "knowledgeable individuals")?
4. If specific cultural practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be applied for evaluating (a) the descriptive adequacy and (b) the cultural authenticity of the identified practices, beliefs, or features?
5. If specific culturally authentic practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be used for assessing the nature and extent of potential impacts of a proposed project on the identified practices, beliefs, or features, that is, "no effect," "no adverse effect," or "adverse effect?"
6. If a project is determined to have potentially adverse impacts upon specific identified culturally authentic practices, beliefs, or features, what criteria are to be used for evaluating the adequacy and appropriateness of alternative potential mitigation actions?
7. Within the purview of what regulatory office or agency would the review and acceptance or rejection of a completed CIA study legitimately fall?
8. What standards or criteria are to be used to evaluate the overall adequacy or acceptability of a completed CIA study?

Consideration of these questions and their implications has direct relevance to the present CIA study. These implications relate most importantly to (a) the level of study effort believed appropriate for the project-specific context, and (b) the rationale adopted for both the study overall, as well as for the identification and evaluation of any identified cultural practice claims, the assessment of potential project-specific impacts, and the formulation of any specific recommendations for further study or other mitigation actions.

Further comment should be made regarding the final three basic guidance documents listed above. In the absence of any formally adopted administrative rule specifically addressing the treatment of TCPs, the SHPD currently utilizes National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990), as its principal source of guidance for reviewing and evaluating the adequacy and acceptability of TCP study reports prepared in connection with various permit applications for which SHPD regulatory review is required. Bulletin No. 38 provides detailed guidance for the assessment of TCPs within the framework of the National Register significance criteria evaluation process (National Park Service 1990).

The SHPD draft administrative rule relating to ethnographic surveys and TCPs (DLNR n.d.) has existed in finalized draft version since at least early 1997; however, it has never been formally provided for public review, comment, and eventual adoption by the DLNR. The draft rule goes well beyond National Register Bulletin No. 38 in providing detailed guidance for conducting TCP studies, and more specifically for dealing with the identification, evaluation, and documentation of Native Hawaiian TCPs and their associated cultural practices and beliefs.

In the absence of any formally adopted administrative rule specifically addressing the treatment of TCPs, the SHPD can also be said to basically follow the federal regulations of the Advisory Council on Historic Preservation for guidance in the evaluation of significance, as contained in Section 60.4 (“Criteria for evaluation”) of the "National Register of Historic Places” (CFR 1981), and for guidance in the assessment of potential effects, as contained in Section 800.9 (“Criteria of effect and adverse effect”) of the “Protection of Historic Properties” (CFR 1986).

4.3.3 Present Study Scope and Methodology

The scope of work and methodology for the current project is based on the general assumption that the level of study effort appropriate in any project-specific context should involve the consideration of several factors, the most relevant of which are the following: (a) the probable number and significance of known or suspected cultural properties, features, practices, or beliefs within or associated with the specific project area; (b) the potential number of individuals (potential informants) with cultural knowledge of the specific project area; (c) the availability of

historical and cultural information on the specific project area or immediately adjacent lands; (d) the physical size, configuration, and natural and human modification history of the specific project area; and (e) the potential effects of the project on known or expected cultural properties, features, practices, or beliefs within or related to the specific project area.

~~Consideration~~ Considering ~~of~~ these factors within the specific nature and context of the proposed project, it was thought that the most appropriate level of study for an adequate assessment of potential cultural impacts would be a limited assessment study. Based on the location, size, number and quality of sites, this study assumes that (a) potential CIA issues would be moderate, (b) the results of the archaeological survey conducted for the project would confirm both the limited number and scope of cultural resources within or related to the project area, and (c) in the instance that any legitimate CIA issues should arise during the environmental review period, they could be addressed adequately within the framework of the review process (i.e., from Draft to Final EIS).

Consideration of these factors within the specific nature and context of the proposed project indicated that the relatively greater levels of study effort that can be characterized as identification or documentation studies would be inappropriate and excessive. The distinctive characteristics of an identification study are that it would be restricted to (a) the identification of Native Hawaiian or other ethnic group cultural practices, beliefs, properties, features, or exploitable natural resources associated with and/or present within or related to the specific project area that are currently being conducted by and/or known to individual cultural practitioners or groups; and (b) the collection of information reasonably sufficient so as to define the general nature, location, and likely authenticity of identified cultural claims. An identification study would not involve the considerably greater level of study effort – both calendar months and hours of labor – needed to carry out a full documentation study. The distinctive characteristics of the latter, which would commonly be referred to as a full ethnographic or oral history study, would be (a) the collection of detailed information regarding identified Native Hawaiian or other ethnic group cultural practices by means of formal oral history interviews which are usually tape recorded and transcribed, and (b) the analysis and synthesis of all collected data – from interviews, as well as relevant historical documentary and archival research

– within the general cultural-historical context of traditional Native Hawaiian or other ethnic group culture and the defined specific geographical area of a specific project.

The overall rationale guiding the present limited assessment study has been that the level of study effort should be commensurate with the potential of the proposed project for making any adverse impacts upon any Native Hawaiian or other ethnic group cultural practices currently conducted by cultural practitioners within the project area. The study presented in this report is believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area.

4.3.4 CIA Research and Findings

PHRI contracted Cultural Resources Specialist Helen Wong-Smith, M.A., to conduct the CIA study. Ms. Wong-Smith has extensive experience in historical documentary and informant research, having worked for many years as a Historical Researcher/Cultural Resources Specialist for PHRI. She is currently the Hawaiian and Pacific Collection librarian at the UH Hilo. The entire CIA Study report is contained in the PHRI report in Appendix D of this EIS.

The informant research initially involved compiling a list of potential informants for the Keahuolu housing project area (TMK 3-7-4-21:020). Later, the study was expanded to include the reservoir site (TMK 3-7-4-21: Por. 020, Por. 14, Por. 21). The CIA covers both sites. Ms. Wong-Smith contacted informants known through past projects and through inquiries with departments and cultural specialists such as Kepa Maly, Ruby McDonald of the Office of Hawaiian Affairs (OHA), and Keola Lindsey, formerly of the island of Hawai‘i SHPD office. One contact usually led to another until a list of over 30 potential informants was compiled (Table 4-3~~Table 4-3~~). The potential informants were contacted by phone and e-mail and those responsive were interviewed preliminarily to assess their potential ~~to~~ and willingness to provide information. To further assess informants, informants were asked to fill out written forms to answer some preliminary questions such as: Who are in your immediate family? What was your previous occupation and education? What is your family background? What are your residential ties? Do you know of any specific historic/cultural properties, practices, and/or beliefs relevant to the project area? This was followed up with phone conversations. Historical r~~R~~esearcher and

cCultural sSpecialist Helen Wong-Smith was then contracted to conduct further interviews with a few selected individuals who had potential to provide further information, and to provide further documentary information on the Keahuolu project area.

Table 4-3: List of Potential Informants for Keahuolu Ahupua'a

	Name	Status/Expertise	Affiliation
1	Ruby P. Keana'aina McDonald	Native Hawaiian, executive director	OHA, NAHKHAC
2	Elaine Watai	Native Hawaiian	KCA/SAFIS
3	Craig "Bo" Kahui	Native Hawaiian, president of organization	KCAVL
4	Wally Lau	Native Hawaiian, executive director	NPK
5	Reginald Lee	Native Hawaiian	DOCARE
6	Elizabeth Lee	Native Hawaiian, *lauhala* weaving master	
7	Michael Ikeda	Community Building Facilitator IV	QLCC
8	Mahealani Pai	Native Hawaiian, cultural specialist	BHI
9	J. Curtis Tyler III	Native Hawaiian, cultural resources specialist	KCDPSC
10	Geraldine Bell	Native Hawaiian, park superintendent	KHNHP, NAHKHAC
11	Kahu Akahai	Native Hawaiian, *kahu,* minister, pastor	MZCC
12	David Garcia	Counselor	QLCC
13	Clarence Medeiros, Jr.	Native Hawaiian, journeyman mason	
14	Lily Kong	Native Hawaiian	KOONKOK
15	Ulalia Ka'ai-Berman	Native Hawaiian, *kuma hula*	NAHKHAC
16	Taro Fujimori	Native Hawaiian	N/A
17	Zachary Kanuha	Native Hawaiian	N/A
18	Clement "Junior" Kanuha	Native Hawaiian	N/A
19	Raeanne Kahaiali'i	Native Hawaiian	N/A
20	Clarence Rapoza	Native Hawaiian	N/A
21	E. Kalani Flores	Native Hawaiian, *kuma olelo* Hawai'i	HL-HCCW
22	Gail Souza-Save	General knowledge	QLCC
23	Lydia Mahi	General knowledge	KCDPSC, HCEOC
24	Arthur "Uncle Aka" Mahi	Native Hawaiian	N/A
25	Rae Ann (Fujimori) Godden	Native Hawaiian	N/A
26	Gloria Muraki	General knowledge	N/A
27	Violet Leihulu Mamac	General knowledge	N/A
28	Angel Pilago	Native Hawaiian	HCC
29	Kelly Greenwell	General knowledge	N/A
30	Michael Keala Ching	General knowledge	N/A
31	Iris Nalei Napaepae-Kunewa	General knowledge	N/A
32	Dr. Frank Sayre	General knowledge	N/A
33	Robert Kawaiula Branco	General knowledge	N/A

	Name	Status/Expertise	Affiliation
34	Kahu Henry Kanoelani Boshard	Native Hawaiian, *kahu*, minister, pastor	MC
35	Kahu Brian Boshard	Native Hawaiian, *kahu*, minister, pastor	MC
36	Ka'ea Lyons Alapai	Native Hawaiian, *kumu olelo* Hawai'i	KAPA, EHES

Notes:

BHI	Bishop Holdings, Inc.
DOCARE	State of Hawai'i DLNR Department of Conservation and Resources Enforcement Division
EHES	Ehunuikaimalino Hawaiian Immersion School
HCC	Hawai'i County Council
HCEOC	Hawai'i County Economic Opportunity Council
HL-HCCW	Hawaiian Lifestyles – West Hawai'i Community College
KAPA	Kapa Radio
KCA	Kealakehe Community Association
KCAVL	Kaniohale Comm. Association at the Villages of La'i 'Opua
KCDPSC	Kona Community Development Plan Steering Committee
KHNHP	Kaloko-Honokohau National Historical Park
KOONKOK	Ka 'Ohana O Na Kupuna O Kona
MC	Mokuaikaua Church
NAHKHAC	Na Hoapili o Kaloko Honokohau Advisory Commission
NPK	Neighborhood Place of Kona
MZCC	Mauna Ziona Congregational Church
N/A	Not Available
OHA	Office of Hawaiian Affairs
QLCC	Queen Lili'uokalani Children's Center
SAFIS	Salvation Army Family Intervention Services

The historical documentary study by Ms. Wong-Smith suggests limited cultural activity within the project area. Most of the events and documentary evidence concerns the more seaward portion of Keahuolu. Texts indicate that the shoreline area was a rich marine resource. The coastal area also included springs and brackish water ponds from which people harvested, among other things, shrimp. Heiau were located near the shore: Kawaluna, ~~Palihiolo~~Pahiliholo, and Halepana. Inland areas were used primarily for agriculture. Planting evidently was widespread and took place wherever there was a little soil. Even rocky areas were planted with crops such as sweet potatoes, which could thrive in small pockets of soil and mulch.

The informant study, despite considerable effort, yielded only limited information. Pili grass (*Heteropogon contortus*) was apparently harvested from the project area at some time in the past. Clarence Medeiros, Jr. states that he continues to gather pilo (*Capparis sandwichiana*) for medicinal uses. Mahealani Pai indicates that the project area contains plants such as alahe'e,

kauila, and uhiuhi, which were important, useful plants in pre-contact times. No informant, however, had knowledge of any other cultural/traditional use of the project area.

4.3.5 Potential Impacts and Mitigation Measures

The cultural impacts to any locale in Hawai‘i are not always readily evident. What might be assessed by Western eyes as “barren land” may be a rich resource to Hawaiians. For example, trails would be highly valued, the land may yield harvesting material like pili grass, or the area may have spiritual aspects having to do with the wind or other natural phenomenon.

Based on previous and current research, permanent prehistoric populations in Keahuolu appear to have been present along the coast. The midlands were used for temporary habitation and were crossed by trails linking the coast to the uplands, and the uplands were used for agricultural cultivation.

The documentary information on Keahuolu indicates several heiau along the coast, along with several probable permanent residential sites with enclosed yards. Sources reveal the preponderance of burials in coastal areas and in particular in sand dunes. Further inland, caves, lava blisters, and other modified features revealed human remains less frequently. Inland, there are sites and features indicative of dryland agriculture, substantiated by Mahele testimonies of kalo, potato, and limited coffee cultivation. Features indicating temporary habitation were also identified. In the upper elevations, there was a substantial increase in rock mounds, particularly faced mounds and modified lava blisters collaborating with the tradition of increased agricultural activities mauka, where the moisture increases. Documentary information indicates Keahuolu was exposed to far less livestock grazing than Kealakehe to the north. The lesser grazing activity increases the likelihood of cultural sites to remain intact or to suffer less degradation.

Reviewing the information presented in CIA – historical documentation, archaeological surveys and research, and oral reminiscences – reveals limited cultural activities in the project area. For Keahuolu, contemporary or continuing cultural practices include gathering of ocean resources and specific plants from the 300-foot elevation seaward. One cultural practitioner has spoken of

the availability and the gathering of pili, and in the literature are general references to features such as the wind. Halepaoʻo, an *ʻopelu koʻa*, is referenced at Pawai.

Based on the findings of this assessment, the Keahuolu Affordable Housing Ppproject development would have limited impact on Hawaiian cultural resources, beliefs, and practices. Care should be taken to preserve the habitat of endemic plants, in addition to preserving access for gathering activities.

The Impacts of the Alternatives on Cultural Resources

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			No ongoing practices were identified relative to the land proposed for the housing area and the reservoir site.
2. Alternative A		✓		Based on the findings of the CIA, the proposed project would have limited impact on Hawaiian cultural resources, beliefs and practices.
3. Alternative B		✓		Based on the findings of the CIA, the proposed project would have limited impact on Hawaiian cultural resources, beliefs and practices.
4. Alternative C		✓		Based on the findings of the CIA, the proposed project would have limited impact on Hawaiian cultural resources, beliefs and practices.

4.4 ROADWAYS AND TRAFFIC

4.4.1 Background

The West Hawaiʻi roadway network in the general vicinity of the project area consists of three principal roadways: Queen Kaʻahumanu Highway and Mamalahoa Highway, each running in a north – south direction, and Palani Road, which serves as the only street connecting the highways in the immediate vicinity. Palani Road runs in an east-west (mauka-makai) direction.

Palani Road forms the southern boundary of the subject property. To improve traffic conditions in the region, Queen Kaʻahumanu Highway, a State arterial highway facility located downslope (west) of the subject property), is being expanded to a four-lane facility in two phases. Phase I of the expansion involves road widening from Henry Street to Kealakehe Parkway. Phase II of the expansion involves road widening of the segment from Kealakehe Parkway to Keahole Airport.

The County Planning Department is proposing, among other projects, three new roadways that would parallel Queen Ka'ahumanu Highway at various points up the slope. The "mid-level" road of these three proposed roadways is the proposed Ane Keohokalole Highway, which would be located along the subject property's west boundary. The Ane Keohokalole Highway would provide key access to the Keahuolu Affordable Housing Pproject. Without Ane Keohokalole, vehicular access to the site would be limited to one possible connection to Palani Road and future connections via Keanalehu Drive, Manawale'a Street, and potentially a future extension of Makala Boulevard through QLT land.

The projected completion date for construction of Keanalehu Drive and Manawale'a Street to the HHFDC project boundary is 2008. QLT is expected to include the extension of Makala Boulevard to Ane Keohokalole Highway in its future development plans.

4.4.2 Traffic Study Assumptions and Scope

The following is a discussion of existing traffic conditions in the vicinity of the project area and the proposed project's potential impacts on future traffic conditions. This discussion is based upon a Traffic Impact Analysis Report (TIAR) prepared by Fehr & Peers / Kaku Associates. Appendix F contains the entire report.

The study analyzed the proposed Keahuolu Affordable Housing Pproject which would construct a new mixed-use neighborhood on vacant land in the area northeast of the intersection of Palani Road (SR 190) and Henry Street. The study assessed the three alternative concept plans, as well as the No Action alternative. For purposes of the TIAR, each of the alternative concept plans has identical street and land use patterns, but the plans vary in the overall intensity of development. Each alternative development concept is focused on a mixed-use community center that includes 197,000 square feet of commercial/retail space, 25 acres of neighborhood parks, a seven-acre archeological preserve, a 12-acre site reserved for a school, and between 1,020 and 2,330 housing units.

- Concept A would construct 1,020 dwelling units, including 620 multi-family units and 400 single-family units in increments of 300 dwelling units per year from 2010-2012, and 120 additional dwelling units in 2013 (Table 4-4).

- Concept B would construct 1,840 dwelling units, including 1,240 multi-family units and 600 single-family units in increments of 300 dwelling units per year from 2010-2015, and 40 additional dwelling units in 2016 (Table 4-5).

- Concept C would construct 2,330 multi-family dwelling units in increments of 300 dwelling units from 2010-2016, and 230 additional dwelling units in 2017 (Table 4-6).

Completion of the residential component of the project is anticipated by 2014 under Concept A, by 2017~~5~~ under Concept B, and by 2018~~6~~ under Concept C. Each concept assumes that the entire project would be completed by the end of 2020.

Table 4-4: Alternative Concept Plan A

Year	Land Use		
	Residential Units (multifamily/single family)	Commercial/Retail (SF)	School (SF)
2010	200 / 100		
2011	200 / 100		
2012	200 / 100		
2013	20 / 100		8,700
2014			
2015			
2016			
2017			
2018		100,000	
2019			
2020		97,000	
Total	**1,020**	**197,000**	**8,700**

Table 4-5: Alternative Concept Plan B

Year	Land Use		
	Residential Units (multifamily/single family)	Commercial/Retail (SF)	School (SF)
2010	200 / 100		
2011	200 / 100		
2012	200 / 100		
2013	200 / 100		8,700
2014	200 / 100		
2015	200 / 100		
2016	40 / 0		
2017			
2018		100,000	
2019			
2020		97,000	
Total	**1,840**	**197,000**	**8,700**

Table 4-6: Alternative Concept Plan C

Year	Land Use		
	Residential Units (multifamily)	Commercial/Retail (SF)	School (SF)
2010	300		
2011	300		
2012	300		
2013	300		8,700
2014	300		
2015	300		
2016	300		
2017	230		
2018		100,000	
2019			
2020		97,000	
Total	**2,330**	**197,000**	**8,700**

The study analyzes potential project-related traffic impacts on the roadway system in the vicinity of the proposed project. The study evaluates projected 2020 conditions both with and without the proposed project. By this date, most of the planned streets in the region are expected to be in place based on the report titled *Keahole to Honaunau Regional Circulation Plan* (2006), which was prepared ~~for~~ by the County of Hawai‘i Planning Department and dated August 14, 2006. The following traffic scenarios are analyzed in the study:

- Existing Conditions (2007) – The analysis of existing traffic conditions provides a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets, traffic volumes, and operating conditions.
- Cumulative Base (No Project) Conditions (2020) – The objective of this scenario is to project future traffic growth and operating conditions resulting from regional growth and related projects in the vicinity of the project site, without consideration of traffic generated by the proposed project.
- Cumulative ~~P~~plus Project Conditions (2020) – The objective of this scenario is to project potential impacts of the proposed project on future traffic operating conditions with project traffic added to the cumulative base traffic forecasts in 2020.

The study analyzed the potential project-related traffic impacts under typical weekday A.M. and P.M. peak hour traffic conditions at twelve intersections in the vicinity of the proposed project. The analyzed intersections, illustrated in Figure 4-3~~Figure 43~~, are:

Study Intersections:

1. Henry Street & Queen Ka‘ahumanu Highway (SR 19)
2. Palani Road (SR 190) & Queen Ka‘ahumanu Highway (SR 19)
3. Kamakaeha Avenue & Palani Road (SR 190)
4. Henry Street & Palani Road (SR 190)
5. Future intersection of Palani Road (SR 190) & Minor Site Access Road
6. Queen Ka‘ahumanu Highway (SR 19) & Makala Boulevard
7. Future intersection of Ane Keohokalole Highway & Major Site Access Road
8. Pahiliholo Street & Palani Road (SR 190)

9. Kealakaʻa Street & Palani Road (SR 190)
10. Uluaoa Street & Palani Road (SR 190)
11. Queen Kaʻahumanu Highway (SR 19) & Kealakehe Parkway
12. Kealakehe Parkway & Ane Keohokalole Highway

The effect of the proposed project options on daily traffic volumes was also measured on 10 street segments, also shown in Figure 4-3~~Figure 43~~. New baseline traffic counts were collected at these locations in August 2007, except at study intersections #5 and #7, both of which are future intersections.

Street Segments:

1. Henry Street south of Palani Road (SR 190)
2. Palani Road (SR 190) makai (west) of Henry Street
3. Palani Road (SR 190) mauka (east) of Henry Street
4. Kealakaʻa Street north of Palani Road (SR 190)
5. Uluaoa Street north of Palani Road (SR 190)
6. Queen Kaʻahumanu Highway (SR 19) south of Kealakehe Parkway
7. Kealakehe Parkway makai (west) of Ane Keohokalole Highway
8. Ane Keohokalole Highway south of Kealakehe Parkway
9. Queen Kaʻahumanu Highway (SR 19) north of Kealakehe Parkway
10. Palani Road (SR 190) south of Mamalahoa Highway

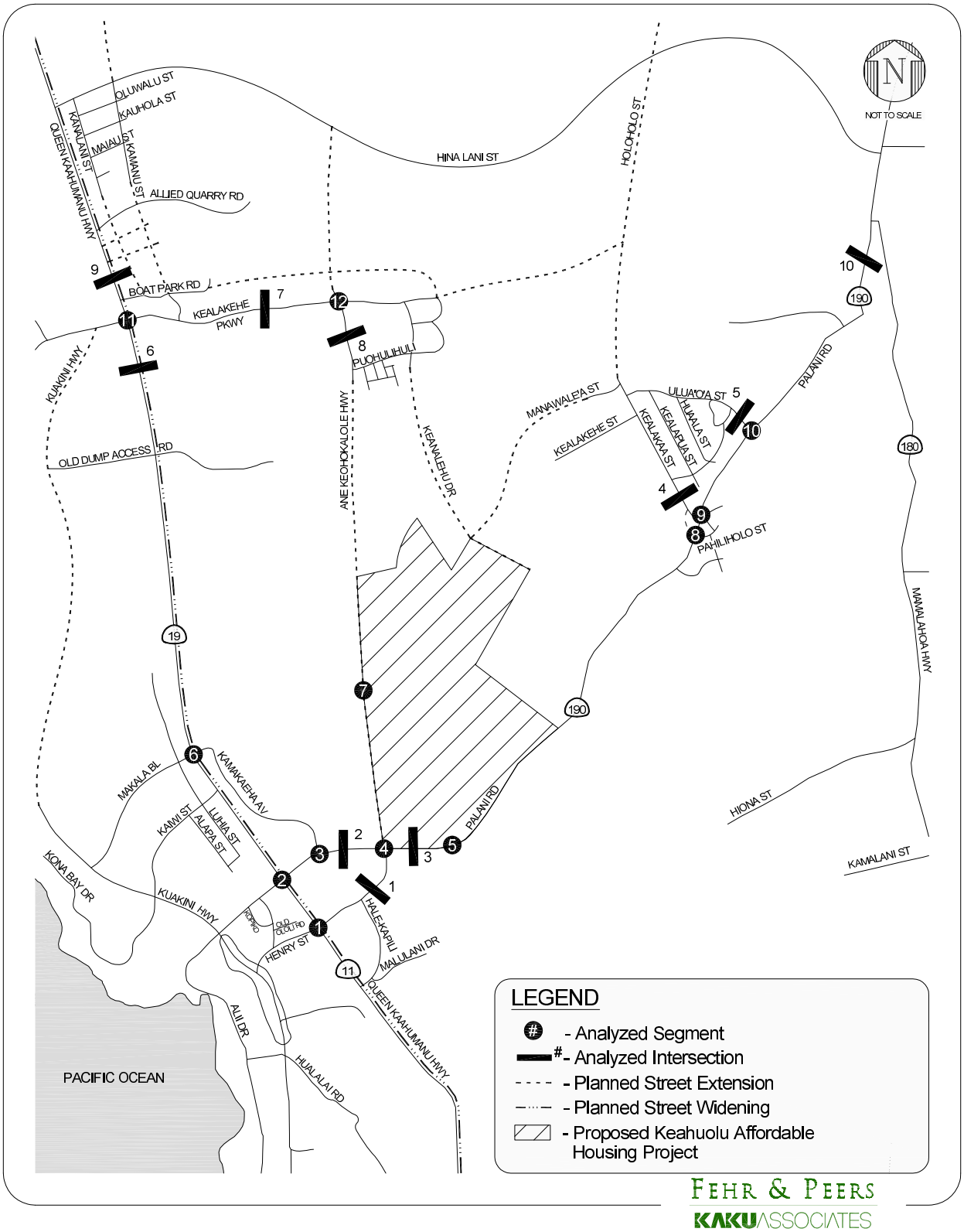


Figure 4-3
TRAFFIC STUDY AREA AND ANALYZED LOCATIONS

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

4.4.3 Existing Roadway System Conditions

A comprehensive data collection effort was undertaken to identify existing transportation conditions in the vicinity of the proposed project. The assessment of existing conditions relevant to this study includes an inventory of the street and highway system, traffic volumes on these facilities, and operating conditions at key intersections and street segments.

The study area, as shown in Figure 4-3~~Figure 43~~, is generally bounded by Kealakehe Parkway on the north, Queen Ka'ahumanu Highway (SR 19) on the west (makai), and Palani Road (SR 190) on the southeast. Primary regional access to the area is provided by Queen Ka'ahumanu Highway, which runs north-south approximately one mile makai of the project site, and by Mamalahoa Highway, which runs northeast-southwest approximately two miles mauka of the project site. Henry Street, currently running between Queen Ka'ahumanu Highway and Palani Road, also provides access to the project site. The proposed Ane Keohokalole Highway (Mid-Level Road) will extend Henry Street northward to Hina Lani Street and will serve the project site by providing direct access to Palani Road and Kealakehe Parkway. Diagrams of the existing intersection lane configurations at the ten existing study intersections are provided in Appendix A of the Traffic Report (see Appendix ~~G~~F).

4.4.3.1 Traffic Counts

New weekday peak period intersection turning movement counts were collected between 6:00 A.M. and 9:00 A.M. and between 3:00 P.M. and 6:00 P.M. at the 10 existing study intersections on Tuesday, August 12, Wednesday, August 13, and Thursday, August 14, 2007. Existing weekday peak hour volumes at these intersections are illustrated in Figure 4-4~~Figure 44~~ and the traffic count data sheets are provided in Appendix B of the Traffic Report (see Appendix F).

Twenty four-hour machine counts were conducted at the 10 street segments listed in Section 4.4.2 for analysis of impacts of the proposed project on Tuesday, August 12, Wednesday, August 13, and Thursday, August 14, 2007. The existing daily traffic volume data are available in Appendix B of the Traffic Report (see Appendix F).

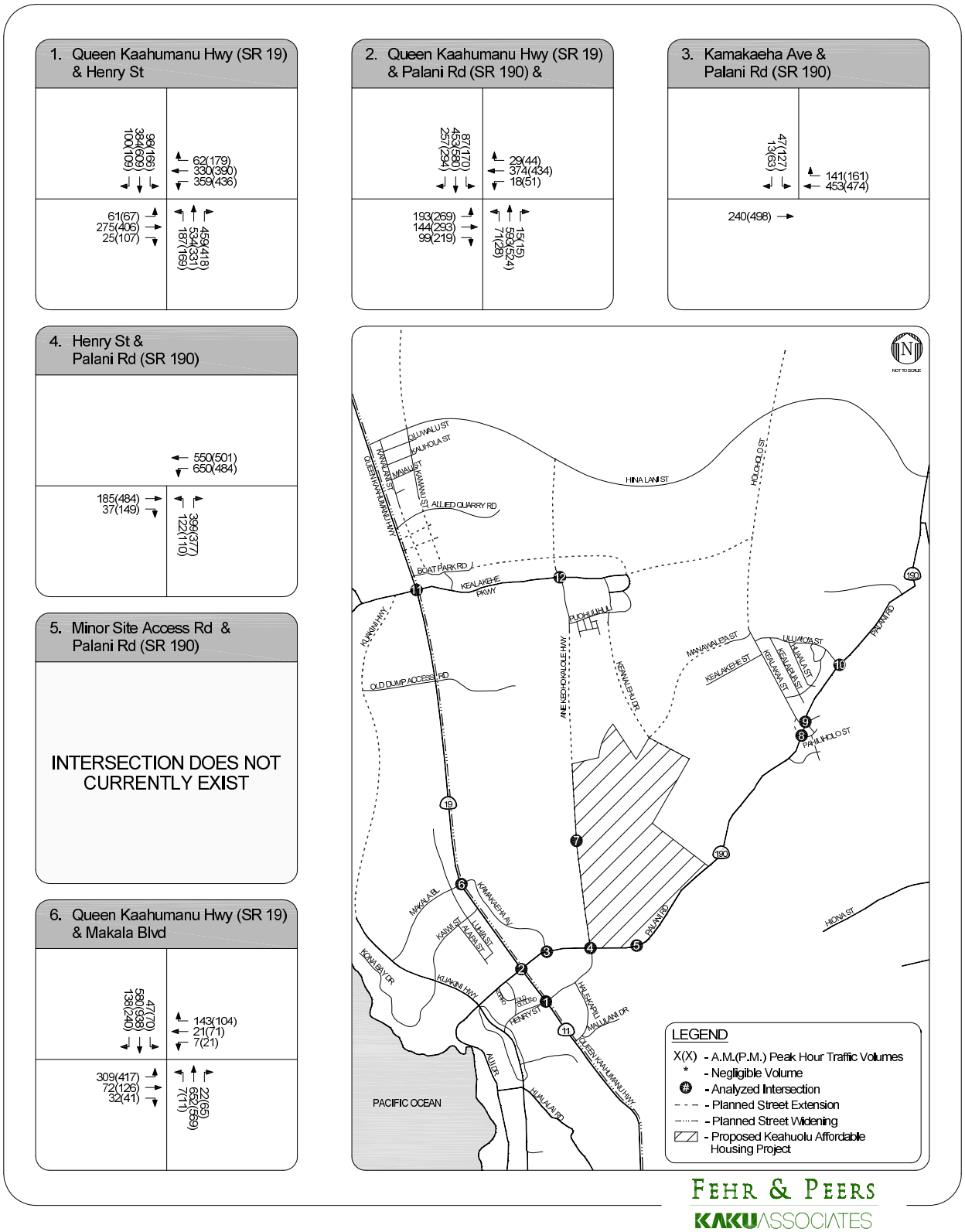


Figure 4-4
EXISTING PEAK HOUR TRAFFIC VOLUMES

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

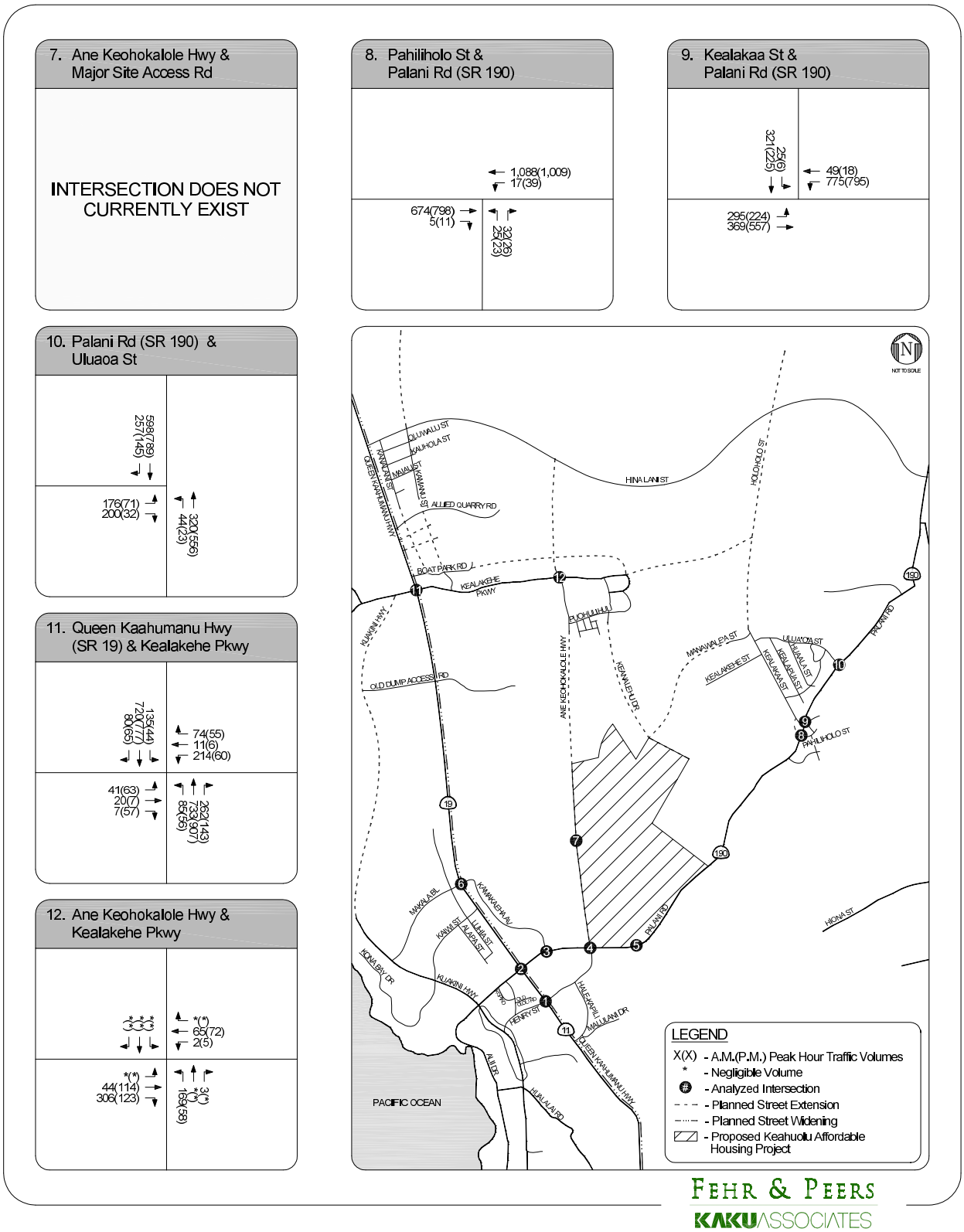


Figure 4-4
EXISTING PEAK HOUR TRAFFIC VOLUMES (continued)

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

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4.4.3.2 Level of Service Methodology

Level of Service (LOS) is a qualitative measure used to describe the condition of traffic flow ranging from excellent conditions at LOS A to overload conditions at LOS F. LOS definitions for signalized and unsignalized intersections are provided in Table 4-7~~Table 4-7~~ and Table 4-8, respectively. LOS D is considered to be the minimum desirable level of service in this area.

LOS analyses were conducted at each of the existing study intersections to determine their current operating conditions using the operations methodology for signalized intersections and the two-way stop-controlled methodology for unsignalized intersections from the Transportation Research Board's *2000 Highway Capacity Manual.*

Table 4-7: Level of Service Definitions for Signalized Intersections

Level of Service	Volume/Capacity (V/C)	Average Stopped Delay per Vehicle (seconds)*
A	0.000 - 0.600	≤10
B	>0.600 - 0.700	>10 and ≤20
C	>0.700 - 0.800	>20 and ≤35
D	>0.800 - 0.900	>35 and ≤55
E	>0.900 - 1.000	>55 and ≤80
F	> 1.000	>80

Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

Table 4-8: Level of Service Definitions for Unsignalized Intersections

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

Source: *Highway Capacity Manual* (Transportation Research Board, 2000).

4.4.3.3 Analysis Results - Existing Peak Hour Intersection Levels of Service

The existing weekday A.M. and P.M. peak hour turning movements depicted in Figure 4-4~~Figure 44~~ were used in conjunction with the LOS methodologies described above to determine existing operating conditions at each study intersection. Detailed LOS calculation worksheets are included in Appendix C of the Traffic Report (see Appendix F).

Table 4-9 summarizes the results of this analysis, including the average control delay and corresponding LOS during the A.M. and P.M. peak hours. Calculated volume-to-capacity (V/C) ratios are also shown in Table 4-9. As indicated in Table 4-9, ~~three~~ two of the 10 existing study intersections, listed below, are operating at LOS E or F during both the A.M. and P.M. peak hours and one of the intersections is operating at LOS E or F during the A.M. peak hours only.~~:~~

Study Intersection:

8. Palani Road (SR 190) & Pahiliholo Street
9. Kealaka‘a Street & Palani Road (SR 190)
10. Uluaoa Street & Palani Road (SR 190)

The other seven existing study intersections are operating at LOS D or better during the A.M. and P.M. peak hours.

Table 4-9: Year 2007 Existing Conditions - Peak Hour Levels of Service

Intersections		Peak Hour	V/C	Del/Veh*	LOS
1	Queen Ka'ahumanu Hwy (SR 19) & Henry St.	A.M. P.M.	0.634 0.626	23 25	C C
2	Queen Ka'ahumanu Hwy (SR 19) & Palani Rd (SR 190)/Alii Dr.	A.M. P.M.	0.777 0.874	26 31	C C
3	Kamakaeha Av & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	15 25	B D
4	Henry St & Palani Rd (SR 190)	A.M. P.M.	0.659 0.804	12 19	B B
5	Project Minor Access & Palani Rd (SR 190) [b]	A.M. P.M.	NA NA	NA NA	NA NA
6	Queen Ka'ahumanu Hwy (SR 19) & Makala Bl	A.M. P.M.	0.748 0.973	23 36	C D
7	Ane Keohokalole Hwy & Major Site Access Road [b]	A.M. P.M.	NA NA	NA NA	NA NA
8	~~Palihiolo~~ Pahiliholo St & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	48 **	E F
9	Kealaka'a St & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	** 33	F D
10	Palani Rd & Uluaoa St (SR 190) [a]	A.M. P.M.	NC NC	** **	F F
11	Queen Ka'ahumanu Hwy (SR 19) & Kealakehe Hwy	A.M. P.M.	0.742 0.652	20 11	B B
12	Ane Keohokalole Hwy & Kealakehe Hwy [a]	A.M. P.M.	NC NC	12 11	B B

Note:

* Delay indicates average stopped delay per vehicle in seconds for signalized intersections. The worst case vehicular delay is reported for stop-controlled intersections.

** Indicates oversaturated conditions. Delay cannot be calculated.

NA = Not Applicable

NC = Not Calculated

[a] Intersection is controlled by stop signs on the minor approaches.

[b] Future intersection

4.4.4 Future Traffic Conditions without the Project

In order to evaluate the potential impact of traffic generated by the proposed project on the surrounding street system, it was necessary to develop estimates of future traffic conditions in the area both with and without the project.

Future traffic conditions without the proposed project reflect traffic increases due to general regional growth and development, as well as traffic increases generated by other specific developments near the project site. These conditions are referred to as the "cumulative base condition" (i.e., no project conditions). The sum of the cumulative base and project-generated traffic represents the "cumulative plus project" conditions. Development of these future 2020 traffic scenarios conditions is described below.

The cumulative base traffic projections include two elements. The first element is growth in the existing background traffic volumes reflecting the effects of overall regional growth and development in and around the study area, referred to as ambient growth. The second is the traffic generated by specific cumulative projects located in or near the study area.

4.4.4.1 Areawide Traffic Growth and Cumulative Development Projects

Traffic projections were estimated on the basis of actual traffic growth on Queen Ka'ahumanu Highway (SR 19) and Mamalahoa Highway/Palani Road (SR 190) between 1998 and 2004, which shows that peak hour traffic volumes have increased at a simple growth rate of approximately 5 percent per year during the period. That estimate is consistent with the level of growth identified in the *Keahole to Honaunau Regional Circulation Plan* (2006). Accordingly, the 2007 northbound and southbound volumes were increased by 65 percent (5 percent annual simple growth rate x 13 years) through 2020.

Information regarding potential future projects either under construction, planned, or proposed for development within or near the study area was obtained from several sources. Estimated trips from the related projects were assigned to the roadway system based on their anticipated distribution patterns. The geographic distribution of traffic generated by new developments

depends on several factors, such as the type and density of the proposed land uses, the geographic distribution of the population from which employees and/or patrons may be drawn, the geographic distribution of activity centers (employment, commercial, and other) to which residents of proposed residential projects may be drawn, and the location in relation to the surrounding street system.

The resulting cumulative base traffic volumes, representing future conditions without the project for year 2020, are presented in Figure 4-5~~Figure 45~~. These future projections take into account the estimated overall growth in the surrounding area without the addition of traffic generated by the proposed Keahuolu Affordable Housing P~~p~~roject.

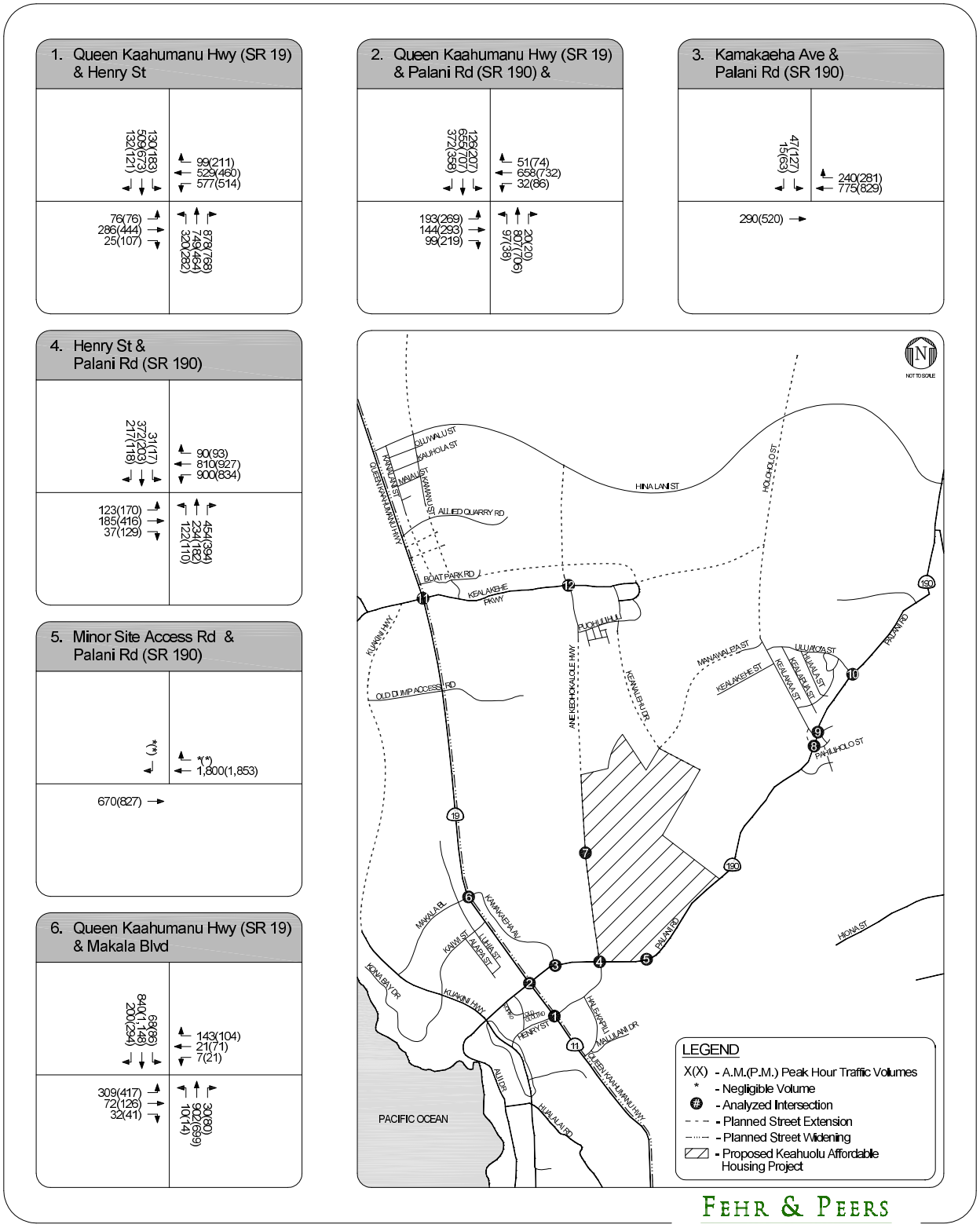

Figure 4-5
CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES

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Environmental Impact Statement
September 2008

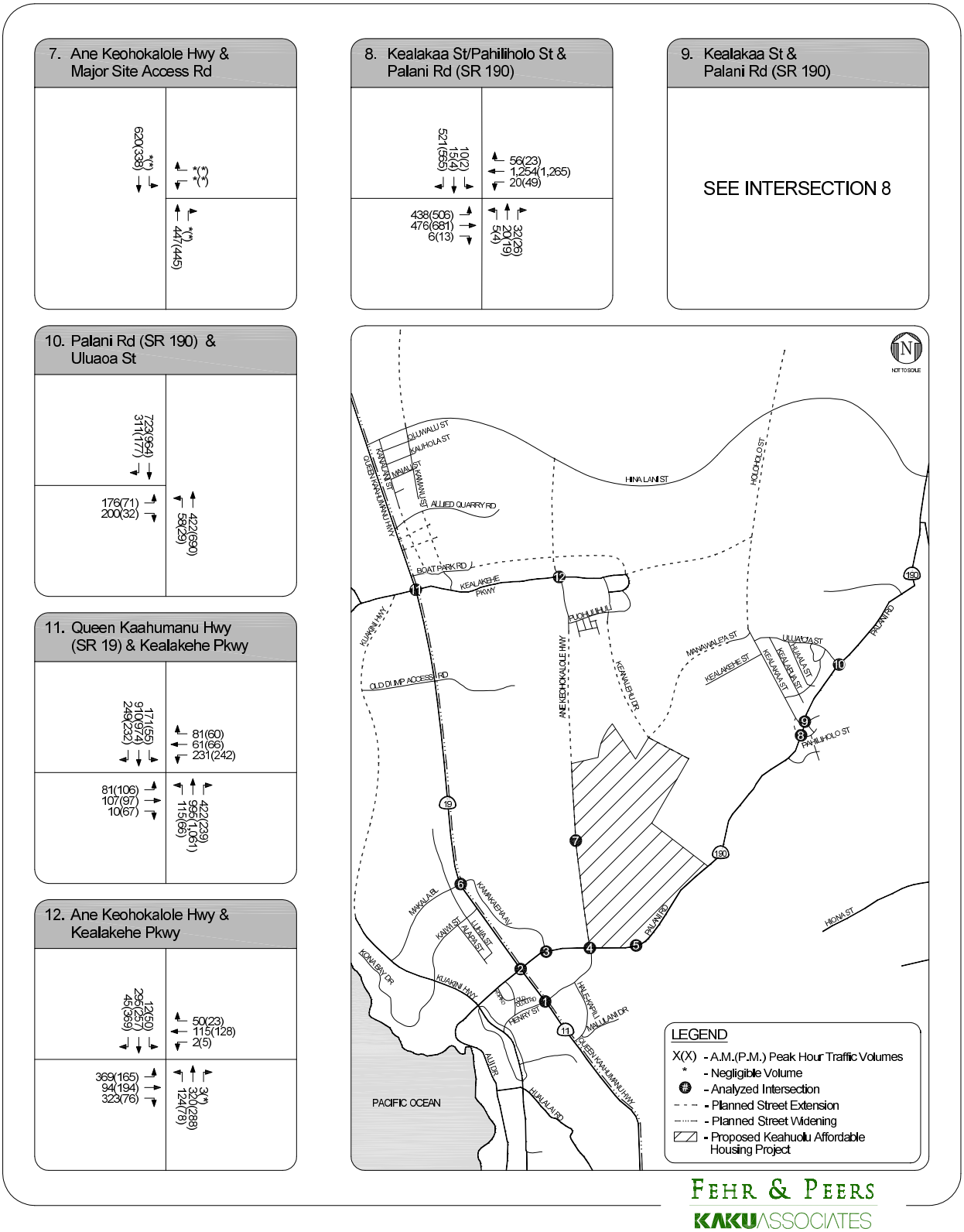

Figure 4-5
CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES (continued)

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Environmental Impact Statement
September 2008

4.4.4.2 Baseline Street System Improvements

Several key roadway improvements in or near the study area are planned for completion by 2020. These improvements, whether the result of local capital improvement programs or in connection with planned or approved projects, would result in dramatically improved mobility options for residents and visitors and in capacity changes at various locations throughout the study area.

- Queen Ka‘ahumanu Highway – The main arterial highway through Kailua-Kona is being widened from two to four lanes (two in each direction) with a median from Kona International Airport to Henry Street in Kailua.
- Main Street (Kamanu Street) – Kamanu Street will be extended to connect with Kealakehe Parkway and north to the proposed University Drive.
- Ane Keohokalole (Mid-Level Road) – This project will extend Henry Street from Palani Road northward to Hina Lani Street.
- Kealaka‘a Street/Holoholo Street Extension – This planned street would extend Kealaka‘a Street northward to Holoholo Street and the planned Kealakehe Parkway.
- Kuakini Highway – Kuakini Highway will be extended northward to connect to Kealakehe Parkway, forming a new north-south roadway on the makai side of Queen Ka‘ahumanu Highway.
- Intersection of Kealaka‘a Street and Palani Road – Two T-intersections, Kealaka‘a Street & Palani Road and ~~Palihiolo~~ Pahiliholo Street & Palani Road, are being merged into a signalized intersection with additional turn lanes. This will result in the existing intersection of Kealaka‘a Street & Palani Road (Intersection 9) being limited to right turns in, with all other turning movements focused at Pahiliholo Street & Palani Road (Intersection 8). For this reason, only the latter of these locations is analyzed in the future scenarios.
- Keanalehu Drive and Manawale‘a Street – These streets are currently being constructed just north of the project site to create a new mauka-makai connection.

4.4.4.3 Cumulative Base Traffic Volumes w~~W~~ithout the Project

Forecasts of cumulative base traffic volumes were developed by adding the total projected traffic growth to the background existing volumes and distributing it over the future street network. Estimated traffic shifts for the 2020 horizon year were developed based on field observations and current and future land use patterns. Approximately 20 percent of the vehicles traveling through Queen Ka‘ahumanu Highway and Mamalahoa Highway/Palani Road are expected to divert to

the planned new roads described above that will be parallel to these existing highways. The resulting projected traffic volumes at the analyzed intersections, illustrated in Figure 4-5~~Figure 45~~, represent the 2020 cumulative base conditions, i.e., future conditions without the project.

4.4.5 Future Traffic Conditions w~~W~~ith the Project

Development of future traffic projections for the proposed project involved a three-step process. This process included the estimation of project trip generation, trip distribution, and trip assignment.

4.4.5.1 Project Trip Generation

Trip generation rates found in *Trip Generation, 7th Edition* (Institute of Transportation Engineers, 2003) were used to estimate number of trips to and from the proposed project. The trip generation rates used in this study and the estimated new trips generated by the proposed project Concepts A, B, and C are summarized in Table 4-10, Table 4-11~~Table 4-11~~, and Table 4-12~~Table 4-12~~, respectively.

As shown in Table 4-10, Concept A is estimated to generate about 9,953 daily trips, including approximately 1,178 trips during the morning peak hour (631 inbound and 547 outbound) and approximately 1,046 trips during the evening peak hour (543 inbound and 503 outbound).

As shown in Table 4-11~~Table 4-11~~, Concept B is estimated to generate about 16,034 daily trips, including approximately 1,511 trips during the morning peak hour (665 inbound and 846 outbound) and approximately 1,629 trips during the evening peak hour (918 inbound and 711 outbound).

As shown in Table 4-12~~Table 4-12~~, Concept C is estimated to generate about 17,617 daily trips, including approximately 1,580 trips during the morning peak hour (646 inbound and 934 outbound) and approximately 1,695 trips during the evening peak hour (973 inbound and 722 outbound).

Table 4-10: Preliminary Trip Generation Estimates ~~Keahuolu Affordable Housing Project~~ - Concept A [a]

Land Use	Rate	Daily	A.M. Peak Hour			P.M. Peak Hour		
			Trip Gen	In	Out	Trip Gen	In	Out
Trip Rates [b]								
Single Family Housing	per Dwelling Unit[1]	9.57	0.75	25%	75%	1.01	63%	37%
Apartments	per Dwelling Unit[1]	6.72	0.51	20%	80%	0.62	65%	35%
Commercial/Retail	per 1,000 square feet[2]	11.01	1.55	88%	12%	1.49	17%	83%
High School	per ksf	12.89	3.06	71%	29%	0.97	54%	46%

Land Use	Size	Daily	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Housing	400 DU	3,828	75	225	300	255	149	404
Apartments	620 DU	4,166	63	253	316	250	134	384
Commercial/Retail	197,000 sf	2,169	268	37	305	50	244	294
High School	150 ksf [c]	1,934	326	133	459	79	67	146
TOTAL PROJECT		12,097	732	648	1,380	634	594	1,228
Less: Internal Capture [d]		*-2,144*	*-101*	*-101*	*-202*	*-91*	*-91*	*-182*
Net New Trips		9,953	631	547	1,178	543	503	1,046

Notes:

[1] Dwelling Unit = DU

[2] 1,000 square feet = ksf

[a] Source: *Keahuolu Affordable Housing Project Master Plan, Kailua-Kona, Hawaii*, Belt Collins Hawaii Ltd., June 2007.

[b] Source: *Trip Generation, 7th Edition*, Institute of Transportation Engineers (ITE), 2003.

[c] Assume that approximately 30% of the total school site (12 acres) is occupied by building area.

[d] Internal trip capture estimates were based on methodology described in *Trip Generation Handbook, 2nd Edition*, ITE, 2004.

Table 4-11: Preliminary Trip Generation Estimates
~~Keahuolu Affordable Housing Project~~ - Concept B [a]

Land Use	Rate	Daily	A.M. Peak Hour			P.M. Peak Hour		
			Trip Gen	In	Out	Trip Gen	In	Out
Trip Rates [b]								
Single Family Housing	per Dwelling Unit[1]	9.57	0.75	25%	75%	1.01	63%	37%
Apartments	per Dwelling Unit[1]	6.72	0.51	20%	80%	0.62	65%	35%
Commercial/Retail	per 1,000 square feet[2]	11.01	1.55	88%	12%	1.49	17%	83%
High School	per ksf	12.89	3.06	71%	29%	0.97	54%	46%

Land Use	Size	Daily	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Housing	600 DU	5,742	113	338	450	382	224	606
Apartments	1,240 DU	8,333	126	506	632	500	269	769
Commercial/Retail	197,000 sf	2,169	268	37	305	50	244	294
High School	150 ksf [c]	1,934	326	133	459	79	67	146
TOTAL PROJECT		18,178	833	1,014	1,846	1,011	804	1,815
Less: Internal Capture [d]		*-2,144*	*-168*	*-168*	*-335*	*-93*	*-93*	*-186*
Net New Trips		16,034	665	846	1,511	918	711	1,629

Notes:

[1] Dwelling Unit = DU

[2] 1,000 square feet = ksf

[a] Source: *Keahuolu Affordable Housing Project Master Plan, Kailua-Kona, Hawaii,* Belt Collins Hawaii Ltd., June 2007.

[b] Source: *Trip Generation, 7th Edition*, Institute of Transportation Engineers (ITE), 2003.

[c] Assume that approximately 30% of the total school site (12 acres) is occupied by building area.

[d] Internal trip capture estimates were based on methodology described in *Trip Generation Handbook, 2nd Edition*, ITE, 2004.

Table 4-12: Preliminary Trip Generation Estimates
~~Keahuolu Affordable Housing Project~~ - Concept C [a]

Land Use	Rate	Daily	A.M. Peak Hour			P.M. Peak Hour		
			Trip Gen	In	Out	Trip Gen	In	Out
Trip Rates [b]								
Apartments	per Dwelling Unit[1]	6.72	0.51	20%	80%	0.62	65%	35%
Commercial/Retail	per 1,000 square feet[2]	11.01	1.55	88%	12%	1.49	17%	83%
High School	per ksf	12.89	3.06	71%	29%	0.97	54%	46%

Land Use	Size	Daily	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	2,330 DU	15,658	238	950	1,188	939	506	1,445
Commercial/Retail	197,000 sf	2,169	268	37	305	50	244	294
High School	150 ksf [c]	1,934	326	133	459	79	67	146
TOTAL PROJECT		19,761	832	1,120	1,952	1,068	817	1,885
Less: Internal Capture [d]		*-2,144*	*-186*	*-186*	*-372*	*-95*	*-95*	*-190*
Net New Trips		17,617	646	934	1,580	973	722	1,695

Notes:

[1] Dwelling Unit = DU

[2] 1,000 square feet = ksf

[a] Source: *Keahuolu Affordable Housing Project Master Plan, Kailua-Kona, Hawaii,* Belt Collins Hawaii Ltd., June 2007.

[b] Source: *Trip Generation, 7th Edition*, Institute of Transportation Engineers (ITE), 2003.

[c] Assume that approximately 30% of the total school site (12 acres) is occupied by building area.

[d] Internal trip capture estimates were based on methodology described in *Trip Generation Handbook, 2nd Edition*, ITE, 2004.

4.4.5.2 Project Trip Distribution and Trip Assignment

Factors considered in the development of the project trip distribution include a review of historic traffic volume data in the area, observations of existing traffic patterns and discussions with residents, the geographic distribution of employment and commercial activity in the vicinity, and the proposed street extension program described in the *Keahole to Honaunau Regional Circulation Plan* (2006). Based on these factors, the following trip distribution pattern was estimated for the project-generated traffic, as illustrated in Figure 4-6~~Figure 46~~:

- Northwest 40%
- Northeast 20%
- Southwest 40%

The project trip assignment took into account the roadway network anticipated to be in place by 2020, when the project would be fully built out. Figure 4-7~~Figure 47~~, Figure 4-8~~Figure 48~~, and Figure 4-9~~Figure 49~~ illustrate the assignment of new project-related traffic at each study intersection under the three housing concept alternatives.

4.4.5.3 Cumulative Plus Project Traffic Volumes

The project-generated traffic volumes were added to the cumulative base traffic projections to develop the cumulative plus project traffic (*Future w~~W~~ith Project*) forecasts for 2020. Figure 4-10~~Figure 410~~, Figure 4-11~~Figure 411~~, and Figure 4-12~~Figure 412~~ illustrate the projected cumulative plus project A.M. and P.M. peak hour traffic volumes at each of the 12 study intersections under the three housing concept alternatives. Appendix A of the Traffic Report depicts the anticipated future lane configurations at the study intersections, including assumptions regarding the future intersections of Palani Road (SR 190) & Minor Site Access Road, Ane Keohokalole Highway & Major Site Access Road, and the north leg of Henry Street & Palani Road (see Appendix F).

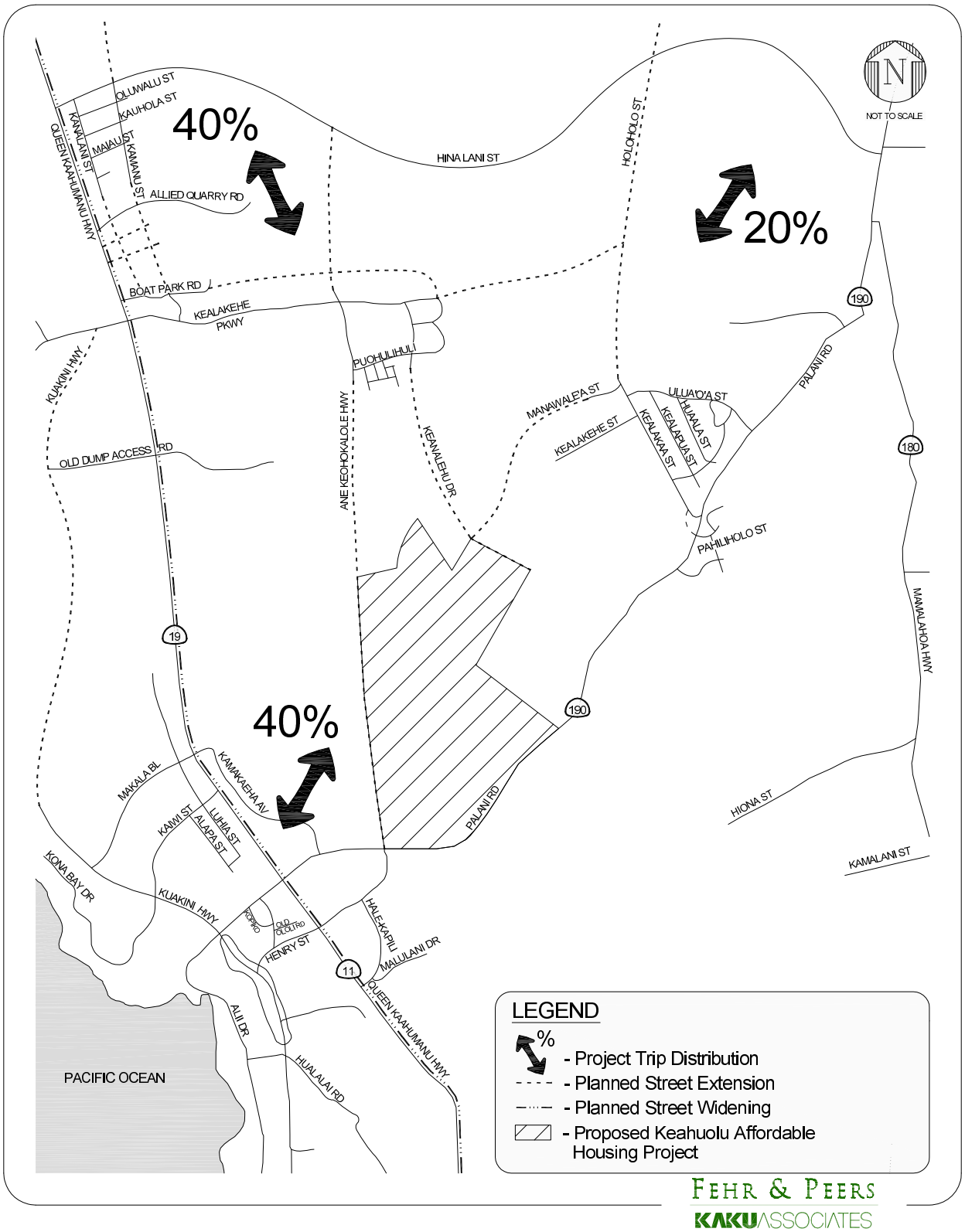

Figure 4-6
PROJECT TRIP DISTRIBUTION

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Environmental Impact Statement
September 2008

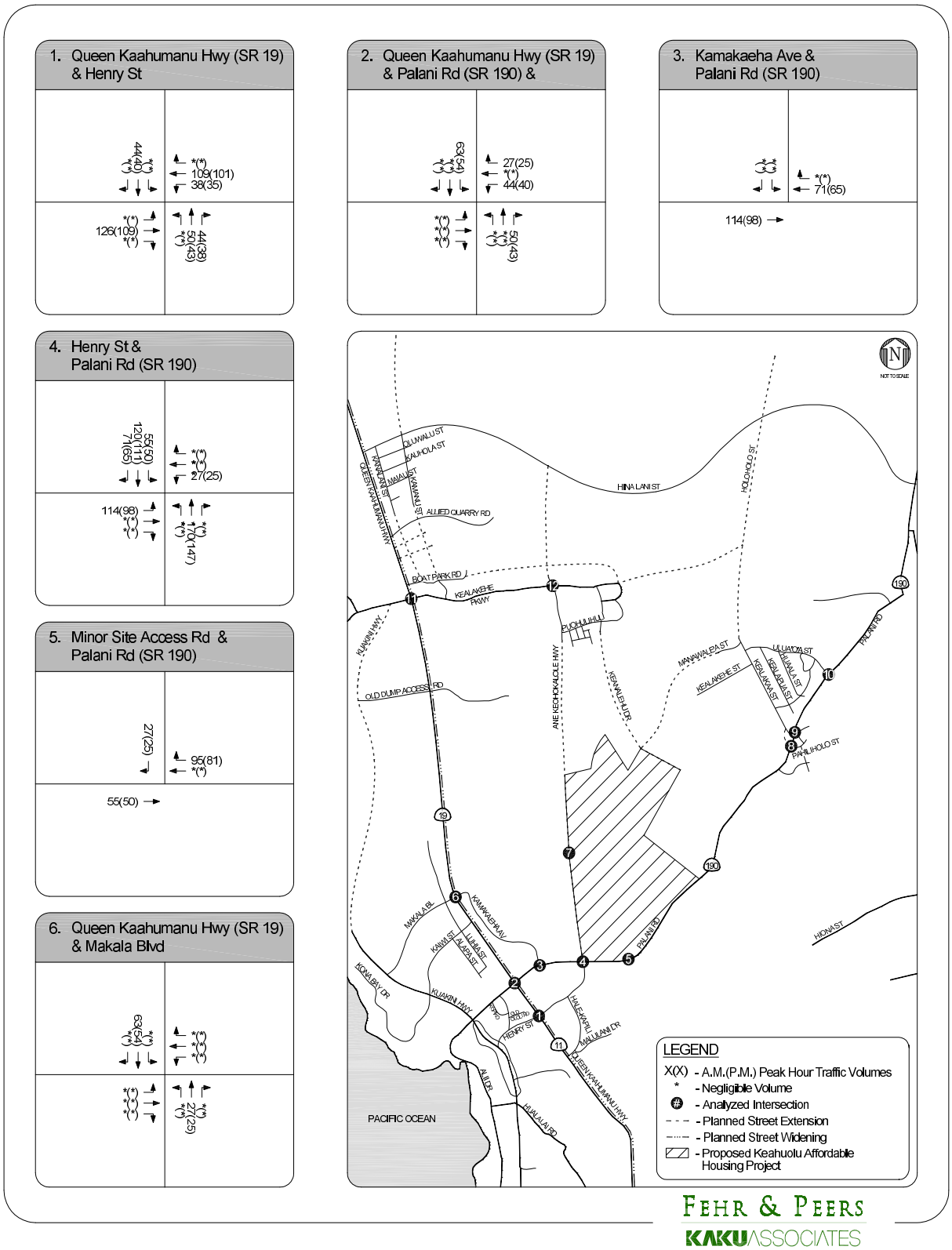

Figure 4-7
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT A

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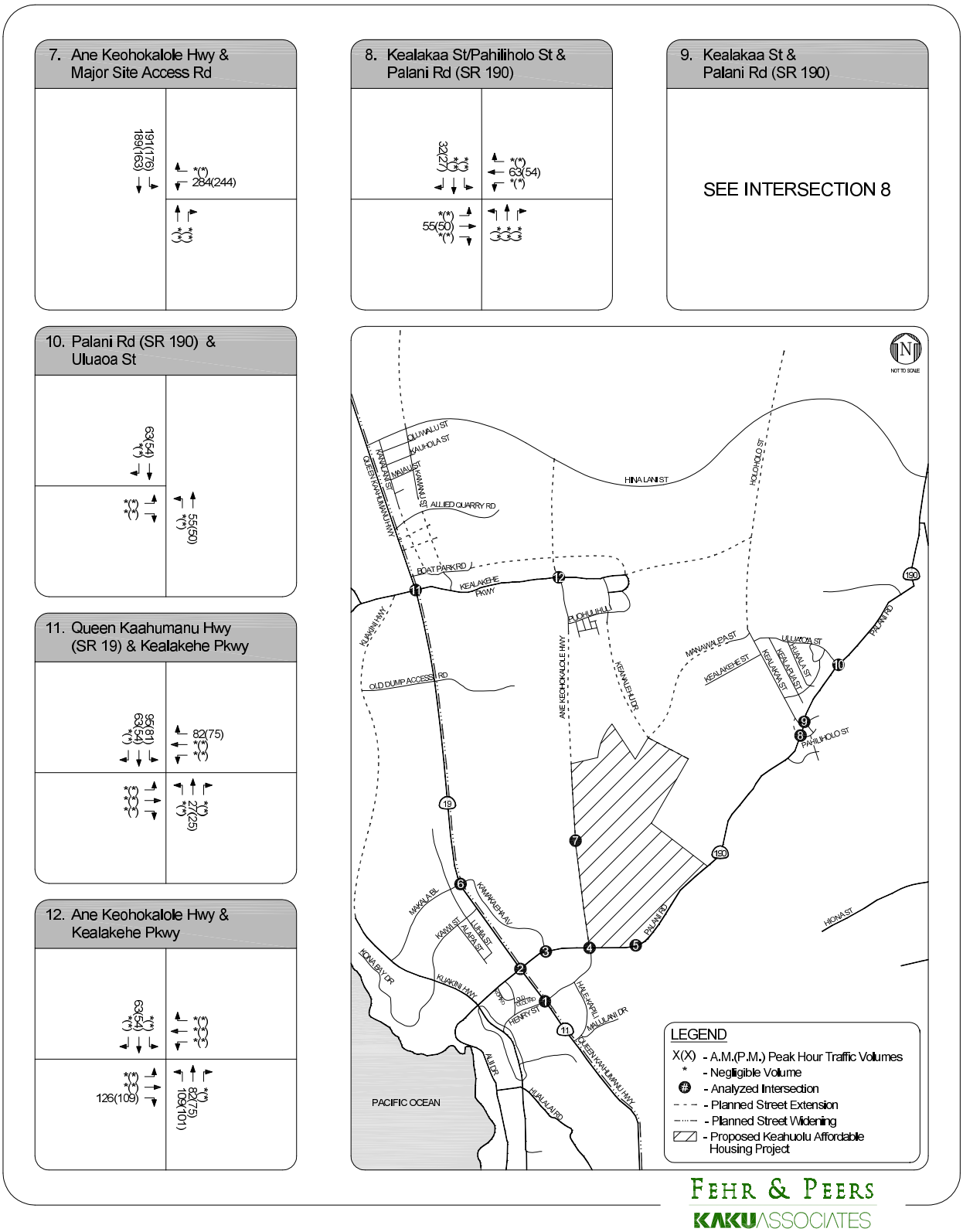

Figure 4-7
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT A (continued)

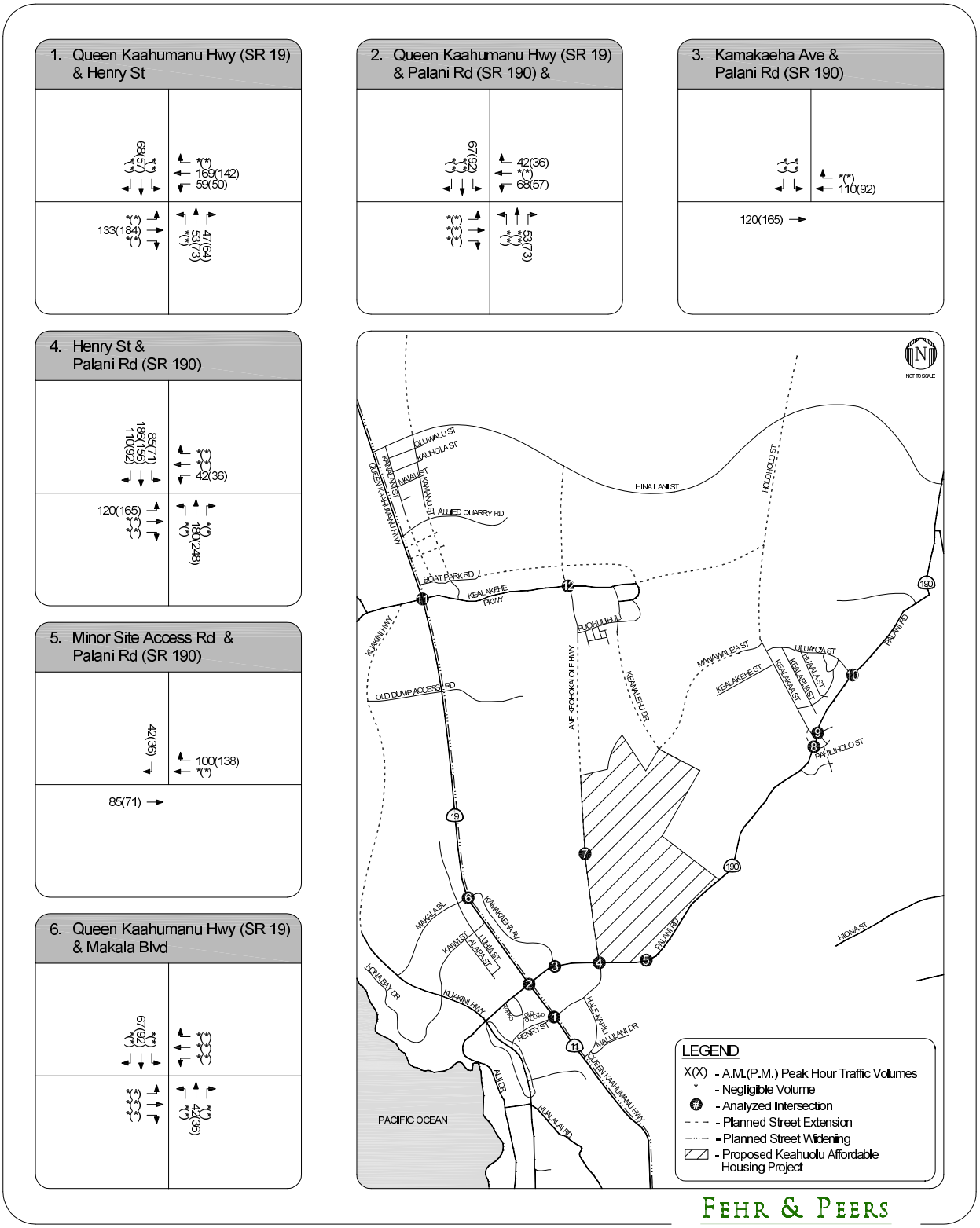

Figure 4-8
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT B

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Environmental Impact Statement
September 2008

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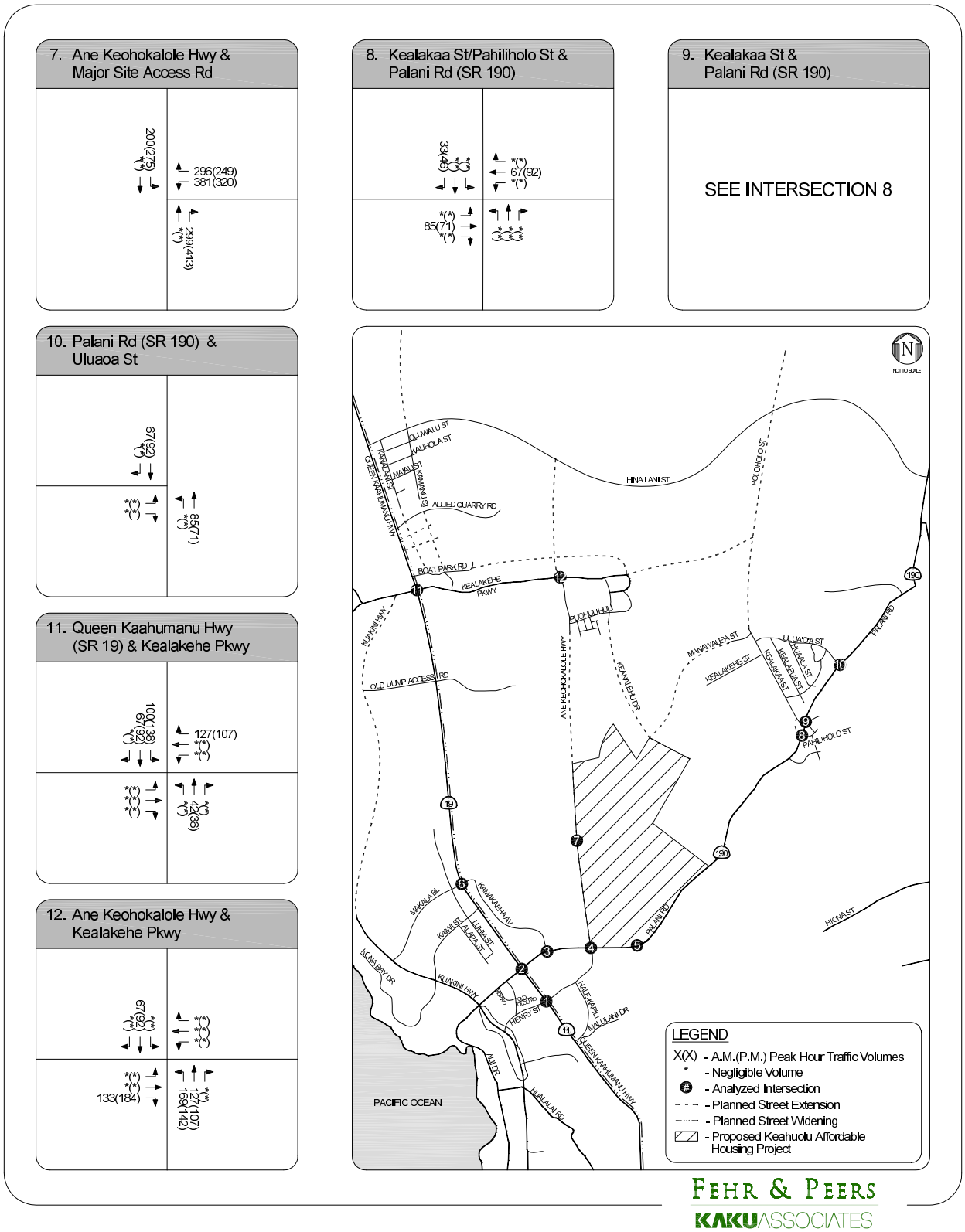

Figure 4-8
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT B (continued)

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Environmental Impact Statement
September 2008

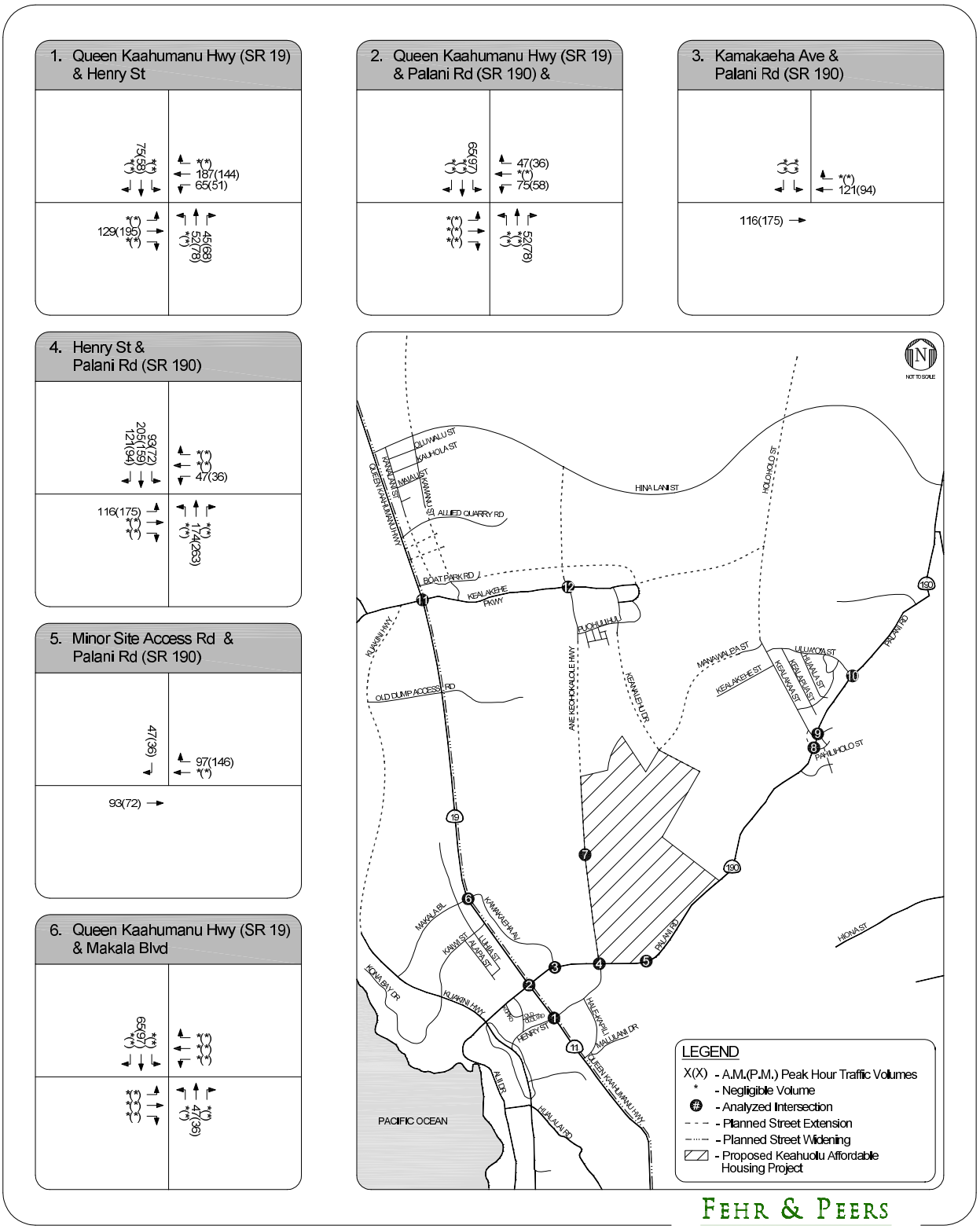

Figure 4-9
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT C

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Environmental Impact Statement
September 2008

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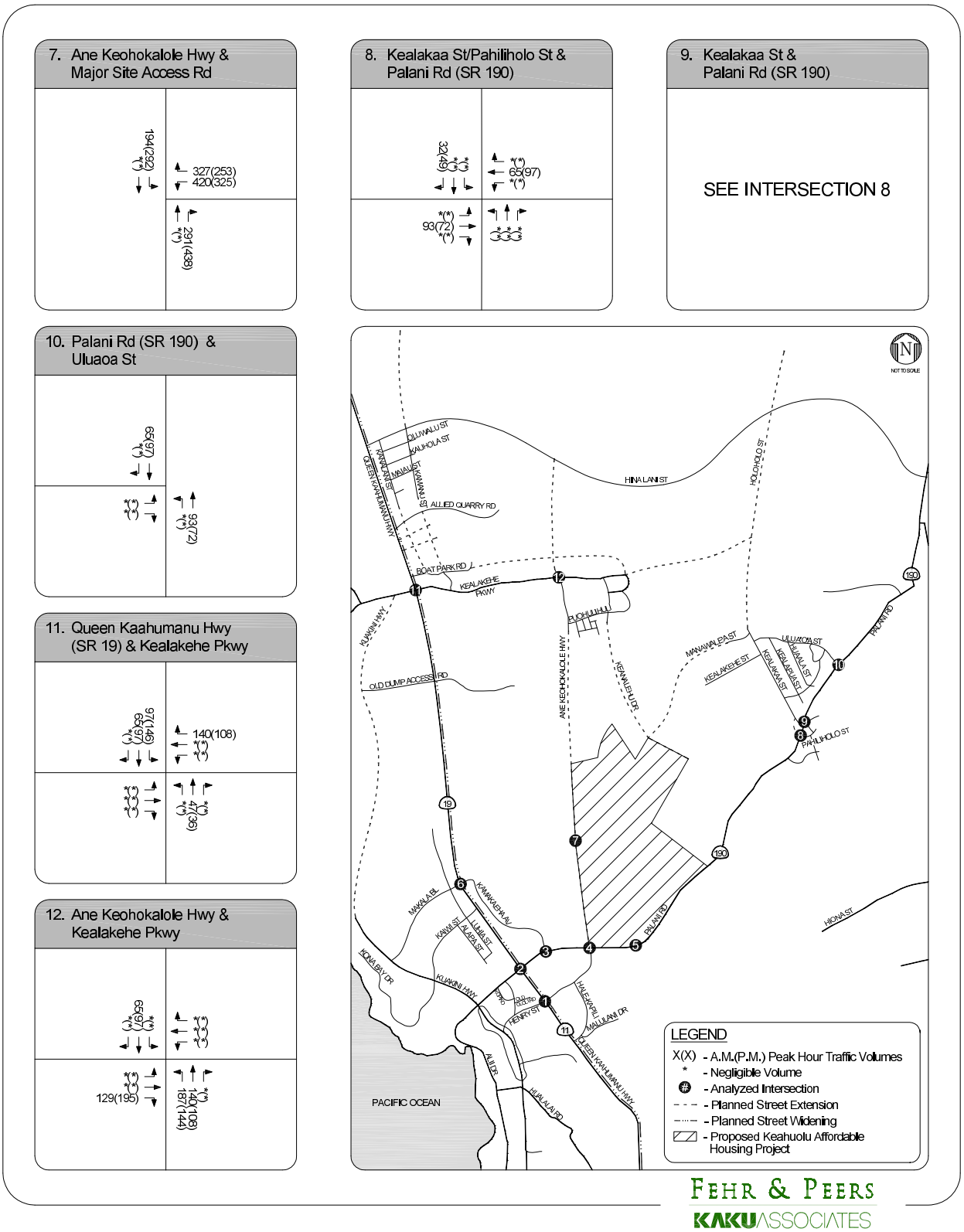

Figure 4-9
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES—CONCEPT C (continued)

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Environmental Impact Statement
September 2008

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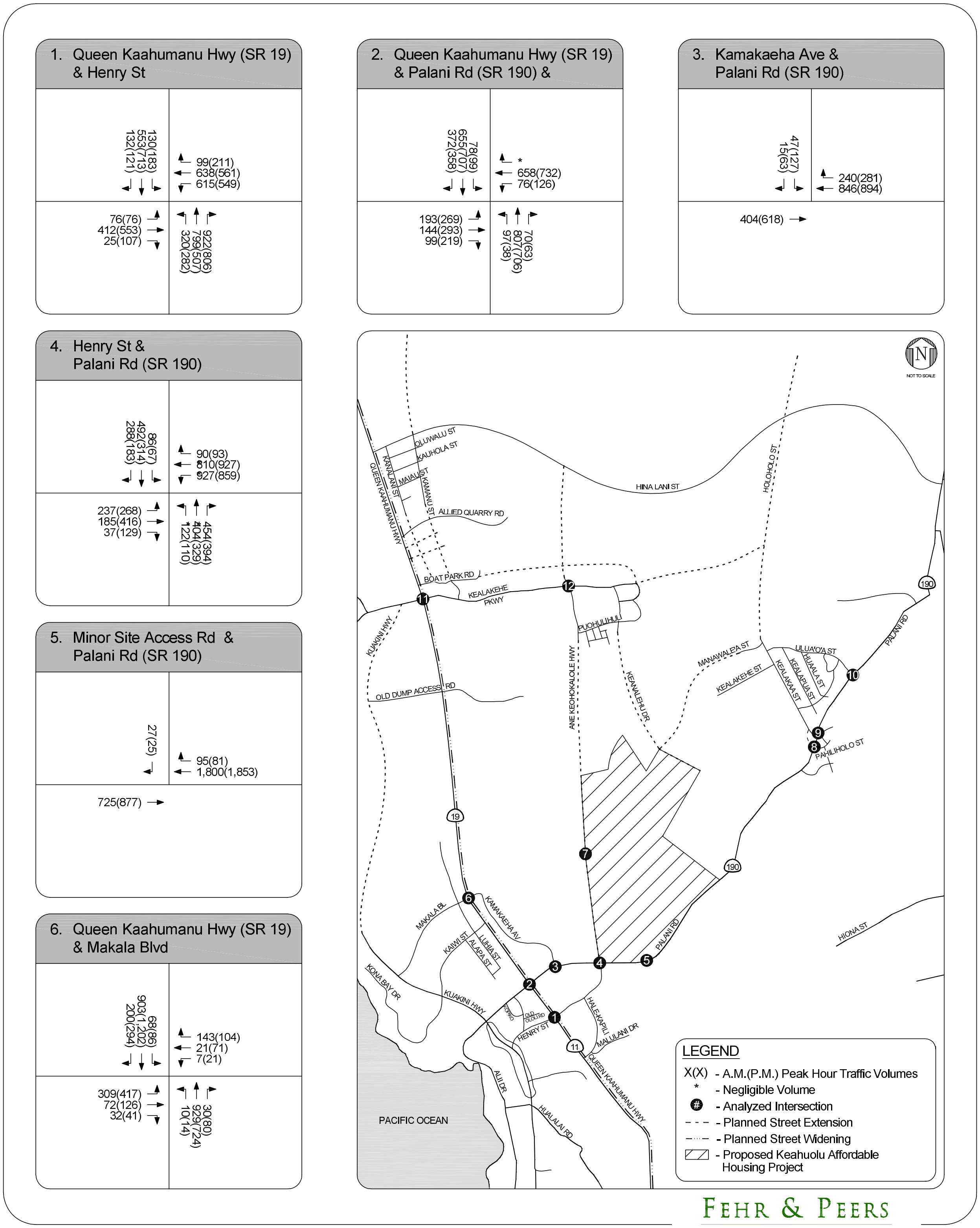

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Figure 4-10
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT A

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Environmental Impact Statement
September 2008

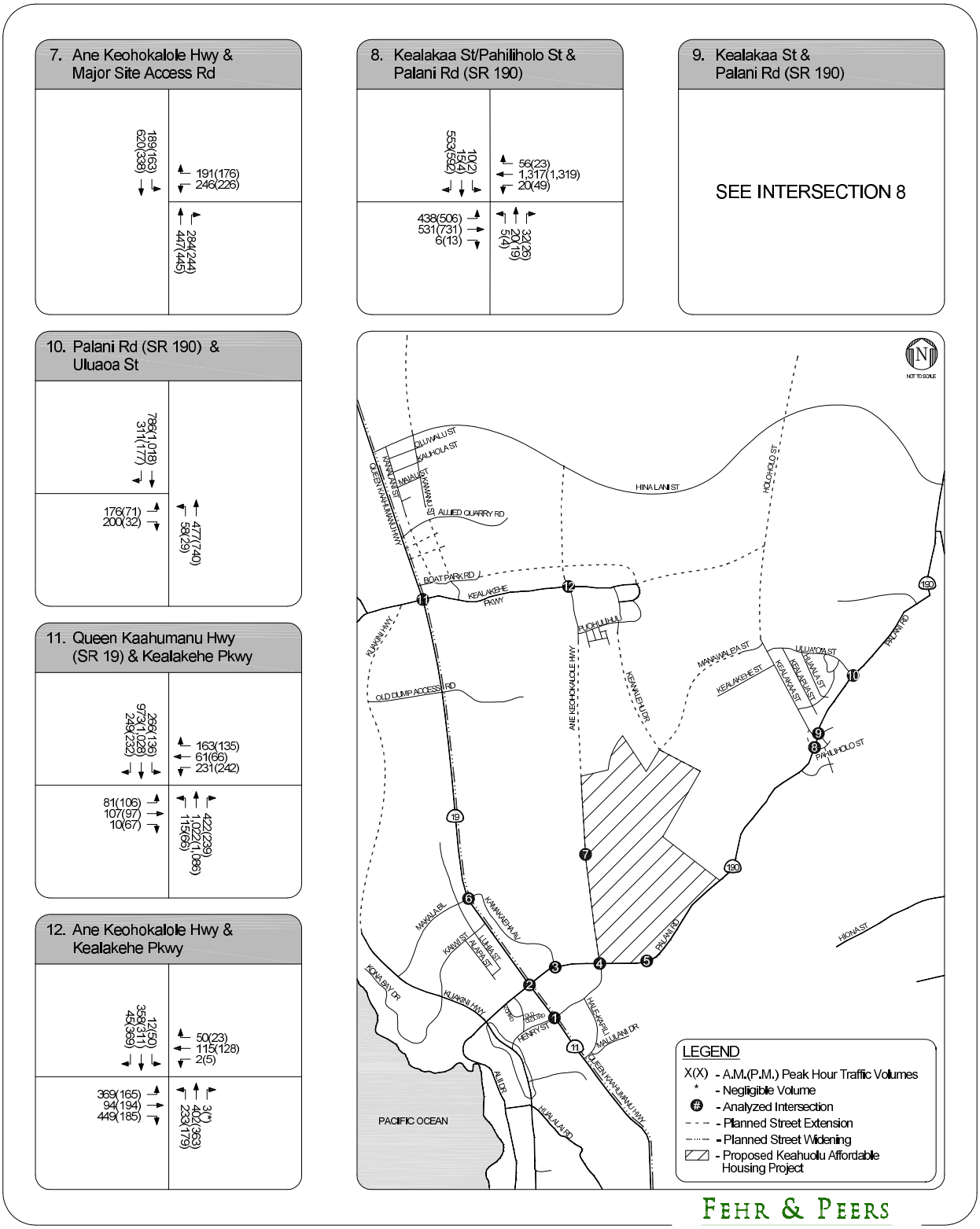

Figure 4-10
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT A (continued)

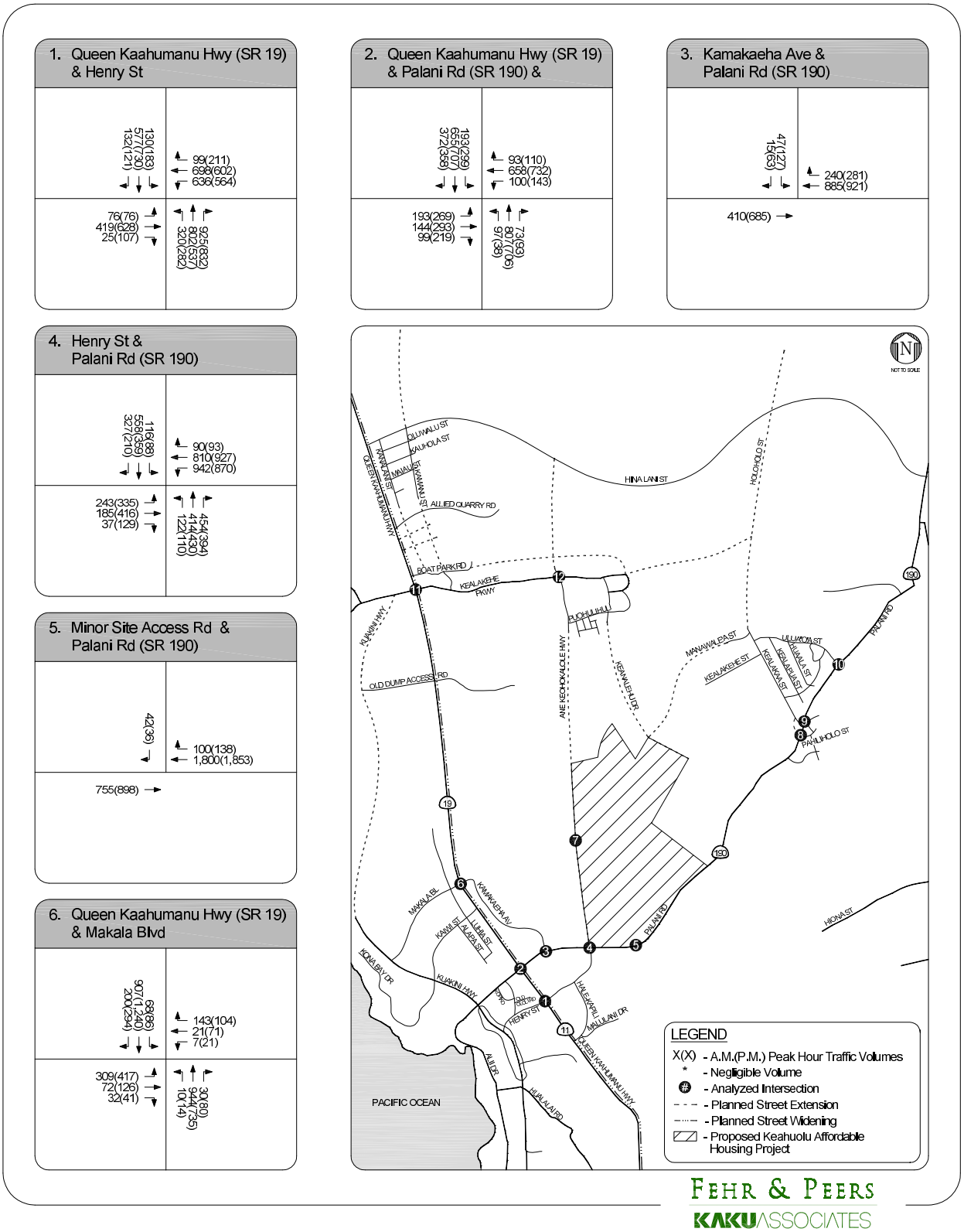

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Figure 4-11
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT B

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Environmental Impact Statement
September 2008

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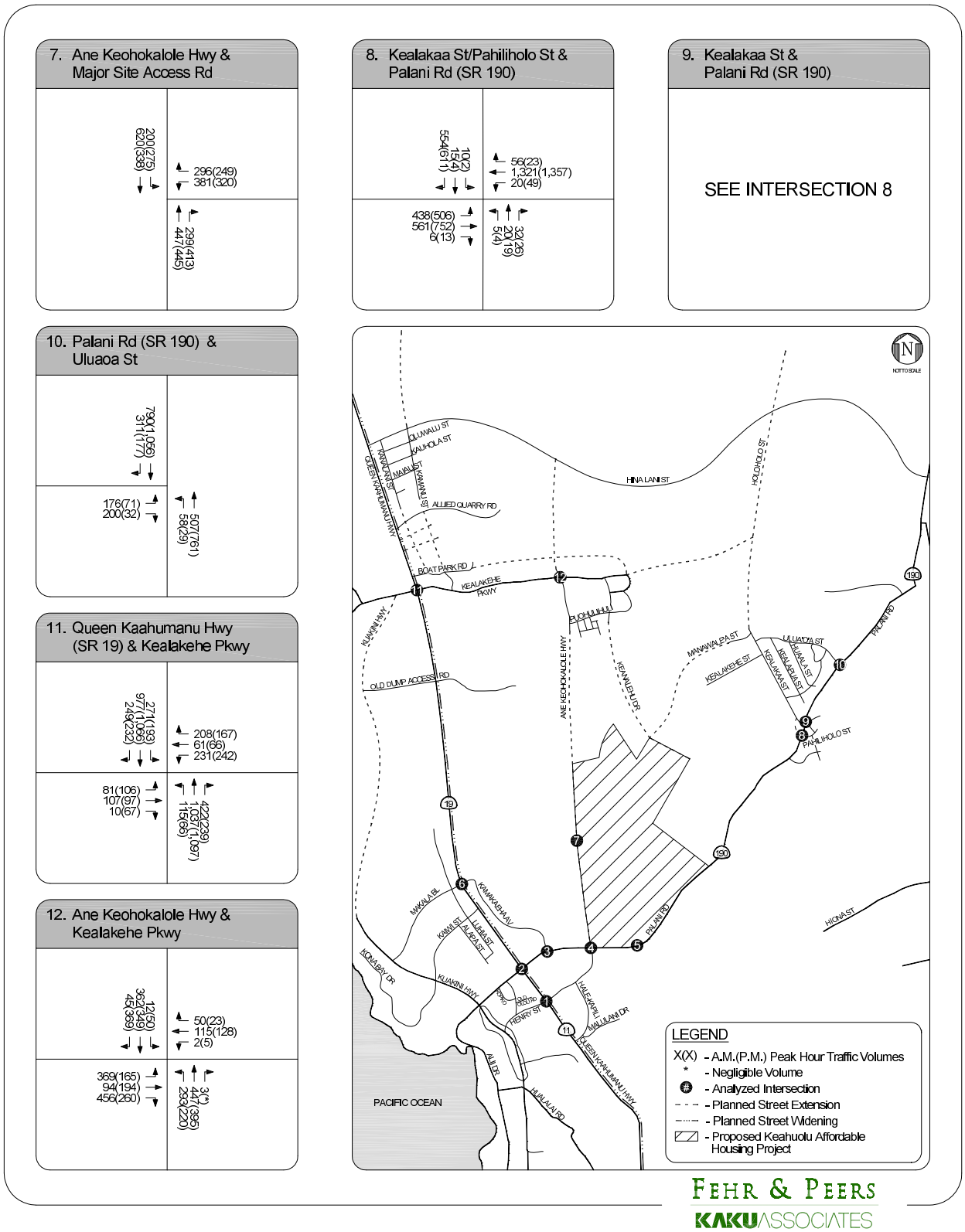

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Figure 4-11
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT B (continued)

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Environmental Impact Statement
September 2008

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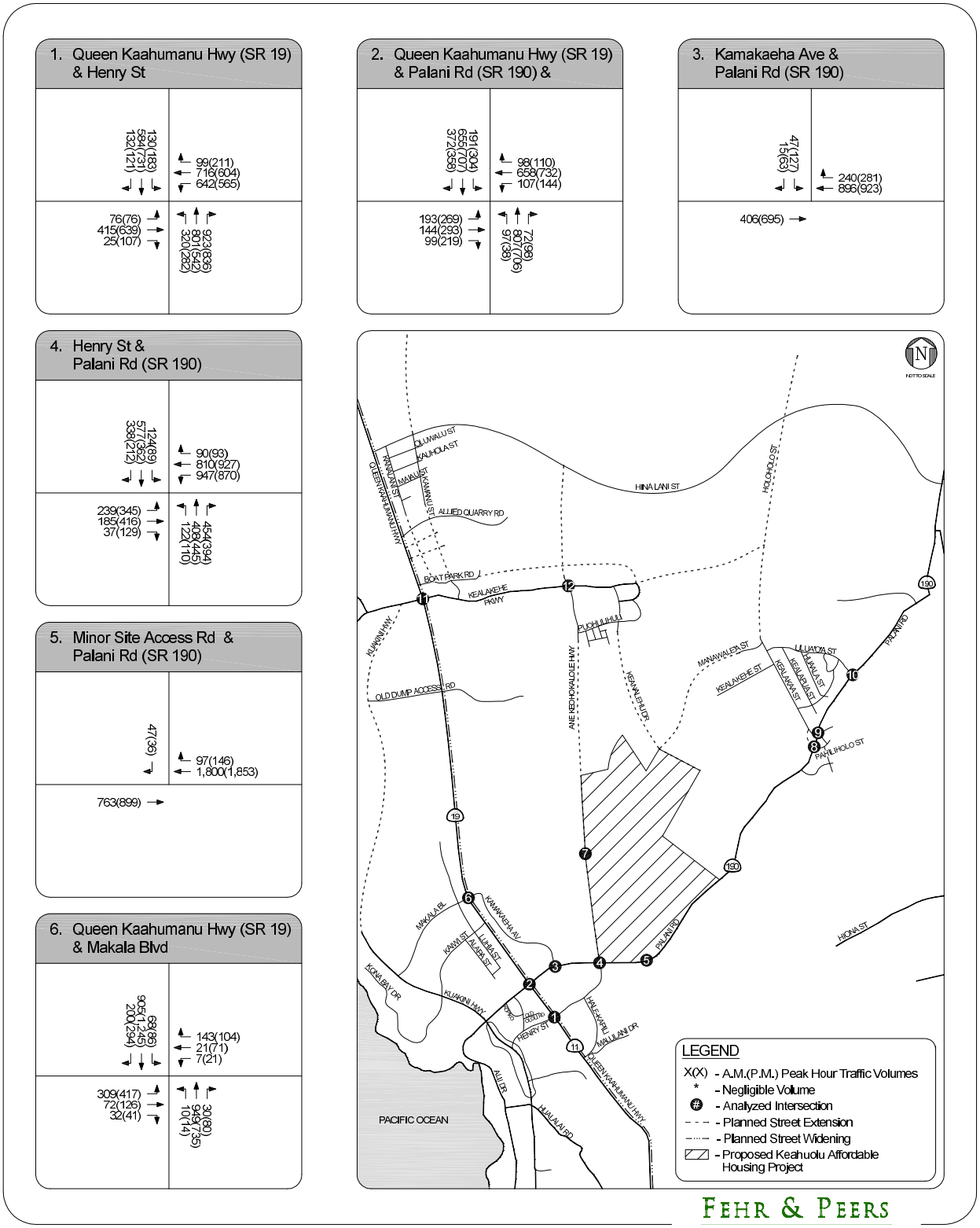

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Figure 4-12
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT C

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Environmental Impact Statement
September 2008

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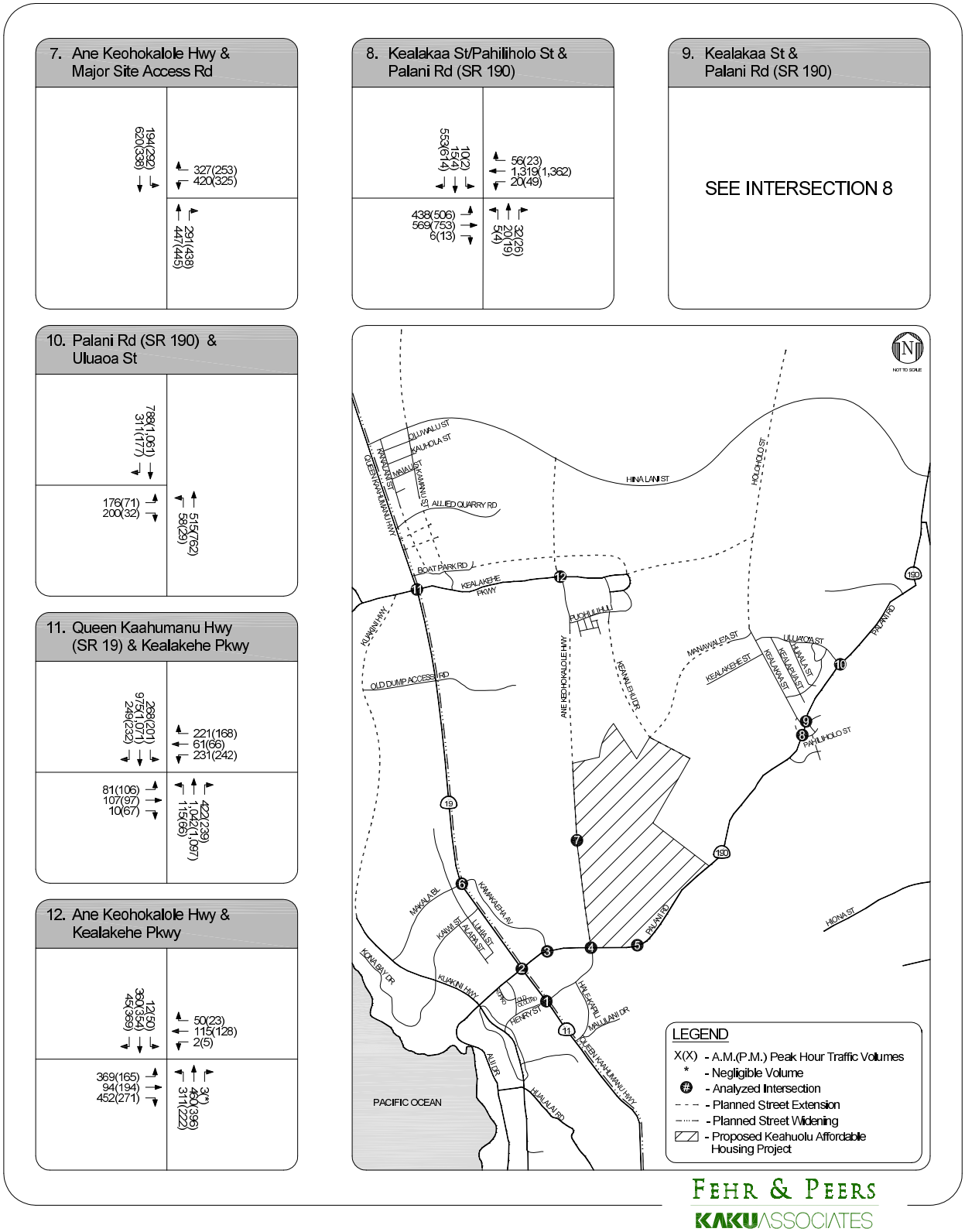

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Figure 4-12
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES—CONCEPT C (continued)

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4.4.5.4 Summary of Potential Impacts at Study Intersections

This section summarizes the potential traffic conditions in the year 2020 at the study intersections under each of the three housing concept alternatives.

Table 4-13~~Table 4-13~~, Table 4-14~~Table 4-14~~, and Table 4-15~~Table 4-15~~ summarize the results of the traffic analysis. As discussed above, because the ongoing improvements at Intersections 8 and 9 will focus most turning movements at Intersection 8, Intersection 8 is analyzed in the future scenarios. The following five intersections are projected to operate at LOS E or F during one or both peak hours in 2020 in the cumulative base analysis:

Study Intersection:

3. Kamakaeha Avenue & Palani Road (SR 190)
4. Henry Street & Palani Road (SR 190)
8. Palani Road (SR 190) & Kealaka‘a Street/Pahiliholo Street
10. Uluaoa Street & Palani Road (SR 190)
12. Kealakehe Parkway & Ane Keohokalole Highway

The remaining study intersections are expected to continue operating at a desirable LOS (LOS D or better) during both peak hours.

The cumulative plus project peak hour traffic volumes are illustrated in Figure 4-10~~Figure 410~~, Figure 4-11~~Figure 411~~, and Figure 4-12~~Figure 412~~, respectively. These figures show 2020 operating conditions with the addition of project-related traffic from Concepts A, B, and C.

The results of the cumulative plus project analysis, as presented in Table 4-13~~Table 4-13~~, Table 4-14~~Table 4-14~~, and Table 4-15~~Table 4-15~~, show that the proposed project would contribute to cumulative impacts (LOS E or F conditions) during one or both peak hours at five study intersections listed below. However, it should be noted that all of the five intersections are already at LOS E or LOS F, even without the proposed project.

Study Intersection:

3. Kamakaeha Avenue & Palani Road (SR 190)
4. Henry Street & Palani Road (SR 190)
8. Palani Road (SR 190) & Kealaka'a Street/Pahiliholo Street
10. Uluaoa Street & Palani Road (SR 190)
12. Kealakehe Parkway & Ane Keohokalole Highway

In addition, project-specific impacts are identified at two future intersections listed below, as the addition of project-generated traffic there would cause them to ~~opearate~~operate below LOS D in the peak hours:

Study Intersection:

5. Palani Road (SR 190) & Minor Site Access Road
7. Ane Keohokalole Highway & Major Site Access Road

The number of traffic impacts would be the same under Concepts A, B and C; however, the magnitude of those impacts would be greatest under Concept C.

4.4.5.5 Proposed Mitigation Measures at Study Intersections

Proposed mitigation would increase the capacity and/or efficiency of the roadway system at locations where the addition of project-related traffic is projected to cause or contribute to poor operating conditions. In developing mitigation, the primary emphasis was to identify physical and/or operational improvements that could be implemented within the existing or planned roadway ROW. The recommended intersection improvement measures are shown in ~~the illustrations~~ Figure 4-13~~413~~ ~~on the following two pages~~ and in Appendix A of the Traffic Report (see Appendix F). Table 4-13~~Table 4-13~~, Table 4-14~~Table 4-14~~, and Table 4-15~~Table 4-15~~ summarize the projected LOS in 2020 at the impacted intersections with these mitigation measures in place.

INTERSECTION LANE CONFIGURATIONS

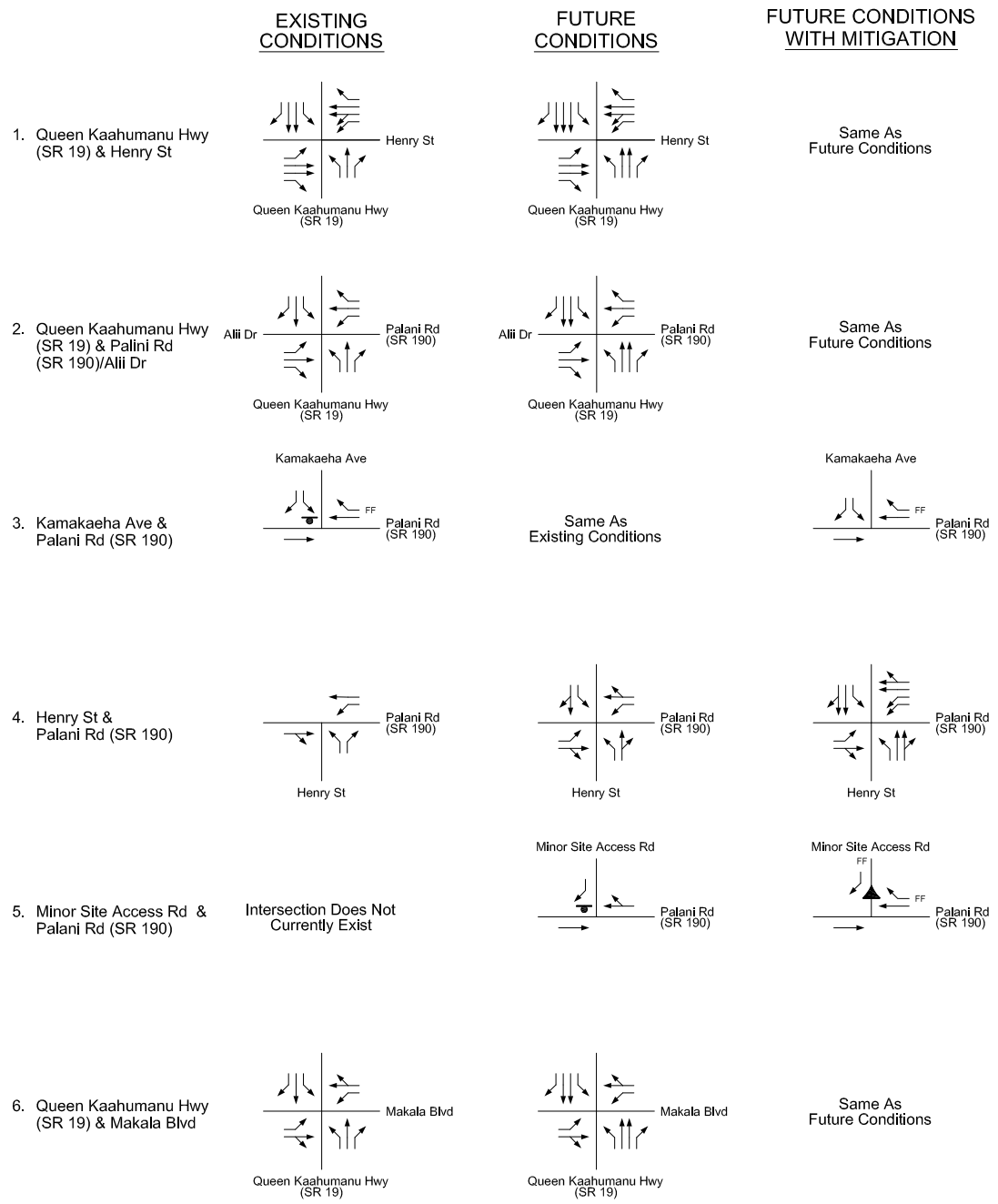

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Figure 4-13
RECOMMENDED INTERSECTION IMPROVEMENT MEASURES

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

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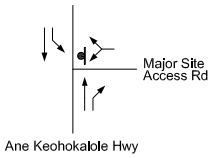
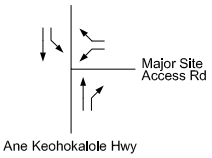
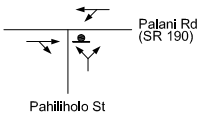
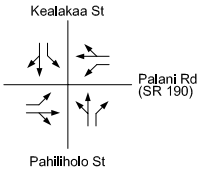
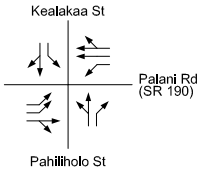
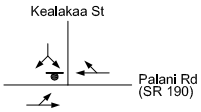
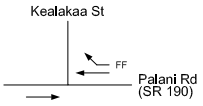
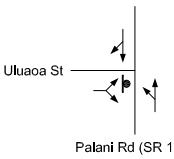
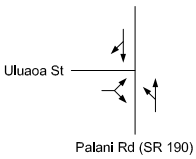
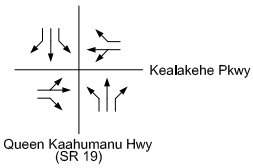
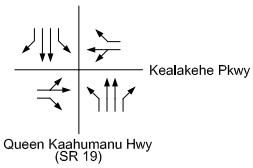
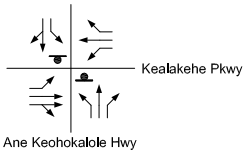
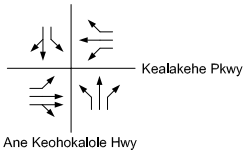
INTERSECTION LANE CONFIGURATIONS

	EXISTING CONDITIONS	FUTURE CONDITIONS	FUTURE CONDITIONS WITH MITIGATION
7. Ane Keohokalole Hwy & Major Site Access Rd	Intersection Does Not Currently Exist		
8. Pahiliholo St & Palani Rd (SR 190)			
9. Kealakaa St & Palani Rd (SR 190)		 See Also Intersection 8	Same As Future Conditions
10. Palani Rd (SR 190) & Uluaoa St		Same As Existing Conditions	
11. Queen Kaahumanu Hwy (SR 19) & Kealakehe Pkwy			Same As Future Conditions
12. Ane Keohokalole Hwy & Kealakehe Pkwy		Same As Existing Conditions	

LEGEND

Stop Controlled

FF Free Flow

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Figure 4-13
RECOMMENDED INTERSECTION IMPROVEMENT MEASURES (continued)

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Table 4-13: Intersection Level of Service Analysis Summary, ~~Keahuolu Affordable Housing Project~~ Future Conditions (2020) - Concept A

Intersections		Peak Hour	CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER	CUMULATIVE PLUS PROJECT WITH MITIGATION (2020)			LOS D OR BETTER
			V/C	Del/Veh*	LOS	V/C	Del/Veh*	LOS		V/C	Del/Veh*	LOS	
1	Queen Ka'ahumanu Hwy (SR 19) & Henry St	A.M. P.M.	0.813 0.819	26 27	C C	0.885 0.881	29 29	C C	YES YES	No mitigation necessary			YES YES
2	Queen Ka'ahumanu Hwy (SR 19) & Palani Rd (SR 190)/Alii Dr	A.M. P.M.	0.873 0.988	33 40	C D	0.914 1.015	35 43	D D	YES YES	No mitigation necessary			YES YES
3	Kamakaeha Av & Palani Rd (SR 190)	A.M. P.M.	NC NC	23 **	C F	NC NC	29 **	D F	YES NO	0.558 0.652	5 10	A B	YES YES
4	Henry St & Palani Rd (SR 190)	A.M. P.M.	1.099 1.248	81 **	F F	1.677 1.340	** **	F F	NO NO	0.833 0.926	32 33	C C	YES YES
5	Minor Site Access Road & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	- -	- -	A A	YES YES
6	Queen Ka'ahumanu Hwy (SR 19) & Makala Bl	A.M. P.M.	0.653 0.769	22 25	C C	0.661 0.787	22 25	C C	YES YES	No mitigation necessary			YES YES
7	Ane Keohokalole Hwy & Major Site Access Road	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	0.579 0.455	16 16	B B	YES YES
8	Kealaka'a St/~~Palihiolo~~ Pahiliholo St & Palani Rd (SR 190) [b]	A.M. P.M.	1.522 1.734	** **	F F	1.638 1.837	** **	F F	NO NO	0.982 1.023	33 41	C D	YES YES
10	Palani Rd (SR 190) & Uluaoa St [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.757 0.725	14 5	B A	YES YES
11	Queen Ka'ahumanu Hwy (SR 19) & Kealakehe Hwy	A.M. P.M.	0.748 0.713	26 24	C C	0.825 0.781	28 25	C C	YES YES	No mitigation necessary			YES YES
12	Ane Keohokalole Hwy & Kealakehe Hwy [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.686 0.583	19 15	B B	YES YES

Note:

* Delay indicates average stopped delay per vehicle in seconds for signalized intersections. The worst case vehicular delay is reported for stop-controlled intersections.

** Indicates oversaturated conditions. Delay cannot be calculated.

NC = Not Calculated

[a] Intersection is controlled by stop signs on the minor approaches.

Table 4-14: Intersection Level of Service Analysis Summary, ~~Keahuolu Affordable Housing Project~~ Future Conditions (2020) - Concept B

	Intersections	Peak Hour	CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER	CUMULATIVE PLUS PROJECT WITH MITIGATION (2020)			LOS D OR BETTER
			V/C	Del/Veh*	LOS	V/C	Del/Veh*	LOS		V/C	Del/Veh*	LOS	
1	Queen Ka'ahumanu Hwy (SR 19) & Henry St	A.M. P.M.	0.813 0.819	26 27	C C	0.890 0.925	29 32	C C	YES YES	No mitigation necessary			YES YES
2	Queen Ka'ahumanu Hwy (SR 19) & Palani Rd (SR 190)/Alii Dr	A.M. P.M.	0.873 0.988	33 40	C D	0.917 1.031	35 46	D D	YES YES	No mitigation necessary			YES YES
3	Kamakaeha Av & Palani Rd (SR 190)	A.M. P.M.	NC NC	23 **	C F	NC NC	31 **	D F	YES NO	0.582 0.669	5 10	A B	YES YES
4	Henry St & Palani Rd (SR 190)	A.M. P.M.	1.099 1.248	81 **	F F	1.691 1.328	** **	F F	NO NO	0.899 1.009	37 41	D D	YES YES
5	Minor Site Access Road & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	- -	- -	A A	YES YES
6	Queen Ka'ahumanu Hwy (SR 19) & Makala Bl	A.M. P.M.	0.653 0.769	22 25	C C	0.666 0.799	22 25	C C	YES YES	No mitigation necessary			YES YES
7	Ane Keohokalole Hwy & Major Site Access Road	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	0.687 0.679	21 19	C B	YES YES
8	Kealaka'a St/~~Palihiolo~~Pahiliholo St & Palani Rd (SR 190) [b]	A.M. P.M.	1.522 1.734	** **	F F	1.647 1.905	** **	F F	NO NO	0.984 1.045	34 45	C D	YES YES
10	Palani Rd (SR 190) & Uluaoa St [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.759 0.746	14 5	B A	YES YES
11	Queen Ka'ahumanu Hwy (SR 19) & Kealakehe Hwy	A.M. P.M.	0.748 0.713	26 24	C C	0.834 0.826	28 26	C C	YES YES	No mitigation necessary			YES YES
12	Ane Keohokalole Hwy & Kealakehe Hwy [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.760 0.634	20 16	C B	YES YES

Note:

* Delay indicates average stopped delay per vehicle in seconds for signalized intersections. The worst case vehicular delay is reported for stop-controlled intersections.

** Indicates oversaturated conditions. Delay cannot be calculated.

NC = Not Calculated

[a] Intersection is controlled by stop signs on the minor approaches.

Table 4-15: Intersection Level of Service Analysis Summary, ~~Keahuolu Affordable Housing Project~~ Future Conditions (2020) - Concept C

	Intersections	Peak Hour	CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER	CUMULATIVE PLUS PROJECT WITH MITIGATION (2020)			LOS D OR BETTER
			V/C	Del/Veh*	LOS	V/C	Del/Veh*	LOS		V/C	Del/Veh*	LOS	
1	Queen Ka'ahumanu Hwy (SR 19) & Henry St	A.M. P.M.	0.813 0.819	26 27	C C	0.887 0.931	29 32	C C	YES YES	No mitigation necessary			YES YES
2	Queen Ka'ahumanu Hwy (SR 19) & Palani Rd (SR 190)/Alii Dr	A.M. P.M.	0.873 0.988	33 40	C D	0.915 1.033	35 46	D D	YES YES	No mitigation necessary			YES YES
3	Kamakaeha Av & Palani Rd (SR 190)	A.M. P.M.	NC NC	23 **	C F	NC NC	37 **	E F	NO NO	0.589 0.670	5 10	A B	YES YES
4	Henry St & Palani Rd (SR 190)	A.M. P.M.	1.099 1.248	81 **	F F	1.726 1.326	** **	F F	NO NO	0.923 1.014	39 42	D D	YES YES
5	Minor Site Access Road & Palani Rd (SR 190) [a]	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	- -	- -	A A	YES YES
6	Queen Ka'ahumanu Hwy (SR 19) & Makala Bl	A.M. P.M.	0.653 0.769	22 25	C C	0.668 0.801	22 25	C C	YES YES	No mitigation necessary			YES YES
7	Ane Keohokalole Hwy & Major Site Access Road	A.M. P.M.	NC NC	NC NC	NC NC	NC NC	** **	F F	NO NO	0.718 0.706	22 19	C B	YES YES
8	Kealaka'a St/~~Palihiolo~~Pahiliholo St & Palani Rd (SR 190) [b]	A.M. P.M.	1.522 1.734	** **	F F	1.644 1.914	** **	F F	NO NO	0.983 1.048	33 46	C D	YES YES
10	Palani Rd (SR 190) & Uluaoa St [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.758 0.749	14 5	B A	YES YES
11	Queen Ka'ahumanu Hwy (SR 19) & Kealakehe Hwy	A.M. P.M.	0.748 0.713	26 24	C C	0.834 0.832	28 26	C C	YES YES	No mitigation necessary			YES YES
12	Ane Keohokalole Hwy & Kealakehe Hwy [a]	A.M. P.M.	NC NC	** **	F F	NC NC	** **	F F	NO NO	0.779 0.640	21 16	C B	YES YES

Note:

* Delay indicates average stopped delay per vehicle in seconds for signalized intersections. The worst case vehicular delay is reported for stop-controlled intersections.

** Indicates oversaturated conditions. Delay cannot be calculated.

NC = Not Calculated

[a] Intersection is controlled by stop signs on the minor approaches.

The recommended mitigation measures to address the identified traffic impacts at study intersections, both project-related and cumulative, are described below. Except at Intersection #5 and #7, all of the proposed mitigation measures would be recommended even without the proposed project. The only measures necessitated or triggered by project-related impacts are at Intersections #5 and #7, as opposed to cumulative impacts to which the project would contribute. Each of the identified project-related impacts would be fully mitigated i.e., the recommended improvements would result in LOS D or better.

- Intersection 3: Kamakaeha Avenue & Palani Road (SR 190) - The intersection of Kamakaeha Avenue & Palani Road (SR 190) could be fully mitigated by installing a traffic signal with the existing lane configuration. Signal warrant analysis was conducted based on the Peak Hour Warrant found in *Manual on Uniform Traffic Control Devices* (MUTCD) (National Committee on Uniform Traffic Control Devices, 2003) and is included in Appendix E of the Traffic Report. It indicates that a traffic signal at the intersection of Kamakaeha Avenue and Palani Road (SR 190) would be warranted under future plus project conditions. Because this intersection is approximately 750 feet mauka of Queen Ka‘ahumanu Highway and approximately 1,400 feet makai of Henry Street, the proposed traffic signal would need to be coordinated with the existing signals at the two adjacent intersections. With the installation of the traffic signal, the intersection of Kamakaeha Avenue and Palani Road (SR 190) would operate at LOS A.
- Intersection 4: Henry Street & Palani Road (SR 190) – The intersection of Henry Street & Palani Road (SR 190) could be fully mitigated by widening the makai-bound approach to provide two left-turn lanes, one through lane, and one shared through/right-turn lane; widening the northbound approach to provide one left-turn lane, one through lane, and one shared through/right-turn lane; and constructing the southbound approach with one left-turn lane, one through lane, and one shared through/right-turn lane. With this configuration, the intersection of Henry Street and Palani Road (SR 190) would operate at LOS D.
- Intersection 5: Palani Road (SR 190) & Minor Site Access Road – The future intersection of Palani Road & Minor Site Access Road would be approximately 1,250 feet mauka of Henry Street and could be fully mitigated by adding a makai-bound deceleration lane into the project site and a makai-bound acceleration lane out from the project, separated by a raised island to channelize traffic. A second makai-bound lane would be added to receive traffic exiting the project site. With this configuration, the intersection would operate at LOS A.
- Intersection 7: Ane Keohokalole Highway & Major Site Access Road – The intersection of Ane Keohokalole Highway & Major Site Access Road could be fully mitigated by installing a traffic signal. The future lane configuration would provide one left-turn lane and one right-turn lane on the makai-bound approach, one through lane and one right-turn lane on the northbound approach, and one left-turn lane and one through lane on the southbound approach. Signal warrant analysis was conducted based on the Peak Hour

Warrant found in the MUTCD and is included in Appendix E of the Traffic Report. It indicates that a traffic signal installation at the intersection of Ane Keohokalole Highway & Major Site Access Road would be warranted under future plus project conditions. With the installation of a traffic signal, the intersection of Ane Keohokalole Highway & Major Site Access Road would operate at LOS C or better.

- Intersection 8: Kealakaʻa Street/Pahiliholo Street & Palani Road (SR 190) – The intersection of Kealakaʻa Street/Pahiliholo Street & Palani Road (SR 190) is under construction, and the future lane configuration is shown in *Palani Road Safety Improvements* (County of Hawaiʻi, August 2005). With the lane configuration shown in that report, the intersection of Kealakaʻa Street/Pahiliholo Street and Palani Road is projected to operate at LOS F during both peak hours in 2020. A mitigation measure was developed that would widen Palani Road to provide one left-turn lane, one through lane, and one shared through/right-turn lane on the southbound approach and two left-turn lanes and one shared through/right-turn lane on the northbound approach. The southbound departure would also be widened to two lanes, which would merge into a single lane downstream of the intersection. While additional ROW may be needed to implement this measure, it does not appear that existing development would preclude its implementation. With these improvements, the intersection is projected to operate at LOS C during the A.M. peak hour and LOS D during the P.M. peak hour.
- Intersection 10: Uluaoa Street & Palani Road (SR 190) – The intersection of Uluaoa Street & Palani Road could be fully mitigated by installing a traffic signal within the existing lane configuration. Signal warrant analysis was conducted based on the Peak Hour Warrant found in the MUTCD is included in Appendix E of the Traffic Report. It indicates that a traffic signal at the intersection of would be warranted under future plus project conditions. With this improvement, the intersection would operate at LOS B and A during the A.M. and P.M. peak hours, respectively.
- Intersection 12: Kealakehe Parkway & Ane Keohokalole Highway – The intersection of Kealakehe Parkway & Ane Keohokalole Highway could be fully mitigated by installing a traffic signal within the existing lane configuration. Signal warrant analysis was conducted based on the Peak Hour Warrant found in the MUTCD and is included in Appendix E of the Traffic Report. It indicates that a traffic signal at the intersection of would be warranted under future plus project conditions. With this improvement, the intersection would operate at LOS C or better in both peak hours.

4.4.5.6 Street Segment Traffic Impact Analysis

As described in Section 4.4.3, "Existing Roadway System Conditions," the existing peak hour volumes at the following 10 street segments were based on traffic counts conducted at adjacent intersections in August 2007, as well as new 24-hour machine counts. The peak hour traffic volumes on the 10 study street segments under existing conditions are shown in Table 4-16~~Table 4-16~~, Table 4-17~~Table 4-17~~, and Table 4-18~~Table 4-18~~.

Study Segments:

1. Henry Street south of Palani Road (SR 190)
2. Palani Road (SR 190) makai (west) of Henry Street
3. Palani Road (SR 190) mauka (east) of Henry Street
4. Kealakaʻa Street north of Palani Road (SR 190)
5. Uluaoa Street north of Palani Road (SR 190)
6. Queen Kaʻahumanu Highway (SR 19) south of Kealakehe Parkway
7. Kealakehe Parkway makai (west) of Ane Keohokalole Highway
8. Ane Keohokalole Highway south of Kealakehe Parkway
9. Queen Kaʻahumanu Highway (SR 19) north of Kealakehe Parkway
10. Palani Road (SR 190) south of Mamalahoa Highway

The roadway facility types were based on their physical characteristics as defined in the *County of Hawaiʻi General Plan* and as described in Table 4-19~~Table 4-19~~. The capacity of each facility was defined as the maximum hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.

Estimates of future peak hour traffic volumes for the 10 street segments were developed by increasing the existing peak hour traffic volumes to reflect the ambient growth and related development projects on the street system in the study area (cumulative base conditions) and then assigning the new project-generated trips using the same geographic distribution pattern described in Section 4.4.5.1 and shown in Figure 4-6~~Figure 46~~. The existing and forecast peak hour street segment traffic volumes are presented in Table 4-16~~Table 4-16~~, Table 4-17~~Table 4-17~~, and Table 4-18~~Table 4-18~~ for Concepts A, B, and C, respectively.

TABLE 4-16 : STREET SEGMENT IMPACT ANALYSIS - CONCEPT A

Segment	Location	Facility Type	Peak Hour	Dir.	EXISTING (2006)			CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER
					Volumes	V/C	LOS	Volumes	V/C	LOS	Volumes	V/C	LOS	
1. Henry Street	south of Palani Road (SR 190)	Secondary Arterial	A.M.	NB	602	0.24	A	891	0.36	A	1,061	0.42	A	YES
				SB	720	0.29	A	1,342	0.54	A	1,489	0.60	A	YES
			P.M.	EB	646	0.26	A	845	0.34	A	992	0.40	A	YES
				WB	670	0.27	A	1,223	0.49	A	1,359	0.54	A	YES
2. Palani Road (SR 190)	makai (west) of Henry Street	Secondary Arterial	A.M.	EB	309	0.25	A	359	0.29	A	473	0.38	A	YES
				WB	636	0.51	A	1,057	0.85	D	1,128	0.90	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,128*	*0.45*	*A*	*YES*
			P.M.	EB	617	0.49	A	639	0.51	A	737	0.59	A	YES
				WB	658	0.53	A	1,133	0.91	E	1,198	0.96	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,198*	*0.48*	*A*	*YES*
3. Palani Road (SR 190)	mauka (east) of Henry Street	Secondary Arterial	A.M.	EB	716	0.57	A	802	0.64	B	857	0.69	B	YES
				WB	1,215	0.97	E	1,815	1.45	F	1,911	1.53	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,911*	*0.76*	*C*	*YES*
			P.M.	EB	982	0.79	C	982	0.79	C	1,032	0.83	D	YES
				WB	949	0.76	C	1,817	1.45	F	1,898	1.52	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,898*	*0.76*	*C*	*YES*
4. Kealakaa Street	north of Palani Road (SR 190)	Local Street (Existing) Secondary Arterial (Future)	A.M.	NB	520	0.87	D	1,034	0.86	D	1,034	0.86	D	YES
				SB	403	0.67	B	949	0.79	C	981	0.82	D	YES
			P.M.	NB	280	0.47	A	828	0.69	B	828	0.69	B	YES
				SB	305	0.51	A	876	0.73	C	903	0.75	C	YES
5. Uluaoa Street	makai (west) of Palani Road (SR 190)	Local Street	A.M.	EB	376	0.63	B	376	0.63	B	376	0.63	B	YES
				WB	301	0.50	A	369	0.62	B	369	0.62	B	YES
			P.M.	EB	113	0.19	A	113	0.19	A	113	0.19	A	YES
				WB	179	0.30	A	217	0.36	A	217	0.36	A	YES
6. Queen Kaahumanu Highway (SR 19)	south of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.64	B	1,545	0.48	A	1,572	0.49	A	YES
				SB	1,124	0.66	B	1,334	0.42	A	1,397	0.44	A	YES
			P.M.	NB	1,013	0.60	A	1,273	0.40	A	1,298	0.41	A	YES
				SB	987	0.58	A	1,376	0.43	A	1,430	0.45	A	YES
7. Kealakehe Parkway	makai (west) of Ane Keohokalole Highway	Secondary Arterial	A.M.	EB	424	0.34	A	707	0.57	A	802	0.64	B	YES
				WB	348	0.28	A	422	0.34	A	504	0.40	A	YES
			P.M.	EB	221	0.18	A	418	0.33	A	499	0.40	A	YES
				WB	382	0.31	A	629	0.50	A	704	0.56	A	YES
8. Ane Keohokalole Highway	south of Kealakehe Parkway	Secondary Arterial	A.M.	NB	241	0.19	A	561	0.45	A	752	0.60	B	YES
				SB	432	0.35	A	744	0.60	A	933	0.75	C	YES
			P.M.	NB	203	0.16	A	511	0.41	A	687	0.55	A	YES
				SB	150	0.12	A	407	0.33	A	570	0.46	A	YES
9. Queen Kaahumanu Highway (SR 19)	north of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.87	D	1,402	0.44	A	1,511	0.47	A	YES
				SB	1,124	0.90	D	1,519	0.47	A	1,677	0.52	A	YES
			P.M.	NB	1,013	0.81	D	1,215	0.38	A	1,315	0.41	A	YES
				SB	987	0.79	C	1,362	0.43	A	1,497	0.47	A	YES
10. Palani Road (SR 190)	south of Mamalahoa Highway	Secondary Arterial	A.M.	NB	541	0.43	A	643	0.51	A	698	0.56	A	YES
				SB	938	0.75	C	1,117	0.89	D	1,180	0.94	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,180*	*0.47*	*A*	*YES*
			P.M.	NB	659	0.53	A	793	0.63	B	843	0.67	B	YES
				SB	929	0.74	C	1,136	0.91	E	1,190	0.95	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,190*	*0.48*	*A*	*YES*

Note: Roadway Capacity for each facility types were assumed in Table 8.

TABLE 4-17 : STREET SEGMENT IMPACT ANALYSIS - CONCEPT B

Segment	Location	Facility Type	Peak Hour	Dir.	EXISTING (2006)			CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER
					Volumes	V/C	LOS	Volumes	V/C	LOS	Volumes	V/C	LOS	
1. Henry Street	south of Palani Road (SR 190)	Secondary Arterial	A.M.	NB	602	0.24	A	891	0.36	A	1,071	0.43	A	YES
				SB	720	0.29	A	1,342	0.54	A	1,570	0.63	B	YES
			P.M.	EB	646	0.26	A	845	0.34	A	1,093	0.44	A	YES
				WB	670	0.27	A	1,223	0.49	A	1,415	0.57	A	YES
2. Palani Road (SR 190)	makai (west) of Henry Street	Secondary Arterial	A.M.	EB	309	0.25	A	359	0.29	A	479	0.38	A	YES
				WB	636	0.51	A	1,057	0.85	D	1,167	0.93	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,167*	*0.47*	*A*	*YES*
			P.M.	EB	617	0.49	A	639	0.51	A	804	0.64	B	YES
				WB	658	0.53	A	1,133	0.91	E	1,225	0.98	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,225*	*0.49*	*A*	*YES*
3. Palani Road (SR 190)	mauka (east) of Henry Street	Secondary Arterial	A.M.	EB	716	0.57	A	802	0.64	B	887	0.71	C	YES
				WB	1,215	0.97	E	1,815	1.45	F	1,915	1.53	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,915*	*0.77*	*C*	*YES*
			P.M.	EB	982	0.79	C	982	0.79	C	1,053	0.84	D	YES
				WB	949	0.76	C	1,817	1.45	F	1,955	1.56	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,955*	*0.78*	*C*	*YES*
4. Kealakaa Street	north of Palani Road (SR 190)	Local Street (Existing) Secondary Arterial (Future)	A.M.	NB	520	0.87	D	1,034	0.86	D	1,034	0.86	D	YES
				SB	403	0.67	B	949	0.79	C	982	0.82	D	YES
			P.M.	NB	280	0.47	A	828	0.69	B	828	0.69	B	YES
				SB	305	0.51	A	876	0.73	C	922	0.77	C	YES
5. Uluaoa Street	makai (west) of Palani Road (SR 190)	Local Street	A.M.	EB	376	0.63	B	376	0.63	B	376	0.63	B	YES
				WB	301	0.50	A	369	0.62	B	369	0.62	B	YES
			P.M.	EB	113	0.19	A	113	0.19	A	113	0.19	A	YES
				WB	179	0.30	A	217	0.36	A	217	0.36	A	YES
6. Queen Kaahumanu Highway (SR 19)	south of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.64	B	1,545	0.48	A	1,587	0.50	A	YES
				SB	1,124	0.66	B	1,334	0.42	A	1,401	0.44	A	YES
			P.M.	NB	1,013	0.60	A	1,273	0.40	A	1,309	0.41	A	YES
				SB	987	0.58	A	1,376	0.43	A	1,468	0.46	A	YES
7. Kealakehe Parkway	makai (west) of Ane Keohokalole Highway	Secondary Arterial	A.M.	EB	424	0.34	A	707	0.57	A	807	0.65	B	YES
				WB	348	0.28	A	422	0.34	A	549	0.44	A	YES
			P.M.	EB	221	0.18	A	418	0.33	A	556	0.44	A	YES
				WB	382	0.31	A	629	0.50	A	736	0.59	A	YES
8. Ane Keohokalole Highway	south of Kealakehe Parkway	Secondary Arterial	A.M.	NB	241	0.19	A	561	0.45	A	857	0.69	B	YES
				SB	432	0.35	A	744	0.60	A	944	0.76	C	YES
			P.M.	NB	203	0.16	A	511	0.41	A	760	0.61	B	YES
				SB	150	0.12	A	407	0.33	A	683	0.55	A	YES
9. Queen Kaahumanu Highway (SR 19)	north of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.87	D	1,402	0.44	A	1,571	0.49	A	YES
				SB	1,124	0.90	D	1,519	0.47	A	1,686	0.53	A	YES
			P.M.	NB	1,013	0.81	D	1,215	0.38	A	1,358	0.42	A	YES
				SB	987	0.79	C	1,362	0.43	A	1,592	0.50	A	YES
10. Palani Road (SR 190)	south of Mamalahoa Highway	Secondary Arterial	A.M.	NB	541	0.43	A	643	0.51	A	728	0.58	A	YES
				SB	938	0.75	C	1,117	0.89	D	1,184	0.95	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,184*	*0.47*	*A*	*YES*
			P.M.	NB	659	0.53	A	793	0.63	B	864	0.69	B	YES
				SB	929	0.74	C	1,136	0.91	E	1,228	0.98	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,228*	*0.49*	*A*	*YES*

Note: Roadway Capacity for each facility types were assumed in Table 8.

TABLE 4- 18 : STREET SEGMENT IMPACT ANALYSIS - CONCEPT C

Segment	Location	Facility Type	Peak Hour	Dir.	EXISTING (2006)			CUMULATIVE BASE (2020)			CUMULATIVE PLUS PROJECT (2020)			LOS D OR BETTER
					Volumes	V/C	LOS	Volumes	V/C	LOS	Volumes	V/C	LOS	
1. Henry Street	south of Palani Road (SR 190)	Secondary Arterial	A.M.	NB	602	0.24	A	891	0.36	A	1,065	0.43	A	YES
				SB	720	0.29	A	1,342	0.54	A	1,594	0.64	B	YES
			P.M.	EB	646	0.26	A	845	0.34	A	1,108	0.44	A	YES
				WB	670	0.27	A	1,223	0.49	A	1,418	0.57	A	YES
2. Palani Road (SR 190)	makai (west) of Henry Street	Secondary Arterial	A.M.	EB	309	0.25	A	359	0.29	A	475	0.38	A	YES
				WB	636	0.51	A	1,057	0.42	A	1,178	0.94	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,178*	*0.47*	*A*	*YES*
			P.M.	EB	617	0.49	A	639	0.51	A	814	0.65	B	YES
				WB	658	0.53	A	1,133	0.45	A	1,227	0.98	E	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,227*	*0.49*	*A*	*YES*
3. Palani Road (SR 190)	mauka (east) of Henry Street	Secondary Arterial	A.M.	EB	716	0.57	A	802	0.64	B	895	0.72	C	YES
				WB	1,215	0.97	E	1,815	0.73	C	1,912	1.53	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,912*	*0.76*	*C*	*YES*
			P.M.	EB	982	0.79	C	982	0.79	C	1,054	0.84	D	YES
				WB	949	0.76	C	1,817	0.73	C	1,963	1.57	F	NO
				WB	*With Mitigation (Second Westbound Lane)*						*1,963*	*0.79*	*C*	*YES*
4. Kealakaa Street	north of Palani Road (SR 190)	Local Street (Existing) Secondary Arterial (Future)	A.M.	NB	520	0.87	D	1,034	0.83	D	1,034	0.83	D	YES
				SB	403	0.67	B	949	0.76	C	981	0.78	C	YES
			P.M.	NB	280	0.47	A	828	0.66	B	828	0.66	B	YES
				SB	305	0.51	A	876	0.70	C	925	0.74	C	YES
5. Uluaoa Street	makai (west) of Palani Road (SR 190)	Local Street	A.M.	EB	376	0.63	B	376	0.63	B	376	0.63	B	YES
				WB	301	0.50	A	369	0.62	B	369	0.62	B	YES
			P.M.	EB	113	0.19	A	113	0.19	A	113	0.19	A	YES
				WB	179	0.30	A	217	0.36	A	217	0.36	A	YES
6. Queen Kaahumanu Highway (SR 19)	south of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.64	B	1,545	0.48	A	1,592	0.50	A	YES
				SB	1,124	0.66	B	1,334	0.42	A	1,399	0.44	A	YES
			P.M.	NB	1,013	0.60	A	1,273	0.40	A	1,309	0.41	A	YES
				SB	987	0.58	A	1,376	0.43	A	1,473	0.46	A	YES
7. Kealakehe Parkway	makai (west) of Ane Keohokalole Highway	Secondary Arterial	A.M.	EB	424	0.34	A	707	0.57	A	804	0.64	B	YES
				WB	348	0.28	A	422	0.34	A	562	0.45	A	YES
			P.M.	EB	221	0.18	A	418	0.33	A	564	0.45	A	YES
				WB	382	0.31	A	629	0.50	A	737	0.59	A	YES
8. Ane Keohokalole Highway	south of Kealakehe Parkway	Secondary Arterial	A.M.	NB	241	0.19	A	561	0.45	A	888	0.71	C	YES
				SB	432	0.35	A	744	0.60	A	938	0.75	C	YES
			P.M.	NB	203	0.16	A	511	0.41	A	763	0.61	B	YES
				SB	150	0.12	A	407	0.33	A	699	0.56	A	YES
9. Queen Kaahumanu Highway (SR 19)	north of Kealakehe Parkway	Primary Arterial 2 Lanes (Existing) 4 Lanes (Future)	A.M.	NB	1,093	0.87	D	1,402	0.44	A	1,589	0.50	A	YES
				SB	1,124	0.90	D	1,519	0.47	A	1,681	0.53	A	YES
			P.M.	NB	1,013	0.81	D	1,215	0.38	A	1,359	0.42	A	YES
				SB	987	0.79	C	1,362	0.43	A	1,605	0.50	A	YES
10. Palani Road (SR 190)	south of Mamalahoa Highway	Secondary Arterial	A.M.	NB	541	0.43	A	643	0.51	A	736	0.59	A	YES
				SB	938	0.75	C	1,117	0.89	D	1,182	0.95	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,182*	*0.47*	*A*	*YES*
			P.M.	NB	659	0.53	A	793	0.63	B	865	0.69	B	YES
				SB	929	0.74	C	1,136	0.91	E	1,233	0.99	E	NO
				SB	*With Mitigation (Second Southbound Lane)*						*1,233*	*0.49*	*A*	*YES*

Note: Roadway Capacity for each facility types were assumed in Table 8.

Table 4-19: Capacity of Facilities

Facility Type*	Definition*	Capacity per lane per hour**
Primary Arterial	Includes major highways, parkways, and primary arterials that move vehicles in large volumes and at higher speeds from one geographic area to another; highest traffic volumes corridor. Designed as a limited access roadway. Primary arterials shall have a minimum ROW of 120 feet.	1,700
Secondary Arterial	A street of considerable continuity that is primarily a traffic artery between or through large areas; interconnect with and augment primary system. Designed as a limited access roadway. Secondary arterials shall have a minimum ROW of 80 feet.	1,250
Major Collector	Any street supplementary to the arterial street system that is a means of transit between this system and smaller areas; used to some extent for through traffic and to access abutting properties; collect and distribute traffic between neighborhood and arterial system. Major collectors shall have a minimum ROW of 60 feet.	800
Local Streets – Commercial/Industrial	Local streets within commercial and industrial areas shall have a minimum ROW of 60 feet.	600
Minor Collector & Local Street	Minor collectors are used at times as through streets and for access to abutting properties. The principal purpose of a local street is to provide access to property abutting the public ROW.	450

* Source: *County of Hawai'i General Plan* Appendix A (County of Hawai'i, February 2005)

** Capacity is based on HCM 2000 methodology.

The number of traffic impacts would be the same under Concepts A, B, and C; however, the magnitude of those impacts would be greatest under Concept C. The mitigation measures described in Section 4.4.5.~~1~~ 5 for study intersections #~~3~~ 4 and #~~4~~ 5 (Henry Street & Palani Road and Minor Site Access Road & Palani Road) would also fully mitigate the identified impacts at street segments #2 and #3 by constructing an additional makai-bound lane on Palani Road.

The southbound segment of street segment #10 (Palani Road south of Mamalahoa Highway) is projected to operate at LOS E during the P.M. without the proposed project in the future, and both A.M. and P.M. peak hours with the proposed project. As mitigation to address this

cumulative impact, to which the project would contribute, the southbound roadway could be widened to provide two lanes. This improvement could be coordinated with and would complement the proposed widening of southbound Palani Road immediately north of this location (between Hina Lani Street and Mamalahoa Highway), identified in the *Final Environmental Impact Statement for the Kula Nei Project* (Belt Collins Hawaii Ltd., September 2007). This widening could be extended to Hao Kuni Street, a distance of approximately 2,000 feet, where the two lanes would merge into the single existing southbound lane. While additional ROW may be needed to implement this measure, it does not appear that existing development would necessarily preclude its implementation, although it is noted that there are three private driveways on the makai side of Palani Road on this segment. With this improvement, the segment of Palani Road south of Mamalahoa Highway would be fully mitigated.

4.4.6 Summary and Conclusions

Estimated Trips Generated

- Concept A is expected to generate approximately 9,953 weekday daily trips, including 1,178 trips during the weekday morning peak hour and 1,046 trips during the weekday afternoon peak hour. Concept B is expected to generate approximately 16,034 weekday daily trips, including 1,511 trips during the weekday morning peak hour and 1,629 trips during the weekday afternoon peak hour. Concept C is expected to generate approximately 17,617 weekday daily trips, including 1,580 trips during the weekday morning peak hour and 1,695 trips during the weekday afternoon peak hour.

Intersections - Peak Hour Capacity Analysis

- Peak hour capacity analyses were conducted for 10 existing and two future intersections in the vicinity of the project site. Seven of 10 existing intersections currently operate at LOS D or better during the weekday peak hours.
- Analysis of projected year 2020 cumulative base conditions, representing future conditions without the proposed project, indicates that five of the analyzed intersections would operate at LOS E or F during the A.M. peak hour, the P.M. peak hour, or both.

- Analysis of projected year 2020 cumulative base plus project conditions indicates that seven of the analyzed intersections would operate at LOS E or F during one or both peak hours. The project would result in two project-specific traffic impacts and would contribute to five cumulative traffic impacts. The number of traffic impacts would be the same under Concepts A, B and C; however, the magnitude of those impacts would be greatest with Concept C.

Street Segments – Peak Hour Capacity Analysis

- Street segment analysis was conducted for 10 street segments. Nine of 10 segments currently operate at LOS D or better during the weekday peak hours.
- Three of the analyzed directional street segments are projected to operate at LOS E or F under 2020 cumulative base conditions, and the project would contribute to cumulative impacts at these three locations. The other seven segments would adequately accommodate the projected increase in volumes during peak hours.

Mitigation Strategies - Intersections

- Mitigation strategies were developed to address the identified deficiencies at the seven study intersections with projected poor levels of service (LOS E or F). Each of the identified cumulative and project-related impacts could be fully mitigated with the recommended improvements.

Mitigation Strategies – Street Segments

- The mitigation measures proposed to address two study intersections would also fully mitigate the identified impacts on two of the three impacted street segments.
- An additional mitigation measure was developed to mitigate the third location, street segment #10. However, this mitigation measure~~s~~ would be recommended even without the proposed project. With these improvements, the identified cumulative street segment impacts, to which the project would contribute, would be fully mitigated.

The Impacts of the Alternatives on Roadways and Traffic

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action		✓		Some improvements to the regional traffic system, such as the mid-level highway, would be required to achieve/maintain the County's desired Level of Service (LOS D) even if the property remains vacant.
2. Alternative A		✓		Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.
3. Alternative B		✓		Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.
4. Alternative C		✓		Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.

4.5 NOISE

Title 11, Chapter 46, of the HAR 11-46 defines maximum permissible sound levels. HAR 11-46 is intended to protect, control, and abate noise pollution from stationary sources and from construction, industrial, and agricultural equipment. It sets maximum permissible sound levels in various zoning districts for excessive noise sources during the day and at night at the property line where the activity occurs, as shown in the following table.

Table 4-20: Maximum Permissible Sound Levels in dBA*

Class	Zoning	Maximum Permissible Sound Level (dBA)	
		Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
A	Residential, conservation, preservation, public space, open space, or similar type	55	45
B	Multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type	60	50
C	Agriculture, country, industrial, or similar type	70	70

*dBA = A-weighted sound level in decibels
Source: HAR 11-46

Except in Class C zoning, the maximum permissible noise at night is 10 dBA less than during the day. For impulsive noise, the State DOH defines the maximum permissible sound level as 10 dBA above the levels specified in the table. Maximum permissible sound levels are not to be exceeded more than 10 percent of the time in a 20-minute period without a permit or variance.

4.5.1 Existing Conditions

The existing dominant noise sources in the vicinity of the Keahuolu Affordable Housing Pproject site are traffic from the area's roadway system, including Palani Road and Queen Ka'ahumanu Highway. Other noise sources include wind moving through vegetation, birds, and fixed source noise. The latter is primarily associated with light industrial activities at the industrial subdivision. Traffic noise tends to dominate all other noise sources in the project area.

4.5.2 Potential Impacts and Mitigation Measures

Construction Activities. Potential impacts on the ambient noise quality of the project site and surrounding area would include to construction activity associated with the development of the Keahuolu Affordable Housing Pproject. These impacts are not considered significant since they would be temporary, and construction work would be conducted in compliance with applicable DOH noise regulations.

Construction activities will involve grubbing and grading of the site and construction of infrastructure and buildings. Noise levels associated with construction equipment typically range from 80 to 95 dBA at 50 feet from the source. Varying in location and duration, noise levels may be continuous (e.g., generator motors), fluctuating (e.g., crane operations), or impulsive (e.g., metal drill pipes banging together).

Development of the Keahuolu Affordable Housing Pproject will involve site preparation activities, such as excavation and grading, and construction of the new buildings and infrastructure. The dominant noise sources during construction will be earth moving equipment such as bulldozers and trucks. Some area residences may be temporarily impacted by construction noise depending on their proximity to the project site.

Measures to minimize noise impacts may include limiting work to daytime hours, reducing truck/equipment idling when not in use, using manually adjustable or self-adjusting backup alarms, and fitting generators and equipment with manufacturer-approved exhaust mufflers. Noise from construction activity will be short-term and will be required to comply with DOH noise regulations.

Roadway Traffic Noise. The increase in traffic-related noise associated with the Keahuou Affordable Housing Pproject is not anticipated to be significant. To buffer the project from the Ane Keohokalole Highway, the conceptual plans for the project provide for commercial uses along the highway and a wide landscaped greenway between the highway and the project site.

Residential and commercial uses within the Keahuolu project site will be required to conform to DOH rules and regulations for noise, which state maximum allowable noise limits at property lines.

The Impacts of the Alternatives on Noise

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			The No Action Alternative would have no impacts on noise quality.
2. Alternative A		✓		Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.
3. Alternative B		✓		Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.
4. Alternative C		✓		Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.

4.6 AIR QUALITY

4.6.1 Existing Conditions

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. State and national ~~Ambient Air Quality Standards (~~AAQS~~)~~ are established to regulate ambient concentrations of particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead. In addition, the State has set a standard for hydrogen sulfide. Hawai'i's AAQS for nitrogen dioxide and carbon monoxide are more stringent than the national standards, while the AAQS for the other parameters are comparable.

Except for periodic impacts from volcanic emissions (vog) and possibly localized traffic congestion, air quality in the Keahuolu project area is relatively good. Limited air quality data available from the State DOH indicate that, despite the vog, concentrations are well within state and national air quality standards.

The present air quality in the project area is mostly affected by air pollutants from natural, industrial, agricultural, and/or vehicular sources. Natural sources that may affect the project area, but cannot be accurately quantified, include the ocean (salt spray), plants (aeroallergens), wind-blown dust, and volcanoes. Of these natural sources, volcanoes are the most significant, especially since the latest eruption phase of Kilauea Volcano began in 1983, and still continues. Air pollution emissions from the volcano consist primarily of sulfur dioxide and are carried to the project area by prevailing winds. The volcanic emissions are seen in the form of a vog ~~which~~ that persistently hangs over a majority of the West Hawai'i area.

The major industrial sources of air pollutants in the project area include the Keahole Power Plant, operated by ~~Hawaii Electric Light Company (~~HELCo~~)~~. Air pollution from the power plant consists mostly of sulfur dioxide and oxides of nitrogen.

The State DOH operates a network of air quality monitoring stations, but very limited data are available for the island of Hawai'i, and even less for the Kona area. Monitoring at Kealakekua between 2000 and 2004 showed consistently low concentrations of sulfur dioxide and particulates.

There are no reported measurements of motor ~~vehicle~~ vehicle-related air pollutants in the project vicinity (i.e., lead, ozone, nitrogen dioxide, carbon monoxide). Lead, ozone, and nitrogen dioxide are typically regional-scale problems. Concentrations of lead and nitrogen dioxide have not been found to exceed AAQS elsewhere in the state. However, ozone concentrations at Sand Island on O'ahu have been found at times to exceed state standards.

4.6.2 Potential Impacts and Mitigation Measures

Construction Activities. Short-term direct and indirect impacts on air quality could potentially occur during project construction. Direct impacts could include (1) fugitive dust from vehicle movement and soil excavation, and (2) exhaust emissions from on-site construction equipment. Indirect impacts could also result from slow-moving construction equipment travelling to and from the project site and from a temporary increase in local traffic caused by commuting construction workers.

State of Hawai'i Air Pollution Control regulations prohibit visible emissions of fugitive dust from construction activities at the property line. A dust control program will be developed and followed to control dust from construction activities. Fugitive dust emissions can be controlled to a large extent by watering active work areas, using wind screens, keeping adjacent paved roads clean, and covering open-bodied trucks. Other measures include limiting the area to be disturbed at any given time, mulching or chemically stabilizing inactive areas, or paving and landscaping areas early in the construction schedule. Monitoring dust at the project boundary could be considered to evaluate the effectiveness of the dust control program.

The largest mobile and stationary construction equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively higher than gasoline-powered equipment. However, the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are very low and should be relatively insignificant.

Roadway Traffic. Once construction is completed, motor vehicle traffic to and from the Keahuolu project site would result in a long-term increase in vehicular emissions. However, due

to a combination of Hawai'i's weather patterns and tradewinds and the national standards imposed on lowering vehicles' emissions, concentrations are expected to remain well within state and federal ~~Ambient Air Quality standards~~AAQS.

Electrical Demand and Solid Waste Disposal. The proposed project may also result in long-term air quality impacts due to electrical generation required to support the proposed project. The Keahole plant, however, is required to obtain State DOH permits and demonstrate that state and federal air quality standards are met. Therefore, no significant long-term impacts to air quality due to electrical generation are anticipated.

The Impacts of the Alternatives on Air Quality

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			The No Action Alternative would have no impacts on air quality.
2. Alternative A	✓			Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term ~~traffic~~ traffic-related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.
3. Alternative B	✓			Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term ~~traffic~~ traffic-related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.
4. Alternative C	✓			Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term ~~traffic~~ traffic-related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.

4.7 VISUAL RESOURCES

4.7.1 Existing Conditions

The present visual character of the project lands from Queen Ka‘ahumanu Highway looking mauka can be characterized as gently upward sloping land, lava fields with dense stands of kiawe, stands of various grasses, and a backdrop of Hualalai and residential uses bordering the project land. The mauka and makai views across the project lands from the upper elevations at Palani Road are similar with the exception that the Pacific Ocean and Kailua town form the backdrop of the views looking makai. The visual character of the adjacent off-site reservoir location is similar to the project site. The property is presently undeveloped land overgrown with scrub forest that includes trees and dense undergrowth. Views of the project lands from neighboring properties are generally obscured by the existing vegetation. It is not typically possible to see beyond the perimeter of the property to the interior.

4.7.2 Potential Impacts and Mitigation Measures

Development of the project site and the proposed reservoir site will result in the replacement of vegetation land with homes and landscaping, commercial development, and related infrastructure such as internal roadways. The project development will become visible from Palani Road and the existing neighboring developments. The proposed reservoir storage tank would be visible from neighboring properties and from the project site. From vantage points located mauka and makai of the site, the property will appear as a continuation of the development in the Kailua-Kona area.

The visual character of the proposed project will be determined by the final development scheme of the selected developer. In general, the project may be comprised of a mix of low-rise and mid-rise residential, mixed-use and commercial development. No mitigation measures are proposed at this time.

The Impacts of the Alternatives on Visual Resources

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			The No Action Alternative would have no impacts on visual resources.
2. Alternative A		✓		The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.
3. Alternative B		✓		The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.
4. Alternative C		✓		The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.

4.8 INFRASTRUCTURE AND UTILITIES

Belt Collins Hawaii prepared a civil infrastructure report and related cost estimates for the Keahuolu Affordable Housing Pproject. The report is summarized in the following sections. All costs presented are in 2007 dollars. The complete report is included in Appendix G.

This section discusses the infrastructure requirements for the three alternative development concepts, which provide a variety of medium and high density multi-family units and low density single-family units. The residential units are located on approximately 162 acres in all three concepts. Residential floor areas are anticipated to range for single-family units from 1,000 to 2,000 square feet, and for multi-family units from 400 to 1,500 square feet in size.

The land use elements of the alternative development concepts that have been assessed for this section include: affordable housing units, market housing units, commercial area, a school site, a community park, roadways, and preservation of archaeological and cultural sites. Infrastructure facilities required to support the development include roads, drainage facilities, a ~~potable~~ drinking water system, a wastewater collection system, an electrical system, a telephone system, and a cable television system. The three alternative development concepts with varying dwelling unit densities and the projected timelines are summarized in Table 4-21, Table 4-22, and Table 4-23. Table 4-24 provides a breakdown of the units and densities.

Table 4-21: Alternative Concept Plan A

Year	Land Use		
	Residential Units (multifamily/single family)	Commercial/Retail (SF)	School (SF)
2010	200 / 100		
2011	200 / 100		
2012	200 / 100		
2013	20 / 100		8,700
2014			
2015			
2016			
2017			
2018		100,000	
2019			
2020		97,000	
Total	**1,020**	**197,000**	**8,700**

Table 4-22: Alternative Concept Plan B

Year	Land Use		
	Residential Units (multifamily/single family)	Commercial/Retail (SF)	School (SF)
2010	200 / 100		
2011	200 / 100		
2012	200 / 100		
2013	200 / 100		8,700
2014	200 / 100		
2015	200 / 100		
2016	40 / 0		
2017			
2018		100,000	
2019			
2020		97,000	
Total	**1,840**	**197,000**	**8,700**

Table 4-23: Alternative Concept Plan C

Year	Land Use		
	Residential Units (multifamily)	Commercial/Retail (SF)	School (SF)
2010	300		
2011	300		
2012	300		
2013	300		8,700
2014	300		
2015	300		
2016	300		
2017	230		
2018		100,000	
2019			
2020		97,000	
Total	**2,330**	**197,000**	**8,700**

Table 4-24: Alternative Concepts – Units and Densities

	Alternative Concepts		
	A	B	C
Residential Units			
High density – multi-family	400	800	800
Medium density – multi-family	220	440	1,530
Low density – single-family	400	600	0
Total	**1,020**	**1,840**	**2,330**
Density (dwelling units per acre)			
High density – multi-family	12	24	24
Medium density – multi-family	8	16	12
Low density – single-family	4	6	n/a
Commercial/retail	**197,000 SF**	**197,000 SF**	**197,000 SF**

Infrastructure for the proposed project would be built over an approximately 12-year period as the project site is developed. Construction is anticipated to begin in 2008/2009 and provide the required infrastructure for the initial stages of development in 2010. From 2010 until 2020, the infrastructure would be expanded to accommodate the entire project. Construction of the proposed development is anticipated to be completed by 2020.

4.8.1 Roadway System

4.8.1.1 Existing Conditions

Palani Road is the only existing road bordering the project, along the southern boundary. The proposed Ane Keohokalole Highway would border the project along the makai boundary, and the proposed Keanalehu Drive would border the project along the mauka boundary. Keanalehu Drive and Manawale‘a Street, along the northern-mauka tip of the project, are currently under construction with a projected completion date of late 2008.

4.8.1.2 Proposed Roadway System, Potential Impacts, and Mitigation Measures

Off-Site Roadway System

The County’s proposed Ane Keohokalole Highway is key to full buildout of the Keahuolu project. Without Ane Keohokalole Highway, vehicular access to the site would be limited to Keanalehu Drive and one possible connection to Palani Road. (See Figure 4-14414).

Ane Keohokalole Highway would be a minor arterial with a 120-foot-wide ROW and posted speed limit of 35 miles per hour. Two lanes are proposed in each direction. The County plans to designate the highway as a bus transit corridor. A regional bus transit stop at the Ane Keohokalole Highway/Makala Boulevard intersection fronting the Keahuolu project is proposed. Bus stops are also proposed on Ane Keohokalole Highway for local circulators serving the mauka and makai neighborhoods.

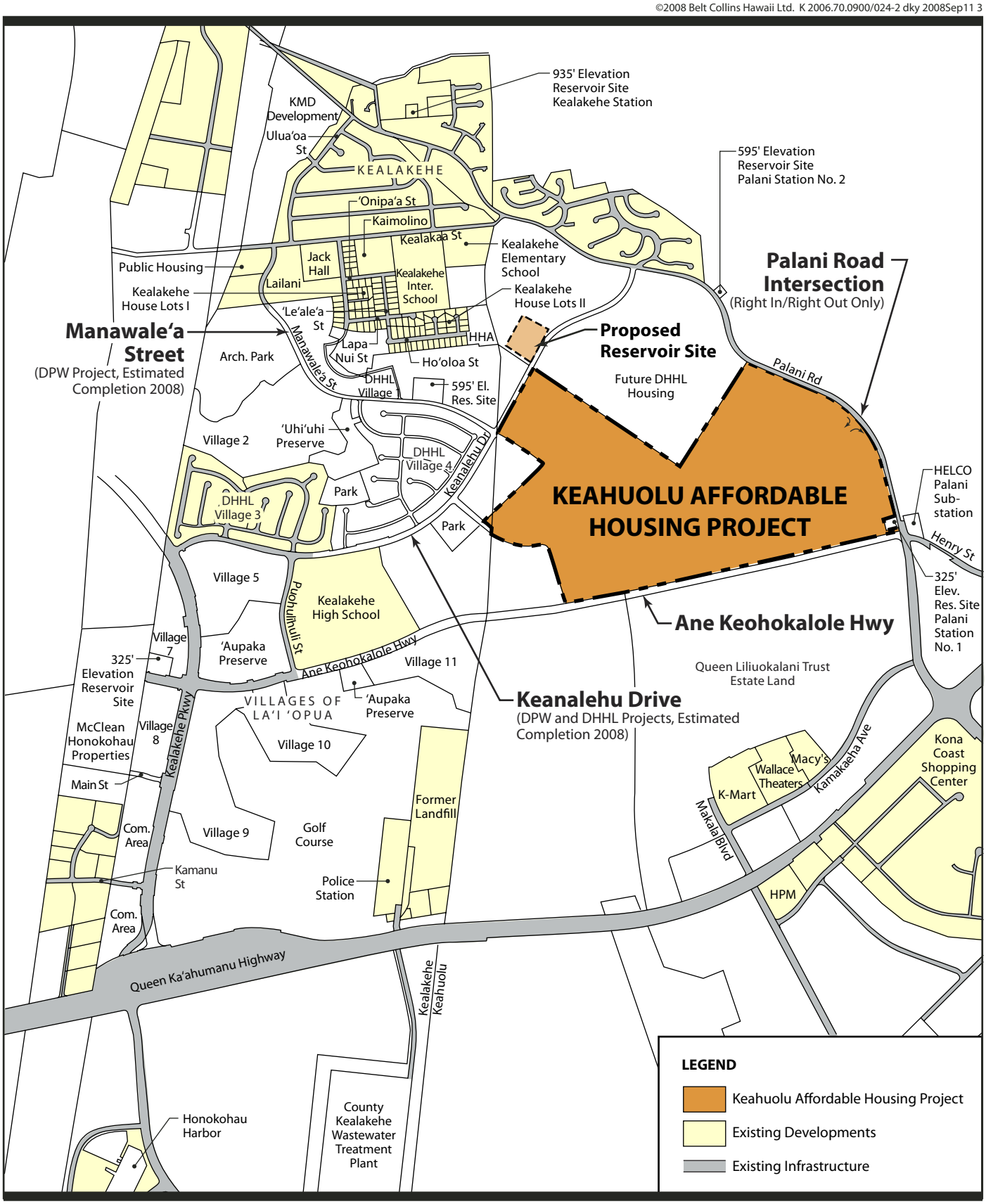

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Figure 4-14
ROAD SYSTEM

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Environmental Impact Statement
September 2008

Landowners with frontage to Ane Keohokalole Highway would be expected to share in the cost of constructing the highway. The projected order-of-magnitude cost of the portion fronting the project property, including one lane in each direction plus a middle turn lane with drainage but excluding other utilities, would be $13,633,000. For planning purposes, the project would be allocated responsibility for half of this off-site road improvement cost, or $6,816,500. This estimate would be the same for Concepts A, B, and C. For details on the road cost, see the civil infrastructure report in Appendix G.

A right-in/right-out intersection is proposed along Palani Road. To minimize impacts on traffic along Palani Road, the intersection would include deceleration and acceleration lanes and a raised median to prevent vehicles from attempting to make left turn movements. The order-of-magnitude cost for the Palani Road intersection would be $1,306,000.

Internal Road System

Keahuolu's internal roadways would be ~~pedestrian~~ pedestrian-friendly streets, which accommodate cars, bicycles, and pedestrians. The roadways would be designed to County DPW standards for dedication to the County. The layout of the internal roads would be determined by the developer to coordinate with the development concept. Based on the concept plan, an order-of-magnitude cost for the internal roadways, including water, sewer, drainage, electric, telephone and cable television utilities is $122,725,000.

Potential Short-Term and Long-Term Impacts and Mitigative Measures

No significant short-term environmental impacts are anticipated from the development of the roadways associated with this project. Construction will be carried out in compliance with applicable regulations to minimize impacts, including best management practices. The long-term impacts of the proposed roads would not be significant. The traffic impacts associated with the Keahuolu Affordable Housing P~~p~~roject are assessed in Section 4.4 of this document.

Table 4-25: Estimated Project Roadway Improvement Costs

Concept	Ane Keohokalole Hwy	Palani Road Intersection	Internal Roadways	Total Roadways Costs
A	$6,816,500 *	$1,306,000	$122,725,000	$130,847,500
B	$6,816,500 *	$1,306,000	$122,725,000	$130,847,500
C	$6,816,500 *	$1,306,000	$122,725,000	$130,847,500

* Assumes a 50 percent share in the cost of off-site road improvements of Ane Keohokalole Highway along the project site's frontage. All costs in 2007 dollars.

4.8.2 Drainage Facilities

4.8.2.1 Existing Conditions

There are currently no existing drainage facilities and no defined natural drainage ways on-site. The high permeability of the existing soils is evident by the absence of any natural storm water channels or gullies in the project area.

4.8.2.2 Proposed Drainage System, Potential Impacts, and Mitigation Measures

Storm water runoff from the site would be collected through swales, ditches, gutters, inlets, and catch basins, and transported through pipes to dry wells, seepage wells, or infiltration areas for disposal. Infiltration areas, seepage wells, and dry wells would be located in open spaces and parking lots, where practical. Dry wells would be located within the roadway ~~right-of-way~~ROW as needed. A UIC permit is required by the State DOH to construct and operate the dry wells. It is recommended that BMPs be included in the design of the drainage system, such as vegetated swales, bioretention areas, and storm drain filtration devices to capture sediments and prevent pollutants from entering the groundwater.

Potential Short-Term Impacts and Mitigation Measures

During grading activities, portions of the site would be disturbed and the potential for site erosion would increase. The contractor would be required to comply with Chapter 10 – Erosion

and Sedimentation Control - of the County Code, the DPW Storm Drainage Standard, and the NPDES permit requirements, including the BMPs plan to contain and control site erosion and to prevent the discharge of sediment from the site. Based on the requirement for construction activities to comply with the County requirements and the approved NPDES permit, the short-term environmental impacts from grading activities would be mitigated and insignificant. After completion of the project construction, ground surfaces would be stabilized with landscape and hardscape, and the potential for erosion would be minimal.

Potential Long-Term Impacts and Mitigation Measures

The increase of impermeable surfaces resulting from site development would have the effect of increasing storm water runoff quantities on the site. To comply with the County's Storm Drainage Standard, runoff flow rates and volume would not be increased from the site. The runoff would be collected and discharged to on-site seepage areas, seepage wells, and drywells for percolation into the ground. Thus, precipitation falling on the site would discharge into the ground as it does under pre-development conditions, and off-site runoff would not increase as a result of the proposed development. It is recommended that the drainage systems also include storm drain filtration devices to mitigate potential impacts from potential pollutants. Filtration devices may include vegetated swales, bioretention areas, sand, or organic filtering systems or commercially available proprietary products such as catch basin inserts and hydrodynamic devices. The method of filtration would be determined based on available technology and integrated with the system design. The developer would provide educational materials and programs to residents regarding how they can control and prevent non-point source pollution, including but not limited to, vehicular maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, potential impacts of fertilizer and pesticides on the environment, and alternatives to fertilizers and pesticides. The developer would also establish community association covenants to include landscape management and vehicle maintenance controls. Landscape management controls would include the use of fertilizers, pesticides and herbicides, a listing of approved fertilizers, pesticides and herbicides, and a listing of preferred landscape plant species including native plant species and those thought to have a low risk of becoming invasive. Vehicle maintenance controls would include vehicle washing and

maintenance. The developer would also provide the County Department of Parks and the State Department of Education information on the landscape management controls and vehicle maintenance controls to be used within the Keahuolu site. Long-term impacts of the project on drainage and erosion are not anticipated to be significant.

4.8.3 Water Supply and Storage Facilities

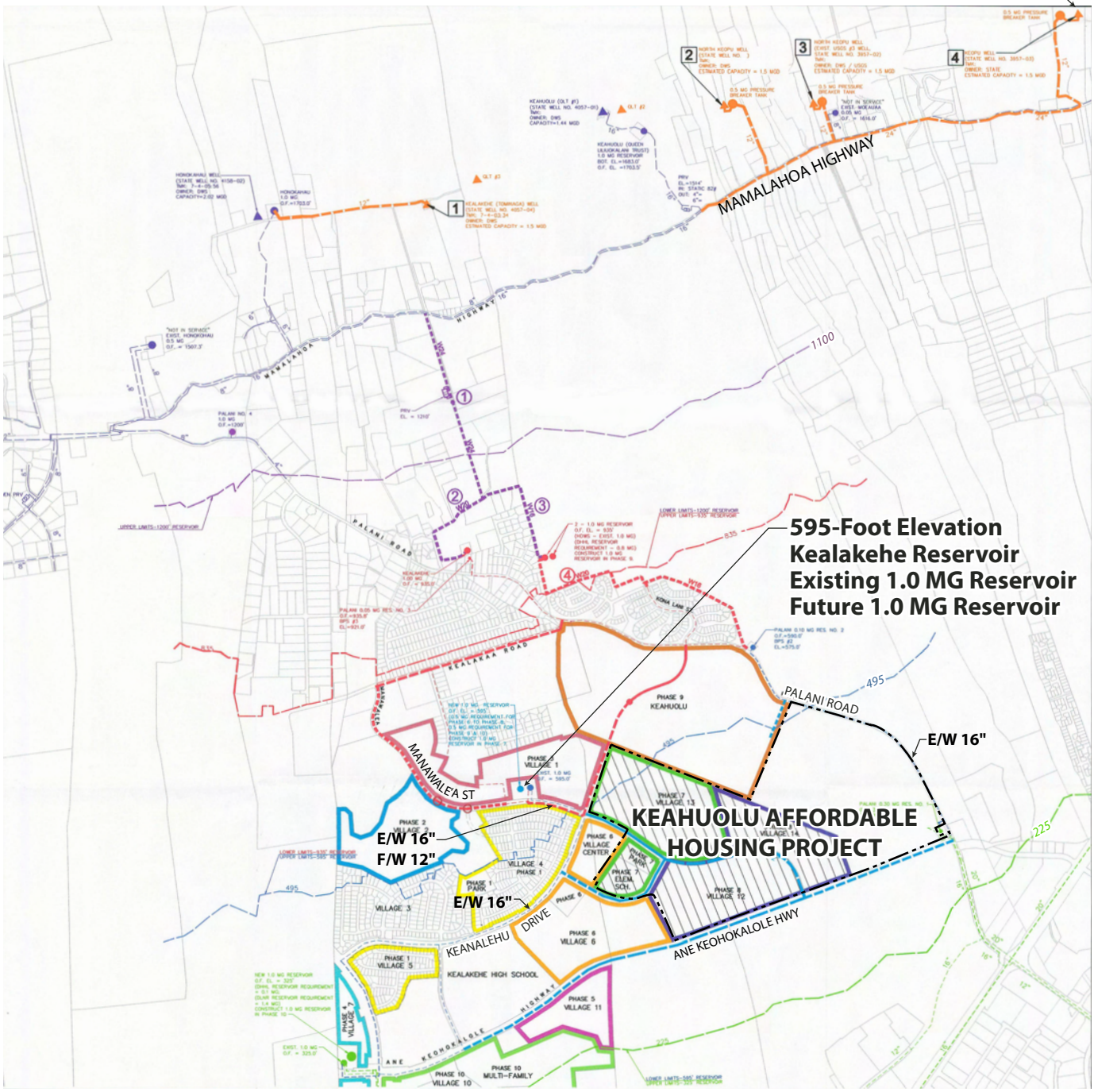
4.8.3.1 Existing Conditions

~~No potable water is available from the County for new developments in the Kona area.~~There are no existing water commitments for the Keahuolu project site and the existing water system infrastructure cannot support the development. New source well(s) would be required to support the project. There is no existing water system within the project site.

The majority of the project site is within the 595-foot-elevation Kealakehe High School reservoir's service zone, which extends from the 495-foot elevation to the 225-foot elevation. A portion of the site, along the extension of Keanalehu Drive, above the 495-foot elevation, would have to be serviced from the 935-foot reservoir system to provide adequate water pressure~~.~~ (s~~S~~ee Figure 4-15~~415~~).

Existing water system infrastructure around the project area connects to existing well sites above Mamalahoa Highway. An existing 16-inch water line in Manawale'a Street from the 595-foot-elevation Kealakehe High School reservoir stubs out to the project site and services the 495- to 225-foot-elevation water service pressure zone. A 12-inch water line is under construction in Manawale'a Street as part of the road construction project to provide water service above the 495-foot elevation. There is an existing 16-inch water line in Palani Road along the project site.

A 1.0-million-gallon (MG) reservoir exists at the Kealakehe High School reservoir site. The site is designed for a second 1.0-MG reservoir. The *Villages of La'i 'Opua Water Master Plan* (approved October 26, 2006 by the DWS), prepared by Akinaka & Associates, Ltd. for the DHHL, allocated 472,800 gallons from the two 1.0-MG reservoirs to the Keahuolu Affordable Housing P~~p~~roject.



Source: Akinaka & Associates, Ltd. Villages of La'i 'Ōpua Water Master Plan. October 26, 2006.

Belt Collins

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Figure 4-15
WATER SUPPLY

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Environmental Impact Statment
September 2008

4.8.3.2 Proposed Water System Design

The proposed water system would be developed in accordance with the 2002 State of Hawai'i Water System Standards, Rules and Regulations, and revisions to the standards per discussions with DWS staff. For details of the water system criteria, see the civil infrastructure report in Appendix G. The design and construction of the proposed off-site water system and on-site water system within the road ROW would meet County Standards for dedication to the DWS.

The projected average water daily demand generated by the proposed development plan concepts and reservoir storage requirements are summarized in Table 4-26~~Table 4-26~~. Water system calculations are provided in the civil infrastructure report (see Appendix G).

Table 4-26: Water Requirements

Alternative Development Plan	Average Daily Demand (gallons per day [gpd])	Reservoir* (MG)
Concept A	745,820	1.0
Concept B	1,158,680	1.5
Concept C	1,114,680	1.5

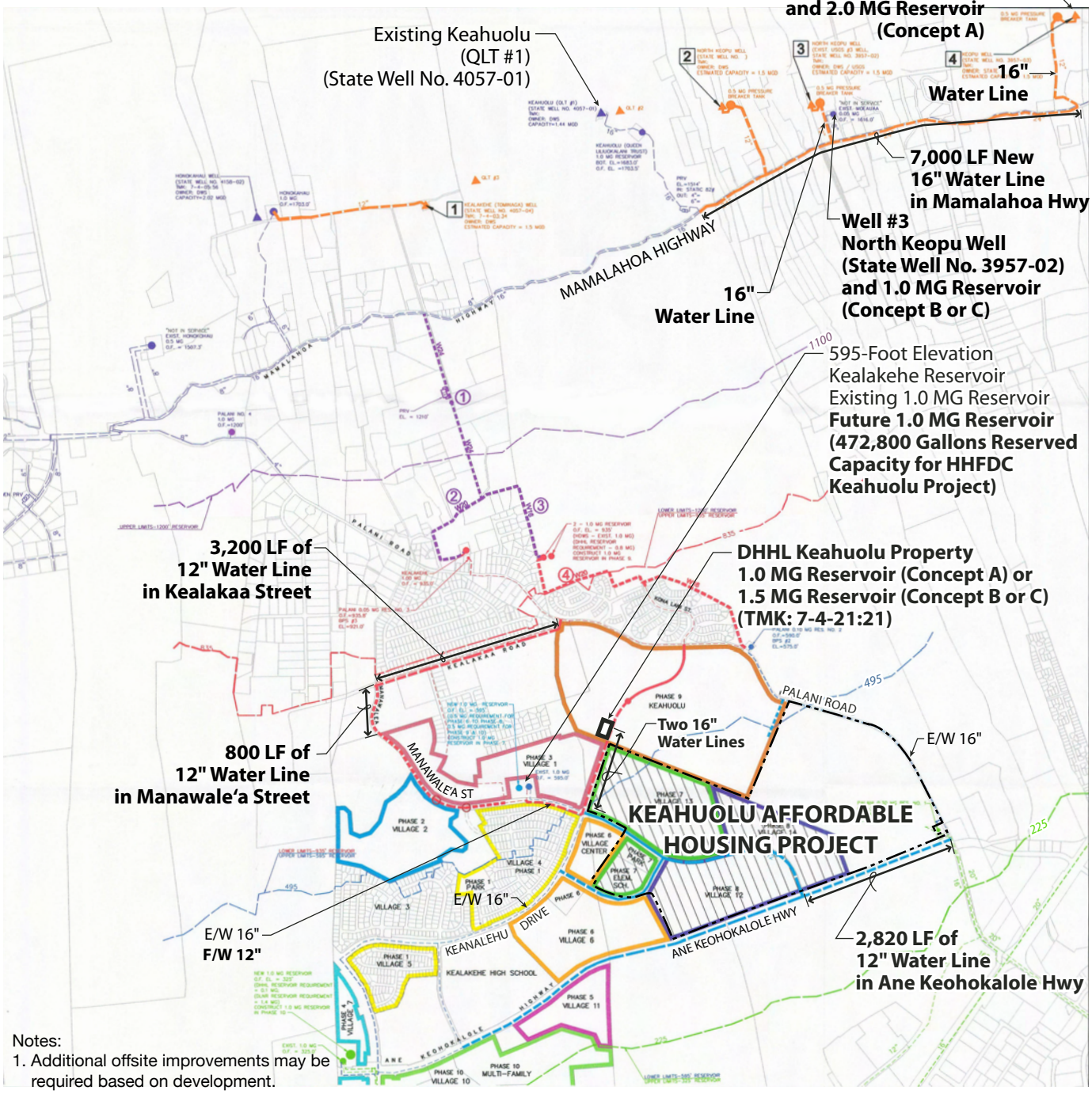
* Reservoir calculations utilized 472,800 gallons of capacity in the Kealakehe High School reservoir site allocates for the project parcels in the existing and proposed 1.0 MG reservoirs.

Proposed Off-Site ~~Facilities~~Water System

Proposed Off-Site Wells

Two source wells, numbered 3 and 4 in the *Villages of La'i 'Opua Water Master Plan* (October 26, 2006), have been identified for the project (Figure 4-16~~Figure 416~~). HHFDC and DHHL have discussed HHFDC's development of well 3 and well 4 to provide source water for the project. The proposed wells are within the Keauhou aquifer system.

~~The DWS allows a project~~The DWS has no existing policy allocating the percentage yield of a well to a project that develops the well. For planning purposes, the DWS indicated that a project is allowed 50 percent of the yield for one developed well and 67 percent of the yield for two developed wells. Well number 4, with a projected 2.0 million gallon per day (mgd) anticipated yield, could provide the Keahuolu project with 1.0 mgd of water to meet the requirements for



Notes:
1. Additional offsite improvements may be required based on development.
2. Onsite water system will follow the roadway network. Roadway network may not be as shown.

Source: Akinaka & Associates, Ltd. Villages of La'i 'Ōpua Water Master Plan. October 26, 2006.

Belt Collins

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SCALE IN FEET

Figure 4-16
OFF-SITE WATER SYSTEM

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Concept A, which is 0.7 mgd (see Table 4-27). Well number 4 alone would not be able to support development Concepts B and C water demands, which exceed 1.0 mgd. Development of well number 3, in addition to well number 4, would be required to support Concepts B and C.

The projected yield for well number 3 would be 1.0 mgd. With the development of the two wells 3 and 4, the total anticipated yield would be 3.0 mgd. The project would be allowed 67-percent of the 3.0 mgd, or 2.0 mgd to meet the requirements for Concepts B and C, which are 1.2 and 1.1 mgd, respectively.

Well number 4 would be required for Concepts A, B, and C. Well number 3 would be required in addition to well number 4 for Concepts B and C.

Table 4-27: Off-Site Wells

Concept Plan	Well No. 4 (mgd) 50% or 67% of yield	Well No. 3 (mgd) 67% of yield	Potential Total Supply(MGD)	Average Daily Demand (gpd)
Concept A	1.0		1.0	745,820
Concept B	1.34	0.67	2.0	1,158,680
Concept C	1.34	0.67	2.0	1,114,680

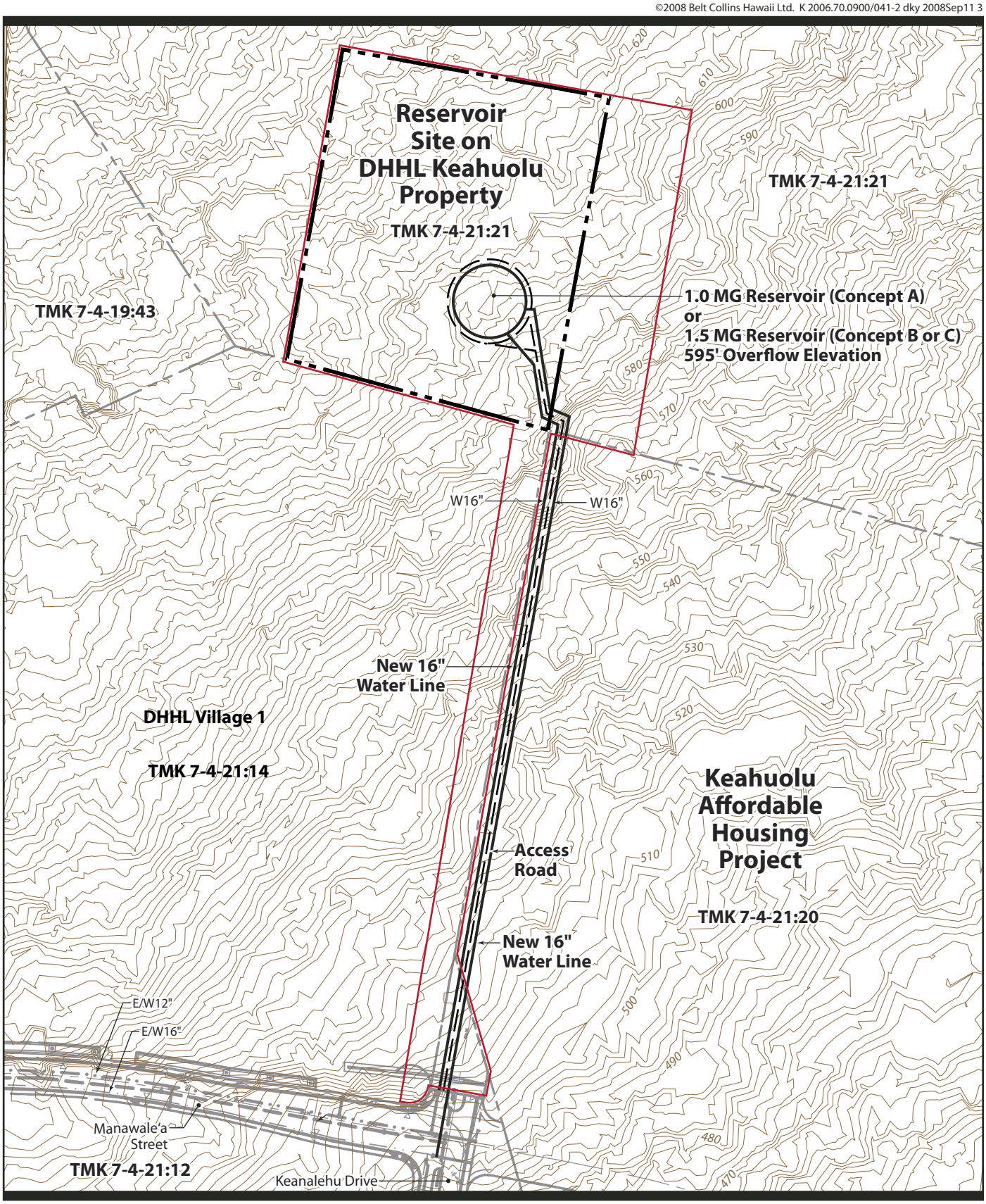
Development of well site number 4 would require outfitting the well with a pump and sensors to monitor the aquifer, installation of a well control building with a chlorination system and backup generator, a reservoir, and appurtenant structures. The reservoir would be sized to the average daily production rate of the well, or 2 ~~million gallons (~~MG~~)~~ based on the anticipated yield for the well. A new access road would be required from Mamalahoa Highway to the well, well control building and reservoir. A new 16-inch water line would extend from the new reservoir to Mamalahoa Highway and extend approximately 7,000 linear feet north along Mamalahoa Highway to the existing Keahuolu (QLT #1) State Well No. 4057-01 well site.

Development of well site number 3 would require drilling of a new production well, installation of a pump and sensors to monitor the aquifer, testing of the well for quality and capacity,

installation of a well control building with chlorination system and backup generator, a reservoir, and appurtenant structures. However, well site number 3 does not currently have sufficient land area to accommodate all the structures required for a well site. Additional adjacent private lands would have to be obtained to operate the well. A new 1.0 MG reservoir would be required for the well. A 1.0 MG reservoir is approximately 95 feet in diameter. A new access road would be required from Mamalahoa Highway to the well, well control building and reservoir. A new 16-inch water line would extend from the reservoir to Mamalahoa Highway and connect to the new 16-inch water line between well site number 4 and the existing QLT well site. The well site(s), reservoir(s), water lines, and appurtenant structures would be dedicated to the DWS. Construction of the well site(s) would require well permits, pump installation permits, grading permits, NPDES general permit coverage authorizing discharges of storm water associated with construction activities, and building permits for the structures. An engineering report, including chemical analysis, would be required by the State DOH Safe Drinking Water Branch in the permitting process for the production wells. If dry wells are constructed at the sites, a UIC permit would also be required for the project.

Proposed Off-Site Reservoir on DHHL Property

Either a new 1.0-MG reservoir for Concept A or 1.5-MG reservoir for Concepts B or C would be required for project water storage, in addition to the 472,800-gallon reserve capacity within the existing Kealakehe reservoir site (Table 4-28). HHFDC and DHHL have discussed construction of a new 595-foot-elevation reservoir site located on the DHHL Keahuolu property at TMK: 7-4-21: portion of 21 (Figure 4-17~~417~~). The site would be situated off the future extension of Keanalehu Drive, and a temporary access road with two 16-inch water lines would be required within the Keanalehu Drive ROW until Keanalehu Drive is built out. The access road would be located in TMK: 7-4-21: portions of 20 and 21, and grading for the access road would occur on TMK: 7-4-21: portion of 21.



LEGEND

- Proposed Reservoir Site
- Access Road
- 16" Water Line (W16")
- Limits of Archaeological and Botanical Surveys

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Figure 4-17
PROPOSED RESERVOIR ON DHHL KEAHUOLU PROPERTY

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Table 4-28: Projected Off-Site Reservoir Requirements

Development Plan	Reservoir * (MG)
Concept A	1.0
Concept B	1.5
Concept C	1.5

Construction of the reservoir site would require a grading permit, NPDES general permit coverage authorizing discharges of storm water associated with construction activities, and building permits for the reservoir structure. If dry wells are constructed at the reservoir site, a UIC permit would also be required for the reservoir construction.

Proposed Off-Site Water Lines

The *Villages of La'i 'Opua Water Master Plan* identified transmission deficiencies in the off-site water system. Approximately 3,200 linear feet of 8-inch water line in Kealaka'a Street, from Palani Road to Manawale'a Street, would require upsizing to a 12-inch water line. Approximately 800 linear feet of new 12-inch water line would be required in the existing Manawale'a Street. Approximately 2,820 linear feet of 12-inch water line would also be required in Ane Keohokalole Highway, between Palani Road and Makala Boulevard. The water line improvements are shown in Figure 4-16~~Figure 416Figure 4-15~~. Upon finalization of the development concept, the DWS has requested that the developer update the *Villages of La'i 'Opua Water Master Plan* to determine whether there are any other system deficiencies and required improvements.

Proposed Off-Site Water System Costs

Order-of-magnitude costs for the off-site water system improvements would be as ~~follows (~~described in Table 4-29~~)~~. For details on the water system costs, see the civil infrastructure report in Appendix G. Additional off-site water system improvements or water line size upgrades may be required with the update of the *Villages of La'i 'Opua Water Master Plan.*

Table 4-29: Off-Site Water System Costs

Off-Site Water System	Concept A	Concept B	Concept C
Off-Site Wells and Appurtenances *			
Well Site Number 4	$11,296,000	$11,296,000	$11,296,000
Well Site Number 3		$7,175,000	$7,175,000
Off-Site Reservoir on DHHL Property **			
1.0 million gallon	$7,403,000		
~~15.~~1.5 million gallon		$8,385,000	$8,385,000
Off-Site Water Lines ***			
3,200 linear foot of 12-inch in Kealaka'a Street	$873,000	$873,000	$873,000
800 linear foot of 12-inch in Manawale'a Street	$287,000	$287,000	$287,000
2,820 linear foot of 12-inch in Ane Keohokalole Hwy	$798,000	$798,000	$798,000
TOTAL Estimated Water System Costs**	**$20,657,000**	**$28,814,000**	**$28,814,000**

* Well Site Number 4 required for all concepts. Well Site Number 3 required in addition to Well Site Number 4 for Concepts B or C.

** One reservoir would be required.

*** Upgrades required for all concepts.

**** Additional water system improvements may be required.

Proposed On-Site Water System

The on-site water system would consist of water lines within the roadway network. The system would be connected to the existing water system at Keanalehu Drive and Manawale'a Street and at Palani Road and Ane Keohokalole Highway, forming a looped water system. The Keahuolu water system network would have a minimum pipe size of 8 inches in diameter and a maximum pipe size of 16 inches in diameter, based on the proposed roadway layout and development layout and densities. The water lines would be sized to meet the maximum daily demand plus

fire flow, with a residual pressure of 20 pounds per square inch (psi) at the critical fire hydrant or a residual pressure of 40 psi to meet peak hour demand.

Potential Short-Term Impacts to Surface Waters

There are no surface water bodies on or near the project site. The developer would be required to comply with the NPDES permit requirements, including the BMP plan, and Chapter 10 – Erosion and Sedimentation Control - of the County Code during construction, and prevent the discharge of sediment from the site. As areas of the site are developed, drainage systems would collect runoff and discharge it to the subsurface. The project would be designed to comply with the County's Storm Drainage Standard such that runoff volumes and rates would not increase as a result of site development. The project would have no significant short-term effects on surface waters because there would be no increase of runoff from the site.

Potential Short-Term Impacts to Groundwater

Precipitation on the site currently percolates to the underlying groundwater. This would continue to be the case during and after site development. The NPDES permit requirements, including the BMP plan, would require the contractor to manage materials to prevent the discharge of pollutants to the ground. ~~It is recommended that~~ Dduring and after development, landscape management practices and community association covenants would be applied in public and private areas to minimize the use of fertilizers ~~and~~, pesticides and herbicides that could potentially enter the groundwater. The developer and its contractor would be required to conform with the NPDES permit requirements during construction. BMPs, such as storm drainage filtration devices, are recommended to mitigate pollutants from entering the groundwater. With these measures, short-term impacts upon local groundwater quality at the Keahuolu site would not be significant. One potential short-term impact of the development would be the lowering of water levels in the vicinity of the project's wells.

Potential Short-Term Impacts to Water Supply

Water supply infrastructure, including source wells, storage reservoirs, and distribution lines, would be constructed as required and approved by the County DWS. Short-term localized water

system shut-downs and road closures may be required as the new water infrastructure is connected to the existing water system. No short-term detrimental impacts on the existing water supply system are anticipated as a result of the proposed project.

Potential Long-Term Impacts to Surface Waters

Rainfall runoff from the developed site would be collected in the drainage systems and percolated into the ground in the on-site seepage areas, seepage wells, and dry wells. Runoff volumes and rates would not increase as a result of site development, in compliance with the County's Storm Drainage Standard, and the project would have no significant long-term effects on surface waters.

Potential Long-Term Impacts to Groundwater

The source wells would draw the high-level groundwater from the Keauhou aquifer system. The projected sustainable yield from the Keauhou aquifer is 38 mgd, while the projected 2018 demand is 4.98749 mgd. The project would add approximately 0.7 to 1.2 mgd demand on the aquifer, which is ~~its the~~ within the sustainable yield of the aquifer.

The full build-out water demands of the Keauhou aquifer based on the Hawai'i County General Plan is 170.8 mgd without agricultural demands and 245.4 mgd with agricultural demands. Based on the County Zoning, the full build-out water demands of the Keauhou aquifer is 39.1 mgd without agricultural demands and 111.6 MGD with agricultural demands. In the long-term, water demands in the Keauhou aquifer would exceed the sustainable yield of the aquifer, and alternate water resource enhancement measures would be required to meet the water demands. Alternative water resource enhancement measures that have been identified in the *Draft Report Hawaii County Water Use and Development Plan Update* (December 2006) by Fukunaga and Associates~~,~~ would include rainwater catchment systems in the areas mauka of Mamalahoa Highway, wastewater reclamation for use within close proximity of the wastewater treatment facilities, and desalination from brackish wells between Queen Ka'ahumanu Highway and Mamalahoa Highway. These water resource enhancement measures could be counterproductive to protecting discharge of ground water to the coastal ecosystems and marine waters. Future

reduction in development density, development of water conservation programs by the DWS, and continued monitoring of the aquifer have also been identified in the *Draft Report Hawaii County Water Use and Development Plan Update* to mitigate long-term impacts on the Keauhou aquifer.

Water conservation measures which the developer would implement on the Keahuolu project would include installing low flow toilets and showerheads, waterless urinals in public restrooms, plant drought tolerant native landscaping and providing residents with information on the importance of water conservation.

To reduce the amount of pollutants from entering the groundwater, the developer would provide educational materials and programs to residents, establish community association covenants and implement BMPs. Educational materials and programs, and community association covenants would include, but not limited to, landscape management and vehicular maintenance controls, BMPs would include ~~It is recommended that the developer implement measures to reduce the amount of pollutants from entering the groundwater by including BMPs such as~~ vegetative swales, bioretention areas, storm drain filtration devices, ground stabilization with landscape and hardscape, educational warning signs on the drainage systems with wording such as "DUMP NO WASTES. GOES TO GROUNDWATER AND OCEAN. HELP PROTECT HAWAI'I'S ENVIRONMENT," and coordinating environmental educational programs for project area residents with the DOH Clean Water Branch.

Potential Long-Term Impacts to Water Supply

The long-term impacts of the project on the DWS water source, storage, and transmission system would be an improvement of the existing system. The additional source well(s) for the project would increase water available to the region, as DWS only allocates a portion of the well yield to the project. As previously noted, DWS allows a project 50 percent of the yield for one developed well and 67 percent of the yield for two developed wells for a project. The project would add storage reservoirs and improve the area water transmission system, as required to provide water service from the source well(s) down to the site. No long-term detrimental impacts on the existing water supply system are anticipated as a result of the project.

4.8.4 Wastewater Collection, Treatment, and Disposal Facilities

4.8.4.1 Existing Conditions

Hawai‘i County’s Kealakehe ~~Sewage Treatment Plant (STP)~~WWTP is located makai of Queen Ka‘ahumanu Highway. There is no sewer service in the immediate project area. Regional sewer in the area connects to an existing 30-inch sewer line ~~which~~ that crosses Queen Ka‘ahumanu Highway near the police station. The County has reserved 431,360 gpd capacity at the Kealakehe ~~STP~~ WWTP for the Keahuolu Affordable Housing P~~p~~roject.

4.8.4.2 Proposed Wastewater System Design

The proposed sewer system would be developed in accordance with the Hawai‘i County Department of Environmental Management criteria. For details of the sewer system criteria, see Appendix G. Design and construction of the proposed off-site and on-site sewer systems would meet County Standards for dedication to the County Department of Environmental Management. The projected sewer flows, presented in Table 4-30, are summarized in Appendix G.

Table 4-30: Sewer Requirements

Development Plan	Design Average Flow (gpd)	Design Peak Flow (gpd)
Concept A	430,598	1,915,899
Concept B	665,436	2,568,875
Concept C	720,856	2,710,213

The project has reserved 431,360 gpd capacity at the Kealakehe ~~STP~~WWTP. Additional capacity at the ~~STP~~ WWTP would be required to accommodate Concepts B and C, which are projected to exceed the reserved capacity. The Department of Environmental Management would have to expand the ~~STP~~ WWTP and ~~are~~ is currently undertaking a master plan to review options to upgrade the ~~STP~~WWTP. Two improvement projects to the ~~STP~~ WWTP are planned: (1) sludge removal $4,600,000 (County of Hawai‘i FY 07-08 budget), and (2) aeration upgrade ~~$1,500,000~~ $6,450,000 (County of Hawai‘i FY 07-08 budget). The two improvement projects will allow the ~~STP~~ WWTP to continue to operate at the present capacity and allow for future capacity upgrades.

R-~~2~~ 3 Water (undisinfected secondary recycled water) from the Kealakehe ~~STP~~ WWTP is discharged to a pond in the lava fields makai of Queen Ka‘ahumanu Highway in the DHHL/Villages of La‘i ‘Opua. R-~~2~~ 3 Water is not suitable for irrigation use for the project. The County would have to further treat the effluent to R-1 Water (significant reduction in viral and bacterial pathogens) before the effluent would be suitable for irrigation use on the project site. The County has plans to upgrade the WWTP to produce R-1 Water in FY 10-11. In addition, a pump system, and storage and transmission lines for the recycled effluent system would be required, ~~. The County has no plans to upgrade the STP to produce R-1 Water.~~ but there are no detailed plans by the County for a system to the project area.

Potential Off-Site Wastewater System Alignments

Sewer lines from the project site to the ~~STP~~ WWTP would be routed either through QLT lands or through DHHL/Villages of La‘i ‘Opua lands. Figure 4-18~~418Figure 4-17~~ and Figure 4-19~~419Figure 4-18~~ show the QLT route for the off-site sewer system for development C~~c~~oncept A and C~~c~~oncepts B and C, respectively. Figure 4-20~~420Figure 4-19~~ and Figure 4-21~~421Figure 4-20~~ show the La‘i ‘Opua route for the off-site sewer system for Concept A and Concepts B and C, respectively. Sewer lines would be sized to accommodate sewer flows from the project site, lands immediately mauka of the project, and the makai lands adjacent to the sewer line alignment. The sewer line alignment and sizes are subject to change based on the final development concept.

Based on the design flows, a new 30-inch sewer line would be required for either route to convey sewer flows from the project site, across Queen Ka‘ahumanu Highway, to the ~~STP~~WWTP. A sewer line through the QLT route can convey wastewater flows from the entire project site to the ~~STP~~WWTP. A sewer line through the Villages of La‘i ‘Opua route can convey the majority of the flows from the site. A low-elevation portion, approximately 40 acres of the project parcel near Palani Road, could be developed with activities not requiring sewer service, such as parking lots, open spaces, preserve areas, and playfields and parks with restroom facilities located outside the low area. If sewer service is required for the low area, either a pump station would be required or a sewer line would have to be constructed through QLT land to convey flows from

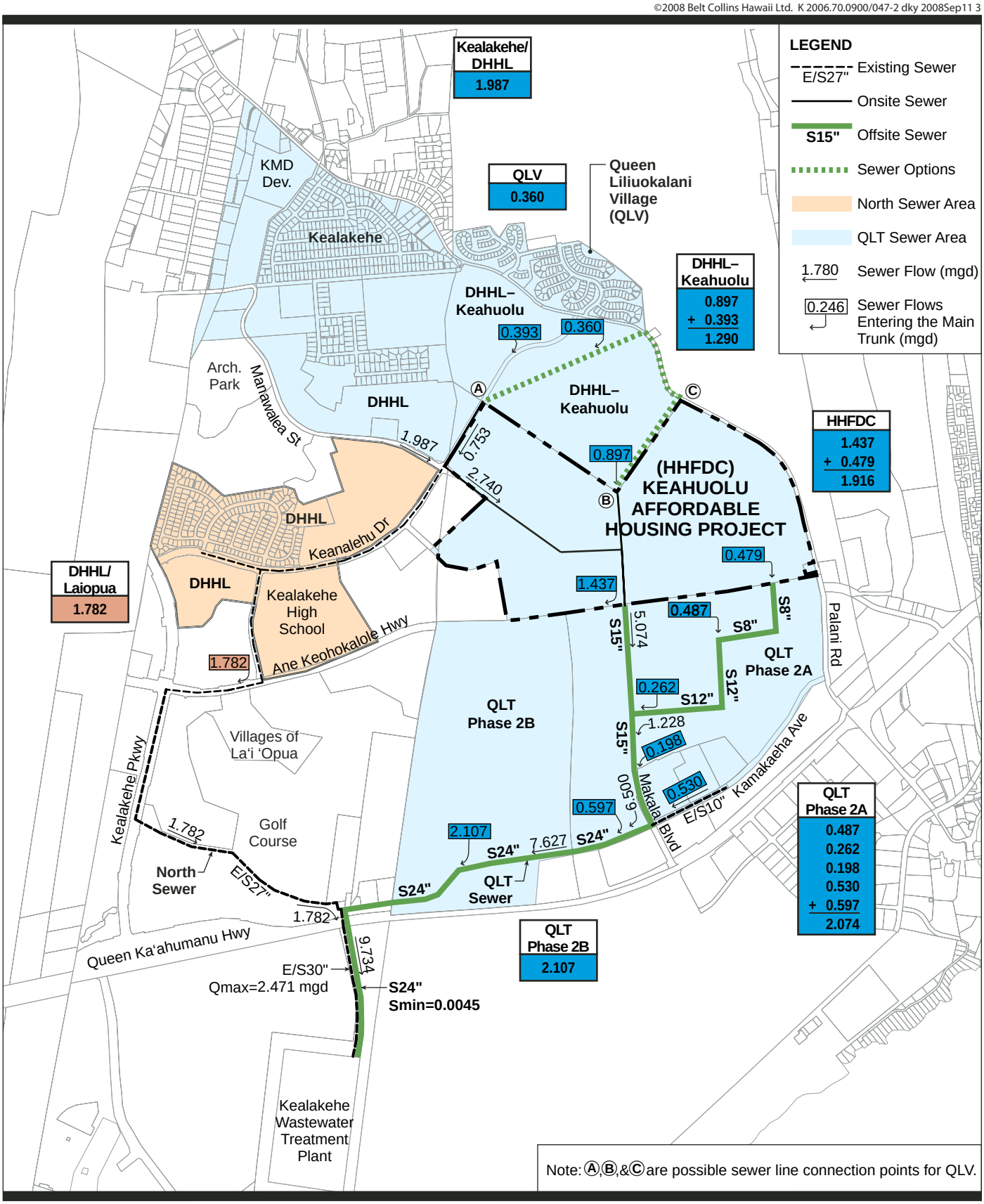

Figure 4-18
OFF-SITE SEWER SYSTEM CONCEPT A—QLT ROUTE

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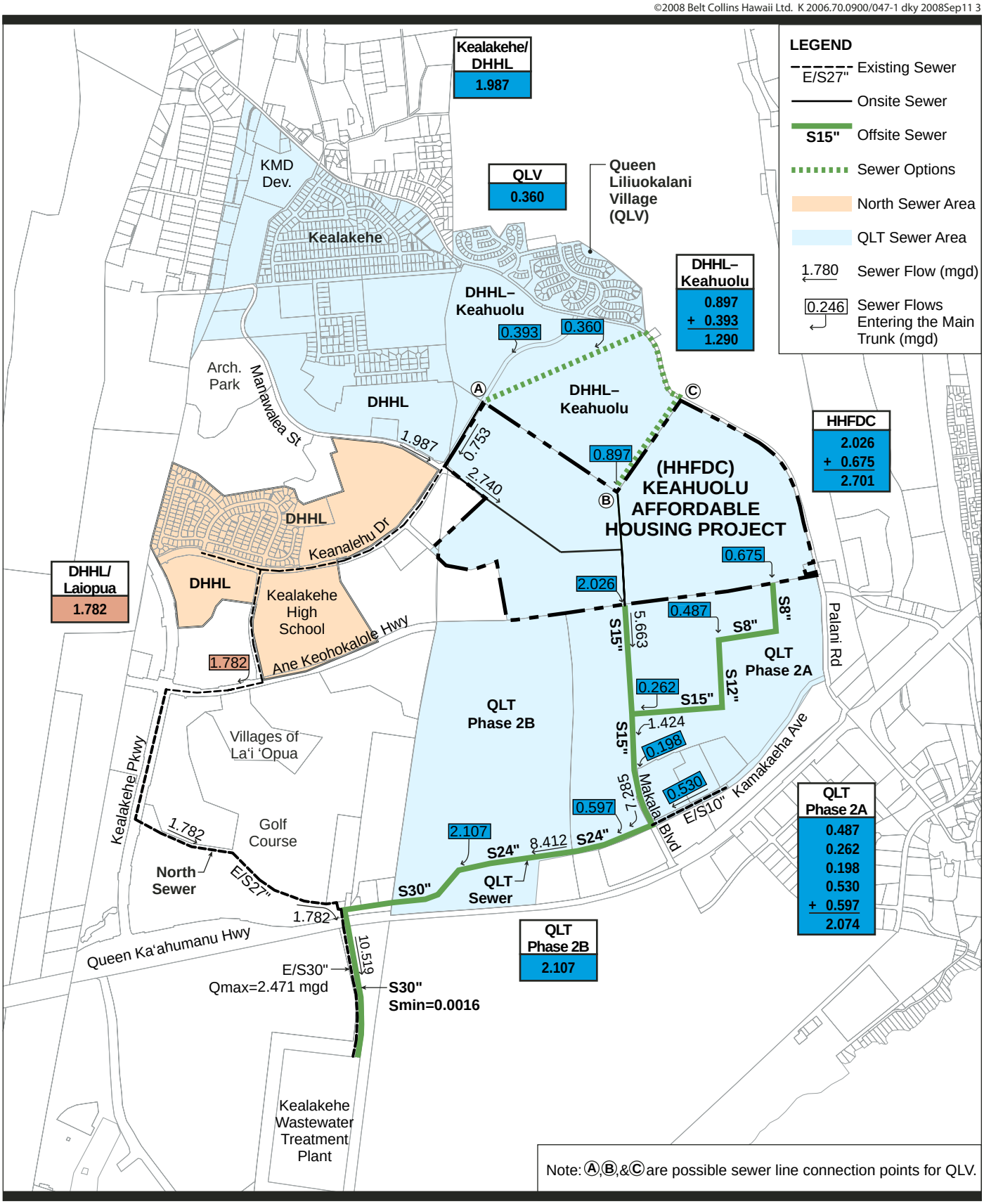

Figure 4-19
OFF-SITE SEWER SYSTEM CONCEPTS B & C—QLT ROUTE

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September 2008

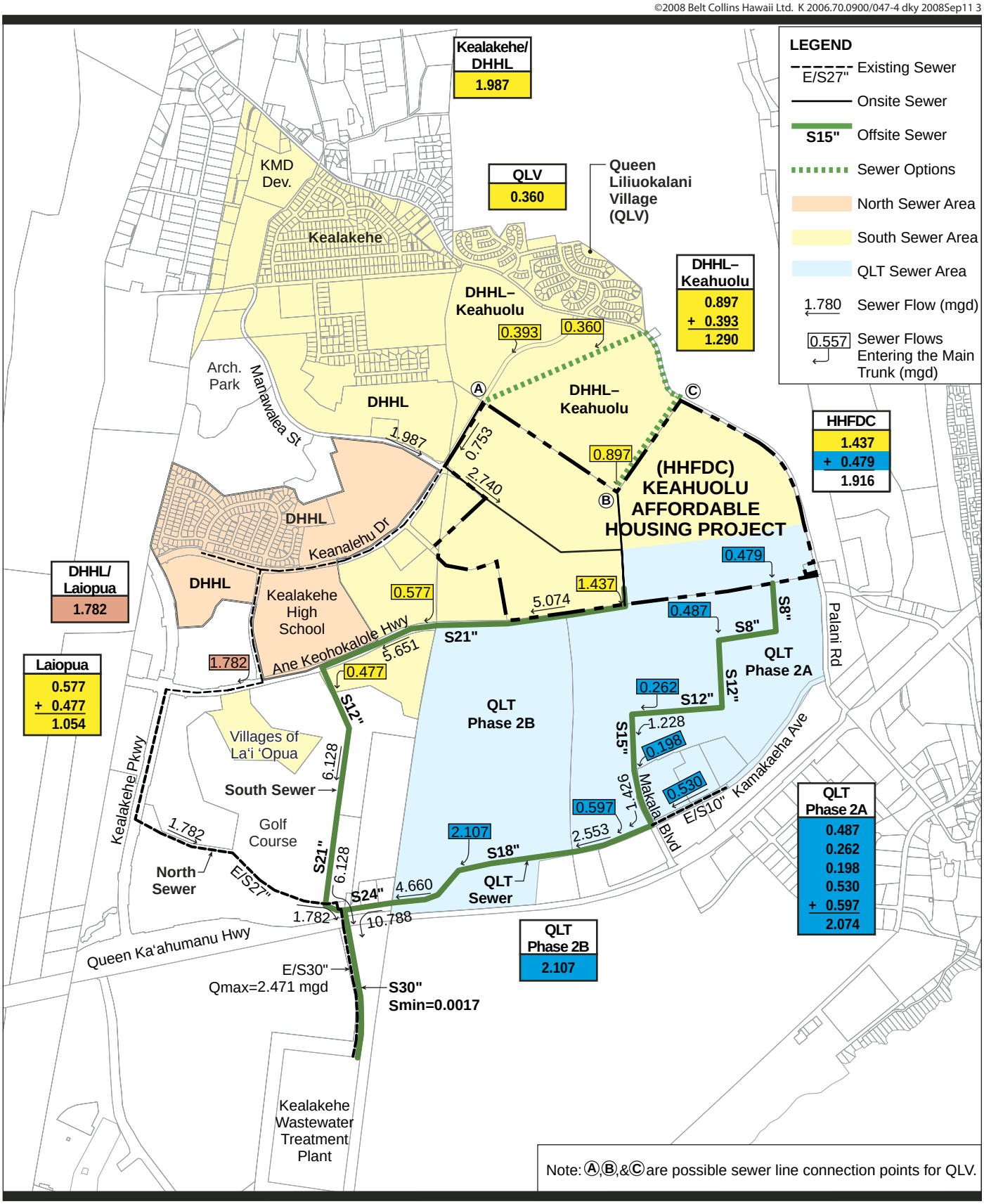

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Figure 4-20
OFF-SITE SEWER SYSTEM CONCEPT A—LA'I 'OPUA ROUTE

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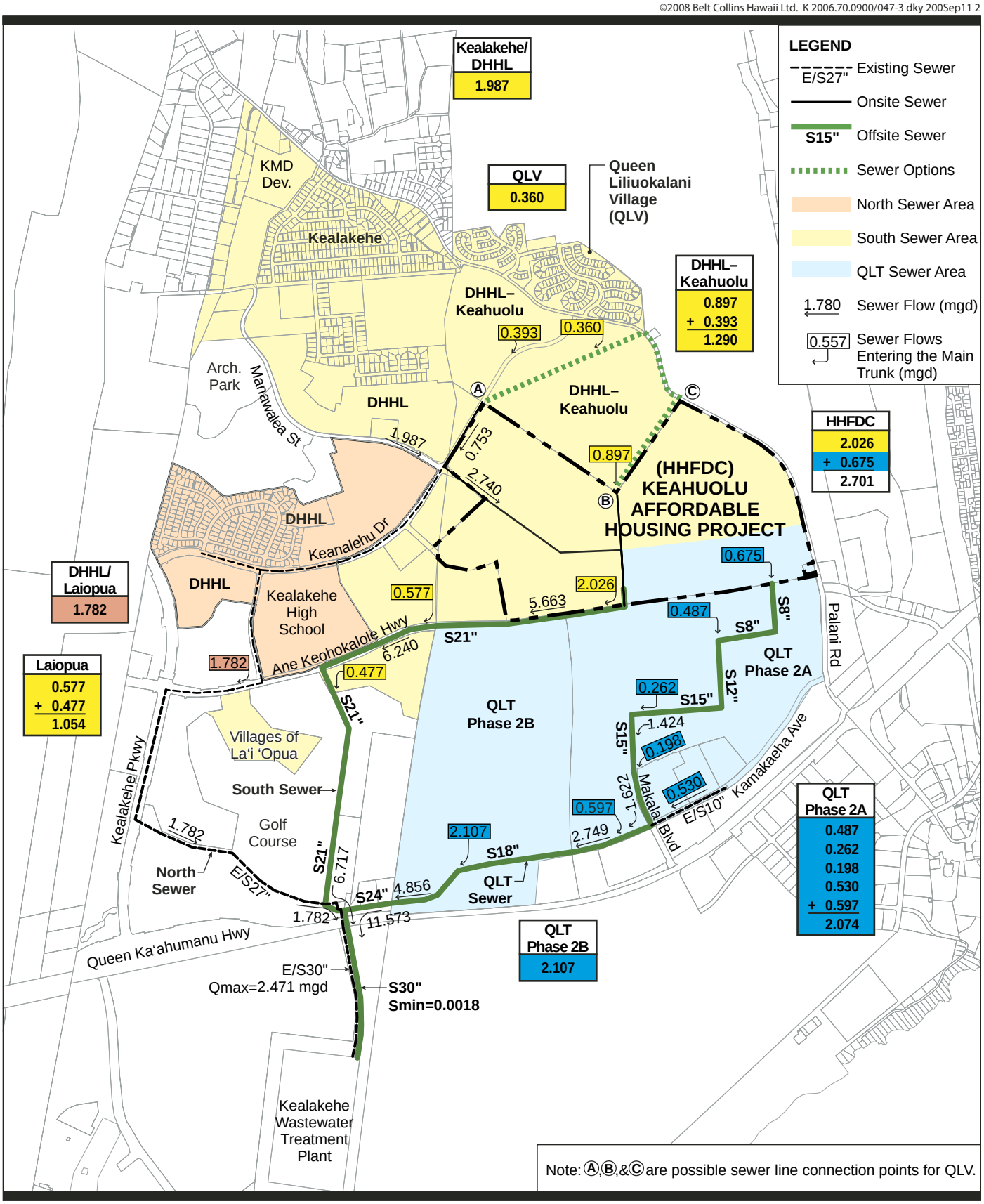

Figure 4-21
OFF-SITE SEWER SYSTEM CONCEPTS B & C—LA'I 'OPUA ROUTE

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September 2008

the low area. Figure 4-18~~418~~ and Figure 4-19~~419~~ show the proposed sewer line to service this low area through the QLT lands.

The order-of-magnitude costs in Table 4-31 for sewer system construction assume that the low area would be developed with sewage-generating facilities. For details on the sewer system costs, see Appendix G. These cost estimates are based on the best available information on DHHL and QLT plans for future development of their properties. QLT is in preliminary planning, and actual routing and sewer flows may change.

Table 4-31: Off-Site Wastewater System Costs

Off-Site Water System	Concept A	Concept B	Concept C
Through QLT Lands	$6,381,000	$6,663,000	$6,663,000
Through DHHL / Villages of La‘i ‘Opua			
Through La‘i ‘Opua	$5,983,000	$5,983,000	$5,983,000
Through QLT Lands	$4,297,000	$4,543,000	$4,543,000
Subtotal	$10,280,000	10,526,000	10,526,000

Proposed On-Site Wastewater System

The on-site sewer system would consist of sewer lines within the roadway network. The system would connect to sewer line routed through either the DHHL/Villages of La‘i ‘Opua lands or the QLT lands. The sewer system would have a minimum pipe size of 8 inches in diameter and a maximum pipe size of 21 inches in diameter for the DHHL/Villages of La‘i ‘Opua route or 15 inches in diameter for the QLT route. The sewer lines would be sized to convey the design peak flow from the upstream tributary areas.

4.8.4.3 Potential Impacts and Mitigation Measures

Potential Short-Term Impacts

Extension of the sewer system to serve the proposed development would not have significant short-term impacts on the environment. Construction activities would be required to conform to

the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. County fees associated with permission to connect would be applied by the County to upgrade the existing treatment and disposal facilities on an as-needed basis.

Potential Long-Term Impacts

The long-term impacts of the project on the sewer system would be the construction of new sewer lines through either the DHHL/Villages of La‘i ‘Opua lands or the QLT lands to the Kealakehe ~~STP~~WWTP. The impact would be an increase in daily flows to the ~~STP~~ WWTP of 430,598 gpd, 665,436 gpd, or 720,856 gpd for Concepts A, B or C, respectively. Concepts B or C would require the County to upgrade the Kealakehe ~~STP~~WWTP.

The new sewer lines makai of the project would also allow the potential development of the DHHL/Villages of La‘i ‘Opua lands or the QLT lands adjacent to the new sewer line, depending on the ultimate route of the new line. The construction of new sewer lines through the Keahuolu project would also provide potential sewer service to lands mauka of the project site. No long-term detrimental impacts on the existing sewer lines are anticipated as a result of the project, since all new sewer lines from the project site to the ~~STP~~ WWTP would be constructed.

Adequate treatment and disposal capacity has been reserved at the Kealakehe ~~STP~~ WWTP for project Concept A, and no long-term detrimental impacts to the ~~STP~~ WWTP are anticipated. Concepts B and C would require the County to upgrade the ~~STP~~ WWTP to handle the added sewage flows and to mitigate any long-term detrimental impacts to the ~~STP~~WWTP. The Department of Environmental Management is undertaking a master plan for the ~~STP~~ WWTP to determine the appropriate system upgrades to increase the ~~STP~~ WWTP capacity. Until the master plan assessment is completed, the County does not know the type and costs of the ~~STP~~ WWTP upgrades.

4.8.5 Solid Waste

4.8.5.1 Existing Conditions

No solid waste service is currently required as the site is vacant.

4.8.5.2 Potential Impacts and Mitigation Measures

The County requires all solid waste to be removed from all buildings and premises and disposed of at an approved solid waste disposal facility. All solid waste generated from the project would be taken to the West Hawai'i Landfill in Pu'uanahulu, a County transfer station, or recycled.

Quantities of solid waste were estimated for both construction and occupancy phases of the Keahuolu project. The construction phase of development is anticipated to begin in 2008/2009 with construction of approximately 300 housing units per year. The school facilities, with 550 students and 70 faculty and staff, are projected for construction between 2011 and 2012. The commercial/retail spaces are projected for approximately 100,000 square feet of construction in 2016 and 2017, and 97,000 square feet of construction in 2018 and 2019.

The occupancy phase of development refers to the time at which the facilities have been constructed and are open for use. The construction and occupancy phases are expected to overlap, as construction of later portions of the Keahuolu project would continue while earlier portions are completed and occupied. The project is estimated to be completed and occupied in 2020. The average amounts of solid waste generated by construction activities and occupancy are summarized in Table 4-32~~Table 4-32~~. A preliminary solid waste management plan is provided in Appendix G.

Table 4-32: Solid Waste Generated by Construction Activities and Occupancy

Year	Concept A		Concept B		Concept C	
	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)
2008	525 - 910	0	525 – 910	0	450 – 780	0
2009	1,050 – 1,820	0	1,050 – 1,820	0	900 – 1,560	0
2010	1,050 – 1,820	1,086	1,050 – 1,820	1,086	900 – 1,560	950
2011	658 – 1,141	2,172	1,063 – 1,843	2,172	913 – 1,583	1,901
2012	358 – 621	3,259	1,063 – 1,843	3,259	913 – 1,583	2,851
2013	0	4,069	1,050 – 1,820	4,639	900 – 1,560	4,096
2014	0	4,069	585 – 1,014	5,725	900 – 1,560	5,046
2015	0	4,069	60 – 104	6,812	795 – 1,378	5,997
2016	150 – 260	4,069	150 – 260	6,938	495 – 858	6,947
2017	150 – 260	4,069	150 – 260	6,938	150 – 260	7,676
2018	146 – 252	4,730	146 – 252	7,599	146 – 252	8,337
2019	146 – 252	4,730	146 – 252	7,599	146 – 252	8,337

Year	Concept A		Concept B		Concept C	
	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)
2020 and Beyond	0	5,370	0	8,240	0	8,977

Potential Short-Term Impacts

Emphasis for the management of solid wastes generated by the Keahuolu project would be placed on waste diversion and recycling. Solid wastes would be managed in conformance with the applicable DOH and County requirements. The landfill nearest to the Keahuolu project is the West Hawai‘i Landfill at Pu‘uanahulu.

Since the County of Hawai‘i does not provide waste collection services, recycle and disposal of construction and occupancy waste would be hauled by private contractors or individuals. Specific arrangements for construction and occupancy wastes would be made closer to the project beginning. Recyclables and wastes would be managed in either a centralized system or by private individuals, and hauled directly to recycling centers, transfer stations, and the landfill. The average amounts of solid waste diverted through minimization and recycling, and landfilled are summarized in Table 4-33~~Table 4-33~~.

Table 4-33: Summary of Solid Waste Diverted and Landfilled

Year	Concept A		Concept B		Concept C	
	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)
2008	263-455	262-455	263-455	262-455	225-390	225-390
2009	525-910	525-910	525-910	525-910	450-780	450-780
2010	805-1,190	1,331-1,716	805-1,190	1,331-1,716	695-1,025	1,155-1,485
2011	889-1,131	1,941-2,182	1,092-1,482	2,143-2,533	947-1,282	1,867-2,202
2012	1,020-1,152	2,597-2,728	1,373-1,763	2,949-3,339	1,193-1,528	2,571-2,906
2013	1,050	3,019	1,722-2,107	3,967-4,352	1,507-1,837	3,489-3,819
2014	1,050	3,019	1,770-1,984	4,540-4,755	1,752-2,082	4,194-4,524

Year	Concept A		Concept B		Concept C	
	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)
2015	1,050	3,019	1,787-1,809	5,085-5,107	1,945-2,236	4,847-5,139
2016	1,125-1,180	3,094-3,149	1,865-1,920	5,223-5,278	2,040-2,221	5,402-5,584
2017	1,125-1,180	3,094-3,149	1,865-1,920	5,223-5,278	2,055-2,110	5,771-5,826
2018	1,293-1,346	3,583-3,636	2,034-2,087	5,711-5,764	2,224-2,277	6,259-6,312
2019	1,293-1,346	3,583-3,636	2,034-2,087	5,711-5,764	2,224-2,277	6,259-6,312
2020 and Beyond	1,385	3,985	2,126	6,114	2,316	6,661

Potential Long-Term Impacts

Emphasis for the management of solid wastes generated by the Keahuolu project would be placed on waste diversion and recycling. The developer would provide educational materials and information on recycling programs to residents to minimize and divert wastes. According to the 2002 Updated Integrated Solid Waste Management Plan for the County, the Pu‘uanahulu Landfill is estimated to have 12 million cubic yards of air space, which is enough to accommodate the waste generated by West Hawai‘i for approximately the next 40 years. The plan also notes that the County is ~~also~~ looking into waste reduction facilities for the island, using either a waste-to-energy incinerator, a thermal gasification plant (produces heat from waste), or an anaerobic digestion plant (breaks refuse into its molecular components).

At full-build-out, the projects’ share of annual landfill waste disposal at the West Hawai‘i Landfill is estimated to be 4.43 percent, 6.79 percent, or 7.40 percent for Concepts A, B, ~~or~~ and C, respectively. The project’s waste stream is a small fraction of the waste that would go to the landfill. No significant short-term or long-term impacts on the existing solid waste collection and disposal systems are anticipated as a result of the proposed development.

4.8.6 Electrical Service, Cable TV, and Telephone

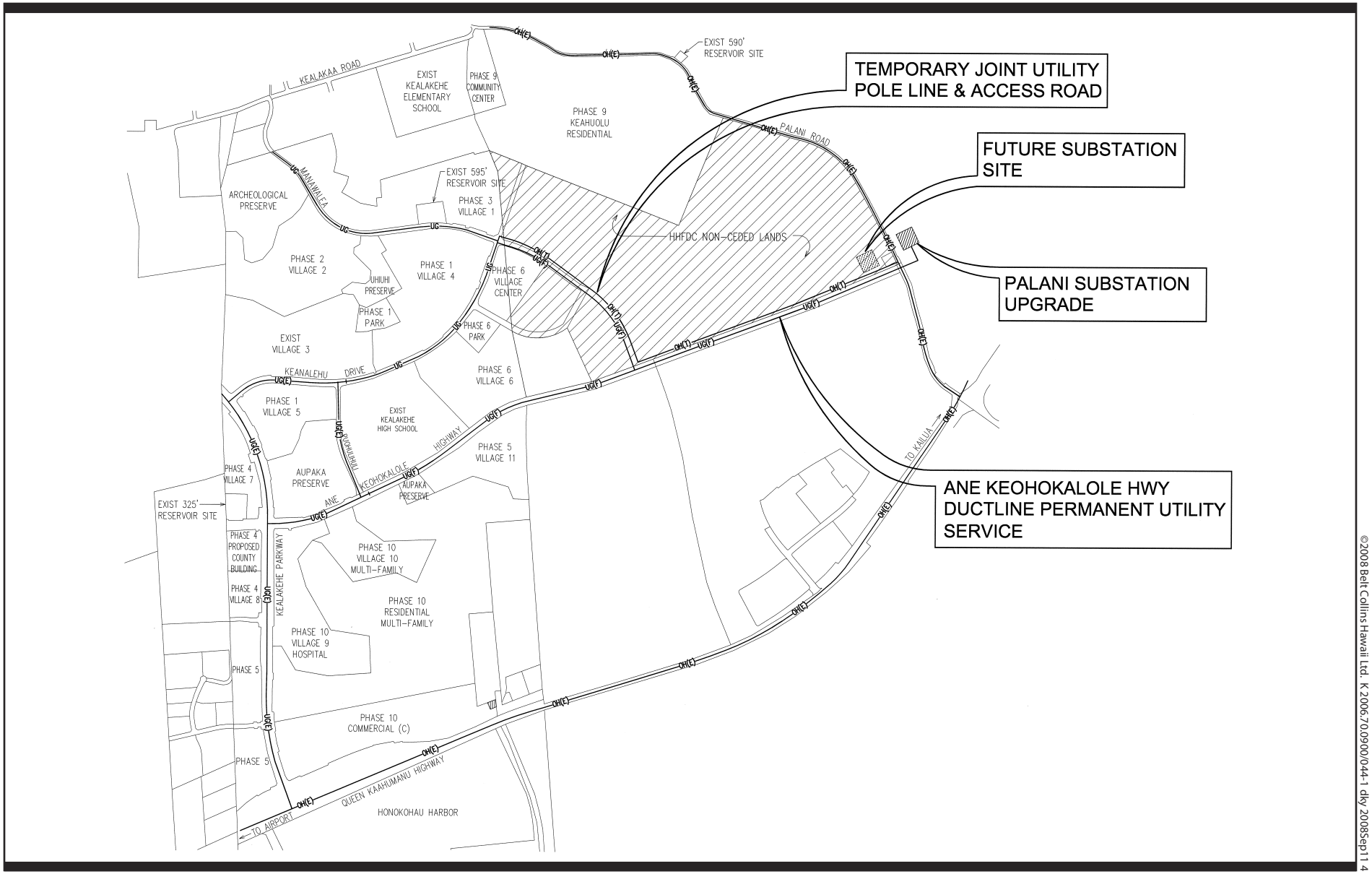
4.8.6.1 Existing Conditions

Electrical Power

The ~~Hawaii Electric Light Company (~~HELCo~~)~~ provides electrical service to the Kailua-Kona area from a substation on Kaiwi Street. This substation has reached its designed capacity. Plans call for a new substation on QLT land near the Palani Road/Henry Street intersection. The proposed Palani substation was expected to accommodate future development by HHFDC, QLT, DHHL, and others in the area. However, anticipated loads from partial buildout of the Villages of La‘i ‘Opua coupled with those from QLT’s ongoing Makalapua development are projected to exceed the capacity of the Palani substation. With the projected load from residential units proposed under Concept A of the HHFDC project, an additional substation would be required.

Expanding the existing Kealakehe substation at the police station parcel on Queen Ka‘ahumanu Highway was considered, but given requirements for additional state and county approvals, siting a new substation on HHFDC land is the preferred option. The site for the second substation is in the vicinity of the County reservoir near the Palani Road/Ane Keohokalole Highway intersection. Consistent with HELCo policy, both proposed substations would provide service to the entire Kailua-Kona area. Figure 4-22~~422Figure 4-21~~ shows the off-site electrical concept plan for this project.

Initial phases of HHFDC’s development may occur close to the end of the County’s Keanalehu Drive extension project. Although HELCo will be extending cables through the underground duct system in Keanalehu Drive, available capacity in HELCo’s distribution system will likely be used by DHHL’s La‘i ‘Opua Village 4 and 5 developments. A temporary overhead line will need to be extended from the Palani Road/Henry Street intersection to serve HHFDC’s initial increment. It is proposed that the overhead line follow the alignment of Ane Keohokalole Highway and the Manawalea Drive extension. The temporary overhead line would be replaced by a permanent underground system. An underground duct system in Ane Keohokalole Highway would link the HHFDC project to the Palani substation.



Source: Ronald Ho and Associates, Inc.

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Figure 4-22
OFF-SITE ELECTRICAL CONCEPT PLAN (HELCO)

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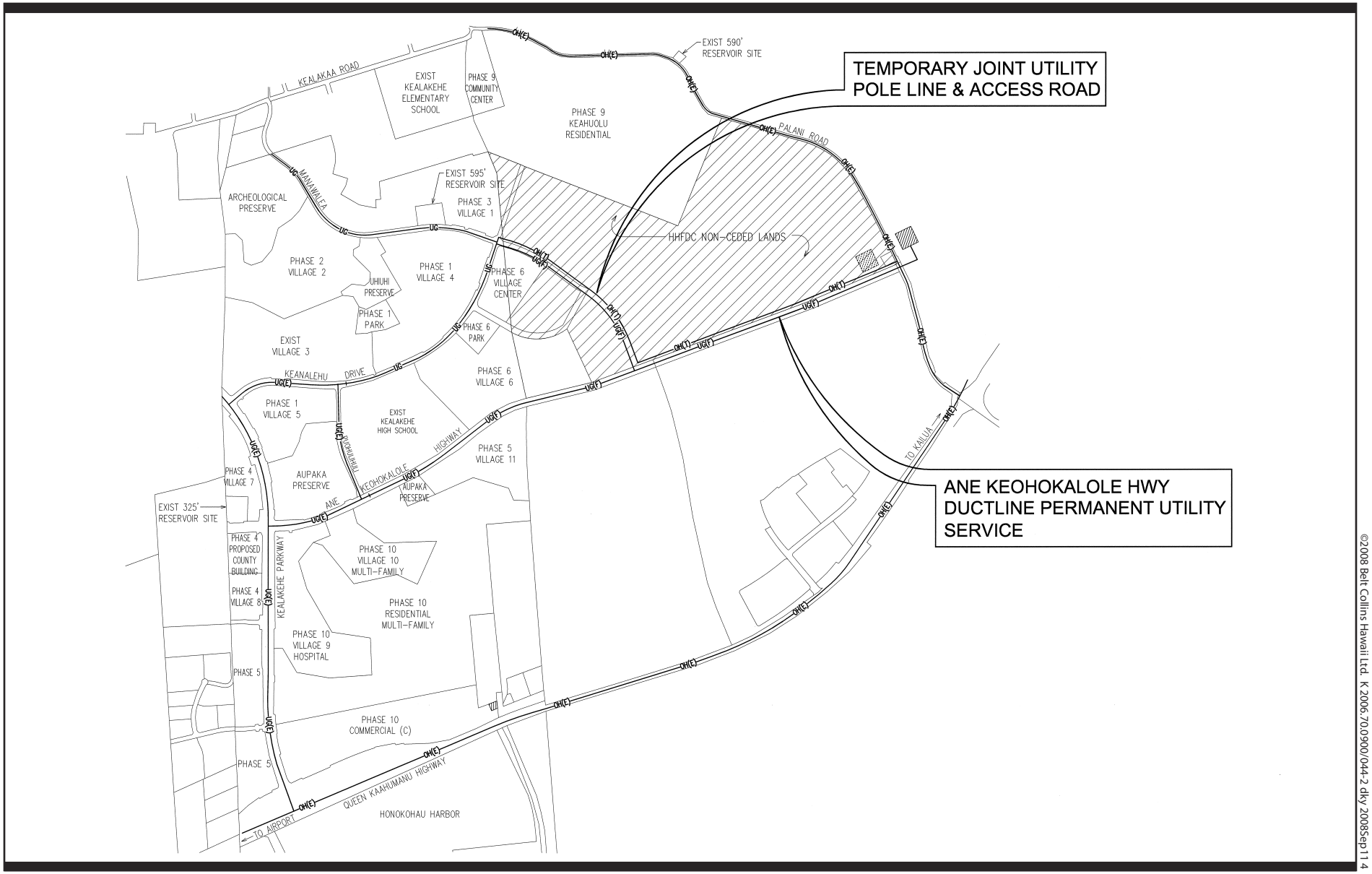
Environmental Impact Statement
September 2008

Telephone and Cable Television

Hawaiian Telcom (HTCo) and Oceanic Time Warner (Oceanic) facilities are located on an overhead pole line along Palani Road and in underground duct systems in the Villages of La‘i ‘Opua. Existing ductlines terminate at the intersection of Puohulihuli Street/Keanalehu Drive and Puohulihuli Street/Ane Keohokalole Highway.

Discussions with HTCo and Oceanic indicate that although the preferred point of connection for the Keahuolu project is from the existing end of either Keanalehu Drive or Ane Keohokalole Highway, it would also be feasible to temporarily serve the HHFDC development from the existing pole line at the Palani Road/Henry Street intersection. Sufficient cable capacity could be extended on a temporary pole constructed for the HELCo service extension (described above) to support the initial phases of the Keahuolu development. Permanent service would be relocated to the new underground duct system and connected to the Ane Keohokalole Highway infrastructure once the Ane Keohokalole Highway extension is completed. Figure 4-23~~423Figure 4-22~~ and Figure 4-24~~424Figure 4-23~~ illustrate the proposed off-site communication concept plans for HTCo and Oceanic, respectively.



Source: Ronald Ho and Associates, Inc.

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Figure 4-23
OFF-SITE COMMUNICATIONS CONCEPT PLAN (HTCO)

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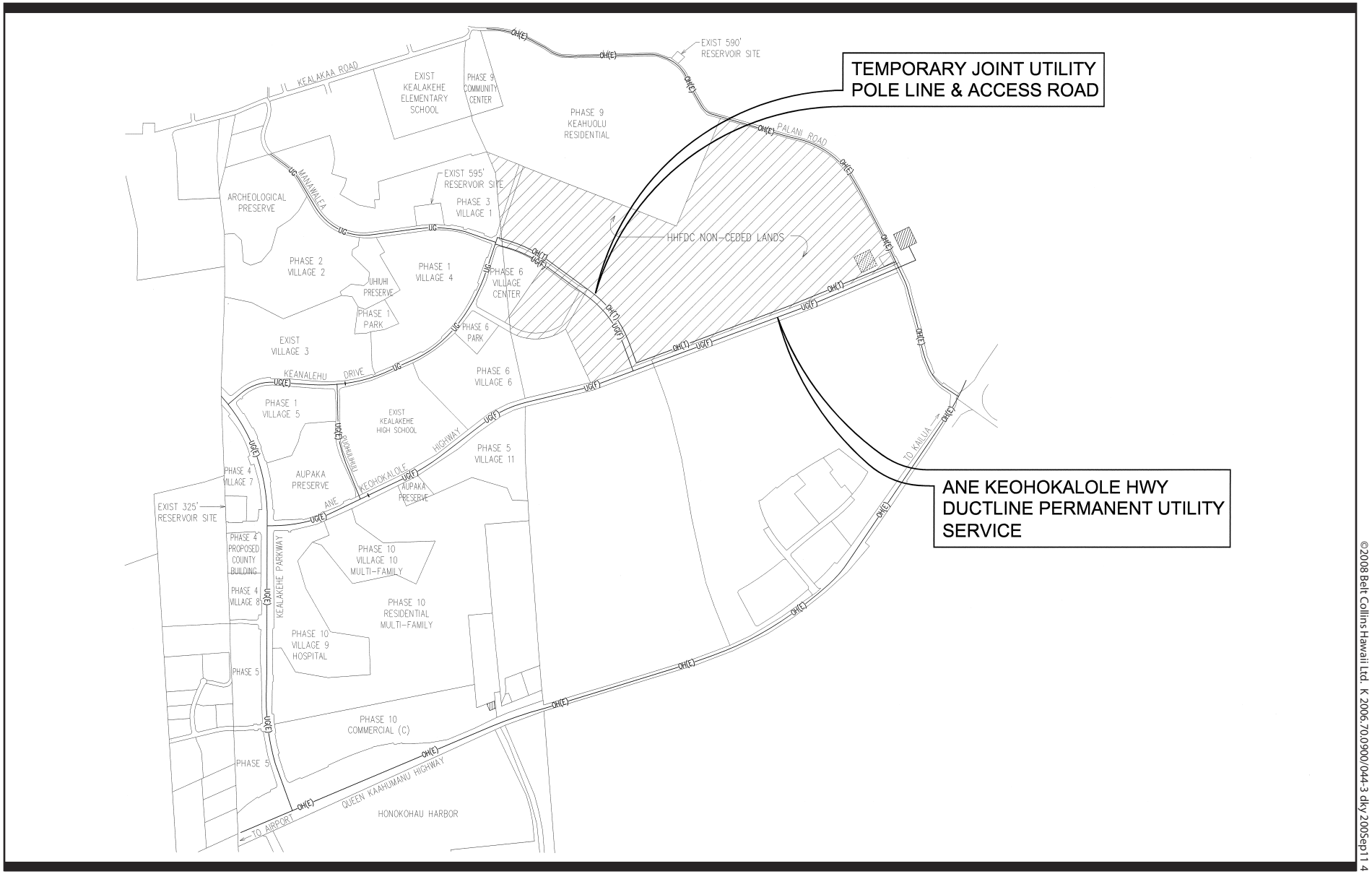
Environmental Impact Statement
September 2008



Source: Ronald Ho and Associates, Inc.

BeltCollins

Figure 4-24
OFF-SITE COMMUNICATIONS CONCEPT PLAN (OCEANIC)

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Order-of-magnitude costs for the off-site electrical and communications system improvements to support the project are as follows. See Appendix G for cost details.

Palani substation upgrade (HELCo)	$1,500,000
Temporary overhead utility line and access road:	
Hawaii Electric Light Co.	$650,000
Hawaiian Telcom	$550,000
Oceanic Time Warner	$150,000
Graded and graveled access road	$575,000
Subtotal	$1,925,000
Ane Keohokalole Highway permanent utility service:	
Hawaii Electric Light Co. ductline and charges*	$2,225,000
Hawaiian Telcom ductline**	$1,200,000
Oceanic Time Warner ductline**	$400,000
Subtotal	$3,825,000
Total Electrical and Communications Off-Site Costs	$7,250,000

*The HELCo ductline construction budget and utility charges are prorated between QLT, DHHL, and HHFDC. The HELCo budget figure also includes prorated costs for the Ane Keohokalole street light system and other ancillary items.

**The HTCo and Oceanic ductline budgets are prorated between QLT and HHFDC only, as DHHL will not contribute for these costs. Typically, unless specialized services are requested by the developer, HTCo and Oceanic do not charge for their initial installation of permanent service cables.

4.8.6.2 Potential Impacts and Mitigation Measures

The proposed project will require upgrades and/or extensions of the existing utility systems serving the region. With the projected load from residential units proposed under Concept A of the HHFDC project, an additional substation would be required. The proposed site for the second substation is on HHFDC land in the vicinity of the county reservoir near the Palani Road/Ane Keohokalole Highway intersection. Consistent with HELCo policy, new substations would provide service to the entire Kailua-Kona area.

4.8.7 Summary of Off-Site Infrastructure Costs

Table 4-34~~Table 4-34~~ summarizes off-site infrastructure requirements for Concepts A, B, and C in 2007 dollars.

Table 4-34: Summary of Off-Site Costs by Concept (2007 dollars)

	Concept A	Concept B	Concept C
Ane Keohokalole Highway (@50% of total)	$6,816,500	$6,816,500	$6,816,500
Palani Road Intersection	$1,306,000	$1,306,000	$1,306,000
Offsite Wells and Appurtenances *			
Well Site Number 4	$11,296,000	$11,296,000	$11,296,000
Well Site Number 3		$7,175,000	$7,175,000
Off-Site Reservoir on DHHL Property **			
1.0 million gallon	$7,403,000		
1.5 million gallon		$8,385,000	$8,385,000
Off-Site Water Lines ***			
3,200 linear foot of 12-inch in Kealakaʻa Street	$873,000	$873,000	$873,000
800 linear foot of 12-inch in Manawalea Street	$287,000	$287,000	$287,000
2,820 linear foot of 12-inch in Ane Keohokalole Hwy	$798,000	$798,000	$798,000
Offsite Sewer line			
Option 1: Through QLT Lands	$6,381,000	$6,663,000	$6,663,000
Option 2: Thru QLT and DHHL Villages of Laʻi ʻOpua	$10,280,000	$10,526,000	$10,526,000
Expansion of Kealakehe STP	Reserved capacity of 431,360 gpd	Unknown	Unknown
Electrical System	$4,950,000	$4,950,000	$4,950,000
Telephone System	$1,750,000	$1,750,000	$1,750,000
Cable Television System	$550,000	$550,000	$550,000
Total – Option 1 Sewer line route	**$42,410,500**	**$50,849,500**	**$50,849,500**
Total – Option 2 Sewer line route	**$46,309,500**	**$54,712,500**	**$54,712,500**

***** Well Site Number 4 required for all concepts. Well Site Number 3 required in addition to Well Site Number 4 for Concepts B or C

****** One reservoir would be required.

******* Upgrades required for all concepts.

4.9 SOCIO-ECONOMIC CONDITIONS

The HHFDC Keahuolu project is planned as a response to the regional needs for housing and the desire to reduce congestion on regional highways due to residents traveling long distances between home and work. Future residents of Keahuolu are likely to come from West Hawai'i, ranging from Ocean View in Ka'u to North Kohala.[1] Figure 4-25~~425Figure 4-24~~ shows the region, district, and zip code areas for West Hawai'i.

In this section (1) socio-economic conditions and trends in Hawai'i County and the West Hawai'i region are identified; (2) existing conditions in the immediate area near the project site – Census Tract 215.01, Block Group 3 – are discussed; and (3) community issues and concerns are documented.

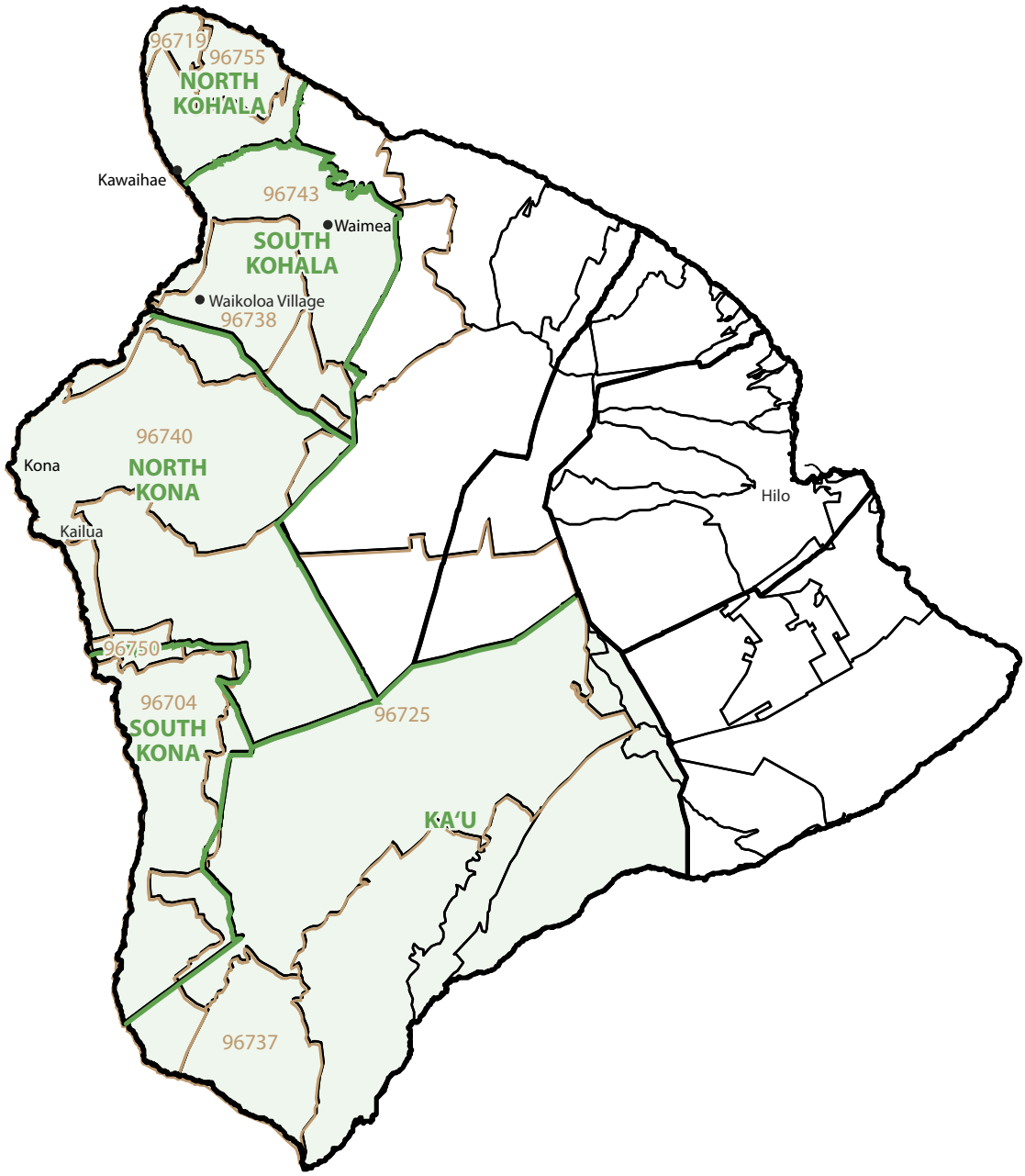
4.9.1 North Kona Existing Socio-Economic Conditions

4.9.1.1 Overview

For much of the 20th century, West Hawai'i was an agricultural area, with coffee (from South Kona), sugar (from North Kohala), and cattle (from the uplands of South Kohala) as major commodities. Major public facilities for West Hawai'i, such as the hospital and the area's first high school, were located in Kealakekua in the South Kona district.

The visitor industry in North Kona grew after statehood, and the district received the majority of the island's visitor units (as shown for 1980, in Table 4-35~~Table 4-35~~). By 1990, however, the South Kohala coastal resorts had become important destinations. As the coastal resorts expanded, West Hawai'i became more dependent on tourism. Kailua-Kona is now a regional center with commercial, industrial, and resort facilities. The North Kona district has seen continuing increases in population, visitor numbers, and commercial areas. As of 2002, Kailua-Kona had 165 retail establishments with gross sales of $410 million, 24 percent of the island total. The retail workforce in Kailua numbered 2,174.

[1] Hawai'i County is divided into nine judicial districts. North Kohala, South Kohala, North Kona and South Kona are commonly identified as West Hawai'i. However, the Ocean View area in Ka'u is home to many resort workers, and it is given attention here as a potential source for future Keahuolu residents.



NORTH

0 7 14

SCALE IN MILES

Figure 4-25
REGION, DISTRICT, AND ZIP CODES FOR WEST HAWAI'I

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

Table 4-35: Hawai'i County and North Kona Socio-Economic Indicators

	1980	1990	2000	2005
Hawaii County				
Resident population	92,053	120,317	148,677	167,293
Jobcount	37,150	49,000	56,000	64,500
Unemployment rate	6.3%	3.5%	4.8%	3.3%
Average visitor census				
Island	7,195	16,698	21,891	27,579
West Hawaii		13,502	17,784	21,940
Visitor units	6,299	8,952	9,774	11,351
Hotel occupancy rate	51.0%	61.7%	72.8%	72.2%
North Kona district				
Resident population	13,748	22,284	28,543	NA
Share of county	14.9%	18.5%	19.2%	NA
Visitor units	3,774	4,096	4,295	5,053
Share of county	59.9%	45.8%	43.9%	44.5%
Hotel occupancy rate	59.0%	66.8%	72.6%	NA

SOURCES: Hawaii State Data Book, 1985 and 2005; historical and current statistics posted by Hawaii State Department of Labor and Industrial Relations, available at www.hiwi.org.; Visitor Plant Inventory conducted by Hawaii Visitors Bureau, and later by DBEDT.

Island wide, the ratio of visitors to residents in Hawai'i County is about 1 to 6. In West Hawai'i, the ratio is about 1 to 3. In 2000, West Hawai'i had 56,301 residents and an average visitor census of 17,784.

In 2000, approximately 10,000 people worked in Kailua-Kona. Of this number, 70 percent commuted from other places on the island.[2] Data for West Hawai'i zip code areas from 2000 clearly show that the length of commutes typically increases the farther a home area is from the job centers of Kailua-Kona and the South Kohala coast (see Table 4-36). With a mean travel time to work of an hour, Ocean View workers endured a much longer commute than others.

[2] This Census calculation is for the Kailua-Kona Census Designated Place (CDP). Residents of the subdivisions to the north of Kailua-Kona such as Kona Palisades would count as "commuters" to Kailua-Kona along with residents of more distant areas (US Census data calculated by DBEDT, available at http://www.hawaii.gov/dbedt/info/census/Folder.2005-10-13.2927/DaytimePop).

Table 4-36: Mean Commute Times ~~By~~ by Zip Code Area, West Hawai'i, 2000

Town	Zip Code	District	Population	Workers 16+	Work at home	Mean commute time
Ocean View	96737	Kau	2,112	697	47	60.2
Captain Cook	96704	South Kona	6,617	3,212	352	28.9
Kealakekua	96750	South Kona	2,629	1,227	101	22.5
Holualoa	96725	North Kona	2,956	1,441	107	23.5
Kailua-Kona	96740	North Kona	25,132	12,899	648	20.2
Waikoloa	96738	South Kohala	5,269	2,680	115	24.4
Kamuela	96743	South Kohala	8,546	4,047	234	24.8
Hawi	96719	North Kohala	2,615	959	56	29.4
Kapaau	96755	North Kohala	2,973	1,216	52	31.6

Source: 2000 Census, as reported in American Factfinder, www.census.gov.

In all the districts of West Hawai'i, incomes tended to be above the county average in 1999. South Kohala had the highest average income. The share of the population with incomes below poverty level was low in both North Kona and South Kohala, as shown in Table 4-37~~Table 4-37~~. This information can be interpreted in two ways: it indicates local prosperity, but also shows that local prosperity has generated such high housing costs that families with modest incomes can find homes only in outlying areas.

Table 4-37: Income and Poverty Characteristics, ~~From~~ from 2000 Census, Hawai'i County and West Hawai'i Districts

	Hawaii County	Ka'u	South Kona	North Kona	South Kohala	North Kohala
INCOME AND POVERTY						
Household income in 1999						
Under $25,000	30.9%	43.7%	29.3%	22.2%	17.5%	25.3%
$25,000 to $49,999	29.8%	31.1%	28.3%	30.8%	30.7%	26.9%
$50,000 to $74,999	18.4%	14.2%	18.2%	20.0%	22.7%	24.1%
$75,000 to $99,999	10.4%	5.6%	12.8%	11.6%	15.1%	11.8%
$100,000 to $199,999	8.7%	5.2%	9.2%	12.2%	10.8%	10.2%
$200,000 and above	1.8%	0.3%	2.2%	3.3%	3.2%	2.2%
Median Household income	$39,805	$29,466	$42,058	$47,610	$51,379	$47,733
Poverty Status						
Persons below poverty line	22,821	1,376	1,084	2,756	1,100	641
Share of total population below poverty line	15.7%	23.9%	12.7%	9.7%	8.5%	12.1%
Age distribution, persons below poverty line						
0 to 17 years	35.9%	34.4%	31.8%	32.7%	41.9%	27.3%
18 to 64 years	58.0%	56.9%	62.4%	60.9%	53.5%	61.9%
65 to 74 years	3.2%	4.0%	3.0%	3.6%	3.1%	3.0%
75 years and over	2.9%	4.7%	2.9%	2.9%	1.5%	7.8%

SOURCE: 2000 US Census, SF3: data from a sample of households

4.9.1.2 Population Levels and Composition

The population of the county has been growing for decades, but the rate of growth has been slowing. North Kona has seen a faster rate of increase than the island as a whole, although Puna's and South Kohala's populations have increased at even faster rates. Table 4-38~~Table 4-38~~ illustrates both historical and projected population by district.

Table 4-38: Historical and Projected Population, Hawai'i County and Districts, to 2030

	Historical			*Projected*		
	1980	**1990**	**2000**	**2010**	**2020**	**2030**
Puna	11,751	20,781	31,335	40,873	50,665	60,457
South Hilo	42,278	44,639	47,386	49,876	52,430	54,984
North Hilo	1,679	1,541	1,720	1,688	1,708	1,729
Hamakua	5,128	5,545	6,108	6,574	7,064	7,554
North Kohala	3,249	4,291	6,038	7,315	8,710	10,104
South Kohala	4,607	9,140	13,131	17,483	21,745	26,007
North Kona	13,748	22,284	28,543	36,320	43,718	51,115
South Kona	5,914	7,658	8,589	10,062	11,400	12,737
Ka'u	3,699	4,438	5,827	6,783	7,847	8,911
Hawaii County	92,053	120,317	148,677	176,973	205,285	233,597
Average Annual Rate of Change		**1980s**	**1990s**	**2000s**	**2010s**	**2020s**
Puna		5.9%	4.2%	2.7%	2.2%	1.8%
South Hilo		0.5%	0.6%	0.5%	0.5%	0.5%
North Hilo		-0.9%	1.1%	-0.2%	0.1%	0.1%
Hamakua		0.8%	1.0%	0.7%	0.7%	0.7%
North Kohala		2.8%	3.5%	1.9%	1.8%	1.5%
South Kohala		7.1%	3.7%	2.9%	2.2%	1.8%
North Kona		4.9%	2.5%	2.4%	1.9%	1.6%
South Kona		2.6%	1.2%	1.6%	1.3%	1.1%
Ka'u		1.8%	2.8%	1.5%	1.5%	1.3%
Hawaii County		2.7%	2.1%	1.8%	1.5%	1.3%

Notes: District projections were obtained by extending linear trends from historical (1980-2000) ones. The result was a total slightly larger than the official State population projection. All district population estimates were then adjusted downward (by 1.67 percent for 2030) so that the total population for the districts equals the County total.

Source: DBEDT, 2004, adapted by Belt Collins Hawaii.

If historical trends continue, the North Kona population will exceed 43,700 in 2020.[3] The populations of North Kona and South Kohala include a larger share of recent U.S. mainland in-migrants than the island population. The ethnic distribution reported from these districts includes a larger share of Caucasians compared to island-wide statistics and other West Hawai'i districts.

Table 4-39: Residential Stability and In-migration, Hawai'i County and West Hawai'i Districts, from 2000 Census

	North Kona District	Kalaoa CT 215.01	Kalaoa 215.01 BG 1	Kalaoa 215.01 BG 2	Kalaoa 215.01 BG 3	Hualalai CT 215.02	Kailua-Kona CT 216.01	Holualoa CT 216.02	Kahaluu-Keauhou CT 215.03
Residence in 1995 for Persons 5 and Older (2)									
Same house	13,341	4,575	1,501	1,689	1,385	1,956	2,594	2,300	1,916
Different house, same county	7,705	2,548	794	660	1,094	953	1,870	1,417	917
Different county in HI	941	421	95	150	176	102	160	182	76
Different state	3,874	971	291	579	101	407	772	919	805
Outside the US	879	226	60	61	105	96	261	173	123
Percentages									
Same house	49.9%	52.3%	54.8%	53.8%	48.4%	55.7%	45.9%	46.1%	49.9%
Different house, same county	28.8%	29.1%	29.0%	21.0%	38.2%	27.1%	33.1%	28.4%	23.9%
Different county in HI	3.5%	4.8%	3.5%	4.8%	6.2%	2.9%	2.8%	3.6%	2.0%
Different state	14.5%	11.1%	10.6%	18.4%	3.5%	11.6%	13.6%	18.4%	21.0%
Outside the US	3.3%	2.6%	2.2%	1.9%	3.7%	2.7%	4.6%	3.5%	3.2%

Table 4-40: Demographic Characteristics, Hawai'i County and West Hawai'i Districts, from 2000 Census

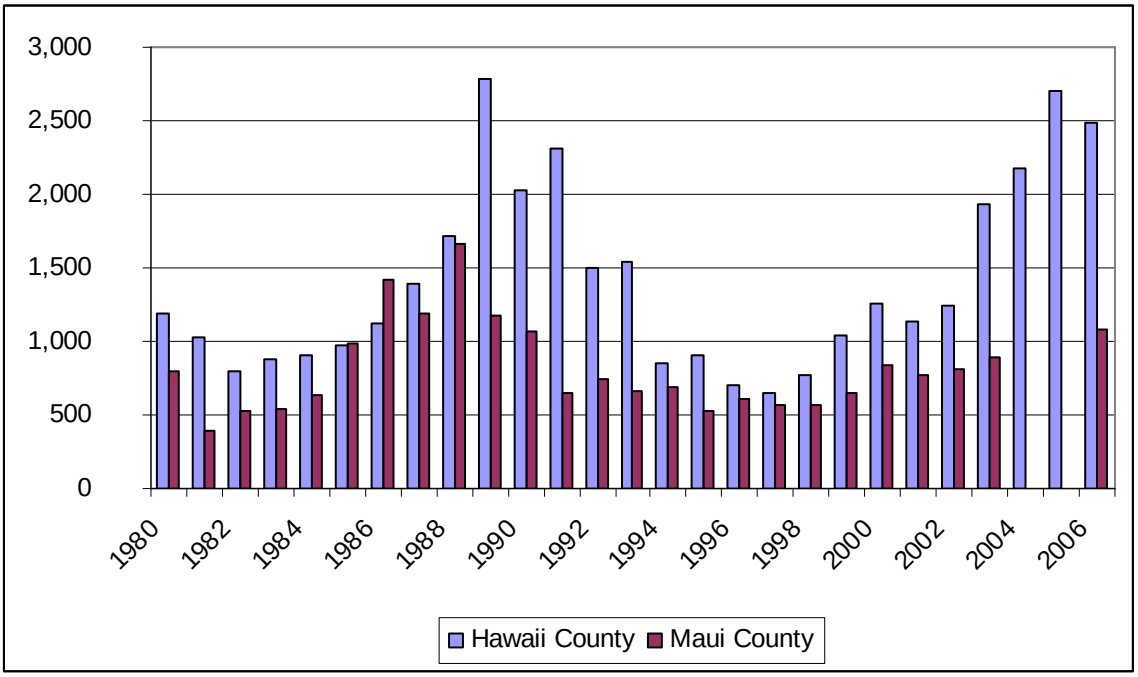
	North Kona District	Kalaoa CT 215.01	Kalaoa 215.01 BG 1	Kalaoa 215.01 BG 2	Kalaoa 215.01 BG 3	Hualalai CT 215.02	Kailua-Kona CT 216.01	Holualoa CT 216.02	Kahaluu-Keauhou CT 215.03
POPULATION									
Total Population (1)	28,543	9,505	3,087	3,307	3,111	3,688	5,987	5,268	4,095
Male	14,349	4,751	1,527	1,708	1,516	1,897	2,988	2,657	2,056
Female	14,194	4,754	1,560	1,599	1,595	1,791	2,999	2,611	2,039
Age Group									
Under 5 years	1,830	760	228	200	332	183	365	293	229
5 to 14 years	3,932	1,571	498	432	641	500	758	626	477
15 to 19 years	1,835	678	227	203	248	251	402	302	202
20 to 64 years	17,581	5,778	1,952	2,095	1,731	2,329	3,713	3,365	2,396
65 to 74 years	1,916	421	101	213	107	235	463	378	419
75 and over	1,449	297	81	164	52	190	286	304	372
Median Age	39.4	35.0	35.0	42.0	27.0	40.9	39.4	41.9	45.1
Race (Federal classification)									
White alone	47.1%	40.0%	46.6%	53.2%	19.5%	49.0%	45.5%	56.0%	52.9%
Black or African American alone	0.4%	0.3%	0.4%	0.5%	0.2%	0.2%	0.6%	0.6%	0.4%
American Indian and Alaska Native alone	0.5%	0.5%	0.5%	0.5%	0.5%	0.2%	0.5%	0.6%	0.5%
Asian alone	16.3%	14.8%	9.6%	16.0%	18.6%	15.2%	19.0%	16.4%	16.9%
Native Hawaiian and Other Pacific Islander alone	10.7%	14.0%	12.4%	7.5%	22.6%	11.3%	9.3%	7.3%	8.9%
Some other race alone	1.4%	0.9%	1.1%	0.6%	1.0%	1.0%	2.5%	1.7%	1.1%
Two or more races	23.5%	29.5%	29.5%	21.8%	37.6%	23.1%	22.7%	17.4%	19.2%

[3] The County developed three projections at the district level in 2000 for planning purposes. Since these projections did not draw on 2000 Census data, they are viewed here as outdated. It should be noted that the County's projections showed more rapid growth than the State projections discussed here.

4.9.1.3 Housing Inventory and Market

Since 1980, about 38,000 building permits were issued to construct new single-family homes in the county. Figure 4-26~~426Figure 4-25~~ shows that construction has gone through cycles, with much of the new housing built in economic booms. Compared to Maui, Hawai‘i County’s volume of new construction during boom times has been much larger, even though similar cycles are evident in both cases. Hawai‘i County has amassed a larger housing inventory over time. As of mid-2006, the county had an estimated total of 77,577 single- and multi-family units. [4]

Figure 4-26: New Single-Family Residential Building Permits, Hawai‘i and Maui Counties, 1980 - 2006



SOURCE: Time series data from the Hawai‘i State Data Book, available at http://www.hawaii.gov/dbedt/info /economic/databook/Data_Book_time_series/.

Housing costs are higher near job centers. The share of owner-occupied housing units by residents, rather than those rented, is lower near the job centers. Moreover, homeowners in the outlying districts are less likely to be paying a large part of their incomes for housing than are homeowners in North Kona and South Kohala. Table 4-41~~Table 4-41~~ and Table 4-42~~Table 4-42~~

[4] SMS Research & Marketing Services, Inc. *Housing Policy Study, 2006.* (Honolulu, HI~~:~~ 2007). The study was developed with the State and County housing agencies. Housing unit counts can be treated as updates of the counts otherwise published by the State, while data on resident preferences (mentioned below) are survey-based.

show 2000 Census housing data by district and zip code area, with the areas arranged from the southern end to the north of West Hawai'i.

Table 4-41: Housing Units and Cost, fFrom 2000 Census, Hawai'i County and West Hawai'i Districts

	Hawaii County	Ka'u	South Kona	North Kona	South Kohala	North Kohala
HOUSING						
Housing Units (1)						
Occupied	52,985	2,209	3,113	10,522	4,648	1,751
Vacant	9,689	674	401	3,438	1,146	171
Vacant for seasonal use	5,101	292	218	2,753	847	58
Vacant share of all units	15.5%	23.4%	11.4%	24.6%	19.8%	8.9%
Tenure of occupied housing units						
Owner occupied	64.5%	74.2%	62.2%	58.5%	58.9%	70.4%
Renter occupied	35.5%	25.8%	37.8%	41.5%	41.1%	29.6%
Average household size	2.75	2.63	2.76	2.70	2.81	2.97
Housing Costs (2)						
Median contract rent	$553	$371	$506	$683	$724	$639
Median gross rent	$645	$431	$572	$745	$811	$739
Owner-occupant housing costs						
Median, for owners with a mortgage	$1,133	$749	$1,323	$1,423	$1,385	$1,245
Renters, paying 30% to 39% of income	2.9%	3.4%	3.1%	3.6%	2.2%	2.4%
Renters, paying > 40% of income	4.6%	9.5%	6.6%	2.3%	4.0%	4.0%
Owners, with mortgage, paying 30% to 39% of income	10.1%	7.5%	9.2%	13.3%	12.8%	11.2%
Owners, with mortgage, paying 40% + of income	13.6%	11.0%	14.9%	19.1%	21.3%	12.1%

NOTES: (!) 2000 US Census, SF 1, from all households.
(2) 2000 Census, SF 3, from a sample of households.

Table 4-42: 2000 Census Housing Data, by Zip Code Area

Town	Zip Code	District	Population	Housing units	Renter-occupied units	Rental share of occupied units	Vacant units	Vacant share of total units
Ocean View	96737	Kau	2,112	1,273	207	23%	368	29%
Captain Cook	96704	South Kona	6,617	2,701	827	35%	344	13%
Kealakekua	96750	South Kona	2,629	1,049	498	51%	71	7%
Holualoa	96725	North Kona	2,956	1,293	483	44%	192	15%
Kailua-Kona	96740	North Kona	25,132	12,605	3,749	40%	3,319	26%
Waikoloa	96738	South Kohala	5,269	2,350	893	47%	444	19%
Kamuela	96743	South Kohala	8,546	3,748	1,093	37%	763	20%
Hawi	96719	North Kohala	2,615	671	176	29%	71	11%
Kapaau	96755	North Kohala	2,973	1,040	297	31%	74	7%

Source: 2000 Census, as reported in American Factfinder, www.census.gov.

As much as a quarter of the North Kona housing stock is vacant. While a few units will simply be vacant because they are for sale or rent, most of those listed as vacant are reserved for use by non-residents, whether as vacation rentals, second homes, or fractional ownership units.

In 2006, out-of-state owners held 9.9 percent of single-family properties and 16 percent of residential condominiums in the county.[5] In addition, some units were locally owned but placed in visitor rental pools.

Non-residents are disproportionately involved in the real estate market. From 2001 to 2005, out-of-state buyers accounted for about 35 percent of the county's single-family home sales and 75 percent of condominium sales.[6] Consequently, market prices reflect both local and non-local buying power, and the median home price is much higher than the average household can afford. In 2006, price affordability for a family with a median income was only 69 percent of the median sales price in the county. In short, many of the homes sold at prices that only a few local families – and many more offshore buyers – could afford.

Evidence of resident demand for new housing units is abundant. The housing market continues to be active, even though prices have reached levels that many families cannot afford. Based on a 2006 survey of 1,102 respondents in the county, SMS Research estimates that 25,769 households or 42.1 percent of existing households in the county expect to move in the future.[7] Of those, about 70 percent would prefer to own their next home.

About a third of Hawai‘i County respondents expecting to move named North Kona as their preferred destination. Total demand for housing in North Kona from Hawai‘i residents statewide as of 2006 is estimated at about 7,200 households, including all those expecting to move at some time in the future.

4.9.2 Project Area Existing Socio-Economic Characteristics

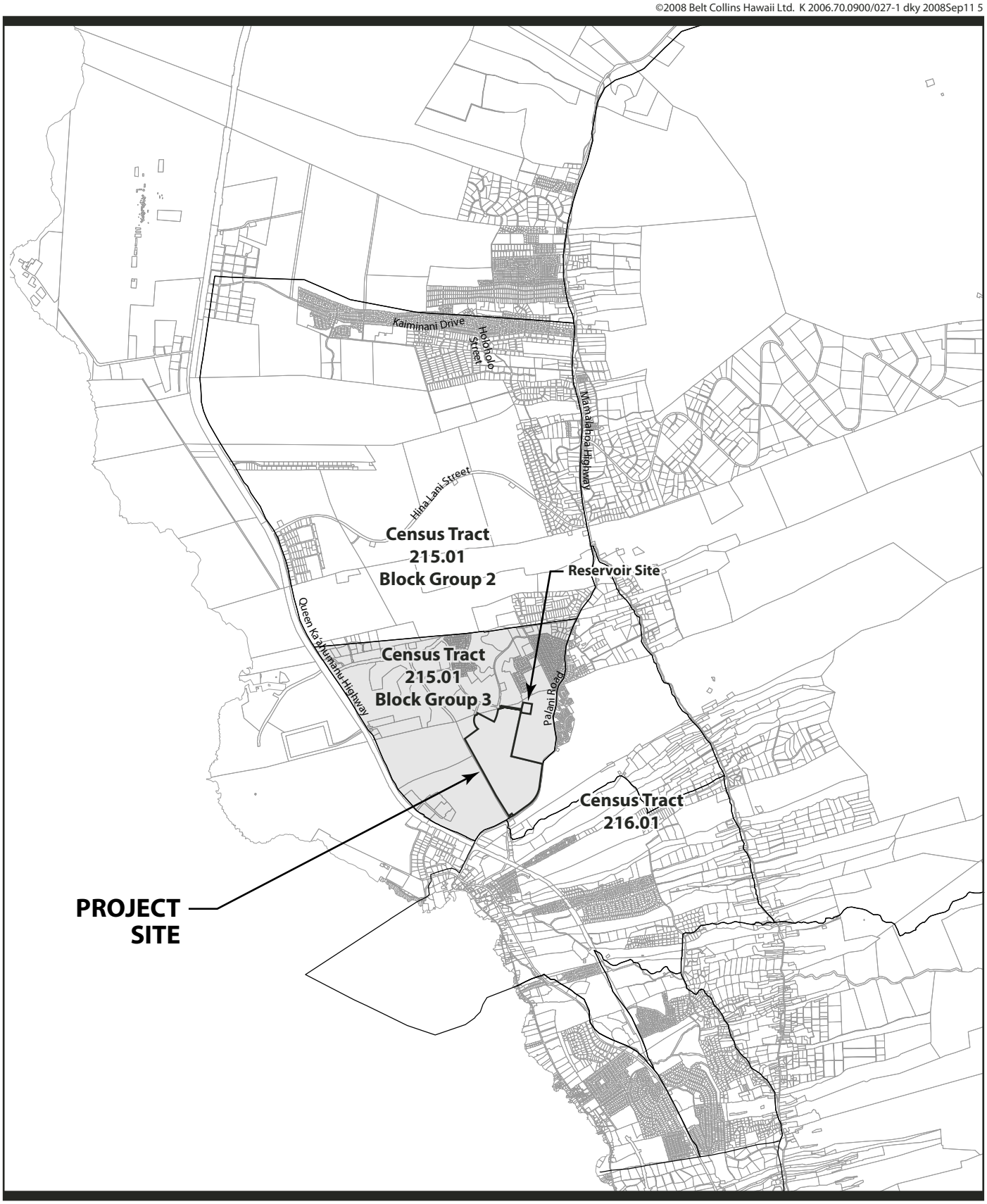
The project site lies within Census Tract 215.01, Block Group 3, as shown in Figure 4-27~~427Figure 4-26~~. In addition to the project site, that block group also includes two residential

5 SMS Research & Marketing Services Inc., *Housing Policy Study, 2006*. Prepared for Hawaii Housing Finance and Development Corporation and Housing Officers/Administrators for Honolulu, Maui, Hawaii and Kauai Counties. Honolulu, HI~~:~~ 2007. Posted at http://www.hawaii.gov/dbedt/hhfdc/resources/Reports.

6 A. Peterson, "Hawaii's Part-Time Residents." Presentation to Tourism and Travel Research Association by SMS Research. Posted at http://www.smshawaii.com/ParttimeResidents.pdf.

7 SMS Research & Marketing Services, Inc. *Housing Policy Study, 2006.*

areas: Kealakehe Village on and near Kealaka‘a Street, and Kaniohale, in the Villages of La‘i ‘Opua.



Belt Collins

NORTH

0 3500 7000

SCALE IN FEET

Figure 4-27
CENSUS GEOGRAPHY, PROJECT AREA

HHFDC Keahuolu Affordable Housing Project
Environmental Impact Statement
September 2008

The Makalapua shopping center is also located in the block group on QLT land west of the project site. Across Palani Road from the project are undeveloped QLT parcels, and below Henry Street, another commercial area (Crossroads Shopping Center).

The Block Group stands out as an area with large undeveloped sections, between the commercial and industrial areas of Kailua to the west and single-family residential areas to the north and east. To the south are single-family areas, along with concentrations of multi-family housing serving vacation and upscale markets toward the shore.

4.9.2.1 Economic Characteristics

The region's visitor plant extends along the coast, from Keauhou to the Mauna Kea Resort. Retail activity is centered on the intersection of Queen Ka'ahumanu Highway with Palani Road. New and proposed retail areas are dispersed, but much is within a few miles of that intersection (e.g., Lowe's on Henry Street, Costco in the Kaloko Industrial Park, and the planned Kona Commons, next to the existing QLT industrial area makai of the Queen Ka'ahumanu Highway).

Residents of Block Group 3 of Census Tract 215.01, the area surrounding the project site, have lower incomes than households in the other block groups of tract 215.01. The incidence of poverty is high in the immediate project area (see Table 4-43~~Table 4-43~~). Block Group 3 also includes more who report themselves as Native Hawaiian (22.6 percent of respondents) or of two or more races (37.6 percent) than residents of the other sub-areas.

In 2000, many residents of the immediate area worked in hotel and food services (18 percent). The next most common industries were transportation and warehousing (9.7 percent) and construction (9.5 percent).

4.9.2.2 Population and Housing

In 2000, some 3,100 people lived in Census Tract 215.01, Block Group 3. The average household had 3.37 members, much more than the district average (2.7 persons per household).

Table 4-43: Income and Poverty Characteristics, fFrom 2000 Census, North Kona District and Sub-Aareas

	North Kona District	Kalaoa CT 215.01	Kalaoa 215.01 BG 1	Kalaoa 215.01 BG 2	Kalaoa 215.01 BG 3	Hualalai CT 215.02	Kailua-Kona CT 216.01	Holualoa CT 216.02	Kahaluu-Keauhou CT 215.03
INCOME AND POVERTY									
Household income in 1999									
Under $25,000	22.2%	18.6%	16.9%	11.9%	28.2%	25.4%	24.7%	18.1%	28.2%
$25,000 to $49,999	30.8%	31.8%	36.6%	26.3%	33.4%	27.9%	36.2%	29.0%	25.4%
$50,000 to $74,999	20.0%	21.4%	18.1%	24.3%	21.5%	16.9%	20.6%	19.1%	20.0%
$75,000 to $99,999	11.6%	13.8%	12.8%	17.3%	10.9%	9.8%	9.3%	13.1%	10.4%
$100,000 to $199,999	12.2%	11.0%	11.7%	17.3%	2.4%	16.2%	7.4%	17.7%	10.7%
$200,000 and above	3.3%	3.3%	3.8%	3.0%	3.0%	3.9%	1.8%	3.0%	5.3%
Median Household income	$47,610	$49,772	$48,415	$61,181	$41,086	$46,100	$40,765	$51,590	$45,076
Share of total population below poverty line	9.7%	8.5%	7.8%	3.6%	14.4%	9.5%	8.7%	7.5%	17.1%
Age distribution, persons below poverty line									
0 to 17 years	32.7%	34.9%	37.5%	18.5%	37.9%	33.3%	27.7%	17.7%	42.0%
18 to 64 years	60.9%	60.3%	53.0%	81.5%	58.5%	56.6%	67.8%	69.4%	53.7%
65 to 74 years	3.6%	2.0%	4.7%	0.0%	1.1%	8.9%	0.0%	6.1%	3.9%
75 years and over	2.9%	2.8%	4.7%	0.0%	2.5%	1.1%	4.4%	6.8%	0.4%

Source: U.S. Census, SF3 data from a sample of households.

The median age was 27 years, far lower than for the district as a whole (39.4 years) and the other sub-areas studied. In 2000, only 14 housing units in the immediate area of a total of 994 units were vacant, held for seasonal use. Homeownership was less prevalent than in other sub-areas. The residents of 51.2 percent of occupied housing units were homeowners as compared to 58.5 percent for the district as a whole.

Housing costs for both renters and owners were lower in the immediate area than in the surrounding sub-areas, as shown in Table 4-44. However, over half of the renters in the area paid 30 percent or more of their income for housing. The immediate area includes not only DHHL housing, but also public housing: the La'ilani, Kealakehe, Kaimalino, and Jack Hall housing projects.

Table 4-44: Housing Costs, fFrom 2000 Census, North Kona District and Sub-Aareas

	North Kona District	Kalaoa CT 215.01	Kalaoa 215.01 BG 1	Kalaoa 215.01 BG 2	Kalaoa 215.01 BG 3	Hualalai CT 215.02	Kailua-Kona CT 216.01	Holualoa CT 216.02	Kahaluu-Keauhou CT 215.03
Households (1)									
Number	10,522	3,142	1,063	1,159	920	1,419	2,331	2,040	1,590
Persons in households	28,410	9,488	3,087	3,301	3,100	3,688	5,974	5,268	3,992
Average household size	2.70	3.02	2.90	2.85	3.37	2.60	2.56	2.58	2.51
Housing Costs (2)									
Median Contract rent	$683	$740	$920	$998	$509	$577	$0	$745	$694
Median Gross rent	$745	$822	$959	$1,158	$583	$638	$727	$828	$746
Owner-occupant housing costs									
Median, for owners with a mortgage	$1,423	$1,392	$1,285	$1,630	$1,223	$1,602	$1,301	$1,532	$1,493
Share of households with high housing costs									
Renters paying 30% to 39% of income	13.9%	19.3%	13.1%	16.2%	26.9%	9.8%	16.8%	8.0%	8.7%
Renters paying > 40% of income	34.5%	35.0%	41.8%	37.8%	27.6%	40.2%	35.4%	22.6%	41.7%
Owners paying 30% to 39% of income	13.5%	10.4%	13.2%	10.6%	6.9%	5.2%	16.6%	25.6%	6.1%
Owners paying > 40% of income	24.9%	25.0%	23.9%	27.9%	22.2%	27.6%	21.2%	28.2%	22.3%

NOTES:
(!) 2000 US Census, SF 1, from all households.
(2) 2000 Census, SF 3, from a sample of households.

4.9.3 Community Issues and Concerns

Information about North Kona residents' views of their community and concerns about the area's future is available from: (1) outreach efforts by the County conducted as part of the Community Development Plan process; (2) debates about proposed new development; (3) survey data; and (4) discussions with residents by Belt Collins Hawaii staff.[8]

4.9.3.1 Issues Independent of the Keahuolu Project

West Hawai'i residents have repeatedly pointed to traffic congestion as a problem affecting their quality of life. The problem is exacerbated by the high cost of housing near Kailua-Kona. Many workforce families are living in such areas as Hawai'i Ocean View Estates, which is far from jobs, commuting daily to work. The idea that development is eroding residents' quality of life has motivated protests over new development proposals along Queen Ka'ahumanu Highway and demands that the State and County move quickly to improve major roadways.

[8] Belt Collins did not conduct a full-scale interview series for this project. Instead, staff continued earlier discussions about community values and change with residents (conducted with regard to the Keahole generating plant expansion and the proposed Kula Nei subdivision). Also, an earlier version of the project's concept plans was sent to a range of stakeholders for comment.

Residents' urgent demands for road improvements have been heard in roadside demonstrations, planning focus groups, meetings with County authorities, and hearings on development proposals. A small survey of registered voters in West Hawai'i suggests that concerns about education and housing are also prominent:

Table 4-45: Survey Responses, 2006, Hawai'i and West Hawai'i Senate District

	State	County Average	District 3
Most important issue facing the State:			
Traffic	31%	15%	30%
Public education	29%	27%	35%
Housing	29%	24%	32%
Economy	24%	25%	25%
Crime, drugs	15%	17%	10%
Resource management	11%	11%	23%
Political reform	9%	11%	13%
Gas	8%	13%	7%

NOTE: State results are for 1,500 voters called in August 2006, with results weighted by island. "County Average" simply averages results for the three Hawaii County Senatorial districts. District 3 includes West Hawaii and part of Ka'u district. Sample size per Senatorial district is only 60 respondents.
SOURCE: "The People's Pulse," Summer-Fall 2006, posted at www.omnitrakgroup.com

A separate survey, dealing with issues that might be seen as tourism-related, showed the cost of housing to be crucial to residents throughout Hawai'i. Perhaps the most striking finding in Table 4-46 is that crime is much less of a perceived problem for West Hawai'i residents than for people in other areas.

One of the questions in the survey asked residents' about their sense that they have little control over their region's and island's future. When asked whether "This island is being run for tourists at the expense of local people," 39 percent of West Hawai'i respondents strongly agreed, as opposed to 26 percent of East Hawai'i respondents. Residents of Maui and Kauai counties were even more likely to agree strongly with this claim. The difference between East and West Hawai'i is likely due in part to the size of the tourism economy in West Hawai'i and, in part, to West Hawai'i residents' sense that decision-makers in both Hilo and Honolulu fail to understand and give due priority to West Hawai'i community needs.

Table 4-46: Issues of Concern to Residents, West Hawai'i, County and State, 2006

	State	Hawaii County	West Hawaii
% of respondents identifying issue as "Big problem"			
Cost of housing	73%	67%	66%
Average income for residents	40%	38%	39%
Crime	52%	46%	42%
Preservation of Native Hawaiian culture	30%	26%	25%
Air or water pollution	31%	22%	23%
Number and quality of parks	18%	18%	22%
Sample size	1,609	413	204

Source: Market Trends Pacific, Inc. and John M. Knox, Inc., 2006.

The draft Kona Community Development Plan, as reviewed by the Kona Steering Committee and posted in October 2007, identifies an overall vision for the region's future and eight "guiding principles."[9] Those principles indicate the range and balance of community aims:

- Protect Kona's natural resources and culture;
- Provide connectivity and transportation choices;
- Provide housing choices;
- Provide recreation opportunities;
- Direct future growth patterns:
  a. In compact villages, largely north of Kailua;
  b. Limit density in South Kona and character should remain rural; and
  c. Neighborhood character should emphasize diversity, history, the host culture, and respect for the natural environment;
- Provide infrastructure and essential facilities concurrent with growth;
- Encourage a diverse and vibrant economy emphasizing agriculture and sustainable industries; and
- Governance should manage growth, encourage cooperation among stakeholders, and be implemented equitably and consistently.

[9] Posted at http://www.hcrc.info/hawai-i-island-plan/kona/cdp-draft-chapters/KCDP-thru-4.4-SC-comments-10-11-07.pdf /view, and downloaded November 16, 2007.

Several of those interviewed reflected the general view that development has occurred too quickly. Many in the community want to see concurrency (i.e., future development should occur at the same time as infrastructure development). Their concerns usually focus on roads, but other public facilities, notably schools and recreation space, were mentioned as being in short supply. Some also are concerned about preserving or re-creating a local sense of place.

Some interviewees mentioned that recreation and community facilities are needed in North Kona. While they commented that regional facilities at Old Airport Park are inadequate, they were more interested in seeing new recreation sites dispersed through the urban area than in expanding the regional park.

4.9.3.2 Issues and Concerns wWith Regard to the Project

West Hawai‘i residents who were interviewed agree that housing is badly needed in North Kona for residents. Some viewed the Keahuolu project as valuable, while others simply viewed it as inevitable, given the pressure for new housing in the area. Others emphasized congestion and limited infrastructure, and thought the project could add to the region’s problems.

All those interviewed raised questions about traffic associated with the project. Repeatedly, residents were skeptical that planned road improvements would happen in a timely way or would address traffic congestion effectively. Accordingly, they tended to question whether the project would be as effective as hoped in easing regional highway congestion.

Some questioned whether the Keahuolu project would provide affordable housing to those who need it most in North Kona. Housing is needed for people at many income levels, but “affordable housing,” as defined by County regulations, is too expensive for many households (e.g., such as ones supported by a single hotel worker). A few raised questions about the concentration of State-sponsored housing in the area, viewing the project, the DHHL areas, and older low-income housing projects as similar and as potentially a “ghetto” (i.e., a low-income housing area afflicted by crime and other social problems).

Some mentioned plans for a community center on DHHL land adjoining the project, and hoped the project would either contribute to developing that center or include comparable community facilities.

4.9.4 Potential Socio-Economic Impacts

4.9.4.1 Future Socio-Economic Conditions wWithout tThe Project

As noted earlier, housing growth in North Kona has continued for many years. There is ample demand to justify new construction for resident and visitor markets.

Expansion of the resident housing stock appears to be imminent. In North Kona, the Kaloko Heights project and Palamanui (on Queen Kaʻahumanu Highway, north of Keahole Airport) could add more than 2,300 units to the local residential housing stock. Smaller projects by private developers could include hundreds more homes – including both market and affordable units – a few miles north or south of Kailua-Kona.

Next to the Keahuolu project, both DHHL and QLT are planning new residential developments. DHHL controls over 500 acres that has been master-planned as a residential community. To date, the Kaniohale residential area with 225 units has been built. In the earlier Kealakehe master plan, this was Village 3. Villages 4 and 5, with about 300 units, are slated for development soon. DHHL controls seven "villages." Eventual build-out could be at least double that planned for the next few years. QLT is planning commercial, industrial, and residential development of its lands west of the Keahuolu project site.

Plans for a community center complex on DHHL land, between Kealakehe High School and the project site, are being developed by Laʻi ʻOpua 2020, a local stakeholder group. They recently commissioned a feasibility and planning study.

In South Kohala, Castle & Cooke has already built early increments of its Wehilani development, while the County and UniDev are beginning construction of a workforce housing project with some 1,200 units also in Waikoloa Village. The latter project will give preference to

County employees, but it has been planned as a response to a wider need for workforce housing near the coastal resort area.

With more homes built in the future, residents can hope to live closer to work. With more housing opportunities, the workforce will be able to grow.

Prospects for resort and non-residential housing growth are less clear. New development of resort homes and timeshare projects is likely within the Keauhou and Waikoloa resorts. Additional resort housing will likely be built in the Kuki'o and Hualalai resort areas of North Kona. The Rutter project at Kohanaiki is expected to add 500 housing units. The much larger Jacoby development at Honokohau, which would include timeshares, hotel rooms, and a new, larger marina, is proposed for State lands. It has been criticized by the County administration, which sees it as inappropriate given current zoning and problems ~~of~~ with traffic congestion.

Work on the Kona Community Development Plan is underway. Consultants and community stakeholders are considering plans to expand the regional road network. Roads running between Palani Road and Queen Ka'ahumanu Highway would relieve some of the congestion now found on those major thoroughfares. The Holoholo Street route could link up with an extension of Kealaka'a Street and provide the highest of three connector roads in the region north of Kailua-Kona. Transit development is also being considered for this area, with bus routes anticipated on lower connector roads.[10]

Improvements on Queen Ka'ahumanu Highway and Palani Road are in process to improve safety and traffic flow north of Kailua-Kona. A major mid-level connector road, the Ane Keohokalole Highway, is being planned by the County. These projects address major concerns of residents. Roy Takemoto, a County official, has estimated that the new road work will result in much less traffic congestion by 2010.[11]

[10] Studies, presentations and meeting minutes for the Kona Community Development Plan process are posted at http://www.hawaiiislandplan.com/. The account in this section is based on those materials and discussions with stakeholders and planners.

[11] Quirk, J. "Kona-side Traffic Should Ease in Three Years." Hawaii Tribune-Herald, March 18, 2007.

4.9.4.2 Future Socio-Economic Conditions wWith the Project

As a workforce housing development, the project is planned to have beneficial socio-economic impacts. This section provides detailed accounts of specific impacts, covering both immediate and cumulative impacts.

Economic Impacts

Construction Employment and Wages

Development of the Keahuolu project is expected to involve residential construction over a period of four to eight years, as shown in Table 4-47Table 4-47. Commercial construction could follow residential development and occur in two phases. Project construction work will include off-site infrastructure development, on-site development of lots and infrastructure, and housing construction. The next table shows construction spending and direct construction labor, estimated in full-time equivalent jobs, for selected years and cumulatively over the construction period.[12]

Table 4-47: Preliminary Timetable for Construction

Year	Concept A No. Units	Concept B No. Units	Concept C No. Units	Commercial (SF)
2010	300	300	300	
2011	300	300	300	
2012	300	300	300	
2013	120	300	300	
2014		300	300	
2015		300	300	
2016		40	300	
2017			230	
2018				100,000
2019				
2020				97,000
Total	1,020	1,840	2,330	197,000

Source: HHFDC.

[12] Many specialized construction jobs are short-term. For example, an electrician may spend a week or less on a project where others work throughout the year. The number of workers hired is likely to be larger than the estimated number of full-time equivalent jobs. Also, the direct construction workforce includes workers in the offices and baseyards of firms involved in a project, as well as ones actually on-site.

Direct jobs are created within firms and by engaging subcontractors in building the project. When these jobholders in turn buy materials and equipment in the local economy, they contribute to the creation of indirect jobs (for example, in home supply stores or from concrete manufacturing firms.) When in turn direct and indirect workers spend their wages, they create induced jobs, supported by the movement of capital from those wages through the local economy. Induced jobs largely consist of retail, service, and government jobs.

Wages can be estimated from records of average wages in the construction industry in the County. The indirect and induced jobs are spread throughout the economy, so they are estimated from average wages of all workers.

Table 4-48: Construction-Related Spending, Jobs, and Wages

	2010	2015	2020	Cumulative, to 2020
Total construction consts (Millions)				
Concept A	$126.1	$0.0	$7.3	$403.4
Concept B	$125.2	$71.8	$7.3	$597.9
Concept C	$113.0	$61.0	$7.3	$623.4
Direct construction workforce (annual person-years)				
Concept A	639	-	37	2,044
Concept B	634	364	37	3,030
Concept C	573	309	37	3,159
Total construction-related workforce (annual person-years)				
Concept A	1,527	-	88	4,885
Concept B	1,516	869	88	7,241
Concept C	1,369	738	88	7,549
Direct construction wages (Millions, constant 2007 $s)				
Concept A	$34.2	$0.0	$2.0	$109.5
Concept B	$34.0	$19.5	$2.0	$162.3
Concept C	$30.7	$16.5	$2.0	$169.2
Total construction-related wages (Millions, constant 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$211.9
Concept B	$65.8	$37.7	$3.8	$314.1
Concept C	$59.4	$32.0	$3.8	$327.5

	2010	2015	2020	Cumulative, to 2020
Total construction consts (Millions)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Direct construction workforce (annual person-years)				
Concept A	639	-	37	2,044
Concept B	634	364	37	3,030
Concept C	573	309	37	3,159
Total construction-related workforce (annual person-years)				
Concept A	1,527	-	88	4,885
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Concept A	$66.2	$0.0	$3.8	$211.9
Concept B	$65.8	$37.7	$3.8	$314.1
Concept C	$59.4	$32.0	$3.8	$327.5

Notes: Construction costs estimated by Belt Collins Hawaii. Cost estimates cover on-site and off-site infrastructure, residential and commercial construction. School construction costs are not included. Workforce full-time equivalent jobs are estimated based on the relation between statewide construction spending and the construction workforce. Indirect and induced construction-related workforce calculated from the State's Inter-County Input-Output Model (2002 version). Wages estimated from 2005 average annual industry wage for Hawai'i County and total covered employment (for indirect and induced jobs), using 2005 data adjusted to 2007 in line with increases in the Consumer Price Index.

Sources: DBEDT, State of Hawaii Data Book 2006 (Honolulu, HI: 2007); *The Hawaii Inter-County Input-Output Study: 2002 Benchmark Report*. Honolulu, HI:, 2007. Posted at http://www.hawaii.gov/dbedt/info/economic/data_reports/2002_Intercounty_I-O/. Department of Labor and Industrial Relations, Employment and Payrolls in Hawaii, 2005. Honolulu, HI:, 2006.

On the average, some 204 to 243 full-time direct jobs will be involved in construction of the Keahuolu Project annually, while total construction-related employment will reach 489 to 581 jobs annually, as shown in Table 4-49:

Table 4-49: Average Annual Construction-Related Workforce

Concept	Construction Period	Average Annual Construction Workforce	
		Direct	*Total*
A	10 years	204	489 person-years
B	13 years	233	557 person-years
B	13 years	243	581 person-years

Operations Employment and Wages

Residential projects do not result in the creation of many permanent jobs. Resident managers and a few landscape, maintenance, and security workers could be employed on a permanent basis at Keahuolu. Within the neighborhood commercial area, as many as 800 jobs could be located when it is fully built out and occupied. These jobs would exist in Hawai‘i County wherever families find it possible to live: they would still exist even if the project is not built.

The location of direct jobs at the project site is a socio-economic impact, affecting residents and their neighbors. The indirect and induced jobs associated with operations on the project site are not, since those operations, funded by resident spending, would occur somewhere in the County with or without the project. Accordingly, indirect and induced jobs associated with operations are not calculated here.

Labor Force Impacts

The Keahuolu project will affect the regional labor force in part by creating jobs, but more importantly, by providing housing for service, retail, managerial, and professional workers. As more housing units are built, fewer workers will face unacceptable housing choices and/or difficult daily commutes. People living close to Kailua-Kona are likely to have more employment options, including full- and part-time employment. By shortening the commute time for workers and their families, the project is likely to increase labor force participation, with some joining the labor force and others changing from part-time to full-time employment. For young people, the number of easily accessible jobs is far greater in Kailua-Kona than in outlying areas. Consequently, high-school student participation in the labor force will likely be higher. (In

2000, civilian workers amounted to 70 percent of persons 16 and over in North Kona, compared to 53 percent in Ka‘u and 54 percent in North Kohala.)

With fewer obstacles to work, residents living near job centers are more likely to keep their jobs than ones with long commutes. A long-term result of increasing the housing stock for Kailua-Kona workers will likely be lower job turnover.

Population Impacts

Table 4-51 shows calculations for on-site population. When fully built, the Keahuolu project will house some 2,988 to 6,826 residents.

The project is unlikely to attract any new residents or visitors to Hawai‘i. Affordable units will be sold or rented to full-time occupants. A resident preference will be established for the initial sale of market units. While some market units could theoretically be sold to non-residents, this seems unlikely given both strong resident demand and the design of the project as a community for residents, not a resort.

Table 4-50: Direct Operations Jobs and Wages: Annual Estimates for Selected Years

	2010	2015	2020
Operations Jobs			
Concept A			
Residential			
Building Services	$4	$12	$12
Security	$1	$3	$3
Grounds and maint	$4	$4	$4
Commercial	$0	$0	$788
	$9	$20	$808
Concept B			
Residential			
Building Services	4	24	25
Security	1	6	6
Grounds and maint	4	4	4
Commercial	-	-	788
	9	34	823
Concept C			
Residential			
Building Services	6	36	47
Security	2	9	12
Grounds and maint	4	4	4
Commercial	-	-	788
	12	49	850
Operations Wages			
(In Millions of Constant 2007 $s)			
Concept A	$0.2	$0.5	$22.0
Concept B	$0.2	$0.9	$22.4
Concept C	$0.3	$1.2	$23.1

	2010	2015	2020
Operations Jobs			
Concept A			
Residential			
Building Services	4	12	12
Security	1	3	3
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	20	808
Concept B			
Residential			
Building Services	4	24	25
Security	1	6	6
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	34	823
Concept C			
Residential			
Building Services	6	36	47
Security	2	9	12
Grounds and maintenance	4	4	4
Commercial	-	-	788
	12	49	850
Operations Wages			
(In Millions of Constant 2007 $s)			
Concept A	$0.2	$0.5	$22.0
Concept B	$0.2	$0.9	$22.4
Concept C	$0.3	$1.2	$23.1

Notes: Building services and security jobs are associated with multifamily construction; grounds and maintenance jobs are associated with opening up and using the entire project site. Commercial jobs estimated at 4 jobs per 1,000 square feet gross leasable area.

Table 4-51: On-Site Occupancy and Population~~, Keahuolu Project~~

	2010	2015	2020
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Units Occupied			
Concept A	291	989	989
Concept B	291	1,746	1,785
Concept C	291	1,746	2,260
Resident Population			
Concept A	879	2,988	2,988
Concept B	879	5,273	5,390
Concept C	879	5,273	6,826

Notes: Occupancy is estimated at 97%, to allow for normal vacancies due to sales or change in renters. Because of strong demand, occupancy is expected to be high from initial construction through the period studied. Population estimated from the 2000 Census data for Census Tract 215.01, which contains a broad mix of local residents. Its average household size (3.02 persons per household) was well above the district average (2.70 persons per household).

Impacts on the Housing Market

Demand for homes in North Kona is already strong and expected to exceed planned production, especially of housing for middle-income families. (See the discussion of housing demand in 2006, in Chapter 2.) Also, the district resident population is expected to increase by some 6,400 persons between 2010 and 2020. That increase accounts for approximately 2,370 households at the 2000 district average household size of 2.70 persons/household. Additional housing demand at the regional level will be due to movement of the island of Hawai‘i residents to homes nearer the urban center and to purchases by non-residents, whether for vacation homes or retirement.

Initial plans for the Keahuolu project call for production of 300 housing units annually, with the first homes available in 2010.[13] Taken together with additional DHHL increments in La‘i ‘Opua, affordable units and some of the market housing produced in Palamanui, new housing in Waikoloa Village, and smaller projects, the cumulative impact of planned housing developments

[13] As noted in earlier chapters, the three conceptual alternatives represent the range of potential development that could be done in response to HHFDC’s Request for Proposals. The actual volume and timing of construction will be refined by the developer over time.

should be a significant reduction in demand. With much more housing available for residents, the price of moderate homes can be expected to stabilize. A wide range of prices and housing types (including apartments, condominiums, townhomes, homes, self-help housing, and properties in leased-land as well as fee-simple communities) will be available to West Hawai‘i residents.

The project's impact on housing can be estimated in relation to demand indicators. The 2006 *Hawaii Housing Policy Study* suggests that there is demand from about 7,200 resident households for units in North Kona in the next few years. In addition, population growth will account for formation of at least 2,370 new households.

Some 1,020 to 2,330 units are proposed in the different concepts for the Keahuolu project. The net increase in units is smaller, since the project also includes operational jobs, and the workers in those jobs will need housing. Table 4-52~~Table 4-52~~ shows the net housing impact of the project. The net addition to the housing stock is estimated as 511 units under Concept A to 1,794 units under Concept C. Given a regional demand for approximately 9,570 units (7,200 units existing demand plus 2,370 new households), the net contribution of the project amounts to 5.3 to 18.7 percent of regional demand.

Table 4-52: Net Housing Impact of Keahuolu Project

	2010	2015	2020
On-site Jobs			
Concept A	9	20	808
Concept B	9	34	823
Concept C	12	49	850
On-site Workers' Households (1)			
Concept A	5	12	509
Concept B	6	22	519
Concept C	7	31	536
Population supported by On-site jobs (2)			
Concept A	16	37	1,539
Concept B	17	65	1,568
Concept C	22	93	1,620
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Net Units (Units Built - On-site Workers' Households)			
Concept A	295	1,008	511
Concept B	294	1,778	1,321
Concept C	293	1,769	1,794

Notes:

1 Workers' households are assumed to include 1.585 workers per household, on average, based on averages for CT 215.01 in 2000.

2 Workforce households assumed to average 3.02 persons/household (based on 2000 average household size, CT 215.01).

Fiscal Impacts

Government Revenues

Development of the Keahuolu project will result in revenues for the State associated with construction and sale of property. The County will gain revenues from taxes on homes and residential land.

The State is expected to gain from corporate income taxes on firms building the project, from excise taxes on spending by construction-related workers in the local economy, and from income taxes on construction-related workers' wages. Because the project is being built to increase the supply of affordable housing, direct construction revenues will be exempted from the excise tax. State revenues associated with construction are derived in Table 4-53~~Table 4-53~~. Conveyance taxes might be levied on some market units, but these are not included in Table 4-53~~Table 4-53~~. The cumulative increase in State revenues is estimated as approximately $~~14~~ 19 to $~~23~~ 28 million by the end of the construction period.

The County will see increased revenues from real property taxes. As government land, the project site is not now yielding property taxes. When housing and commercial facilities are occupied, they will be taxable. However, some or all of the housing in the project would likely be assessed at below-market rates, and taxed at special rates for homeowners and affordable rentals. The treatment of low-income rentals at the homeowner rate is a new County practice, and the applicable laws could well be revised before any homes are built at Keahuolu. To derive a minimal estimate of new tax revenues, this analysis assumes that all housing within the project is sold and resold at affordable rates, and that all is taxed at homeowner and affordable rental rates.

For the County of Hawai'i, the minimal real property taxes associated with development of the Keahuolu project are estimated to range from $1.2 million to $1.7 million (2007 dollars) annually by 2020 and to reach a cumulative total of $9.4 million to $13.0 million through 2020. Table 4-54~~Table 4-54~~, Table 4-55, and Table 4-56~~Table 4-56~~ show calculations for the three project concepts.

Table 4-53: State of Hawai'i Tax Revenues Associated wWith Construction, Keahuolu Project

	2010	2015	2020	Cumulative
Total construction consts (Millions OF 2007 $S)				
Concept A	$90.4	$0.0	$7.3	$336.2
Concept B	$85.4	$85.4	$85.4	$1,110.0
Concept C	$72.8	$72.8	$72.8	$946.0
Total construction-related wages (Millions of 2007 $s)				
Concept A	$47.5	$0.0	$3.8	$176.6
Concept B	$44.9	$37.9	$3.8	$275.8
Concept C	$38.2	$32.9	$3.8	$288.9
Corporate income taxes (Thousands of $s) (1)				
Concept A	$80.7	$0.0	$6.5	$300.2
Concept B	$76.3	$64.4	$6.5	$468.9
Concept C	$65.0	$56.0	$6.5	$491.2
Excise Tax on workforce spending (Thousands of $s) (2)				
Concept A	$1,189.3	$0.0	$95.7	$4,423.8
Concept B	$1,123.7	$948.3	$95.7	$6,909.4
Concept C	$957.6	$825.0	$95.7	$7,238.1
Personal Income Tax (Thousands of $) (3)				
Concept A	$2,481.3	$0.0	$199.7	$9,229.7
Concept B	$2,344.4	$1,978.4	$199.7	$14,415.4
Concept C	$1,997.8	$1,721.2	$199.7	$15,101.3
Total State Revenues (Thousands of $s)				
Concept A	$3,751.3	$0.0	$302.0	$13,953.7
Concept B	$3,544.3	$2,991.1	$302.0	$21,793.7
Concept C	$3,020.4	$2,602.1	$302.0	$22,830.5

Notes:
(1) Corporate income tax historically averages 0.17% of corporate revenues (data from 2000).
(2) Excise tax at 4% of workforce disposable income. Share of spending subject to excise tax estimated from 2002 expenditure data.
(3) Personal income tax historically 5.22% of resident incomes (average, 1998-2002).
Sources: Hawaii State Department of Taxation, 2001, 2005.

	2010	2015	2020	Cumulative
Total construction costs (Millions of 2007 $s)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Total construction-related wages (Millions of 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$239.0
Concept B	$65.8	$37.7	$3.8	$342.3
Concept C	$59.4	$32.0	$3.8	$355.4
Corporate income taxes (Thousands of $s) (1)				
Concept A	$112.6	$0.0	$6.5	$406.4
Concept B	$111.8	$64.1	$6.5	$581.8
Concept C	$100.9	$54.4	$6.5	$604.1
Excise Tax on workforce spending (Thousands of $s) (2)				
Concept A	$1,659.6	$0.0	$95.7	$5,988.0
Concept B	$1,647.3	$944.4	$95.7	$8,573.8
Concept C	$1,487.3	$802.1	$95.7	$8,902.5
Personal Income Tax (Thousands of $) (3)				
Concept A	$3,462.5	$0.0	$199.7	$12,493.2
Concept B	$3,436.9	$1,970.4	$199.7	$17,888.1
Concept C	$3,103.1	$1,673.4	$199.7	$18,574.0
Total State Revenues (Thousands of $s)				
Concept A	$5,234.7	$0.0	$302.0	$18,887.5
Concept B	$5,196.1	$2,978.9	$302.0	$27,043.8
Concept C	$4,691.4	$2,530.0	$302.0	$28,080.7

Sources: Hawaii State Department of Taxation, 2001, 2005.

Notes:
(1) Corporate income tax historically averages 0.17% of corporate revenues (data from 2000).
(2) Excise tax at 4% of workforce disposable income. Share of spending subject to excise tax estimated from 2002 expenditure data.
(3) Personal income tax historically 5.22% of resident incomes (average, 1998-2002).

Table 4-54: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, fFrom Development of Project Concept A

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	239	813	813	813
For Rent (1)	61	207	207	207
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$59.5	$202.4	$202.4	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.6	$32.5	$32.5	
Additional Housing Exemption (5)	$11.9	$40.5	$40.5	
Net Taxable Value, Housing	$48.0	$163.3	$163.3	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$266.6	$906.5	$906.5	$8,851.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$266.6	$906.5	$1,172.4	$9,387.4

Notes:

(1) One-third of multifamily units assumed to be rentals.

(2) Average housing unit assumed to be unit affordable for sale to family of four with income 110% of median, (priced at $217,900 in 2007).

(3) All rentals assumed to be "affordable," so units qualify for homeowner tax classification. Value of rentals extrapolated by assuming 5.7% cap rate, 95% occupancy, and that the average unit is a two-bedroom unit rented at the top of the affordable range for West Hawaii ($822). Cap rate based on NCREIF moving average.

(4) Basic exemption for homeowners = $40,000 of value.

(5) Since 2005, Hawaii County exempts 20% of the homeowners' property values, up to $400,000 in value.

(6) Commercial property value estimated from assumed construction costs.

(7) Homeowner class residential property is taxed at $5.55/$1,000 value.

(8) Commercial property is taxed at $9.00/$1,000 value.

Sources: Hawaii County property tax information, as posted at
http://www.hawaiipropertytax.com/pdffiles/HOME%20EXEMPTIONS%20Brochure.pdf
http://www.hawaiipropertytax.com/pdffiles/RP%20Form%2019-53(h)%20Affordable%20Rental%20Program%20Application.pdf
National Council of Real Estate Investment Fiduciaries data posted at http://www.ncreif.com/#

Table 4-55: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, fFrom Development of Project Concept B

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	233	1,396	1,427	1,427
For Rent (1)	67	404	413	413
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$57.9	$347.2	$355.0	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.3	$55.8	$57.1	
Additional Housing Exemption (5)	$11.6	$69.4	$71.0	
Net Taxable Value, Housing	$47.0	$255.9	$260.9	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$260.8	$1,420.5	$1,447.8	$12,449.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$260.8	$1,420.5	$1,713.8	$12,985.3

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Table 4-56: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, fFrom Development of Project Concept C

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	200	1,200	1,553	1,553
For Rent (1)	100	600	777	777
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$49.8	$298.6	$386.5	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$8.0	$48.0	$62.1	
Additional Housing Exemption (5)	$10.0	$59.7	$77.3	
Net Taxable Value, Housing	$41.8	$224.8	$281.0	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$232.0	$1,247.8	$1,559.7	$12,268.6
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$232.0	$1,247.8	$1,825.6	$12,804.5

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Government Costs

~~To the extent that the project increases demand for public services, the project will result in costs to the State and County. The developer will reduce County costs associated with new development by paying for off-site infrastructure. The developer will pay a fair share of school development costs to the State DOE and will contribute towards construction of the major road between the HHFDC and QLT lands at Keahuolu.~~

From a planning perspective, the Keahuolu project is a case of "smart growth." This concept is usually discussed in terms of alternative futures: sprawling urbanization vs. compact growth, especially infill growth in existing urban zones. Sprawl involves calculable costs to individuals (travel time and costs; less physical activity and higher incidence of obesity), to communities (lower involvement of adults as volunteers and community participants), and to municipal or regional authorities (higher costs of providing infrastructure over greater distances). For calculations, please see *Costs of Sprawl – 2000* published in the "Transit Cooperative Research Program Report 74," 2002.

In the context of Hawai‘i County, it is clear that delivery of some services – notably police and fire control – can be accomplished more efficiently and at lower cost if homes are concentrated near police and fire stations. The impact on roadways is also obvious. With concentrated development, traffic congestion may continue to be a serious problem in Kailua-Kona, but it is likely to be less severe over the many road-miles that commuters from Ka‘u, South Kona and North Kohala now travel to and from work. The analysis becomes more complex with regard to wastewater facilities, which exist in urban, but not rural areas. The developer will be responsible for onsite and offsite costs of infrastructure that can be dedicated to the County. The County will thereby acquire assets. The County will also be responsible for operations and maintenance of those assets, but will be able to bill users for these costs. Again, an urbanized population may well make greater demands for recreation services than a dispersed one, but the developer will be responsible for adding parks within the project area.

Increases in certain government revenues are quantified in the EIS because these can be calculated in a straightforward manner. Costs and other revenues are not calculated because the assumptions needed to calculate them are far more complex and may depend on future agency funding decisions (e.g., the timing and extent of park improvements). Since the total costs associated with public facilities for smart growth are likely to be smaller than with dispersed development, it is appropriate to disclose this likely positive impact but not necessary to calculate it in detail.

The project will serve West Hawai‘i residents and not a new population. It does not create a new demand for government services but rather relocates that demand to a site near the urban center. Consequently, the costs of government service delivery to Keahuolu project residents are likely to be less than they would be without the project.

~~Since the project serves West Hawai‘i residents, not a new population attracted to the county from elsewhere, it does not create new demand for government services. Instead, it helps to relocate that demand to a site near the urban center. Consequently, the costs of government services to Keahuolu project residents are likely to be less than they would be without the project.~~

Social Impacts

Impacts on West Hawai'i

The Keahuolu project will house a large number of working residents in Kailua-Kona, increasing demand for commercial and public services in the urban area.

The project contributes to a cumulative impact, the differentiation of urban and "country" areas in West Hawai'i. As young working families concentrate in or near Kailua-Kona, outlying areas will tend to have older populations and lower labor force participation. The urban area will be more densely settled, while other areas will be more "country" in appearance and ambiance. Retirees and some workers willing to commute long distances will still be found throughout West Hawai'i – the impact is the intensification of an ongoing trend, not a qualitative change.

As a rule, the shorter the commute, the easier it is for adults to participate in the life of their home communities, whether as volunteers, as parents involved with their children's schools and teams, or simply as participants in everyday life. Community involvement is likely to increase. On the other hand, residents moving from areas in which they grew up and have family ties can find a new development to be less vibrant and lacking the networks, occasions, and places in which they enjoy community life. The Keahuolu project's design as a walkable community with parks and schools nearby that will help to encourage resident community participation. On balance, then, the project is likely to increase West Hawai'i residents' ability to contribute to community life.

Traffic congestion on Palani Road has long been a source of resident dissatisfaction in Kona. By concentrating residents near Palani Road, close to Kailua-Kona job sites, the project is likely to worsen congestion on that route during its early years. In time, with highway improvements and the construction of new roads, the project will help to limit congestion throughout the region because a smaller share of workers will be commuting long distances on a few through roads.

Impacts on the Project Site and Surrounding Area

The immediate area will change due to the cumulative impact of development in the project, in QLT lands, and in DHHL lands. That change has been anticipated and most of the sites in question are already designated as Urban or Urban Expansion. A new residential center will be created for Kailua-Kona. With the eventual development of new roadways, the project and adjoining sites will have internal circulation, so that trips between homes and schools, community facilities, or commercial areas will not rely on major through roads. The commercial and public facilities within the project will likely help to encourage residents of the project and adjoining areas to limit trips outside the immediate area, and tend to engender a sense of Kealakehe/Kealuolu as a distinctive community or neighborhood in Kailua-Kona.

The new neighborhood will be characterized by design elements intended to encourage walking, bicycling, and public transit use. As a neighborhood with much of the new construction in Kailua, it will likely be more desirable than older areas with homes at similar prices. As a community with a mix of rental and for-sale units, the Keahuolu project will not fit the negative stereotypes associated with low-income housing.

4.9.4.3 Summary - Impacts of the Alternatives ~~o~~On Socio-Economic Conditions

The Keahuolu project is expected to have modest positive socio-economic impacts. Above all, it will increase the housing supply, and hence have a positive impact on housing prices and the quality of life. It will increase the workforce population within the Kailua urban area, and hence encourage higher labor force participation. It will result in increased revenues for the State and County, which are likely to offset any increased costs associated with new development at the project site. On the other hand, its short term impact on traffic along Palani Road will be negative, affecting Kailua residents and commuters from northern areas along Mamalahoa Highway.

The No Action Alternative would fail to respond to regional demand for housing, and would not provide support to help the County achieve its road connectivity goals. It would not have any significant socio-economic impacts.

The three concepts differ in the number of units, and hence in the extent to which they respond to regional housing demand and create a new community within Kailua-Kona. The density of settlement involved, however, is too low for the differences among the three alternatives to be associated with significant long-term social impacts. The adverse impact of traffic congestion before the new mid-level road is built will be similar for all three alternatives until 2015-2020, when the number of homes on-site will differ greatly. The project-related traffic impacts of all three alternatives, however, can be fully mitigated with recommended improvements.

The Impacts of the Alternatives on Socio-Economic Conditions

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			No substantial socio-economic impacts are anticipated under this alternative.
2. Alternative A		✓		The project is anticipated to be built out over a 10 year period. Socio-economic impacts are anticipated to be positive with a increased supply of affordable housing near employment centers.
3. Alternative B		✓		The project is anticipated to be built out over a 10 year period. Socio-economic impacts are anticipated to be positive with a increased supply of affordable housing near employment centers.
4. Alternative C		✓		The project is anticipated to be built out over a 10 year period. Socio-economic impacts are anticipated to be positive with a increased supply of affordable housing near employment centers.

4.10 PUBLIC FACILITIES

4.10.1 Public Safety

4.10.1.1 Existing Conditions

Police. The County Police Department's Kona station is located at Kealakehe, just above Queen Ka'ahumanu Highway, about 1.5 miles from the project site. It serves as the local station and

main office for West Hawai‘i bureaus. Some 78 positions were authorized for the Kona district as of 2005.[14]

Fire Protection. The County's North Kona fire station is located in ~~Kailua~~ Kailua-Kona, about 0.75 miles from the project. ~~The Keāhole Airport fire station is some 6.9 miles from the project.9~~ Funds for a new Makalei Fire Station have been budgeted.

The Public Facilities and Programs working group of the Kona Community Development Plan process issued a "Final Actions" report in 2006. It urged improvements in fire and police protection, accomplished by increased citizen patrols and higher wages for police officers. The report is posted at http://www.hcrc.info/cdp-documents/kona/working-groups/working-group-reports/FinalActions_FacilitiesPrograms_061212.doc/view.

Civil Defense. The County's webpage states that the role of the Civil Defense Agency is to direct and coordinate the development and administration of the County's total emergency preparedness and response program to ensure prompt and effective action when natural or man-caused disaster threatens or occurs anywhere in the County of Hawai‘i.

4.10.1.2 Potential Impacts

Police. The Keahuolu project will provide new homes in response to existing housing demand in North Kona. At the regional level, Keahuolu will not create additional demand for police services, unless the project is more difficult to police than other areas. Because Keahuolu is expected to draw residents from outlying areas to a central planned community, it will improve delivery of public safety services, since the time needed to respond to calls will be reduced.

While population and housing growth will lead to increased demand for police services, the impact of the Keahuolu project is likely to be small.

Fire Protection. The Keahuolu project will be built according to the Hawai‘i County Fire Code. All public roadways in the project will be wide enough to permit access by fire trucks. With

[14] Hawai‘i County Police Department, 2004-2005 Annual Report. Hilo, HI. Posted at http://www.hawaiipolice.com/topPages/annualreports.html.

development comes an increase in the Fire Department's responsibility for structures, and a decrease in the acreage on which brushfires could occur. To the extent that the project allows residents to congregate in a planned community, rather than being dispersed through the region, it will help the Fire Department to improve its response times. The net impact is likely to be minimal.

Civil Defense. Based on input received from the State Department of Defense – Office of Civil Defense, the HHFDC will recommend to the Keahuolu project developer that one outdoor warning siren (minimum size 121 DBC solar powered with omni-directional sound properties) be installed at a central location within the development.

4.10.2 Education

4.10.2.1 Existing Conditions

The Keahuolu project site is within the Kealakehe school catchment area. It is served by:

- Kealakehe Elementary School. Located on Kealakaʻa Street, this school serves nearly 990 ~~1,000~~ students from kindergarten through grade five. It has 60 full-time equivalent teaching positions, including regular education, special education, and supplemental instructors.
- Kealakehe Intermediate School. Also located on Kealakaʻa Street, this school has approximately 900 ~~1,000~~ students in grades six through eight, and a teaching staff of 58 positions.
- Kealakehe High School. Opened in 1997 in the Villages of Laʻi ʻOpua, this school serves students from Hualalai to Waikoloa Village. ~~In the 2006-2007 school year, 1,567 students were enrolled.~~ In the -2007-2008 school year, 1,638 students were enrolled. A total of 76.5 teaching positions are allocated to the school.

The following enrollment information is provided by the DOE:

Table 4-57:- Actual and Projected Enrollments at Department of Education Schools

	Actual Enrollment Done Fall 2007	Projected Enrollment – Done Spring 2006-2007				
	School Year 07-8	2008	2009	2010	2011	2012
Kealakehe Elementary	984	1106	1229	1285	1339	1371
Kealakehe Intermediate	909	911	922	911	893	910
Kealakehe High School	1638	1601	1596	1584	1586	1555

Private schools in North Kona include:

- Hualalai Academy, with 160 students in grades K through 12, located on Kealaka‘a Street;
- The Kona campus of the Hawai‘i Montessori School (serving grades K through six); and
- Makua Lani Christian School in Holualoa, and the Kona Christian Academy.

In addition, Hawai‘i Preparatory School, located in Waimea, South Kohala, is a K-12 school with approximately 585 students. It regularly enrolls students from North Kona, as well as ones from South Kohala and boarders. The Kea‘au campus of the Kamehameha Schools enrolls more than 1,100 Native Hawaiian students from the County. Some students commute from West Hawai‘i, catching buses from Ka‘u or Waimea.

4.10.2.2 Potential Impacts

The Hawai‘i State DOE has provided multipliers that were used to develop preliminary estimates of the Keahuolu project’s public school population, as shown in Table 4-58~~Table 4-58~~:

Table 4-58: Public School Student Population at Buildout of Keahuolu Project

	Concept A	Concept B	Concept C
Units			
Single Family	400	600	-
Multifamily	620	1,240	2,330
	1,020	1,840	2,330
Estimated Student Population at Buildout			
Elementary	223	387	388
Middle	63	108	101
High	73	126	124
	359	621	614

NOTE: Student population estimated from multipliers supplied by the Department of Education and the assumption that one-third of multifamily units will be low-income rentals. Multipliers are (children/unit):

	Elementary	Middle	High
SF	0.3	0.09	0.1
MF, moderate income	0.15	0.04	0.05
MF, rental	0.2	0.05	0.06

SOURCE: Discussions with Facilities Branch, Hawai'i State Department of Education, November 2007.

Project plans call for an elementary school to be located on-site, helping to relieve crowding at Kealakehe Elementary. A middle school eventually may also be needed nearby due to construction of additional increments of the DHHL Kealakehe area, of new QLT housing areas, and of the project.

All the schools in the Kealakehe complex are large, compared to DOE standards. With population growth in the catchment area (both at the Keahuolu project and elsewhere), existing schools will likely experience crowding until new schools are built as planned. Cooperation among the DOE, developers, and community leaders will help to manage stresses during the anticipated period of growth between 2010 and 2020, and to advocate timely construction of new schools.

4.10.3 Recreation

4.10.3.1 Existing Conditions

Major recreation facilities in North Kona include:

- Kailua Park Complex, known as Old Airport Park. This site includes a gym, swimming pool, and fields for active recreation as well as an extensive beach area. It lies on the shore, directly west of the Kealakehe/Keahuolu area.
- Hale Halawai. This recreation center, located on Ali‘i Drive on the south side of Kailua-Kona, offers sports and crafts programs.
- Honokohau Boat Harbor, approximately 2.6 miles from Keahuolu project, provides ocean access and services to boaters.

Newer subdivisions such as Pualani Estates and Lokahi Makai include a sports field for resident use.

The Public Facilities and Programs working group of the Kona Community Development Plan process identified two major objectives involving recreation: (a) develop an impact fee to pay for new recreation and sports facilities, and (b) provide community centers to meet the needs of residents of all ages.

4.10.3.2 Potential Impacts

The Keahuolu project will include approximately 25 acres of park and open space for use by residents, in accordance with County Parks Department requirements.

With increased population in the Kailua-Kona area, demand for active recreation space will increase. The Keahuolu project will contribute to that increase. However, many residents of the project are expected to move to North Kona from South Kona, Ka‘u, or South Kohala, areas with even fewer resources for active recreation (such as sports fields and gymnasia) than North Kona. The impact of the project involves redistribution of existing and anticipated demand, rather than new demand.

4.10.4 Medical Facilities

4.10.4.1 Existing Conditions

The primary medical facility for the Kona region is Kona Community Hospital in Kealakekhua, South Kona. This 94-bed hospital is part of the Hawaii Health Care System supported by the State. It has 24-hour emergency services, an intensive care unit, maternity, oncology, and other units. It is located about 10 miles from the Keahuolu project.

In Waimea, the North Hawaii Community Hospital is a privately owned non-profit facility with 40 beds, a 24-hour emergency room, and acute care services. It is located about 39 miles from the Keahuolu project.

4.10.4.2 Potential Impacts

With increased population in North Kona, demand for medical services will grow. The Keahuolu project's population will contribute to that growth in proportion to its size. Its residents account for 6.8 to 15.6 percent of the forecasted North Kona district population. As noted for other public services, the impact of the project involves redistribution of existing and anticipated demand, rather than new demand. In the coming years, however, the question of the location of medical facilities for West Hawai'i may well arise again. In the context of that ongoing discussion, the project will help to increase demand for new medical facilities near Kailua-Kona, in addition to or rather than Kealakekua.

4.10.5 Summary - Impacts of the Alternatives on Public Facilities

The project will not have significant impacts on public facilities. It will concentrate demand for schools and recreation, but will also provide a school site and open space on-site, in accordance with DOE and County Parks Department requirements, respectively, thereby managing and mitigating the potential impacts.

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action	✓			Demand for school and recreation facilities is strong, independent of the project.
2. Alternative A		✓		The project is anticipated to be built out over a ~~10~~ 10-year period. The project site provides open space / play area and a site is reserved for a school facility.
3. Alternative B		✓		The project is anticipated to be built out over a ~~10~~ 10-year period. The project site provides open space / play area and a site is reserved for a school facility.
4. Alternative C		✓		The project is anticipated to be built out over a ~~10~~ 10-year period. The project site provides open space / play area and a site is reserved for a school facility.

CHAPTER FIVE: RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

STATE OF HAWAIʻI PLANS AND CONTROLS

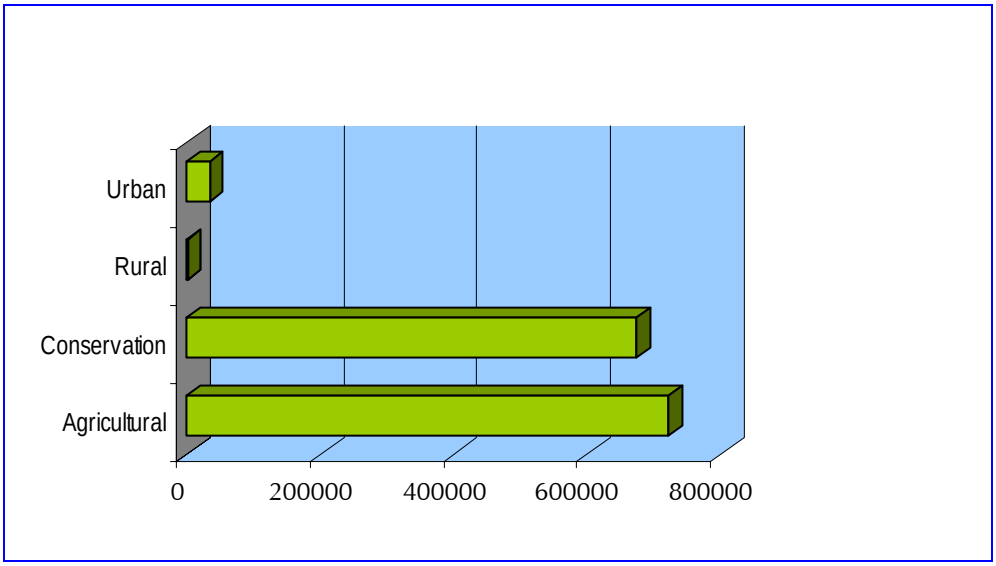
5.1 THE LAND USE LAW

The Legislature for the State determined in 1961 that a state-wide zoning system was needed to protect Hawaiʻi's valuable land from development that provided a short-term gain for a few and resulted in a long-term loss to the income and growth potential of the State's economy. Accordingly, the Legislature established an overall framework of land-use management and adopted the Land Use Law under Chapter 205 of the HRS. The law placed all lands in the State in one of four land-use districts: *Urban, Agricultural, Conservation, or Rural* (the Rural District was added in 1963), and established the LUC under HRS §205-1.

5.1.1 Land Use District Boundaries

The LUC identified land areas suitable for inclusion in one of the four districts and set the standards for determining the boundaries. Of the approximately 2.5 million acres of land in the County, 1.4 million acres are in West Hawaiʻi, which is comprised of North Kohala, South Kohala, North Kona, South Kona, and Kaʻu. A large portion of the land is in the Agricultural and Conservation Districts, as demonstrated in Figure 5-1.

Figure 5-1: Proportion of Land in District Boundaries – West Hawai'i



5.1.1.1 Urban District

The Urban District generally includes city-like concentrations of people, structures, services, and vacant areas to accommodate future development and foreseeable growth. Approximately 54,267 acres or 2 percent of the County's total land area comprise the Urban District. Individual counties govern the zoning within the district.

5.1.1.2 Agricultural District

The Agricultural District includes activities or uses such as farming, aquaculture, game and fish propagation; agricultural services; farm buildings, employee housing, district mills, storage facilities, processing facilities, vehicle and equipment storage areas, roadside stands; wind machines and wind farms; small-scale meteorological, air quality, noise, and other scientific and environmental data collection and monitoring facilities; agricultural parks; and ~~open~~ open-area recreational facilities, including golf courses and golf driving ranges, provided that they are not located on land in the highest productivity categories as determined by the LUC. This district includes land with a high capacity for intensive cultivation as well as a low capacity. Minimum lot sizes in this district under the State Land Use Law are one acre. This district has the second greatest land area with approximately 1,184,599 acres or slightly over 46 percent of the total land area of the County. The LUC and/or County regulate special uses within the Agricultural District

depending upon lot size. County zoning ordinances may further define accessory uses within this district.

5.1.1.3 Conservation District

The Conservation District primarily includes land in existing forest and water reserve zones, and areas necessary for ~~(1)~~ protecting watersheds and water sources; ~~(2)~~ preserving scenic and historic areas; ~~(3)~~ providing park lands, wilderness, and beach reserves; ~~(4)~~ conserving indigenous or endemic plants, forestry, fish, and wildlife; ~~(5)~~ preventing floods and soil erosion; ~~(6)~~ retaining open-space areas to enhance the present or potential value of abutting or surrounding communities; ~~(7)~~ using areas of value for recreational purposes, other related activities, and other permitted uses not detrimental to a multiple-use conservation concept. This district has the largest land area with approximately 1,338,135 acres or 52 percent of the total land area of the County. The State Board of Land and Natural Resources (BLNR) has authority over conservation lands and the State DLNR sets rules governing its uses.

The Conservation District has five subzones: (1) Protective, (2) Limited, (3) Resource, (4) General, and (5) Special. The first four subzones are arranged in a hierarchy of environmental sensitivity, ranging from the most environmentally sensitive (Protective) to the least sensitive (General). The Special subzone applies to special cases, specifically to allow a unique land use on a specific site. Each subzone has a set of "identified land uses" ~~which~~ that may be allowed by discretionary permit. Applications can only be accepted for an identified land use listed under the particular subzone covering the subject property. Most of the identified land uses require a discretionary permit or some sort of approval from the DLNR or BLNR. Major permits are required for land uses~~, which~~ that have the greatest potential impact, and an environmental assessment and/or an EIS is required (and ~~may also require~~ a Public Hearing may also be required).

5.1.1.4 Rural District

Rural Districts are defined under the State Land Use Law as lands primarily comprised of small farms mixed with low-density residential lots that have a minimum lot size of one-half acre. Of

the four districts, this is the smallest, with approximately 807 acres of the County's total land area. This district generally includes low-density residential uses, agricultural uses, public, quasi public, and public utility facilities. These districts may include contiguous areas not suitable for low-density residential lots or small farms. Jurisdiction over rural districts is shared by the LUC and respective county.

5.1.2 The Land Use Commission

The LUC's primary responsibilities are to: (1) administer the law and determine the boundaries for each district; (2) preserve and protect Hawai'i's land; (3) encourage uses to which lands are best suited; and (4) ensure that areas of State concern are addressed in the land-use decision-making process.

The LUC also reviews and rules on applicant-initiated amendments to the district boundaries, pursuant to HRS Section 205-4 and HAR, Chapter 15-15, *Hawaii Land Use Commission Rules*, as amended, and approves special-use permits for land comprised of 15 acres or more, pursuant to HRS Section 205-6.

The Governor appoints members to the LUC, and the Senate confirms the appointments. Members are selected from a cross-section of the community for a specified term. One member is appointed from each of the four counties and five at large, for a total of nine.[1]

5.1.3 Decision-Making Criteria for a Boundary Amendment

The LUC, when reviewing a petition for a boundary amendment, considers the decision-making criteria of HRS Section 205-17:

(1) The extent to which the proposed reclassification conforms to the applicable goals, objectives, and policies of the Hawaii state plan and relates to the applicable priority guidelines of the Hawaii state plan and the adopted functional plans;

[1] Data in Section 5.1 was obtained from Chapter 205 of the Hawai'i Revised Statutes, State of Hawai'i LUC website (http://luc.state.hi.us), and the 2001 County of Hawai'i Proposed General Plan. The revised 2001 General Plan was used instead of the existing plan because the County conducts five- and ten-year comprehensive reviews and updates of the General Plan to maintain dynamism and flexibility. The revised plan contains major changes and trends that have occurred and updated statistics reflecting these changes.

DISCUSSION: The proposed Keahuolu Affordable Housing Pproject is consistent with the goals, objectives, policies, and priority guidelines of the Hawai'i State Plan and the State Functional Plans. A thorough review of the Hawai'i State Plan and the adopted State Functional Plans are discussed in detail in subsequent sections.

(2) The extent to which the proposed reclassification conforms to the applicable district standards;

DISCUSSION: A reclassification to the Urban District would allow the subject property to (1) conform with the County's General Plan LUPAG, which designates the majority of the subject property for Urban Expansion and the remainder of the property as Low Density Urban; (2) accommodate the projected population growth of the County; (3) support current State land use classifications in the area surrounding the subject property, as the project site is almost entirely surrounded by land designated as Urban; and (4) support the objectives and policies of the State's West Hawai'i Regional Plan and the County's Keahole to Kailua Development Plan.

(3) The impact of the proposed reclassification on the following areas of state concern:

(A) Preservation or maintenance of important natural systems or habitats;

(B) Maintenance of valued cultural, historical, or natural resources;

(C) Maintenance of other natural resources relevant to Hawaii's economy, including, but not limited to, agricultural resources;

DISCUSSION: Development of the proposed project will alter much of the existing landscape of the subject property. However, no significant natural systems or habitats have been identified within the project area. Cultural and archaeological resources identified as significant will be preserved in accordance with procedures established by the SHPD. The subject property is not considered to be a valued agricultural resource due to the poor quality of the soil.

(D) Commitment of state funds and resources;

DISCUSSION: The costs associated with the hearing and processing of the proposed boundary amendment is one form of commitment of State resources. The developer of the project or its successors will be responsible to fund site work and the construction of on-site and off-site infrastructure including~~:~~ roadways; wastewater transmission lines; potable water wells, reservoirs and transmission lines; and other utilities.

(E) Provision for employment opportunities and economic development; and

DISCUSSION: The project contributes to economic development in several ways including employment opportunities for construction work during the period of development, increased revenues to the State and County in the form of taxes, and long-term employment associated with the commercial floor area development. The project fulfills the objectives of both the State and the County to encourage residential development in the area between Keahole and Kailua in North Kona, to provide employee housing near job centers and to support job growth in West Hawai‘i’s visitor industry. The proposed project contributes to fulfilling those objectives by providing affordable and market-priced housing units, and commercial floor area for new businesses.

(F) Provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups;

DISCUSSION: HHFDC’s stated objective of the RFP process for this project is to produce the maximum number of affordable units in the most livable community within the shortest feasible duration.

(4) The representations and commitments made by the petitioner in securing a boundary change.

DISCUSSION: In approving a boundary amendment, the LUC must take into account the General Plan of the respective County; and where applicable, the objectives, policies, and guidelines of the State Coastal Zone Management ~~Act~~ Area (CZMA), HRS Chapter 205A. The following

sections will discuss the various State and County plans and identify the applicability and the extent to which the proposed petition for a boundary amendment conforms to these plans.

5.1.4 Standards for Determining "U" Urban District Boundaries

The LUC, when reviewing a petition for a boundary amendment, considers the following standards set forth in HAR Section 15-15-18 in determining the "U" urban district boundaries:

(1) It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses;

DISCUSSION: The vast majority of the property is designated as Urban Expansion on the County's General Plan LUPAG map. The property is generally surrounded by lands that are either in existing residential development or are planned for both residential and other urban development. The property is generally surrounded by lands in the Urban district.

(2) It shall take into consideration the following specific factors:

(A) Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;

(B) Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and

(C) Sufficient reserve areas for foreseeable urban growth;

DISCUSSION: The property is within two miles of West Hawai'i's commercial, industrial and economic center – Kailua-Kona. Some basic services are already available to the site. As part of the project, the developer will construct on-site and off-site infrastructure that will be dedicated to the County and become part of the County's regional system. The project site includes parks and a site reserved for a school. The project site is designated by the State and the County as a reserve area for urban growth.

(3) It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil condition, and other adverse environmental effects;

DISCUSSION: The topography of the property is consistent with urban design standards and it is generally free of potentially adverse environmental conditions such as floods, tsunami, or unstable soil conditions.

(4) Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for further urban use on state or county general plans;

DISCUSSION: The property is generally surrounded by lands classified as Urban and the majority of the property is designated as Urban Expansion on the County's LUPAG map.

(5) It shall include lands in appropriate locations for the new urban concentrations and shall give consideration to areas of urban growth as shown on the state and county general plans;

DISCUSSION: The majority of the property is designated as Urban Expansion on the County's LUPAG map and is designated for urban grown by both the State and County general plans.

(6) It may include lands which do not conform to the standards in paragraphs (1) to (5):

(A) When surrounded by or adjacent to existing urban development; and

(B) Only when those lands represent a minor portion of this district;

DISCUSSION: The subject project lands conform to the standards in paragraphs (1) to (5).

(6) It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and

DISCUSSION: The lands will not contribute to scattered spot urban development. The majority of the property is designated as Urban Expansion and the remainder is designated Low Density Urban on the County's LUPAG map. The project lands are designated for urban growth by both the State and County general plans.

(8) It may include lands with a general slope of twenty per cent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any federal, state, or county agency, are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape. [Eff 10/27/86; am and comp Aug 16, 1997] (Auth: HRS §§205-1, 205-2, 205-7) (Imp: HRS §205-2)

DISCUSSION: The lower half of the site has areas with less than 5 percent slope while the remaining lower half has 5 to 15 percent slopes. The upper half of the site primarily has less than 15 percent slopes.

5.2 HAWAI'I STATE PLAN

The ~~Department of Business, Economic Development and Tourism (~~DBEDT~~)~~ (formerly known as the Department of Planning and Economic Development) completed in 1978 a Hawai'i State Plan to: (1) improve the planning process; (2) increase the effectiveness of government and private actions; (3) improve coordination among agencies and levels of government; (4) provide for the wise use of Hawai'i's resources; and (5) guide the future development of the State. (State of Hawaii, Department of Planning and Economic Development, 1978, Revised 1989, 1991.)

The Legislature adopted in 1978 the Hawaii State Planning Act (Planning Act), as HRS Chapter 226. The Planning Act consists of a series of broad goals, objectives and policies that serve as guidelines for future long-term growth and development. It further (1) provides a basis for determining priorities and allocating limited resources; (2) seeks to improve coordination of Federal, State, and County plans, policies, programs, projects, and regulatory activities; and (3) establishes a system for plan formulation and program coordination to provide for an integration of all major State and County activities.

The Planning Act is divided into three sections: Part I - Overall Theme, Goals, Objectives and Policies; Part II - Planning Coordination and Implementation; and Part III - Priority Guidelines~~:~~.

Part I of the Planning Act consists of three overall themes: (1) individual and family self-sufficiency; (2) social and economic mobility; and (3) community or social well-being. These themes are considered "basic functions of society" and goals toward which government must strive (HRS §226-3).

Part II of the Planning Act primarily addresses internal government policies to help streamline, coordinate, and implement various plans and processes between governmental agencies. It seeks to eliminate or consolidate burdensome or duplicative governmental requirements imposed on business, where public health, safety, and welfare would not be adversely affected.

Part III of the Planning Act establishes overall priority guidelines to address areas of statewide concern (HRS §226-101). The overall direction and focus are on improving the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action (HRS §226-102).

The following table, identified as Table 5-1a and 5-1b, respectively, presents Parts I and III of the Planning Act, and rates the applicant's conformance and support of the State's goals and objectives. Part II is not presented, as that section primarily pertains to internal government affairs.

Table 5-1a: Hawaii State Planning Act Part I

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
226-1	Findings and purpose.	
226-2	Definitions.	
226-3	Overall Theme	
226-4	State Goals. In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:	
(1)	A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i's present and future generations.	A

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(2)	A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well being of the people.	A
(3)	Physical, social, and economic well being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	A
COMMENTARY: As a matter of State and County land use policy, the lower slopes of Hualalai in North Kona are intended for residential development to provide housing opportunities for the fast growing population of West Hawai'i. The proposed project is consistent with those policies. The project will provide affordable housing units in close proximity to North Kona employment centers.		
226-5	OBJECTIVE AND POLICIES FOR POPULATION	
(a)	It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter;	A
(b)	To achieve the population objective, it shall be the policy of this State to:	
(1)	Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.	A
(2)	Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.	A
(3)	Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands.	C
(4)	Encourage research activities and public awareness programs to foster an understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.	C
(5)	Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.	NA
(6)	Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.	NA
(7)	Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.	A
COMMENTARY: The project will develop affordable housing units and commercial floor area in a location specifically designated by the State and County for urban expansion. The project directly contributes to government's desire to direct population growth to areas with the greatest economic benefit and to provide housing near employment centers.		
226-6	OBJECTIVES AND POLICIES FOR THE ECONOMY - IN GENERAL.	
(a)	Planning for the State's economy in general shall be directed toward achievement of the following objectives:	
(1)	Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people.	A
(2)	A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.	C
(b)	To achieve the general economic objectives, it shall be the policy of this State to:	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(1)	Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.	NA
(2)	Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.	NA
(3)	Seek broader outlets for new or expanded Hawai'i business investments.	NA
(4)	Expand existing markets and penetrate new markets for Hawai'i's products and services.	NA
(5)	Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.	NA
(6)	Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.	C
(7)	Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small-scale producers, manufacturers, and distributors.	NA
(8)	Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.	NA
(9)	Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities.	C
(10)	Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.	C
(11)	Maintain acceptable working conditions and standards for Hawai'i's workers.	C
(13)	Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.	C
(14)	Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy.	C
(15)	Promote and protect intangible resources in Hawai'i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.	C
(16)	Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.	NA
(17)	Foster a business climate in Hawai'i - including attitudes, tax and regulatory policies, and financial and technical assistance programs - that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.	NA
COMMENTARY: As the fastest growing region on the County, the North Kona area needs affordable housing opportunities to support employees of the visitor industry and service sectors. The proposed project is situated to help fulfill West Hawai'i's employee housing demand.		
226-7	OBJECTIVES AND POLICIES FOR THE ECONOMY - AGRICULTURE	
(a)	Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:	
(1)	Viability of Hawai'i's sugar and pineapple industries.	NA
(2)	Growth and development of diversified agriculture throughout the State.	NA
(3)	An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.	NA
(b)	To achieve the agriculture objectives, it shall be the policy of this State to:	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(1)	Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy.	NA
(2)	Encourage agriculture by making best use of natural resources.	NA
(3)	Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.	NA
(4)	Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.	NA
(5)	Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy.	NA
(6)	Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.	NA
(7)	Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i's producers and consumer markets locally, on the continental United States, and internationally.	NA
(8)	Support research and development activities that provide greater efficiency and economic productivity in agriculture.	NA
(9)	Enhance agricultural growth by providing public incentives and encouraging private initiatives.	NA
(10)	Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.	NA
(11)	Increase the attractiveness and opportunities for an agricultural education and livelihood.	NA
(12)	Expand Hawai'i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.	NA
(13)	Promote economically competitive activities that increase Hawai'i's agricultural self-sufficiency.	NA
(14)	Promote and assist in the establishment of sound financial programs for diversified agriculture.	NA
(15)	Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.	NA
(16)	Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.	NA
COMMENTARY: The subject property has soils with poor agricultural viability. The site is surrounded by lands designated for urban expansion. Development of the property for residential use will not adversely impact the agricultural industry because no potentially productive agricultural land is being removed from the inventory. Rather, the project will have an indirect beneficial impact on the agricultural industry because the resulting population increases the demand for goods and services in the area including locally grown agricultural products.		
226-8	OBJECTIVE AND POLICIES FOR THE ECONOMY - VISITOR INDUSTRY.	
(a)	Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy.	
(b)	To achieve the visitor industry objective, it shall be the policy of this State to:	
(1)	Support and assist in the promotion of Hawai'i's visitor attractions and facilities.	NA
(2)	Insure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people.	NA
(3)	Improve the quality of existing visitor destination areas.	C

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(4)	Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.	A
(5)	Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people.	A
(6)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry.	NA
(7)	Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit.	NA
(8)	Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values.	NA
COMMENTARY: The health of the County's economy is influenced by the availability of affordable housing in reasonable proximity to job centers. Reducing commute times is important to workers' well being. Because West Hawai'i is a high growth visitor destination, the current housing opportunities are outstripped by its employment opportunities. The provision of new affordable housing will have a beneficial impact on visitor industry workers.		
226-9	OBJECTIVE AND POLICIES FOR THE ECONOMY – FEDERAL EXPENDITURES.	
(a)	Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy;	
(b)	To achieve the federal expenditures objective, it shall be the policy of this State to:	
(1)	Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment.	NA
(2)	Promote Hawai'i's supportive role in national defense.	NA
(3)	Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.	NA
(4)	Increase opportunities for entry and advancement of Hawai'i's people into federal government service.	C
(5)	Promote federal use of local commodities, services, and facilities available in Hawai'i.	NA
(6)	Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.	NA
(7)	Pursue the return of federally controlled lands in Hawai'i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.	NA
COMMENTARY: Increasing the availability of housing has a beneficial impact upon existing and potential federal workers by helping to provide housing opportunities in reasonable proximity to West Hawai'i's job centers.		
226-10	OBJECTIVE AND POLICIES FOR THE ECONOMY – POTENTIAL GROWTH ACTIVITIES.	
(a)	Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawai'i's economic base.	
(b)	To achieve the potential growth activity objective, it shall be the policy of this State to:	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(1)	Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.	C
(2)	Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.	C
(3)	Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.	C
(4)	Accelerate research and development of new energy- related industries based on wind, solar, ocean, and underground resources and solid waste.	NA
(5)	Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.	NA
(6)	Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.	A
(7)	Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.	NA
(8)	Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i.	NA
(9)	Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawai'i.	NA
(10)	Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives.	NA
(11)	Increase research and development of businesses and services in the telecommunications and information industries.	NA
COMMENTARY: The goals and policies set forth in HRS 226-10 correspond with the changes and growth occurring in the West Hawai'i region. Bold initiatives set by the County's General Plan; the State's 1989 West Hawai'i Regional Plan; the County's 1991 Keahole to Kailua Development Plan and its current efforts to prepare a Kona Community Development Plan; and overall State plans are steadily materializing in the area. Over $1 billion of planned construction of resort-residential complexes has been announced, in addition to the substantial investment already in place. The State in collaboration with Hiluhilu Development LLC (also known as Palamanui), is currently in the planning stages for the new Palamanui/University of Hawai'i Center at West Hawai'i College project combined with residential development, which will encompass approximately 1,225 acres. The project will bring higher educational, research and information facilities, residential and commercial complexes and numerous growth opportunities in the region. Together, these efforts contribute to the diversification of the economy. Yet, their success requires the availability of affordable housing in reasonable proximity to job centers. The Keahuolu Affordable Housing project will have a beneficial indirect impact upon economic diversification by contributing much needed housing opportunities.		
226-10.5	OBJECTIVES AND POLICIES FOR THE ECONOMY – INFORMATION INDUSTRY.	
(a)	Planning for the State's economy with regard to the information industry shall be directed toward the achievement of the objective of positioning Hawai'i as the leading dealer in information businesses and services in the Pacific Rim;	
(b)	To achieve the information industry objective, it shall be the policy of this State to:	
(1)	Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth in the information industry;	C

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(2)	Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;	C
(3)	Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;	NA
(4)	Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people;	C
(5)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;	NA
(6)	Foster a recognition of the contribution of the information industry to Hawai'i's economy; and	NA
(7)	Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.	C
COMMENTARY: As is the case with other segments of the economy, the availability of affordable housing in reasonable proximity to employment centers will have a beneficial impact upon the information industry's ability to attract and keep workers.		
226-11	OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LANDBASED, SHORELINE, AND MARINE RESOURCES.	
(a)	Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:	
(1)	Prudent use of Hawai'i's land-based, shoreline, and marine resources.	C
(2)	Effective protection of Hawai'i's unique and fragile environmental resources.	C
(b)	To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:	
(1)	Exercise an overall conservation ethic in the use of Hawai'i's natural resources.	C
(2)	Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	C
(3)	Take into account the physical attributes of areas when planning and designing activities and facilities.	C
(4)	Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	C
(5)	Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	NA
(6)	Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.	C
(7)	Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.	C
(8)	Pursue compatible relationships among activities, facilities, and natural resources.	C
(9)	Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.	C
COMMENTARY: The location of the Keahuolu project is consistent with sound planning principals for the prudent use land-based resources. The project area has been carefully surveyed to ensure that the no significant habitats are present and that no endangered, threatened or candidate species will be impacted.		
226-12	OBJECTIVE AND POLICIES FOR THE PHYSICAL ENVIRONMENT – SCENIC, NATURAL BEAUTY, AND HISTORIC RESOURCES.	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(a)	Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.	
(b)	To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:	
(1)	Promote the preservation and restoration of significant natural and historic resources.	A
(2)	Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	NA
(3)	Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	C
(4)	Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.	C
(5)	Encourage the design of developments and activities that complement the natural beauty of the islands.	C
COMMENTARY: Significant archaeological sites that have been identified will be preserved. Preserved areas will become elements of open space areas throughout the development. The concept plans for the Keahuolu project provide for neighborhood parks and a landscaped buffer along Ane Keohokalole Highway.		
226-13	OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LAND, AIR, AND WATER QUALITY.	
(a)	Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:	
(1)	Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.	C
(2)	Greater public awareness and appreciation of Hawai'i's environmental resources.	C
(b)	To achieve the land, air, and water quality objectives, it shall be the policy of this State to:	
(1)	Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.	NA
(2)	Promote the proper management of Hawai'i's land and water resources.	C
(3)	Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.	C
(4)	Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.	C
(5)	Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.	C
(6)	Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.	C
(7)	Encourage urban developments in close proximity to existing services and facilities.	C
(8)	Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.	C
COMMENTARY: The project will include the development of infrastructure that will benefit the region, including roadways, wastewater transmission lines, and potable water supply, transmission lines and reservoirs. The project's location is not in an area subject to significant natural or man-made hazards. The subject property is in close proximity to existing services and facilities as it is approximately one mile mauka of Kailua-Kona.		
226-14	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – IN GENERAL.	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(a)	Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.	
(b)	To achieve the general facility systems objective, it shall be the policy of this State to:	
(1)	Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	A
(2)	Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	A
(3)	Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	A
(4)	Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	A
COMMENTARY: The preliminary planning of the project's infrastructure systems has resulted in coordination discussions with State and County agencies and private landowners in the area. Future development of these systems will require ongoing coordination. According to the HHFDC RFP, the project's design should include features to conserve energy and water usage.		
226-15	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS -- IN GENERAL.	
(a)	Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:	
(1)	Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	C
(2)	Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.	C
(b)	To achieve solid and liquid waste objectives, it shall be the policy of this State to:	
(1)	Encourage the adequate development of sewerage facilities that complement planned growth.	C
(2)	Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	C
(3)	Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.	C
COMMENTARY: Objective (a) and related policies are directed at government agencies. The proposed project is consistent with Objective (b) and its policies. The project is in a location designated for urban growth. The sewer requirements of Alternative B and Alternative C would require additional capacity at the Kealakehe ~~Sewage Treatment Plant~~WWTP. The developer may promote re-use and recycling as practicable to reduce wastes.		
226-16	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – WATER.	
(a)	Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.	
(b)	To achieve the facility systems water objective, it shall be the policy of this State to:	
(1)	Coordinate development of land use activities with existing and potential water supply.	A
(2)	Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.	C
(3)	Reclaim and encourage the productive use of runoff water and wastewater discharges.	C

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(4)	Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.	C
(5)	Support water supply services to areas experiencing critical water problems.	C
(6)	Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.	C
COMMENTARY: The potable water wells needed to support the project are indentified in water source development plans approved by the County. The developer will fund the development of the potable water system, including a well(s), reservoirs and transmission lines. Construction of the system will enhance service to the surrounding area as well by improving water supply, storage capacity and connectivity.		
226-17	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – TRANSPORTATION	
(a)	Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:	
(1)	An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.	A
(2)	A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.	A
(b)	To achieve the transportation objectives, it shall be the policy of this State to:	
(1)	Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;	NA
(2)	Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;	A
(3)	Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;	C
(4)	Provide for improved accessibility to shipping, docking, and storage facilities;	NA
(5)	Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;	A
(6)	Encourage transportation systems that serve to accommodate present and future development needs of communities;	A
(7)	Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;	NA
(8)	Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;	NA
(9)	Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;	A
(10)	Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;	A
(11)	Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;	A
(12)	Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and	A

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(13)	Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.	A
COMMENTARY: One of the key elements of the proposed project is its contribution to improvements in the regional roadway network. The project is to provide feasible roadway connections to existing and/or future developments on adjacent lands, thereby helping to improve regional traffic circulation and provide alternate routes to Queen Kaʻahumanu and Mamalahoa highways. Another key element of the project is that it is to be transit-oriented, which means the development is to accommodate multiple transit stops (bus or other modes) along the planned Ane Keohokalole Highway.		
226-18	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – ENERGY	
(a)	Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all	
(1)	Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;	NA
(2)	Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;	C
(3)	Greater energy security in the face of threats to Hawaiʻi's energy supplies and systems; and	NA
(4)	Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.	C
(b)	To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.	
(c)	To further achieve the energy objectives, it shall be the policy of this State to:	
(1)	Support research and development as well as promote the use of renewable energy sources;	A
(2)	Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;	NA
(3)	Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;	NA
(4)	Promote all cost-effective conservation of power and fuel supplies through measures including: (A) Development of cost-effective demand-side management programs; (B) Education; and (C) Adoption of energy-efficient practices and technologies;	C
(5)	Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;	NA
(6)	Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;	NA
(7)	Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	A
(8)	Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and	C
(9)	Support actions that reduce, avoid, or sequester Hawaiʻi's greenhouse gas emissions through agriculture and forestry initiatives.	NA

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
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COMMENTARY: A number of the policies are directed at government agencies. However, the Keahuolu project can contribute to energy efficiency in at least two arenas: residential energy consumption and transportation. As stated in the HHFDC RFP, to the extent possible, the developer is to design and construct buildings to meet LEED standards and to incorporate design features to conserve energy and water usage. The project is to also incorporate principles of waste minimization and pollution prevention. In terms of transportation, the regional roadway connections that will result from the project will contribute to improved vehicular circulation in North Kona, which translates into less energy consumption. The conceptual design of the project promotes a walkable, bikable community with high density residential areas within a one-quarter mile walking radius of proposed transit stops along Ane Keohokalole Highway.		
226-18.5	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – TELECOMMUNICATIONS.	
(a)	Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.	
(b)	To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.	
(c)	To further achieve the telecommunications objective, it shall be the policy of this State to:	
(1)	Facilitate research and development of telecommunications systems and resources;	NA
(2)	Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;	NA
(3)	Promote efficient management and use of existing telecommunications systems and services; and	C
(4)	Facilitate the development of education and training of telecommunications personnel.	NA
COMMENTARY: The developer will fund the development of the telecommunications systems required to service the project.		
226-19	OBJECTIVES AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – HOUSING	
(a)	Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:	
(1)	Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low, low- and moderate-income segments of Hawai'i's population.	A
(2)	The orderly development of residential areas sensitive to community needs and other land uses.	A
(3)	The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people.	A
(b)	To achieve the housing objectives, it shall be the policy of this State to:	
(1)	Effectively accommodate the housing needs of Hawai'i's people.	A
(2)	Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	A
(3)	Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	A
(4)	Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.	NA

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(5)	Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	A
(6)	Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	NA
(7)	Foster a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.	C
(8)	Promote research and development of methods to reduce the cost of housing construction in Hawai'i.	NA
COMMENTARY: The Keahuolu project will offer a range of affordable and market-priced housing units in a range of densities. This will create a variety of housing opportunities for the public. The project's location in close proximity to Kailua-Kona and North Kona's employment centers will make the project attractive to potential home buyers.		
226-20	OBJECTIVES AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – HEALTH.	
(a)	Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:	
(1)	Fulfillment of basic individual health needs of the general public.	C
(2)	Maintenance of sanitary and environmentally healthful conditions in Hawai'i's communities.	C
(b)	To achieve the health objectives, it shall be the policy of this State to:	
(1)	Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.	NA
(2)	Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.	NA
(3)	Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.	NA
(4)	Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.	NA
(5)	Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	C
(6)	Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.	NA
COMMENTARY: The project will connect to regional infrastructure systems. On-site infrastructure improvements will be constructed to comply with relevant DOH and County standards. Collectively, the on-site and off-site systems will ensure that sanitary and healthful conditions are maintained for the benefit of the area's residents.		
226-21	OBJECTIVE AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – EDUCATION	
(a)	Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.	NA
(b)	To achieve the education objective, it shall be the policy of this State to:	
(1)	Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.	NA
(2)	Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.	C
(3)	Provide appropriate educational opportunities for groups with special needs.	NA

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(4)	Promote educational programs which enhance understanding of Hawai'i's cultural heritage.	NA
(5)	Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands.	NA
(6)	Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.	NA
(7)	Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.	NA
(8)	Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.	NA
(9)	Support research programs and activities that enhance the education programs of the State.	NA
COMMENTARY: The project site contains an approximately 12-acre area reserved for a school site.		
226-23	OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT – LEISURE.	
(a)	Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.	
(b)	To achieve the leisure objective, it shall be the policy of this State to:	
(1)	Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.	NA
(2)	Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.	NA
(3)	Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.	NA
(4)	Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	C
(5)	Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.	C
(6)	Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.	NA
(7)	Provide adequate and accessible physical fitness programs to promote physical and mental well-being of Hawai'i's people.	NA
(8)	Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.	NA
(9)	Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts.	NA
(10)	Assure adequate access to significant natural and cultural resources in public ownership.	C
COMMENTARY: The conceptual project design contains neighborhood parks and recreation areas.		
226-24	OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT--INDIVIDUAL RIGHTS AND PERSONAL WELL-BEING.	
(a)	Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.	

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(b)	To achieve the individual rights and personal well- being objective, it shall be the policy of this State to:	
(1)	Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.	NA
(2)	Uphold and protect the national and state constitutional rights of every individual.	C
(3)	Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.	NA
(4)	Ensure equal opportunities for individual participation in society.	NA
226-25	OBJECTIVE AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – CULTURE.	
(a)	Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people.	
(b)	To achieve the culture objective, it shall be the policy of this State to:	
(1)	Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.	C
(2)	Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.	NA
(3)	Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai'i.	NA
(4)	Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai'i's people and visitors.	NA
COMMENTARY: Significant archaeological sites that have been identified will be preserved. Preserved areas will become elements of open space areas throughout the development.		
226-26	SECTION 226-26 OBJECTIVES AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – PUBLIC SAFETY.	
(a)	Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:	
(1)	Assurance of public safety and adequate protection of life and property for all people.	NA
(2)	Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.	C
(3)	Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people.	NA
(b)	To achieve the public safety objectives, it shall be the policy of this State to:	
(1)	Ensure that public safety programs are effective and responsive to community needs.	NA
(2)	Encourage increased community awareness and participation in public safety programs.	C
(c)	To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:	
(1)	Support criminal justice programs aimed at preventing and curtailing criminal activities.	NA
(2)	Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.	NA

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(3)	Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.	NA
(d)	To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:	NA
(1)	Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.	NA
(2)	Enhance the coordination between emergency management programs throughout the State.	NA
COMMENTARY: If warranted, the project site may contain a civil warning siren.		
226-27	OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT – GOVERNMENT	
(a)	Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:	
(1)	Efficient, effective, and responsive government services at all levels in the State.	NA
(2)	Fiscal integrity, responsibility, and efficiency in the state government and county governments.	NA
(b)	To achieve the government objectives, it shall be the policy of this State to:	
(1)	Provide for necessary public goods and services not assumed by the private sector.	NA
(2)	Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.	NA
(3)	Minimize the size of government to that necessary to be effective.	NA
(4)	Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.	NA
(5)	Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	NA
(6)	Provide for a balanced fiscal budget.	NA
(7)	Improve the fiscal budgeting and management system of the State.	NA
(8)	Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.	NA

Table 5-1b: Hawaii State Planning Act Part III

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
226-101	Establishes overall priority guidelines to address areas of statewide concern.	
226-102	Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, and quality education.	
226-103	ECONOMIC PRIORITY GUIDELINES.	
(a)	Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:	

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(1)	Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.	NA
(A)	Encourage investments which:	
(i)	Reflect long term commitments to the State;	C
(ii)	Rely on economic linkages within the local economy;	C
(iii)	Diversify the economy;	C
(iv)	Reinvest in the local economy;	C
(v)	Are sensitive to community needs and priorities, and	C
(vi)	Demonstrate a commitment to provide management opportunities to Hawai'i residents.	C
(2)	Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.	NA
(3)	Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.	NA
(4)	Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.	NA
(5)	Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.	C
(6)	Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai'i's small-scale producers, manufacturers, and distributors.	NA
(7)	Continue to seek legislation to protect Hawai'i from transportation interruptions between Hawai'i and the continental United States.	NA
(8)	Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:	NA
(A)	An industry that can take advantage of Hawai'i's unique location and available physical and human resources.	NA
(B)	A clean industry that would have minimal adverse effects on Hawai'i's environment.	NA
(C)	An industry that is willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment.	NA
(D)	An industry that would provide reasonable income and steady employment.	NA
(9)	Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai'i business.	NA
(10)	Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions:	NA
(A)	Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.	NA
(B)	Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.	NA
(C)	Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.	NA

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(D)	Promote career opportunities in all industries for Hawai'i's people by encouraging firms doing business in the State to hire residents.	NA
(E)	Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on-the-job training opportunities.	NA
(F)	Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.	NA
(b)	Priority guidelines to promote the economic health and quality of the visitor industry:	
(1)	Promote visitor satisfaction by fostering an environment which enhances the aloha spirit and minimizes inconveniences to Hawai'i's residents and visitors.	C
(2)	Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.	NA
(3)	Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.	NA
(4)	Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources.	NA
(5)	Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.	NA
(6)	Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.	NA
(7)	Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.	NA
(8)	Support law enforcement activities that provide a safer environment for both visitors and residents alike.	NA
(9)	Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.	NA
(c)	Priority guidelines to promote the continued viability of the sugar and pineapple industries:	
(1)	Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.	NA
(2)	Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i.	NA
(3)	Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.	NA
(d)	Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:	
(1)	Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.	NA
(2)	Assist in providing adequate, reasonably priced water for agricultural activities.	NA
(3)	Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.	NA
(4)	Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.	NA

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(5)	Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community.	NA
(6)	Seek favorable freight rates for Hawai'i's agricultural products from interisland and overseas transportation operators.	NA
(7)	Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.	NA
(8)	Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.	NA
(9)	Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.	NA
(10)	Support the continuation of land currently in use for diversified agriculture.	C
(e)	Priority guidelines for water use and development:	
(1)	Maintain and improve water conservation programs to reduce the overall water consumption rate.	A
(2)	Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	C
(3)	Increase the support for research and development of economically feasible alternative water sources.	NA
(4)	Explore alternative funding sources and approaches to support future water development programs and water system improvements.	NA
(f)	Priority guidelines for energy use and development:	
(1)	Encourage the development, demonstration, and commercialization of renewable energy sources.	C
(2)	Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.	C
(3)	Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.	C
(4)	Encourage the development and use of energy conserving and cost-efficient transportation systems.	C
(g)	Priority guidelines to promote the development of the information industry:	
(1)	Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai'i.	NA
(2)	Encourage the development of services such as financial data processing, products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.	NA
(3)	Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.	NA
(4)	Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.	NA
(5)	Encourage research activities, including legal research in the information and telecommunications fields.	NA
(6)	Support promotional activities to market Hawai'i's information industry services.	NA
226-104	POPULATION GROWTH AND LAND RESOURCES PRIORITY GUIDELINES.	

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(a)	Priority guidelines to effect desired statewide growth and distribution:	
(1)	Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.	C
(2)	Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.	NA
(3)	Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	C
(4)	Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.	A
(5)	Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.	A
(6)	Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.	NA
(7)	Support the development of high technology parks on the neighbor islands.	NA
(b)	Priority guidelines for regional growth distribution and land resource utilization:	
(1)	Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.	A
(2)	Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.	C
(3)	Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.	C
(4)	Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.	NA
(5)	In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.	C
(6)	Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.	A
(7)	Pursue rehabilitation of appropriate urban areas.	NA
(8)	Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community.	NA
(9)	Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.	C
(10)	Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.	C
(11)	Identify all areas where priority should be given to preserving rural character and lifestyle.	C

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(12)	Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	C
(13)	Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.	C
226-105	CRIME AND CRIMINAL JUSTICE. PRIORITY GUIDELINES IN THE AREA OF CRIME AND CRIMINAL JUSTICE:	
(1)	Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.	NA
(2)	Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.	NA
(3)	Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.	NA
(4)	Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.	NA
(5)	Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.	NA
(6)	Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.	NA
226-106	AFFORDABLE HOUSING. PRIORITY GUIDELINES FOR THE PROVISION OF AFFORDABLE HOUSING:	
(1)	Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.	A
(2)	Encourage the use of alternative construction and development methods as a means of reducing production costs.	A
(3)	Improve information and analysis relative to land availability and suitability for housing.	A
(4)	Create incentives for development which would increase home ownership and rental opportunities for Hawai'i's low- and moderate-income households, gap-group households, and residents with special needs.	A
(5)	Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i's people for the purchase of initial owner-occupied housing.	A
(6)	Encourage public and private sector cooperation in the development of rental housing alternatives.	A
(7)	Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.	A
(8)	Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.	A
226-107	QUALITY EDUCATION. PRIORITY GUIDELINES TO PROMOTE QUALITY EDUCATION:	
(1)	Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;	NA
(2)	Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;	NA
(3)	Initiate efforts to improve the quality of education by improving the capabilities of the education work force;	NA

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(4)	Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;	NA
(5)	Increase and improve the use of information technology in education by the availability of telecommunications equipment for:	NA
(A)	The electronic exchange of information;	NA
(B)	Statewide electronic mail; and	NA
(C)	Access to the Internet.	NA
(6)	Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;	NA
(7)	Pursue the establishment of Hawai'i's public and private universities and colleges as research and training centers of the Pacific;	NA
(8)	Develop resources and programs for early childhood education;	NA
(9)	Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and	NA
(10)	Strengthen and expand educational programs and services for students with special needs.	NA

5.3 STATE FUNCTIONAL PLANS

The Planning Act called for the creation of functional plans to set specific objectives, establish policies, and implement actions for a particular field of activity. These functional plans further identified those organizations responsible in carrying out the actions, the implementing timeframe, and the proposed budgets.

The most current functional plans and the relationship, if any, to the proposed petition for a boundary amendment for the Keahuolu Affordable Housing Pproject are discussed in the following sections. It is important to note that while these plans are considered to be the current "official" State Functional Plans, a deviation from the original goals of the plan may have occurred due to national and world events or other unforeseeable factors.

5.3.1 State Agricultural Functional Plan (1991)

5.3.1.1 Goals of the Plan

The State Agricultural Functional Plan sought to ultimately increase the overall level of agricultural development in Hawai'i. At the time the plan was written, the two fundamental

objectives were to (1) ensure the continued viability of Hawai'i's sugar and pineapple industries, and (2) encourage the continued growth and development of diversified agriculture throughout the State. As we now know, lower labor and production costs in other parts of the world caused a rapid decline and demise of the pineapple and sugar industries in Hawai'i. While diversified agriculture has helped offset year-to-year declines for sugar and pineapple, according to DOA 2006 statistics, overall revenue for diversified agriculture has fallen to its lowest level in 10 years. The estimated gross state product for agriculture in 2005 was approximately $339 million[2] (State of Hawaii Data Book, 2006).

The functional plan for agriculture also set objectives to develop capabilities to convert Hawai'i-grown crops into potential new value/added products for the local community, visitor industry, and export markets. ~~DEBDT~~DBEDT, large corporations, and other organizations were delegated with the task of implementing actions to develop linkages between the agriculture industry and the State's $10-$14 billion annual tourism industry. The goal was to promote and develop a diverse range of products and programs focusing on niche marketing, such as ag-tourism, and to assist in the development of diversified agriculture.

5.3.1.2 Agriculture in the County of Hawai'i

Agriculture is an important industry in the County that helps to broaden and diversify the economy in terms of employment, and also supplies residential communities and resorts with agricultural commodities. A number of growers are also exporters of various crops. Other related agricultural industries include packing, processing, and manufacturing.

Approximately 1.2 million acres or 47 percent of the total land area in the County are in the State Land Use Agricultural District. Approximately 720,099 acres are in West Hawai'i. This includes potentially high or high capacity agricultural lands as well as potentially low capacity lands. A sizeable percentage of the land is currently not used for agriculture.

The County predicts that agriculture's future will remain favorable with strong diversification and development of new export protocol and technology. If trends remain constant and

[2] Gross state product estimates are on a North American Industry Classification System (NAICS) basis.

diversified agricultural continues its upward climb, the need for energy efficient technologies to support increased production will continue to evolve by necessity.

5.3.1.3 Conformance with the Goals of the Plan

As the project area consists of lands that are generally unsuitable for agricultural development due to the poor soil types, its reclassification from the Agricultural District to the Urban District will not have a significant adverse impact on the agricultural industry. The County's land use policy identifies the project site primarily for Urban Expansion and the balance for Low Density Urban.

5.3.2 State Conservation Functional Plan (1991)

5.3.2.1 Goals of the Plan

The State Conservation Lands Functional Plan addresses the impacts of population growth and economic development on Hawai'i's natural environment and provides a framework for the protection and preservation of pristine lands and shore lands. The objective of the plan is to provide for a management program allowing the judicious use of the State's natural resources balanced with the need to protect these resources to varying degrees. The State is primarily responsible to provide the management of conservation areas. However, counties play a key role in directing urban and agricultural activities and in retaining open space and cultural sites as lands become urbanized.

5.3.2.2 Conservation Land in the County of Hawai'i

Conservation Districts are primarily those lands in the existing forest and water reserve zones. This district has the largest land area with approximately ~~1,304,347~~1,338,135 acres or 50 percent of the total land area of the County. The following table shows the amount of acreage for the various districts in the County:

Table 5-2: District Boundaries in the County of Hawai'i by Area

	Agricultural	Conservation	Rural	Urban	Total
Puna	175,104	138,563	146	6,329	320,142
South Hilo	70,695	169,493	0	12,814	253,002
North Hilo	53,587	120,110	71	608	174,376
Hamakua	162,729	235,805	13	1,041	399,588
East Hawai'i	462,115	663,971	230	20,792	1,147,108
North Kohala	64,713	13,187	16	2,434	80,350
South Kohala	150,426	15,356	53	10,608	176,443
North Kona	158,853	188,331	477	17,787	365,448
South Kona	110,749	35,051	31	845	146,676
Ka'u	237,743	422,239	0	1,801	661,783
West Hawai'i	722,484	674,164	577	33,475	1,430,700
Total	1,184,599	1,338,135	807	54,267	2,577,808

State of Hawai'i, DBEDT, Office of Planning GIS Data
County of Hawai'i Planning Department

5.3.2.3 Conformance with the Goals of the Plan

Because the project site and the reservoir site are not classified as Conservation District lands, their reclassification to the Urban district would have no impact upon the goals of the State Conservation Functional Plan.

5.3.3 State Educational Functional Plan (1989)

5.3.3.1 Goals of the Plan

The State Educational Functional Plan reflects the DOE's strategy to address the goals, policies, and priority guidelines of the Planning Act and the goals of the Board of Education (BOE). The plan outlines actions to be taken by the DOE to improve the public school system and to attend to various societal needs and trends.

5.3.3.2 Education in West Hawai'i

New schools have emerged in the West Hawai'i region to accommodate the increase in population arising from growth in the region. The Konawaena High School complex includes Konawaena High School, Konawaena Middle School, the newly constructed Konawaena

Elementary School, Hookena Elementary School, and Honaunau Elementary School and serves approximately 2,882 students. The Kealakehe High School complex is comprised of the newly constructed Kealakehe High School, Kealakehe Intermediate School, Holualoa Elementary School, Kealakehe Elementary School, and Kahakai Elementary School. The Ka‘u High School complex is comprised of Ka‘u High School, Pahala Elementary School, and Na‘alehu Elementary and Intermediate School.

The State is currently in the planning stages for the new UH Center at West Hawai‘i, which will be located initially on a 33-acre portion of a larger 500-acre site on the mauka side of the Queen Ka‘ahumanu Highway, directly mauka of the Kona International Airport. (See discussion in the next Section.) Upon completion, the new campus is anticipated to accommodate approximately 1,500 students.

5.3.3.3 Conformance with the Goals of the Plan

The proposed project is consistent with the goals of the Educational Functional Plan. Because the government plans designate the property for urban expansion, the project area’s eventual development as a residential community is anticipated. The project site contains an approximately ~~12~~ 12-acre area reserved for development of a future school facility.

5.3.4 State Higher Education Functional Plan (1984)

5.3.4.1 Goals of the Plan

The objectives of the State Higher Education Functional Plan are to provide (1) a number of diverse post-secondary educational institutions; (2) quality educational, research, and public service~~s~~ programs; (3) appropriate opportunities for all who can benefit; (4) financing to ensure accessibility; and (5) coordination of educational resources.

5.3.4.2 Higher Education in the County of Hawai‘i

The UH at Hilo (located in Hilo on the east side of the island) provides alternative higher educational opportunities within the UH system through a variety of programs. ~~The~~ Hawai‘i Community College provides access to higher education and workforce training for the entire

County, and offers an extensive ~~program~~ array of certificate and associate degree programs onsite and through distance education technologies. In West Hawai‘i, in addition to the Hawai‘i Community College programs, the college is responsible for the UH Center, through which it delivers baccalaureate and masters degree programs.

The State completed in 1998 a long-range development plan for a UH West Hawai‘i College, and is working on the initial development phase on a 33-acre portion of a 500-acre State-owned parcel. Just adjacent to the proposed campus, Hiluhilu Development LLC (Hiluhilu) plans to develop a 725-acre vacant parcel and has proposed to provide supporting infrastructure for the West Hawai‘i College.

The project, which is known as Palamanui/UH West Hawai‘i College (formerly referred to as Hiluhilu Development) envisions a master planned community with a mix of single- and multi-family units, an 18-hole golf course, a university village center with commercial uses, university related uses, and a medical wellness center. Subject to an agreement with the University, plans include a mixture of classroom, offices, commercial areas, conference and community outreach facilities, parking, and athletic fields.

According to Hiluhilu’s Final EIS, the residential component of the project will include a mixture of housing types including single family, townhouses, condominiums, and apartments. The commercial components of Palamanui will consist of retail, office, and professional uses that will provide support for the residential component of Palamanui and the adjacent UH West Hawai‘i campus.

The UH’s vision for West Hawai‘i is to develop a unique educational environment that will integrate the community into the educational enterprise. The mission is to incorporate the philosophies of multidisciplinary educational programs with an emphasis on Hawaiian studies, a multicultural environment, a learning-centered focus using the island as a living laboratory, and a technically advanced campus well positioned to support the future needs of the community. The proposed project will bring many opportunities to the region in terms of research, education, training, economic development, and diversification. The West Hawai‘i College will serve as a

center for information technology, and will provide job training and educational opportunities for local residents and incoming students.

5.3.4.3 Conformance with the Goals of the Plan

The Keahuolu project will have a range of affordable and market-priced housing opportunities in direct response to the existing and future demand for primary market housing in North Kona. The project should contribute to the availability of affordable and market priced housing for faculty and staff.

5.3.5 State Employment Functional Plan (1990)

5.3.5.1 Goals of the Plan

The 1990 State Employment Functional Plan's objectives, policies, and implementing actions address four major issue areas: (1) education and preparation services for employment~~;~~, (2) job placement~~;~~, (3) quality of work life~~;~~, and (4) employment planning information and coordination.

5.3.5.2 Employment Opportunities in West Hawai'i

Employment opportunities on the island of Hawai'i have increased substantially and primarily have been created by the expanding visitor industry. A substantial amount of investor interest continues to flow into West Hawai'i, primarily the Kohala and Kona districts, which according to the Hawai'i County General Plan continues to accommodate the majority of the visitor market within the County. Over $1 billion of planned construction of resort-residential complexes has been announced, in addition to the substantial investment already in place.

Annual employment for secondary industries, such as government, construction, trades (retail and wholesale), utilities, financial institutions, and professional services accounted for approximately 68 percent of the County's workforce. Kailua-Kona functions as the center for government, commercial, and industrial activities for West Hawai'i. ~~Retail, B~~banking services; retail stores, ~~and~~ including "big-box" retailers such as Costco, K-Mart, and WalMart; and international sporting events such as the Iron~~M~~man Triathlon are in Kona.

Additionally, diversified agriculture in West Hawai‘i helps to broaden and diversify the economic base in terms of employment. Processing, manufacturing, and packaging are growing industries. Coffee production since the 1800s continues in the North and South Kona districts, with Kona coffee experiencing in 1982-1995 sales fluctuating between $2.1 and $8.7 million. Other agricultural enterprises include cattle ranching, aquaculture, and the growing of flowers, fruits, macadamia nuts, and vegetables. Timber and fishing are small industries in Kona. The Kailua-Kona Wharf is considered a major center for big game fishing and annual international tournaments. Quarrying operations for building materials are also conducted in North Kona. The old Kailua and Kaloko industrial areas provide the largest concentration of industrial activities within West Hawai‘i, which accommodate a wide range of manufacturing, service, wholesale, and retail activities.

5.3.5.3 Conformance with the Goals of the Plan

The project will contribute to employment through the provision of ~~construction~~ construction-related jobs during the period from 2010 through 2020. The project will also contribute to employment through the development of up to 197,000 square feet of commercial floor area within the project site. From a broader perspective, the provision of affordable and market-priced housing in North Kona fulfills the State and County goals of constructing housing in close proximity to regional job centers.

5.3.6 State Energy Functional Plan (1991)

5.3.6.1 Goals of the Plan

The State Energy Functional Plan sought to (1) support the commercialization of Hawai‘i’s alternative energy resources, (2) implement a wide range of energy conservation and efficiency technologies~~;~~, (3) prepare for disruptions in the energy supply~~;~~, and (4) reduce the State’s dependence on imported fossil fuels, such as oil, for 90 percent of its total energy needs as opposed to 42 percent nationally.

The plan called for objectives and courses of action to lessen Hawai‘i’s dependence on imported fossil fuels. The objectives were to: (1) moderate the growth in energy demand through conservation and energy efficiency~~;—~~, (2) displace oil and fossil fuels through alternate and renewable energy sources~~;—~~, (3) promote energy education and legislation~~;—~~, (4) support and develop an integrated approach to energy development and management~~;—~~, and (5) ensure the State’s abilities to implement energy emergency actions immediately in the event of fuel supply disruptions, and ensure essential public services are maintained and provisions are made to alleviate economic and personal hardships that may arise.

The State Legislature in 2001 passed a law establishing “renewable portfolio standard” goals for electric utilities of seven percent by December 31, 2003, eight percent by December 31, 2005, and nine percent by December 31, 2010.

5.3.6.2 Conformance with the Goals of the Plan

The Keahuolu project can contribute to energy efficiency in at least two arenas: residential energy consumption and transportation. As stated in the HHFDC RFP, to the extent possible, the developer is to design and construct buildings to meet LEED standards and to incorporate design features to conserve energy and water usage. The project is to also incorporate principles of waste minimization and pollution prevention. In terms of transportation, the regional roadway connections that will result from the project will contribute to improved vehicular circulation in North Kona, which translates into less energy consumption. The conceptual design of the project promotes a walkable, bikable community with high density residential areas within a one-quarter mile walking radius of proposed transit stops along Ane Keohokalole Highway.

5.3.7 State Health Functional Plan (1989)

5.3.7.1 Goals of the Plan

The 1989 State Health Functional Plan addressed six issue areas: (1) health promotion and disease prevention~~;—~~, (2) communicable disease prevention and control~~;—~~, (3) special populations with impaired access to health care~~;—~~, (4) healthcare services (acute, long-term, primary and emergent) for rural communities~~;—~~, (5) environmental health and protection~~;—~~, and (6) DOH

leadership. The plan also sought to boost the long-term economy by attracting a share of the rapidly developing, affluent, wellness-oriented market. It also sought to develop and implement new environmental protection and health services that would protect, monitor, prevent degradation, and enhance the quality of Hawai'i's air, land, and water.

The DOH is responsible for establishing, monitoring, and enforcing the Water Quality Standards. These standards are intended to protect the environmental quality of the waters of the island and maintain public health. The DOH is also responsible for establishing standards and regulations for noise control, which are uniform throughout the State.

5.3.7.2 Health Conditions in the County of Hawai'i

Hawai'i is recognized worldwide for its natural resources and pristine environment. The summits of Mauna Kea and Mauna Loa offer some of the best areas in the world for astronomy because of their optical clarity and accessibility. The island of Hawai'i and the other Hawaiian islands~~,~~ escape major sources of man-made pollutants~~,~~ because of their geographic isolation from mainland industries. However, as in any metropolitan area, there are pollution concerns over air quality, water contamination, and noise.

The major sources of air pollution on the island of Hawai'i are volcanic emissions, open burning, sprayed agricultural chemicals, modes of transportation, and fixed combustion sources such as power plant emissions. Natural pollutants from airborne dust are also contributing factors. Prevailing northeast trade winds and diurnal land and sea breezes form air circulation patterns that can create local concentrations of pollutants. In areas where the topography favors a confluence of air currents, the potential is great for hazy conditions to develop, especially if vehicular, volcanic, and other air pollution sources increase.

Surface water resources, coastal waters, and groundwater resources of the County are vulnerable to contamination as population increases and further development occurs. According to County data, the major sources of water pollution are sewage, natural surface runoff, and the by-products of agricultural activities. Recycled water is currently being used for erosion and dust control at lined landfills, and there may be a need in the future to recycle sewage and wastewater effluent

for use in irrigation. There are five municipal sewage systems with treatment plants that serve limited areas. As a result, only a small portion of the County's sewage is treated. Most sewage is disposed of in private cesspools, septic systems, or private ~~waste water treatment plants (~~WWTPs~~)~~ that must meet the State DOH water quality standards. The State DOH intends to promulgate rules that will prohibit the installation of cesspools.

Loud noises are known to have adverse physiological and psychological effects on people. Residential and resort areas near airports are particularly affected. Increased air transportation activity and changes in aeronautical technology could change the "noise contours" that affect lands surrounding the Kona International Airport at Keāhole and Hilo International Airport. The County recommends appropriate easements and/or covenants be required in conjunction with land use approvals for lands in the vicinity of the airports to eliminate the likelihood of surrounding land use development conflicting with future airport activity and/or expansion.

5.3.7.3 Conformance ~~to~~ with the Goals of the Plan

The Keahuolu Affordable Housing P~~p~~roject is relevant to the State Health Function Plan in two ways. First, construction will conform to DOH regulations concerning erosion control, fugitive dust, solid waste disposal, and noise controls. Second, the project will develop on-site and off-site infrastructure systems that will connect to regional infrastructure systems. Infrastructure will be constructed to applicable State, DOH and County standards, rules and regulations, thereby fulfilling the goal of improving environmental health and protection.

5.3.8 State Historic Preservation Functional Plan (1991)

5.3.8.1 Goals of the Plan

The State Historic Functional Plan identifies issues, policies, and implementing actions that seek to preserve and protect the unsurpassable beauty, history, and culture of the Hawaiian Islands. Hawai'i's natural scenic beauty, clean environment, and rich multi-cultural heritage (including historic/cultural sites) are reasons why so many people have made Hawai'i their home, and why so many visit the State.

5.3.8.2 Historic Preservation Sites in the County of Hawai'i

According to the DLNR's SHPD, an estimated 11,500 archeological and historic sites have been identified on the island of Hawai'i. However, only 5 percent of the island has been surveyed, and the other 95 percent of the island contains an undeterminable number of historic and archeological sites. The abundance of historic sites can be attributed to the fact that much of the early history of the Hawaiian islands had its setting on the island of Hawai'i. Archeological data indicates that Polynesian voyagers may have settled there as early as 600 A.D.

5.3.8.3 Conformance ~~to~~ with the Goals of the Plan

Archaeological inventory survey work has been conducted on the subject property and a ~~cultural impact assessment~~CIA has been prepared. Together, these documents provide a greater understanding of project area's historic, archaeological and cultural resources. Sites conforming to the significance criteria established under state and federal regulations will be preserved in coordination and consultation with the SHPD.

5.3.9 State Housing Functional Plan (1989, 1990)

5.3.9.1 Goals of the Plan

The 1990 State Housing Functional Plan identified a need to develop affordable housing throughout the State, and found that the housing needs of lower income households would not be adequately met in future residential developments. Obstacles identified to the development of affordable housing include (1) the lack of infrastructure, particularly on the neighbor islands; (2) the high cost of zoned land, high development costs, and the regulatory system (particularly on O'ahu); (3) government policies that have created a shortage of urban land zoned for housing; (4) lack of government funds to develop rental housing; (5) building codes and subdivision standards that constrain innovative, cost-saving technologies; and (6) current labor wages. The Plan recommended increased densities in residential developments where feasible, smaller and basic units, funding for rental developments, and state subsidies.

5.3.9.2 Housing in the County of Hawai'i

The population of the County has been growing for decades, but the rate of growth has been slowing. North Kona has seen a faster rate of increase than the island as a whole, although Puna's and South Kohala's populations have increased at even faster rates.

In Hawai'i County in 2006, 9.9 percent of single family properties and 16 percent of residential condominiums had out-of-state owners. Non-residents are also disproportionately involved in real estate purchases. From 2001 to 2005, about 35 percent of Hawai'i County single-family house sales and 75 percent of condominium sales had out-of-state buyers. Consequently, market prices reflect both local and non-local buying power, and the median home price is much higher than the average household can afford. In short, many of the homes sold at prices that only a few local families – and many more offshore buyers – could afford. However, evidence of resident demand for new housing units is abundant. The housing market continues to be active, even though prices have reached levels that many families cannot afford.

About a third of Hawai'i County respondents expecting to move named North Kona as their preferred destination. Total demand for housing in North Kona from Hawai'i residents statewide as of 2006 is estimated at about 7,200 households, (including all those expecting to move at some time in the future.

5.3.9.3 Conformance ~~to~~ with the Goals of the Plan

The HHFDC Keahuolu project is planned as a response to the regional needs for housing and the desire to reduce congestion on regional highways due to residents' traveling long distances between home and work. Future residents of Keahuolu are likely to come from West Hawai'i, ranging from Ocean View in Ka'u to North Kohala. Thus, the Keahuolu Affordable Housing Pproject is supportive of the Housing Functional Plan's goals of providing more homes for Hawai'i's population. The project will directly address the demand for affordable homes near employment centers in West Hawai'i.

5.3.10 State Human Services Functional Plan (1989)

5.3.10.1 Goals of the Plan

The Human Services Functional Plan addressed: (1) elder abuse~~;~~ , (2) child abuse and neglect,~~;~~ and (3) spouse/domestic abuse and violence. The plan details statistics, causes, and prevention measures that can help to combat very pressing societal issues.

5.3.10.2 Conformance ~~to~~ with the Goals of the Plan

The petition for a boundary amendment will have a negligible effect on this plan.

5.3.11 State Recreation Functional Plan (1991)

5.3.11.1 Goals of the Plan

The 1991 State Recreation Functional Plan focused on six issue areas: (1) ocean and shoreline recreation; (2) mauka, urban, and other recreation; (3) public access to the shoreline and upland recreation areas; (4) resource conservation and management:, (5) management of recreation programs and facilities; and (6) wetlands protection and management.

5.3.11.2 Recreation in West Hawai‘i

The County expects heavy demand on recreational resources as a result of an expanding population and a growing number of visitors in West Hawai‘i. According to the County General Plan, existing recreational areas and facilities in the North Kona district are being targeted for improvements and expansion as the area is generally inadequate. In 2005, approximately 28,500 residents of North Kona were served by only nine County parks. Improved and expanded recreational facilities that support the proper ratio of 5.0 acres of recreation area for every 1,000 people are a part of the County’s goals.

Some of the new or improved areas in the region include Kealakehe High School, which offers facilities that are open to the public during non-school hours. The Kailua Park (Old Kona Airport) consists of 34 acres and provides lighted fields for baseball, softball, and football. Baseball and soccer fields were constructed. Also situated here are four lighted tennis courts, the

old terminal building houses restrooms, offices, and a meeting place. A multipurpose gymnasium was completed in 1993 and a 50-meter olympic-size swimming pool was completed in 1999. The County has three developed beach parks in North Kona. There are three small boat harbors in the district: Kailua Bay, Keauhou, and Honokohau. Honokohau harbor has a capacity for 450 small boats and has other facilities to accommodate boat repair, a restaurant, dry storage, etc.[3]

5.3.11.3 Conformance ~~to~~ with the Goals of the Plan

The conceptual plans for the proposed project include approximately 25 acres of open space, which includes area for the creation of neighborhood parks to address the recreational needs of the residents.

5.3.12 State Tourism Functional Plan (1991)

5.3.12.1 Goals of the Plan

The 1991 State Tourism Functional Plan focused on six issues: (1) the positive and negative impacts of tourism growth on the community; (2) physical development in terms of product quality, product diversity, land use planning, adequate infrastructure, and visitor use of public services; (3) environmental resources and cultural heritage; (4) community, visitor, and industry relations; (5) employment and career development; and (6) effective marketing.

The plan primarily sought to strengthen tourism, while developing other industries to diversify the State's economic base in order to reduce its vulnerability from the fluctuations of a single market.

5.3.12.2 Tourism in West Hawai'i

Current growth in the County in terms of employment, population, income, and economic activity has been more closely tied to the visitor industry than any other sector of the economy. Employment opportunities spurred by the growth of tourism has been the catalyst for economic

[3] Data from this section obtained from the 2001 County of Hawai'i Proposed General Plan.

growth in the County. A substantial amount of investor interest continues to flow into West Hawai‘i, primarily the Kohala and Kona districts, which according to the Hawai‘i County General Plan continues to accommodate the majority of the visitor market within the County. Over $1 billion of planned construction of resort-residential complexes have been announced, in addition to the substantial investment already in place. Various resort and resort-residential complexes are currently under construction or are planned for construction in the near future. Continued investor interest in resort and resort-residential development in the County suggests an economic future that promises new jobs and more commercial, recreational, and cultural activities.[4]

5.3.12.3 Conformance with the Plan

While the Keahuolu Affordable Housing project has no direct relationship with the visitor industry, it plays an important indirect role. The availability of new housing opportunities in reasonable proximity to the visitor destination areas of North and South Kona is vital to the health of the industry because the project can provide employee housing near the region’s job centers.

5.3.13 State Transportation Functional Plan (1991)

5.3.13.1 Goals of the Plan

The 1991 State Transportation Functional Plan sought to (1) construct facility and infrastructure improvements in support of Hawai‘i’s thriving economy and growing population base; (2) develop a transportation system balanced with an array of new alternatives; (3) implement Transportation Systems Management to maximize the use of existing facilities and systems; (4) foster innovation and use of new technology in transportation; (5) maximize joint efforts with the private sector; (6) pursue land use initiatives which help reduce travel demand; and (7) encourage resident quality-of-life improvements through improved mobility opportunities and travel reduction.

[4] Data for this section obtained from the 2001County of Hawai‘i Proposed General Plan and the Hawai‘i Tourism Authority (HTA) *2002 Annual Report to the Legislature.*

5.3.13.2 Transportation Conditions in West Hawai‘i

Kona International Airport at Keahole occupies 3,450 acres of land about seven miles northwest of Kailua-Kona and the Keahuolu project site.

The major traffic arteries serving the North Kona district are the Hawai‘i Belt Highway (Mamalahoa), connecting Kona with South Kohala and Ka‘u, Queen Ka‘ahumanu Highway~~,~~; Kuakini Highway, connecting Kailua with the mauka Keauhou area~~,~~; and Ali‘i Drive, serving the shoreline areas between Kailua and Keauhou. The latter of these systems is the only access to areas along the shoreline between Kailua and Keauhou. Mauka-makai access between Mamalahoa Highway and the Queen Ka‘ahumanu Highway is provided by Kaiminani Drive, Hina Lani Drive and Palani Road. Mamalahoa Highway is the only arterial roadway currently serving all of the South Kona District. Many portions of this roadway are narrow and winding. Lands mauka and makai of this roadway are served by private and County-owned collector roadways, many in poor condition.

The Hawai‘i County Mass Transit Agency provides public transportation around the island on the Hele-On bus. In addition, the Transit Agency offers a Shared Ride Taxi program that provides inexpensive door-to-door transportation within the urbanized area of Hilo and Kona.

Recent economic growth and prosperity in West Hawai‘i have brought traffic congestion, which has worsened appreciably on Queen Ka‘ahumanu Highway and on the Hawai‘i Belt Road between Kailua and South Kona. However, plans are under way for highway improvements for both State and County roads, including widening of Queen Ka‘ahumanu Highway between Kailua-Kona and the airport. The County’s planned Ane Keohokalole Highway is adjacent to the project site’s makai boundary. The new highway, which will provide primary access to the project site, is envisioned by the County to serve as a transit corridor between Kailua-Kona and the airport.

5.3.13.3 Conformance with the Plan

The Keahuolu project will become an integral component of the regional transportation network. The project’s conceptual plans provide for transit-oriented development with bus stops along

Ane Keohokalole Highway, high density housing within one-quarter mile walking distance from transit stops, and feasible roadway connections to existing and future development on adjacent lands. This provides alternative routes and transportation modes to Queen Ka‘ahumanu and Mamalahoa Highways, which will help to reduce congestion on these regional serving arterials.

5.3.14 State Water Resources Development Functional Plan (1984)

5.3.14.1 Goals of the Plan

The 1984 State Water Resources Development Functional Plan set objectives to: (1) clarify the State water policy and improve management framework~~;~~, (2) maintain the long-term availability of freshwater supplies while considering environmental values~~;~~, (3) improve management of flood plains~~;~~, (4) assure adequate municipal water supplies for planned urban growth~~;~~, (5) assure the availability of adequate water for agriculture~~;~~, (6) encourage and coordinate development of self-supplied industrial water and the production of water-based energy~~;~~, (7) provide for the protection and enhancement of Hawai‘i’s freshwater and estuarine environment~~;~~, (8) improve state grant and loan procedures for water programs and projects~~;~~, and (9) pursue water resources data collection and research to meet changing needs.

5.3.14.2 Water Conditions in West Hawai‘i

Over the past 15 years, West Hawai‘i has experienced tremendous growth in population and resort development, accompanied by a reliance on the available ground-water resources. In the early 1990s, there was fierce competition for water resources among landowners, developers, and other water purveyors in the region. The State Commission on Water Resource Management (CWRM) stepped in and found they needed to gather pertinent data on baseline water levels in order to mediate the problem and avoid major disputes. A 1991 – 2002 report, *A Study of the Ground-Water Conditions in North and South Kona and South Kohala Districts, Island of Hawaii* is ongoing and presents over 10 years of baseline water level data. Many wells were drilled in the region during the past 10 years by private landowners, public utilities, and the State, who invested large sums of money to drill these wells for the economic benefit of the

island and the State. The CWRM credited these entities for allowing access to their wells for data collection and sampling used in the report.[5]

The Keahuolu project is located on the western flank of Hualalai, where the ground surface is highly permeable and storm water runoff does not occur. Two modes of groundwater occur in the general vicinity: (1) a thin, brackish to saline basal lens underlying the entire coastal zone; and (2) high-level groundwater near the vicinity of Mamaloahoa Highway and extending 20 miles from Kalaoa to Kealakekua.

5.3.14.3 Conformance with the Plan

The Keahuolu project will include the development of at least one new regional potable water well and multiple storage reservoirs, depending on the total number of housing units to be constructed. The potable water transmission system will be integrated into the County's regional distribution system, significantly improving water supply, storage, and transmission in the vicinity of the project. In so doing, the Keahuolu project is in conformance with many of the goals of the State Water Functional Plan.

5.4 HAWAI'I WATER CODE

In 1987, the State Legislature adopted the Hawai'i Water Code as HRS Chapter 174C, as amended, to "protect, control, and regulate the use of Hawai'i's water resources for the benefit of its people." The CWRM administers the water code. The Code's policies include the (1) protection of water resources, maintenance of ecological balance and scenic quality with regard to the development of new resources; (2) improvement of water quality; and (3) the establishment of comprehensive water planning statewide. A major element of the code is the development of the Hawai'i Water Plan.

The State Water Code pursuant to HRS 174-2(c) allows "maximum beneficial use of the waters of the State for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses." Furthermore, the Code shall be

[5] Data obtained from DLNR website (http://www.hawaii.gov/dlnr/cwrm/data/reports/pr200301.pdf)

liberally interpreted and applied in a manner~~, which~~ that conforms to intentions and plans of the counties in terms of land use planning.

5.5 STATE OF HAWAI'I WATER PLAN

The Hawai'i Water Plan, under HRS §174C-31, consists of four parts: (1) a water resource protection plan prepared by the water commission~~;~~, (2) water use and development plans for each county prepared by each separate county and adopted by ordinance, setting forth the allocation of water to land use in that county~~;~~, (3) a state water projects plan prepared by the agency ~~which~~ that has jurisdiction over such projects in conjunction with other state agencies~~;~~, and (4) a water quality plan prepared by the DOH.

All water use and development plans shall be conditioned upon and be consistent with: (1) water resource protection and water quality plans~~;~~, (2) respective county land use plans and policies including general plan and zoning as determined by each respective county~~;~~, and (3) state land use classification and policies.

To prepare the water resource protection and water quality plans, the LUC shall assess the quantity and quality of water needed for existing and contemplated uses, including irrigation, power development, geothermal power, and municipal uses.

5.6 STATE UIC PROGRAM

The Safe Drinking Water Act of 1974 legislated the protection of all aquifers, portions of aquifers, and any potential aquifer capable of yielding consumable drinking water sources. This mandate was based on increased evidence of contamination of this valuable resource and on a national concern for the quality of groundwater.

In 1976, the State Legislature enacted Act 84, relating to Safe Drinking Water, which required the State DOH to establish a~~n~~ UIC program to protect the quality of underground sources of drinking water. The UIC program identifies aquifers that should be protected from subsurface disposal of wastewater through injection wells, and designates areas now being used or that

could potentially be used for drinking water. The underground sources of drinking water (USDW) are protected and the program prohibits the construction of new injection wells that may pollute the USDW. Injection wells are allowed in exempted areas. The boundary lines, known as the UIC line, between the USDW and the exempted areas have been developed~~,~~ with a 1,000-foot setback of wastewater systems from all public drinking water wells and springs.

The subject property is situated mauka of the UIC line and injection wells are not permissible in this area, ~~without~~ thereby not affecting USDW.

5.7 STATE ENVIRONMENTAL POLICY

HRS Chapter 344 establishes an environmental policy that (1) encourages productive and enjoyable harmony between people and their environment~~;~~, (2) promotes efforts to prevent or eliminate damage to the environment and biosphere~~;~~, (3) stimulates the health and welfare of humanity~~;~~, and (4) enriches the understanding of the ecological systems and natural resources important to the people of Hawai‘i.

HRS §344-2 defines “environment” as the complex of physical and biological conditions that influence human well-being, including land, air, water, minerals, flora, fauna, energy, noise, and places of historic or aesthetic significance.

~~The following table, identified as~~ Table 5-3~~,~~ contains the policies of the State Environmental Policy, HRS §344, and ~~discusses~~ makes note of the relationship and applicability, if any, of the policy to the Keahuolu project’s petition for a boundary amendment.

Table 5-3: State Environmental Policy

SECTION	STATE ENVIRONMENTAL POLICY	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant’s objectives NA = goal is not applicable		
344-3	ENVIRONMENTAL POLICY. It shall be the policy of the State, through its programs, authorities, and resources to:	
(1)	Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawai‘i.	C

SECTION	STATE ENVIRONMENTAL POLICY	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(2)	Enhance the quality of life by:	
(A)	Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;	C
(B)	Creating opportunities for the residents of Hawai'i to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;	C
(C)	Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and	C
(D)	Establishing a commitment on the part of each person to protect an enhance Hawai'i's environment and reduce the drain on nonrenewable resources.	NA
344-4	GUIDELINES. In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:	
(1)	POPULATION.	
(A)	Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;	C
(B)	Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined.	C
(2)	LAND, WATER, MINERAL, VISUAL, AIR, AND OTHER NATURAL RESOURCES.	
(A)	Encourage management practices which conserve and fully utilize all natural resources;	C
(B)	Promote irrigation and waste water management practices which conserve and fully utilize vital water resources;	C
(C)	Promote the recycling of waste water;	C
(D)	Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;	C
(E)	Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;	NA
(F)	Maintain an integrated system of state land use planning which coordinates the state and county general plans.	C
(G)	Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.	C
(3)	FLORA AND FAUNA.	
(A)	Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;	C
(B)	Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.	C
(4)	Parks, recreation, and open space.	
(A)	Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;	C

SECTION	STATE ENVIRONMENTAL POLICY	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(B)	Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;	NA
(C)	Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.	C
(5)	ECONOMIC DEVELOPMENT.	
(A)	Encourage industries in Hawai'i which would be in harmony with our environment;	C
(B)	Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;	NA
(C)	Encourage federal activities in Hawai'i to protect the environment;	NA
(D)	Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;	NA
(E)	Establish visitor destination areas with planning controls which shall include but not be limited to the number of rooms;	NA
(F)	Promote and foster the aquaculture industry of the State; and preserve and conserve productive aquacultural lands.	NA
(6)	TRANSPORTATION.	
(A)	Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;	A
(B)	Adopt guidelines to alleviate environmental degradation caused by motor vehicles;	NA
(C)	Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.	A
(7)	ENERGY.	
(A)	Encourage the efficient use of energy resources.	A
(8)	COMMUNITY LIFE AND HOUSING.	
(A)	Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods which reflect the culture and mores of the community;	A
(B)	Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;	A
(C)	Encourage the reduction of environmental pollution which may degrade a community;	A
(D)	Foster safe, sanitary, and decent homes;	A
(E)	Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.	A
(9)	EDUCATION AND CULTURE.	
(A)	Foster culture and the arts and promote their linkage to the enhancement of the environment;	NA
(B)	Encourage both formal and informal environmental education to all age groups.	NA
(10)	CITIZEN PARTICIPATION.	
(A)	Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and	NA

SECTION	STATE ENVIRONMENTAL POLICY	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
(B)	Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.	NA

5.8 WEST HAWAI'I REGIONAL PLAN (1989)

In 1989, under former Governor John Waihee, the Office of State Planning produced the West Hawai'i Regional Plan to guide the development of the region. The State formulated the plan to (1) coordinate State activities in West Hawai'i and respond effectively to emerging needs and critical problems~~;~~, (2) address areas of State concern~~;~~, (3) coordinate the Capital Improvements Program~~;~~, and (4) provide guidance in the State land-use decision-making process. Contributors to the plan included the West Hawai'i community, and Federal, State, and County agencies.

~~The following table, identified as~~Table 5-4~~,~~ presents the general goals of *The Vision for West Hawai'i Plan*, and two pertinent sections, *Urban Expansion Planning Areas*, and *Highways and Roadways*. A project-specific commentary is included for each.

Table 5-4: West Hawai'i Regional Plan

GENERAL GOALS AND OBJECTIVES FOR THE VISIONS OF WEST HAWAI'I	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Plan and maximize benefits for Hawai'i's people.	A
Optimize the use of State-owned lands.	A
Promote a diversified economic base which maximizes job choice and opportunities.	A
Ensure access to and adequacy of health, education, job-training, and human service programs.	NA
Ensure provision and adequacy of affordable housing.	A
Minimize adverse impact of new development on local lifestyles, historic and cultural resources and community values.	C
Provide a wide range of outdoor recreational opportunities.	C
Protect scenic areas, natural landmarks, open space, and viewsheds.	C
Ensure that existing and proposed developments can be adequately accommodated.	C
Support urban developments that maintain the unique character of the West Hawai'i region.	C
Protect State investments of the Natural Energy Laboratory of Hawai'i, the Hawai'i Ocean Science and Technology Park, Keahole Airport, and the Mauna Kea observatories.	NA
Ensure that new development does not adversely impact:	
agricultural resource activities;	C

GENERAL GOALS AND OBJECTIVES FOR THE VISIONS OF WEST HAWAI'I	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
aquacultural resource activities;	C
the quality of the aquifer	C
the quality of nearshore waters (including anchialine ponds)	C
the quality of offshore and deep ocean waters	NA
the quality of air	C
the watersheds	C
Ensure that the servicing of resort development does not result in unnecessary in-migration.	C
Ensure the clustering of resorts in order to minimize public service costs.	NA
Promote quality and diversity in future resort developments.	NA
Develop only within infrastructure capacities and constraints.	C
Maintain the diversity of the region's natural and cultural assets.	C
Maintain the diversity and character of existing communities.	NA
Ensure that development does not lead to deterioration in the quality of life.	C
Maintain opportunities for community participation during plan implementation.	C
COMMENTARY: The Keahuolu project is consistent with and supportive of the goals of the West Hawai'i Regional Plan.	
URBAN EXPANSION PLANNING AREAS	
PROBLEM STATEMENT	
The Urban Expansion Planning Areas are sub-regions that will be planned by the County's Planning Department. The County's planning process will include the State, existing landowners, and affected governmental agencies. As part of this planning effort, infrastructure requirements of all landowners will be determined and "sized" in order to attend to existing and anticipated problems. Opportunities for joint infrastructure financing, economies of scale, and creative urban design will be explored and developed in order to provide an environment that can support the "preferred" quality of life.	
STRATEGY	
Concentrate future regional urbanization in designated Urban Expansion Planning Areas and provide for their planning and future development in a manner which optimizes or mitigates sub-regional problems, issues, and opportunities.	C
ACTIONS	
Direct future regional urbanization to designated Urban Expansion Planning Areas at Kailua-Kona to Keāhole and Kawaihae to Waimea.	C
Formulate a joint public/private sector community development plan for each Urban Expansion Planning Area.	NA
Encourage in-fill of urban areas between Kailua-Kona and Keauhou.	NA
COMMENTARY: The Keahuolu project area is located within the Urban Expansion Planning Area between Kailua-Kona and Keahole.	
HIGHWAYS AND ROADWAYS	
PROBLEM STATEMENTS	
Increased traffic flow which will occur as a result of workers commuting from support communities to the resort areas is another problem which must be anticipated.	
STRATEGY	

GENERAL GOALS AND OBJECTIVES FOR THE VISIONS OF WEST HAWAI'I	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Anticipate and provide relief for traffic hazards and congestion on a timely basis.	C
ACTIONS	
Support the DOT's Countywide Transportation Planning Process (CTPP)	C
Investigate the feasibility of a mass transit for the region.	NA
COMMENTARY: One of the key elements of the proposed project is its contribution to improvements in the regional roadway network. The project is to provide feasible roadway connections to existing and/or future developments on adjacent lands, thereby helping to improve regional traffic circulation and provide alternate routes to Queen Ka`ahumanu and Mamalahoa highways. Another key element of the project is that it is to be transit-oriented, which means the development is to accommodate multiple transit stops (bus or other modes) along the planned Ane Keohokalole Highway. The conceptual design of the project promotes a walkable, bikable community with high density residential areas within a one-quarter mile walking radius of proposed transit stops along Ane Keohokalole Highway.	

5.9 STATE ENVIRONMENTAL IMPACT STATEMENT REQUIREMENTS SIGNIFICANCE CRITERIA

HAR, §11-200-12, establishes thirteen significance criteria ~~which~~ that agencies shall use in evaluating an action's impacts. Following is a discussion of how the proposed action relates to the thirteen criteria.

Pursuant to subparagraph 12, ...an action shall be determined to have a significant effect on the environment if it:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Discussion: The SHPD has approved the archaeological inventory survey and the archaeological mitigation plan for the project area. Data recovery work needs to take place at eleven of the twelve sites within the project boundary. Seven of the twelve sites are recommended for "preservation with some level of interpretive development recommended". Four of the twelve sites are recommended for "preservation as is." A preservation plan detailing preservation treatments for all preservation sites needs to be prepared and approved by the SHPD. The archaeologist has recommended "no further work" for the six sites found on the proposed reservoir site. No ongoing cultural practices were identified relative to the project site and the reservoir site.

(2) Curtails the range of beneficial uses of the environment:

Discussion: The range of beneficial uses of the property's environment is guided by the County's General Plan, which designates the undeveloped property primarily for Urban Expansion and the remainder for Low Density Urban uses. The proposed project is consistent with the planned beneficial use of the area. The proposed project increases the range of beneficial uses for the environment by providing affordable and market-priced housing units, parks and open space, a site reserved for a future school facility, integration of future transit components, and increased connectivity with surrounding roads, infrastructure, services, and public facilities.

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

Discussion: The stated purpose of Chapter 344 is to establish a state policy ~~which~~ that will encourage productive and enjoyable harmony between people and their environment, promote efforts ~~which~~ that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawai'i. The proposed project complies with the policies, goals and guidelines of Chapter 344. The project proposes to create a master planned mixed-use residential community that will be integrated with regional transportation network and infrastructure systems, and improve the quality of life for residents by providing affordable housing near employment centers. ~~.~~

(4) Substantially affects the economic or social welfare of the community or State;

Discussion: Development of the property for residential purposes is consistent with the County's desire to focus growth in West Hawai'i in the region between Keahole and Kailua-Kona. The project will have positive impacts on the social welfare of the North Kona community by providing affordable housing opportunities for area residents to live close to employment centers in West Hawai'i. The project will also have positive impacts on the

economic welfare of the community and the State through the creation of jobs and property tax revenue base.

(5) Substantially affects public health;

Discussion: The proposed project is anticipated to have negligible impact on public health. Infrastructure systems will be constructed to comply with applicable State, DOH, and County standards and regulations.

(6) Involves substantial secondary impacts such as population changes or effects on public facilities;

Discussion: The alternative concept plans provide for up to a maximum of 2,330 new housing units or less. The final development scheme will be provided by the developer selected by the HHFDC. The addition of this population is anticipated to increase demand on public facilities, including the area's schools. The project site has an approximately ~~12~~ 12-acre area reserved for a school facility.

(7) Involves a substantial degradation of environmental quality;

Discussion: The proposed project will involve extensive ground disturbance, including clearing, grubbing, and grading of the property. The site development activities are necessary for the development. Grading and construction activities will be required to comply with applicable regulations.

(8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

Discussion: It is anticipated that there is a cumulative effect related to the total residential development in the region, both positive in terms of creating affordable residential housing opportunities and locating residents closer to major urban centers, and potentially negative in terms of the cumulative traffic impacts. Chapter 4 discusses the traffic impacts of the Keahuolu Affordable Pproject and the proposed measures to mitigate traffic impacts to acceptable levels.

(9) Substantially affects a rare, threatened, or endangered species, or its habitat;

Discussion: No rare, threatened, or endangered species or related habitats have been identified on the subject property or the reservoir site.

(10) Detrimentally affects air or water quality or ambient noise levels;

The project will generate increased motor vehicle use in the area, which may affect air quality but not significantly. Wastewater from the project site will be disposed of at the Kealakehe ~~Sewage Treatment Plant~~WWTP. Ambient noise levels may be impacted in the project area, but are not expected to exceed acceptable levels due to the residential community nature of the development.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

Discussion: The subject property is situated within a Zone 4 volcanic hazard zone (on a scale of 1 to 9 with 1 representing the most hazardous and 9 the least hazardous), which covers all of Hualalai volcano. The property is also situated within a Zone 4 seismic zone, which is the highest zoning designation on a scale of 0 to 4. Proposed structures in the subject development will conform to all relevant building code requirements, including applicable seismic design standards.

(12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies~~,~~;

Discussion: The subject property is not identified as scenic vistas or viewplanes on county or the state plans or studies.

(13) Requires substantial energy consumption.

Discussion: Energy consumption will be increased in relation to the proposed residential development. The project's design should include features to conserve energy and water usage.

FEDERAL LAWS AND CONTROLS

5.10 COASTAL ZONE MANAGEMENT ACT (HRS CHAPTER 205A)

Federal Coastal Zone Management (CZM) enforcement authority (Public Law 92-583), as amended, has been delegated to the State and enacted as HRS Chapter 205A. The Hawai'i CZM Program was promulgated in 1977 in response to the Federal CZM Act of 1972. Other than the review of federal applicants, federal permits, or federal activities, the State CZM review authority has been delegated to the county level through the Special Management Area (SMA) controls for development along the shoreline.

The CZM area encompasses the entire State including all marine waters seaward to the extent of the State's police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters. The CZM Act is comprised of a number of objectives primarily related to (1) protecting and preserving the coastal zone; (2) improving the quality of coastal scenic and ~~open~~ open-space resources and ensuring that ~~coastal~~ coastal-dependent development such as harbors and ports, and coastal-related development such as visitor industry facilities and ~~energy~~ energy-generating facilities~~,~~ are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and (3) encouraging research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Following is a summary of the project's conformance with the ten objectives of the coastal zone management program.

1A Provide coastal recreation opportunities accessible to the public.

Not applicable, as the project site is about one mile upslope and away from the coastline.

2A Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Archaeological sites determined to be significant will be preserved.

3A Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

As the proposed project is located about 1 mile from the shoreline, it is not applicable to this objective.

4A Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

As discussed under Objective ~~2A~~ 3A above, the proposed project will not have a significant adverse impact on the coastal ecosystem.

5A Provide public or private facilities and improvements important to the State's economy in suitable locations.

The development of the Keahuolu project will provide on-site and off-site infrastructure systems that will integrate with regional public and private facilities. The project's internal roadways are to connect up with existing and future developments on adjacent lands. This is consistent with regional transportation policies established by the County. The project also has an approximately ~~12~~ 12-acre area reserved for a future school facility.

6A Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Due to its location, the project area is not exposed to tsunami, storm waves, subsidence or stream flooding. Grading and site design at the project area will conform to all regulatory requirements and ensure that storm drainage is retained on site to minimize erosion potential for surrounding properties. As a primarily residential development, the project will not have a significant negative impact on air quality.

7 Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

While the coastal element of this objective is not relevant to the project, the public participation aspect is. This EIS was specifically prepared to be as "user friendly" as possible to ensure that the project is understood by the general population.

8 Stimulate public awareness, education, and participation in coastal management.

As this project is not situated near the coastline, this objective is not applicable.

9 Protect beaches for public use and recreation.

As this project is not situated near the coastline, this objective is not applicable.

10 Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

As discussed above, the proposed project will have no significant negative impact upon the coastal resources of North Kona. Therefore, it is consistent with the intent of this objective.

5.11 FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE PROGRAM

The Federal Emergency Management Agency (FEMA) assists states through disasters both natural and manmade, and has over the years undergone numerous changes. FEMA is a former independent agency that in March 2003 became a part of the new Department of Homeland Security (DHS). FEMA responds to, plans for, recovers from and mitigates against disasters.

The Congressional Act of 1803 is generally considered the first piece of disaster legislation, followed in the next century by ad hoc legislation passed more than 100 times in response to hurricanes, earthquakes, floods and other natural disasters. FEMA in 2001 had to focus on issues of national preparedness and homeland security following the terrorist attacks of September

11th. Billions of dollars of new funding were directed to FEMA to help communities face the threat of terrorism. FEMA began actively directing its "all-hazards" approach to disasters toward homeland security issues. FEMA in March 2003 joined 22 other federal agencies, programs, and offices in becoming the DHS. The new department, headed by Secretary Tom Ridge, brought a coordinated approach to national security for emergencies and disasters both natural and man-made. Today, FEMA is one of four major branches of DHS, with 2,500 full-time employees in the Emergency Preparedness and Response Directorate, and supplemented by more than 5,000 stand-by disaster reservists.

The National Flood Insurance Program (NFIP) is just one of FEMA's mitigative measures to assist communities in time of flood disaster. The U.S. Congress in 1968 established the program to enable property owners in participating communities to purchase insurance as a protection against flood losses. States and communities must first establish floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. The NFIP identifies and maps the Nation's floodplains.

In 1988, FEMA prepared Federal Insurance Rate Maps (FIRMs) for the island of Hawai'i to delineate flood hazard zones and base flood elevations lines. The subject property is located about 1 mile inland from the shoreline. Per FIRM Map No. 1551660711C, the subject property is in Zone X, Oother Aareas Ooutside the 500 Yyear Ffloodplain. Flood requirements and restrictions of the program do not apply.

COUNTY OF HAWAI'I PLANS AND CONTROLS

5.12 COUNTY OF HAWAI'I GENERAL PLAN

In 1971, the County adopted its first comprehensive General Plan for the island of Hawai'i. This General Plan reflected a departure from previous regional plans that had little island-wide integrative efforts and were primarily land use or physically oriented. The General Plan set forth a policy of comprehensive development for the entire island, and incorporated an awareness of the relationship between social, physical, and economic environments. The plan called for five- and ten-year comprehensive reviews and updates to maintain the dynamism and flexibility of the plan~~,~~ and, also, to accommodate major changes and trends that may occur. The County initiated a review of the LUPAG in 1978 that led to several changes to the map, which included the addition of an energy element and procedures for specific amendments to the General Plan.

The first comprehensive 10-year review of the General Plan occurred in the mid-1980s, and was adopted in November 1989 by the County Council. This comprehensive revision program resulted in various revisions to supporting data, individual study elements, and LUPAG and Facilities maps. The LUPAG map serves as a guide for the direction of future developments, and indicates the general location of various land uses in relation to each other. A second 10-year review of the General Plan began in 1999, and was completed in February 2005, when the plan was approved by the County Council. The plan consists of 12 major elements that are further broken down into sub-elements.

~~The following table (~~Table 5-5~~)~~ presents the goals and policies of the current Hawai'i County General Plan and ~~discusses~~ notes by element the relationship and applicability, if any, to the petition for a boundary amendment. Project-specific commentaries are also included.

Table 5-5: County of Hawai'i General Plan

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
GENERAL PLAN – ECONOMIC	
GOALS	
Provide residents with opportunities to improve their quality of life through economic development that enhances the County's natural and social environments.	C
Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawai'i.	C
Strive for diversity and stability in the economic system.	C
Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural, and social environment.	C
Strive for an economic climate that provides its residents an opportunity for choice of occupation.	C
Strive for diversification of the economy by strengthening existing industries and attracting new endeavors.	C
Strive for full employment.	C
Promote and develop the island of Hawai'i into a unique scientific and cultural model, where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.	C
POLICIES	
Assist in the expansion of the agricultural industry through the protection of important agricultural lands, development of marketing plans and programs, capital improvements, and continued cooperation with appropriate State and Federal agencies.	NA
Encourage the expansion of the research and development industry by working with and supporting the University of Hawai'i at Hilo and West Hawai'i, the Natural Energy Laboratory at Hawai'i Authority, and other agencies' programs that support sustainable economic development in the County of Hawai'i.	NA
Encourage the development of a visitor industry that is in harmony with the social, physical, and economic goals of the residents of the County.	NA
Require a study of the significant cultural, social and physical impacts of large developments prior to approval.	C
Encourage the sustainable development of the fishing industry, various forms of aquaculture, and other fresh and sea water-based activities.	NA
Support all levels of educational, employment and training opportunities and institutions.	NA
Capital improvements program shall improve the quality of existing commercial and industrial areas.	NA
The land, water, air, sea, and people shall be considered as essential resources for present and future generations and should be protected and enhanced through the use of economic incentives.	C
Continue to encourage the research, development and implementation of advanced technologies and processes.	NA
Support the development of high technology industries.	NA
Continue to encourage development and utilization of by-products from alternate energy conversion projects.	NA
Identify and encourage primary industries that are consistent with the social, physical, and economic goals of the residents of the County.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Encourage active liaison with the private sector with respect to the County's requirements for establishing businesses on the island.	NA
Encourage the development of the retirement industry.	NA
Promote a distinctive identity for the island of Hawai'i to enable government, business and travel industries to promote the County of Hawai'i as an entity unique within the state of Hawai'i.	NA
Identify the needs of the business community and take actions that are necessary to improve the business climate.	NA
Support research and development that would lead to the removal of marketing restrictions on Hawaiian fruits and other perishables.	NA
Assist in the development of a film and video industry program to market Big Island sites and coordinate film and video activities on the Big Island.	NA
Assist the further development of agriculture through the protection of important agricultural lands.	NA
Assist in the promotion of the agriculture industry whose products are recognized as being produced on the island of Hawai'i.	NA
Encourage the establishment of open farmers markets to allow local agricultural producers to market their products.	NA
Assist in cooperative marketing and distribution endeavors to expand opportunities for local agricultural products for export as well as to the local market.	NA
Encourage the further development of the overseas capacity of Hilo International Airport for the exportation of agricultural crops.	NA
Encourage the health/wellness industry.	NA
Encourage new industries that provide favorable benefit-cost relationships to the people of the County. Benefit-cost relationships include more than fiscal considerations.	NA
COURSES OF ACTION North Kona	
Resort development in the area shall be in balance with the social and physical goals as well as economic desires of the resident of the district. Necessary pollution controls shall be available prior to development. Other necessary support facilities such as transportation and nursery facilities shall also be provided.	C
Assist in the further development of agriculture, including forestry and aquaculture activities. Necessary capital improvements that will aid agriculture, such as water, should be given priority for funding.	NA
Continue to encourage development of the Natural Energy Laboratory of Hawai'i Authority as a marine research and commercial facility.	NA
Encourage and support the development of Hawai'i Community College in West Hawai'i, including the University of Hawai'i Center.	NA
Assist the fishing and boating industry through a cooperative effort with State and Federal agencies.	NA
Recognize the natural beauty of the area as a major economic and social asset. This resource should be protected through appropriate review processes when development is proposed.	C
Improve Kailua Village to maintain its viability as a popular visitor destination.	NA
Increase affordable housing opportunities in the Kailua-Kona area.	A

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
COMMENTARY: The Keahuolu project is primarily a residential community, which also has a commercial mixed-used component. The project's ability to directly influence the economy is more of a supportive role – through the provision of new housing – in an area designated for urban expansion, thereby supporting the larger economy.	
GENERAL PLAN – ENERGY	
GOALS	
Strive towards energy self-sufficiency.	C
Establish the Big Island as a demonstration community for the development and use of natural energy resources.	NA
POLICIES	
Encourage the development of alternate energy resources.	NA
Encourage the development and use of agricultural products and by-products as sources of alternate fuel.	NA
Encourage the expansion of energy research industry.	NA
Strive to educate the public on new energy technologies and foster attitudes and activities conducive to energy conservation.	C
Ensure a proper balance between the development of alternative energy resources and the preservation of environmental fitness and ecologically significant areas.	NA
Strive to assure a sufficient supply of energy to support present and future demands.	C
Provide incentives that will encourage the use of new energy sources and promote energy conservation.	C
Seek funding from both government and private sources for research and development of alternative energy resources.	NA
Coordinate energy research and development efforts of both the government and private sectors.	NA
Encourage the continuation of studies concerning the development of power that can be distributed at lower costs to consumers.	NA
Strive to diversify the energy supply and minimize the environmental impacts associated with energy usage.	C
Continue to encourage the development of geothermal resources to meet the energy needs of the County of Hawai'i.	NA
Encourage the use of solar water heating through the continuation of state tax credit programs, through the Building Code, and in County construction.	A
Encourage energy-saving design in the construction of buildings.	A
Support net-metering and other incentives for independent power producers.	A
COMMENTARY: The Keahuolu project supports improving energy efficiency. To the extent possible, the project's design is to include features that will conserve energy and water usage.	
GENERAL PLAN - ENVIRONMENTAL QUALITY	
GOALS	
Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.	C

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Maintain and, if feasible, improve the existing environmental quality of the island.	C
Control pollution.	C
POLICIES	
Take positive action to further maintain the quality of the environment.	C
Reinforce and strengthen established standards where it is necessary, principally by initiating, recommending, and adopting ordinances pertaining to the control of pollutants that affect the environment.	NA
Advise the public of environmental conditions and research undertaken on the island's environment.	C
Encourage the concept of recycling agricultural, industrial, and municipal waste material.	C
Encourage the State to establish air and water quality monitoring stations in areas of existing and potential urban growth.	NA
Encourage the State to continue aircraft noise abatement strategies at Hilo International Airport and the Kona International Airport at Keahole.	NA
Participate in watershed management projects to improve stream and coastal water quality and encourage local communities to develop such projects.	NA
Work with the appropriate agencies to adopt appropriate measures and provide incentives to control point and nonpoint sources of pollution.	C
Support programs to prevent harmful alien species from becoming established.	C
Require golf courses to implement best management practices to limit leaching of nutrients to groundwater in areas where they may affect streams or coastal ecosystems.	NA
Require implementation of the management measures contained in Hawai'i's Coastal Nonpoint Pollution Control Program as a condition of land use permitting.	NA
Review the County grading and grubbing ordinances to ensure that they adequately address potential erosion and runoff problems.	C
COMMENTARY: Although the developer is not able to directly influence governmental policies concerning environmental quality, the developer will comply with all applicable regulations.	
GENERAL PLAN - FLOODING AND OTHER NATURAL HAZARDS	
GOALS	
Protect human life.	C
Prevent damage to man-made improvements.	C
Control pollution.	C
Prevent damage from inundation.	NA
Reduce surface water and sediment runoff.	C
Maximize soil and water conservation.	C
POLICIES	
Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Review land use policy as it relates to flood plain, high surf, and tsunami hazard areas.	NA
Update and improve the Flood Insurance Rate Maps and other flood maps in compliance with the National Flood Insurance Program (NFIP) as needed.	NA
Any development within the Federal Emergency Management Agency designated flood plain must be in compliance with Chapter 27.	NA
Promote and provide incentives for participation in the Soil and Water Conservation Districts' conservation programs for developments on agricultural and conservation lands.	NA
The "Drainage Master Plan for the County of Hawai'i" shall be reviewed and updated to incorporate new studies and reflect newly identified priorities.	NA
Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works, and in compliance with all State and Federal laws.	C
Develop a comprehensive program for the coordinated construction of a drainage network along a single drainage system.	NA
Explore new methods of funding for the provision of adequate drainage systems and regulating potential flood inundation areas.	NA
The County and the private sector shall be responsible for maintaining and improving existing drainage systems and constructing new drainage facilities.	C
Develop an integrated shoreline erosion management plan that ensures the preservation of sandy beaches and public access to and along the shoreline, and the protection of private and public property from flood hazards and wave damage.	NA
Continue to promote public education programs on tsunami, hurricane, storm surge, and flood hazards.	NA
Encourage grassed shoulder and swale roadway design where climate and grade are conducive.	C
Develop drainage master plans from a watershed perspective that considers non-structural alternatives, minimizes channelization, protects wetlands that serve drainage functions, coordinates the regulation of construction and agricultural operation, and encourages the establishment of floodplains as public green ways.	C
Encourage and provide incentives for agricultural operators to participate in Soil and Water Conservation District Programs.	NA
Where applicable, natural drainage channels shall be improved to increase their capacity with special consideration for the practices of proper soil conservation, and grassland and forestry management.	C
Consider natural hazards in all land use planning and permitting.	C
Discourage intensive development in areas of high volcanic hazard.	C
COURSES OF ACTION North Kona	
Drainage systems for the Keopu/Hienaloli, Waiaha, Kaumalumalu and the Holualoa/Horseshoe Bend drainageways shall be studied and remapped to determine the actions necessary to mitigate negative impacts.	NA
Establish and maintain appropriate vegetative cover in high rainfall, sediment and debris producing areas.	A
Encourage the mapping of the floodways in North Kona to develop more effective flood control programs.	NA
Encourage the use of natural drainageways as greenways in the development of the region.	C

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Maintain and re-establish forest cover in mauka areas to improve the capacity of the ground to absorb heavy rainfall.	NA
COMMENTARY: The design and construction of a storm water drainage system that will retain project runoff on site is an important element of the proposed project.	
GENERAL PLAN - HISTORIC SITES	
GOALS	
Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawai'i.	C
Appropriate access to significant historic sites, buildings, and objects of public interest should be made available.	C
Enhance the understanding of man's place on the landscape by understanding the system of *ahupua'a*.	C
POLICIES	
Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.	C
Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings and objects.	NA
Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.	C
Public access to significant historic sites and objects shall be acquired, where appropriate.	C
Embark on a program of restoring significant historic sites on County lands. Assure the protection and restoration of sites on other public lands through a joint effort with the State.	C
Encourage the restoration of significant sites on private lands.	C
Collect and distribute historic sites information of public interest and keep an inventory of sites.	C
Aid in the development of a program of public education concerning historic sites.	NA
Signs explaining historic sites, buildings and objects shall be in keeping with the character of the area or the cultural aspects of the feature.	C
Develop a continuing program to evaluate the significance of historic sites.	NA
Develop policies to protect Hawaiian rights as identified under judicial decisions.	C
Support the establishment of Hawaiian Heritage Corridors.	NA
All new historic sites placed on the State or Federal Register after the adoption of the general plan shall be included in the General Plan.	NA
Consider requiring Cultural Assessments for certain developments as part of the rezoning process.	C
Recognize the importance of certain natural features in Hawaiian culture by incorporating the concept of "cultural landscapes" in land use planning.	C
COURSES OF ACTION North Kona	
Establish suitable visual buffers for the Keakealaniwahine and Keolanahihi complexes as a condition of rezoning or Special Management Area permits, for nearby properties.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
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COMMENTARY: Archaeological sites determined to be significant will be preserved.	
GENERAL PLAN - NATURAL BEAUTY	
GOALS	
Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.	C
Protect scenic vistas and view planes from becoming obstructed.	C
Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.	C
POLICIES	
Increase public pedestrian access opportunities to scenic places and vistas.	C
Develop and establish view plane regulations to preserve and enhance views of scenic or prominent landscapes from specific locations, and coastal aesthetic values.	NA
Maintain a continuing program to identify, acquire and develop viewing sites on the island.	NA
Access easement to public or private lands that have natural or scenic value shall be provided or acquired for the public.	NA
Develop standard criteria for natural and scenic beauty as part of design plans.	NA
Consider structural setback from major thoroughfares and highways and establish development and design guidelines to protect important viewplanes.	C
Maintain a continuing program to identify exceptional trees or tree masses.	C
Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.	C
Do not allow incompatible construction in areas of natural beauty.	C
COMMENTARY: The Keahuolu project's conceptual plan is consistent with protecting the natural beauty of the region and ensuring that the character of the project is consistent with that of the surrounding communities.	
GENERAL PLAN – NATURAL RESOURCES AND SHORELINE	
GOALS	
Protect and conserve the natural resources from undue exploitation, encroachment and damage.	C
Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.	C
Protect and promote the prudent use of Hawai'i's unique, fragile, and significant environmental and natural resources.	C
Protect rare or endangered species and habitats native to Hawai'i.	C
Protect and effectively manage Hawai'i's open space, watersheds, shoreline, and natural areas.	C
Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.	C
POLICIES	

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
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Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.	C
Encourage a program of collection and dissemination of basic data concerning natural resources.	NA
Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.	NA
Protect the shoreline from the encroachment of man-made improvements and structures.	NA
Coordinate programs to protect natural resources with other government agencies.	NA
Investigate methods of beach replenishment and sand erosion control.	NA
Promote sound management and development of Hawai'i's land and marine resources for potential economic benefit.	NA
Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.	C
Encourage an overall conservation ethic in the use of Hawai'i's resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawai'i.	C
Encourage the protection of watersheds, forest, brush, and grassland from destructive agents and uses.	C
An identification and inventory of forest lands suitable for watershed purposes should be conducted jointly by County, appropriate State and Federal agencies, and private landowners.	NA
Work with the appropriate State, Federal agencies, and private landowners to establish a program to manage and protect identified watersheds.	C
Encourage appropriate State agencies to review and designate forest and watershed areas into the conservation district during State land use boundary comprehensive reviews.	NA
The installation of utility facilities, highways and related public improvements in natural and wildland areas should avoid the contamination or despoilment of natural resources where feasible by design review, conservation principles, and by mutual agreement between the County and affected agencies.	C
Encourage the continued identification and inclusion of unique wildlife habitat areas of native Hawaiian flora and fauna within the Natural Area Reserve System.	C
Encourage the use of native plants for screening and landscaping.	C
Develop policies by which native Hawaiian gathering rights will be protected as identified under judicial decisions.	C
Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.	C
Establish a system of pedestrian access trails to places of scenic, historic, cultural, natural, or recreational values.	C
Preserve and protect significant lava tube caves.	C
Ensure that activities authorized or funded by the County do not damage important natural resources.	C

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Within the Kona high rainfall/fog-drip belt, ground disturbing activities such as excessive soil compaction and excessive removal of vegetative cover should be minimized and mitigated consistent with management strategies that encourage the retention of existing forested and pasture areas, reforestation, minimal coverage by impervious surfaces and other strategies that encourage effective infiltration to groundwater.	C
Implement Council Resolution Nos. 330-96 and 58-97 in land use approvals.[6]	NA
Create incentives for landowners to retain and re-establish forest cover in upland watershed areas with emphasis on native forest species.	NA
COMMENTARY: Development of the project will conform with applicable Federal, State and County standards and regulations.	
GENERAL PLAN – HOUSING	
GOALS	
Attain safe, sanitary, and livable housing for the residents of the County of Hawai'i.	A
Attain a diversity of socio-economic housing mix throughout the different parts of the County.	A
Maintain a housing supply that allows a variety of choices.	A
Create viable communities with affordable housing and suitable living environments.	A
Improve and maintain the quality and affordability of the existing housing inventory.	NA
Seek sufficient production of new affordable rental and fee-simple housing in the County in a variety of sizes to satisfactorily accommodate the needs and desires of families and individuals.	A
Ensure that housing is available to all persons regardless of age, sex, marital status, ethnic background, and income.	A
Make affordable housing available in reasonable proximity to employment centers.	A
Encourage and expand home ownership opportunities for residents.	A
POLICIES	
Encourage a volume of construction and rehabilitation of housing sufficient to meet growth needs and correct existing deficiencies.	A
Encourage the construction of specially designed facilities or communities for elderly persons needing institutional care and small home care units for active elderly persons.	NA
Encourage corporations and nonprofit organizations to participate in Federal, State and private programs to provide new and rehabilitated housing for low and moderate income families.	C
Support the construction of housing for minimum wage and agricultural workers.	C
Continue to review codes and ordinances for overly stringent restrictions that may impose unnecessary hardship and adopt amendments if warranted.	C

[6] Resolution No. 330-96 (1996): No lands in North or South Kona above 2,500 feet in elevation (except in the existing Kaloko Mauka Subdivision) should be rezoned to lot sizes less than 20 acres, without a corresponding reduction in density on contiguous lands. In Kaloko Mauka, the Council found that the concerns could be mitigated by specific rezoning conditions which would require that at least 80 per cent of the property be kept in forest cover, in the area above 3,000 feet in elevation (Resolution No. 58-97).

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Continue to study and implement appropriate measures to curb property speculative practices that result in increased housing costs.	NA
Large industries or developments that create a demand for housing shall provide employee housing based upon a ratio to be determined by an analysis of the locality's needs.	NA
Formulate a program for housing that identifies specific mechanisms to implement the housing goals.	C
Utilize housing powers and programs to accomplish housing goals and seek out new programs and resources to address the housing needs of the residents.	A
Initiate and participate in activities with the private sector including the provision of leadership and expertise to neighborhoods and nonprofit organizations in the development of housing and community development projects.	C
Increase rental opportunities and choices in terms of quality, cost, amenity, style and size of housing, especially for low and moderate income households.	A
Support programs that improve, maintain, and rehabilitate the existing housing inventory to maintain the viability of existing communities.	NA
Accommodate the housing requirements of special need groups including the elderly, handicapped, homeless and those residents in rural areas.	NA
Investigate, develop, and promote the creation of new innovative and timely financing techniques and programs to reduce the cost of housing.	C
Encourage the use of suitable public lands for housing purposes in fee or lease.	A
Encourage the construction of homes for lease or lease with option to purchase.	C
Promote research and development of methods, programs, and activities including the review of regulatory requirements and procedures as they affect housing, to reduce the costs consistent with the public health, safety and welfare.	C
Adopt appropriate ordinances and rules as necessary to implement its housing programs and activities.	NA
Utilize financing techniques that reduce the cost of housing, including the issuance of tax-exempt bonds and the implementation of interim financing programs.	C
Ensure that adequate infrastructure is available in appropriate locations to support the timely development of affordable housing.	C
Investigate the use of the County's taxing powers as a possible means to increase the supply of affordable housing.	NA
Work with, encourage and support private sector efforts in the provision of affordable housing.	A
Encourage the development of affordable retirement communities.	NA
Vacant lands in urban areas and urban expansion areas should be made available for residential uses before additional agricultural lands are converted into residential uses.	A
Aid and encourage the development of a wide variety of housing to achieve a diversity of socio-economic housing mix.	A
COURSES OF ACTION North Kona	
Encourage the use of innovative types of housing developments, such as cluster and planned unit developments that take advantage of the steep topographic conditions.	C

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Require developments that create a demand for employee housing provide for that need.	NA
Increase affordable housing opportunities in the Kailua-Kona area.	A
COMMENTARY: One of the primary objectives of the Keahuolu project is to provide a variety of unit types and densities of affordable housing units in a location that is in close proximity to West Hawai'i employment centers, which fulfills an aspect of the General Plan's housing goals.	
GENERAL PLAN – PUBLIC FACILITIES	
GOALS	
Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.	NA
POLICIES	
Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.	NA
Coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.	NA
Develop short and long-range capital improvement programs and operating budgets for public facilities and services.	NA
Develop and adopt an Impact Fees Ordinance.	NA
Capital Improvement and Operating budgets shall reflect the goals and policies of the County General Plan.	NA
Require a six-year, long-term, capital improvements budget by County Departments and agencies that shall be reviewed for consistency with the General Plan.	NA
COMMENTARY: As the project is primarily a residential community, the General Plan's Public Facility goals and policies are not directly applicable. The project site does, however, include an approximately 12-acre area reserved for a future school facility.	
GENERAL PLAN –PUBLIC FACILITIES EDUCATION	
POLICIES	
Encourage continuous joint pre-planning of schools with the Department of Education and the University of Hawai'i to ensure coordination with roads, water, and other support facilities and considerations such as traffic and safety, and access for vehicle, bicycle, and pedestrian. Encourage master planning of present and proposed public and private institutions.	C
Encourage combining schoolyards with county parks and allow school facilities for afterschool use by the community for recreational, cultural, and other compatible uses.	C
Encourage joint community-school library facilities, where a separate community library may not be feasible, in proximity to other community facilities, affording both pedestrian and vehicular access.	NA
Encourage implementation of the Department of Education's 'Educational Specifications and Standards for Facilities.'	NA
Encourage the Hawai'i State Library system to seek alternate sites for public libraries located on the campuses of public schools.	NA
COURSES OF ACTION North Kona	

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Encourage expansion of the Holualoa school complex to meet school district needs.	NA
Encourage the State Department of Education to add facilities as the need arises.	NA
Improve basic school facilities to meet current standards.	NA
Encourage construction of a new library facility to serve the Kailua-Keauhou area.	NA
COMMENTARY: The project site includes an approximately ~~12~~ 12-acre area reserved for a future school facility.	
GENERAL PLAN –PUBLIC FACILITIES PROTECTIVE SERVICES	
POLICIES	
Development of police and fire facilities should entail joint use structures when-ever feasible.	NA
The establishment of a fire/police facility shall consider site size and locations that permit quick and efficient vehicular access.	NA
Development of volunteer fire facilities with proper planning to be replaced or to co-exist with full time Fire/EMS personnel.	NA
Police headquarters shall be near the geographic center of the service area and near concentrations of commercial and industrial use.	NA
Stations in outlying districts shall be based on the population to be served and response time rather than on geographic district.	NA
Correctional facilities should emphasize rehabilitation. Establish additional rehabilitation and counseling centers, including drug and behavioral treatment facilities in secure settings, when necessary.	NA
Encourage the further development and expansion of community policing programs and neighborhood and farm watch programs in urban, rural and agricultural communities.	C
The County of Hawai'i Emergency Operations Center shall be improved to meet the requirements set forth by federal and State regulations.	NA
Maintain funding of two emergency medical helicopters.	NA
Mitigate hazards through the preparation of disaster assessment reports and appropriate follow-up on the assessment recommendations.	NA
Educate the public regarding disaster preparedness and response, especially proper responses for sudden impact hazards.	C
Encourage the State to evaluate the disaster shelters' ability to withstand various natural disasters.	NA
Consider the proximity to fire stations in approving any rezoning to permit urban development.	C
The Fire Department, in cooperation with other related governmental agencies and the involved land owners, shall prepare a fire protection and prevention plan for forest reserves and other natural areas.	NA
COURSES OF ACTION North Kona	
Service facilities shall be improved to meet needs.	NA
GENERAL PLAN –PUBLIC FACILITIES HEALTH AND SANITATION	
POLICIES	
Encourage the development of new health care facilities or the improvement of existing health care facilities to serve the needs of Hamakua, North and South Kohala, and North and South Kona.	NA

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Develop and implement a cemeteries master plan for the siting of future cemeteries.	NA
Appropriately designed and cost-effective solid waste transfer station sites shall be located in areas of convenience and easy access to the public.	NA
Encourage the State to continue operation of the rural hospitals.	NA
Encourage the establishment or expansion of community health centers and rural health clinics.	NA
Continue to encourage programs such as recycling to reduce the flow of refuse deposited in landfills.	C
Investigate the possibility of developing new landfill sites on the island.	NA
Encourage the full development and implementation of green waste recycling program.	C
COURSES OF ACTION North Kona	
New privately owned cemetery sites to serve future needs shall be sought.	NA
COMMENTARY: The project's compliance with public facility policies are generally limited to the programs that can be implemented within the project site, including solid waste collection, wastewater treatment, neighborhood watch, and fire prevention.	
GENERAL PLAN - PUBLIC UTILITIES	
GOALS	
Ensure that properly regulated, adequate, efficient and dependable public and private utility services are available to users.	C
Maximize efficiency and economy in the provision of public utility services.	C
Design public utility facilities to fit into their surroundings or concealed from public view.	C
POLICIES	
Public utility facilities shall be designed to complement adjacent land uses and shall be operated to minimize pollution or disturbance.	C
Provide utilities and service facilities that minimize total cost to the public and effectively service the needs of the community.	C
Utility facilities shall be designed to minimize conflict with the natural environment and natural resources.	C
Improvement of existing utility services shall be encouraged to meet the needs of users.	C
Encourage the clustering of developments in order to reduce the cost of providing utilities.	C
Develop short and long range capital improvement programs and plans for public utilities within its jurisdiction that are consistent with the General Plan.	NA
COMMENTARY: Master planning the Keahuolu community enables the provision of utilities to be carefully coordinated in the development of the project, which helps to lower costs and maximize connectivity with the regional system.	
GENERAL PLAN – PUBLIC UTILITIES - WATER	
POLICIES	
Water system improvements shall correlate with the County's desired land use development pattern.	C
All water systems shall be designed and built to Department of Water Supply standards.	C
Improve and replace inadequate systems.	NA

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Water sources shall be adequately protected to prevent depletion and contamination from natural and man-made occurrences or events.	C
Water system improvements should be first installed in areas that have established needs and characteristics, such as occupied dwellings, agricultural operations and other uses, or in areas adjacent to them if there is need for urban expansion	C
A coordinated effort by County, State and private interests shall be developed to identify sources of additional water supply and be implemented to ensure the development of sufficient quantities of water for existing and future needs of high growth areas and agricultural production.	C
The fire prevention systems shall be coordinated with water distribution systems in order to ensure water supplies for the fire protection purposes.	C
Develop and adopt standards for individual water catchment units.	NA
Cooperate with the State Department of Health to develop standards and/or guidelines for the construction and use of rainwater catchment systems to minimize the intrusion of any chemical and microbiological contaminants.	NA
Cooperate with appropriate State and Federal agencies and the private sector to develop, improve and expand agricultural water systems in appropriate areas on the island.	NA
Promote the use of ground water sources to meet State Department of Health water quality standards.	C
Continue to participate in the United States Geological Survey's exploratory well drilling program.	NA
Seek State and Federal funds to assist in financing projects to bring the County into compliance with the Safe Drinking Water Act.	NA
Develop and adopt a water master plan that will consider water yield, present and future demand, alternative sources of water, guidelines and policies for the issuing of water commitments.	C
Expand programs to provide for agricultural irrigation water.	NA
COURSES OF ACTION North Kona	
Continue to pursue groundwater source investigation, exploration and development in areas that would provide for anticipated growth and an efficient and economic system operation.	C
Continue to evaluate growth conditions to coordinate improvements as required to the existing water system in accordance with the North Kona Water System Master Plan.	C
Explore and develop a well in Waiaha.	NA
COMMENTARY: The Keahuolu project includes the privately funded development of a new regional well, storage reservoirs, and a transmission system that will not only serve the project but will also provide linkages to the regional system.	
GENERAL PLAN – PUBLIC UTILITIES -TELECOMMUNICATIONS	
POLICIES	
Encourage underground telephone lines where they are economically and technically feasible.	C
Work with the telecommunications industry to increase the availability of emergency telephones throughout the island.	NA
Develop standards for the construction of wireless telecommunication facilities.	NA
Work closely with the telephone company to provide all users with efficient service.	C

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GENERAL PLAN – PUBLIC UTILITIES - ELECTRICITY	
POLICIES	
Power distribution shall be placed underground when and where practical. Encourage developers of new urban areas to place utilities underground.	C
Route selection for high voltage transmission lines should include consideration for setbacks from major thoroughfares and residential areas. Where feasible, delineate energy corridors for such high voltage transmission lines.	C
Continue to advise the electrical utility companies on the future revisions of their comprehensive Integrated Resource Plans.	C
Conform to safety standards as established by appropriate regulatory authorities.	C
GENERAL PLAN – PUBLIC UTILITIES - GAS	
POLICIES	
Gas storage facilities shall be located to minimize danger to commercial and residential areas.	C
COMMENTARY: If it is determined that a gas storage facility is needed at the project site, it will comply with this policy.	
GENERAL PLAN – PUBLIC UTILITIES SEWER	
POLICIES	
The "Sewerage Study for All Urban and Urbanizing Areas of the County of Hawai'i, State of Hawai'i," December 1970, and the "Water Quality Management Plan for the County of Hawai'i," December 1980, shall be updated and used as guides for the general planning of sewerage disposal systems.	C
Private systems shall be installed by land developers for major resort and other developments along shorelines and sensitive higher inland areas, except where connection to nearby treatment facilities is feasible and compatible with the County's long-range plans, and in conformance with State and County requirements.	C
Immediate steps should be taken to designate treatment plant sites, sewerage pump station sites, and sewer easements according to the facility plans to facilitate their acquisition.	C
Continue to seek State and Federal funds to finance the construction of proposed sewer systems and improve existing systems.	NA
Plans for wastewater reclamation and reuse for irrigation and biosolids composting (remaining solids from the treatment of wastewater is processed into a reusable organic material) shall be utilized where feasible and needed.	C
Require major developments to connect to existing sewer treatment facilities or build their own.	C
COURSES OF ACTION North Kona	
Expand the existing sewer collection system.	C
Upgrade the Kealakehe Wastewater Treatment Plan to produce tertiary (R-1) quality effluent.	NA
COMMENTARY: The Keahuolu project will construct wastewater transmission lines that will eventually link with the Kealakeha ~~Wastewater Treatment Plant~~WWTP. The development of Alterative B or Alterative C would require the development of additional capacity at the Kealakeha WWTP.	
GENERAL PLAN RECREATION	
GOALS	

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Provide a wide variety of recreational opportunities for the residents and visitors of the County.	C
Maintain the natural beauty of recreation areas.	C
Provide a diversity of environments for active and passive pursuits.	C
POLICIES	
Strive to equitably allocate facility-based parks among the districts relative to population, with public input to determine the locations and types of facilities.	C
Improve existing public facilities for optimum usage.	NA
Recreational facilities shall reflect the natural, historic, and cultural character of the area.	C
The use of land adjoining recreation areas shall be compatible with community values, physical resources, and recreation potential.	C
Develop short and long range capital improvement programs and plans for recreational facilities that are consistent with the General Plan.	NA
The "County of Hawai'i Recreation Plan" shall be updated to reflect newly identified recreational priorities.	NA
Facilities for compatible multiple uses shall be provided.	C
Provide facilities and a broad recreational program for all age groups, with special considerations for the handicapped, the elderly, and young children.	C
Coordinate recreational programs and facilities with governmental and private agencies and organizations. Innovative ideas for improving recreational facilities and opportunities shall be considered.	C
Develop local citizen leadership and participation in recreation planning, maintenance and programming.	C
Adopt an on-going program of identification, designation, and acquisition of areas with existing or potential recreational resources, such as land with sandy beaches and other prime areas for shoreline recreation in cooperation with appropriate governmental agencies.	NA
Public access to the shoreline shall be provided in accordance with an adopted program of the County of Hawai'i.	NA
Develop a network of pedestrian access trails to places of scenic, historic, natural or recreational values. This system of trails shall provide at a minimum, an islandwide route connecting major parks and destinations.	C
Establish a program to inventory ancient trails, cart roads and old government roads on the island in coordination with appropriate State agencies.	NA
Develop facilities and safe pathway systems for walking, jogging and biking activities.	A
Develop a recreation information dissemination system for the public's use.	NA
Revise the ordinance requiring subdivisions to provide land area for park and recreational use or pay a fee in lieu thereof.	NA
Develop and adopt an Impact Fees Ordinance.	NA
Consider alternative sources of funding for recreational facilities.	NA
Develop best management practices for the development of golf courses in coordination with developers, State Department of Health, and other government agencies.	NA
Provide access to public hunting areas.	NA

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COURSES OF ACTION North Kona	
Encourage the development of community and district recreational facilities, a gymnasium and community center with easy access for residents.	NA
Encourage the development of Ali'i Drive within the Kailua Village area as a pedestrian mall with open space areas for passive recreation.	NA
Improve facilities at Laaloa Bay Beach Park and Kahaluu Beach Park.	NA
Implement the development of the Kailua Park (Old Kona Airport) as a major regional or district park.	NA
Encourage the development of a major multi-purpose regional recreational and sports complex.	NA
Acquire, and/or encourage the development of additional public shoreline recreation areas.	NA
Establish public access to and the development of shoreline regions along the North Kona Coast in areas such as Keawaiki, Kiholo Bay, Kaupulehu, Kukio and Kapapa Bays, Kua Bay, Kahoiawa, Makalawena, and Honokohau.	NA
Encourage the State to continue with the establishment of Kekaha Kai State Park reaching into Mahaiula, Awakee, and Maniniowali Ahupauaa.	NA
Protect the marine life at Kahaluu Bay.	NA
Protect Opaeula, Kaloko, and Honokohau (Aimakapa) Ponds as natural areas.	NA
Encourage the development of historic trails.	NA
Develop a municipal golf course.	NA
Encourage the establishment of historic park at Kamoa Point.	NA
Encourage the acquisition and establishment of the summit area of Hualālai as a wilderness park.	NA
Increase *mauka* park lands.	A
COMMENTARY: The Keahuolu project includes the development of neighborhood parks, open spaces and green spaces.	
GENERAL PLAN – TRANSPORTATION	
GOALS	
Provide a transportation system whereby people and goods can move efficiently, safely, comfortably and economically.	C
Make available a variety of modes of transportation that best meets the needs of the County.	C
POLICIES	
A framework of transportation facilities that will promote and influence desired land use shall be established by concerned agencies.	C
The agencies concerned with transportation systems shall provide for present traffic and future demands, including the programmed development of mass transit programs for high growth areas by both the private and public sectors.	NA
The improvement of transportation service shall be encouraged.	C
Consider the provision of adequate transportation systems to enhance the economic viability of a given area.	C
Develop a comprehensive, islandwide multi-modal transportation plan that identifies the location and	NA

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operation of automobile, mass transit, bicycle and pedestrian systems, in coordination with appropriate Federal and State agencies.	
Work with various non-profit agencies to coordinate transportation opportunities.	NA
GENERAL PLAN – TRANSPORTATION ROADWAYS	
GOALS	
Provide a system of roadways for the safe, efficient and comfortable movement of people and goods.	A
Provide an integrated State and County transportation system so that new major routes will complement and encourage proposed land policies.	A
POLICIES	
Encourage the programmed improvement of existing roadways by both public and private sectors.	C
Investigate various methods of funding road improvements, including private sector participation, to meet the growing transportation needs of the island.	C
Encourage the State to establish a continuous State highway system connecting the County's major airports and harbors.	NA
Support the development of programs to identify and improve hazardous and substandard sections of roadway and drainage problems.	NA
Coordinate with appropriate Federal and State agencies for the funding of transportation projects for areas of anticipated growth.	C
Consider the development of alternative means of transportation, such as mass transit, bicycle and pedestrian systems, as a means to increase arterial capacity.	C
There shall be coordinated planning of Federal, State, and County street systems to meet program goals of the other elements such as historic, recreational, environmental quality, and land use.	C
Provisions for on-street parking shall be incorporated into the design of street systems.	C
Encourage the State Department of Transportation to establish special scenic routes within and between communities.	C
Transportation and drainage systems shall be integrated where feasible.	C
Support the development of an efficient transit route between east and west Hawai'i.	NA
Adopt street design standards that accommodate, where appropriate, flexibility in the design of streets to preserve the rural character of an area and encourage a pedestrian-friendly design, including landscaping and planted medians.	C
Develop minimum street standards for homestead and other currently substandard roadways that are offered for dedication to the county to ensure minimal levels of public safety.	C
Encourage the development of walkways, jogging, and bicycle paths within designated areas of the community.	C
Explore means and opportunities to enhance the shared use of the island's roadways by pedestrians and bicyclists, in coordination with appropriate government agencies and organizations.	C
The Bikeway Plan for the County of Hawai'i (1979) shall be updated to include the development of a safe and usable bikeway system throughout the island.	C

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Work in conjunction with the State to establish a clear agreement of the ownership and maintenance of the old homestead roads.	NA
Develop short and long range capital improvement programs and plans for transportation that are consistent with the General Plan.	NA
COURSES OF ACTION North Kona	
Develop a roadway network circulation plan in cooperation with the State Department of Transportation and affected communities. Upon adoption of the plan, the plan recommendations shall be incorporated on the zone district maps.	C
Encourage the State to widen Queen Ka'ahumanu Highway as necessary to accommodate increases in traffic flows, in particular between Kona International Airport and Keāhole and Kailua-Kona.	C
Widen Palani Road between the proposed Keanalehu (Waena) Drive and the Queen Ka'ahumanu Highway or construct the proposed Palani Bypass Highway.	C
Encourage the State to extend Kealakehe Parkway mauka to connect with the Māmalahoa Highway.	NA
Construct the following north-south collector roadways from Palani Drive and extending north to the proposed University Drive: 1) Ane Keohokalole Highway (Mid-level Road); 2) Keanalehu (Waena Drive); and 3) Kealaka'a Street.	C
Construct the proposed University Drive between the Māmalahoa and Queen Ka'ahumanu Highways.	NA
Widen Hina Lani Drive to four lanes between the Queen Ka'ahumanu Highway to the proposed Ane Keohokalole Highway.	NA
Construct the proposed Shore Drive from the Old Kona Airport Park to the Kealakehe Drive intersection.	NA
Construct the Kahului-Keauhou Parkway (Ali'i Highway) from Queen Ka'ahumanu Highway to Keauhou.	NA
Construct a scenic road from Keauhou above the Kealakekua cliffs to Napoopoo.	NA
Provide vertical connectors from Ali'i Drive to Kuakini Highway.	NA
Improve that portion of the Mamalahoa Highway extending from the North Kona to the Ka'u Districts.	NA
Support the installation of suitable bikeways and/or jogging paths.	C
Develop a roadway circulation plan for the area between Palani Road and Kamehameha III Road, in cooperation with the State Department of Transportation, Federal Highway Administration, and the affected communities.	NA
Extend Lako Street to connect to Ali'i Drive.	NA
Work with the State and the adjacent landowners in establishing the old railroad right-of-way as pedestrian and bicycle right-of-way.	NA
GENERAL PLAN – TRANSPORTATION TERMINALS: AIRPORTS & HARBORS	
GOALS	
Provide transportation terminals and related facilities for the safe, efficient and comfortable movement of people and goods.	NA
POLICIES	
Encourage the programmed improvement of existing terminals, including adequate provisions for control of pollution and appropriate and adequate covered storage facilities for agricultural products.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
The State Department of Transportation should continue to implement its plans for transportation terminals and related facilities to promote and influence desired land use policies.	NA
Transportation terminals should be developed in conjunction with the different elements of the overall transportation system.	NA
Encourage maximum use of the island's airport and harbor facilities.	NA
Encourage the development, maintenance, and enhancement of Hilo and Kawaihae Harbors as detailed within the State's Hawai'i Commercial Harbors 2020 Master Plan.	NA
Support the State's objectives to acquire rights within the runway clear-zones, limit heights within approach zones, and restrict noise-sensitive uses within designated noise contours determined by the State.	NA
COURSES OF ACTION North Kona	
Future land uses in the vicinity of the Kona International Airport at Keahaole should be compatible with the anticipated aircraft noise exposure levels for that vicinity.	NA
The State Department of Transportation should continue to improve and expand Kona International Airport at Keahole in accordance with the recommendations of the Keāhole-Kona International Airport Master Plan Update Study (1997).	NA
Encourage the State to renovate the Kailua-Kona Wharf or to seek alternative facilities to accommodate the cruise ship industry.	NA
GENERAL PLAN – TRANSPORTATION MASS TRANSIT	
GOALS	
Provide residents with a variety of public transportation systems that are affordable, efficient, accessible, safe, environmentally friendly, and reliable.	NA
POLICIES	
Improve the integration of transportation and land use planning in order to optimize the use, efficiency, and accessibility of existing and proposed mass transportation systems.	C
Support and encourage the development of alternative modes of transportation, such as enhanced bus services and bicycle paths.	C
Incorporate, where appropriate, bicycle routes, lanes, and paths within road rights-of-way in conformance with The Bikeway Plan for the County of Hawai'i.	C
Provisions to enhance the mobility of minors, non-licensed adults, low-income, elderly, and people with disabilities shall be made.	NA
COMMENTARY: The Keahuolu project accommodates future transit stops along the planned Ane Keohokalole Highway. The conceptual plans promote a walkable, bikeable, livable mixed-used community with high density residential development within a quarter-mile walking distance of bus stops. The internal roadways are to make feasible connections with existing and future developments on adjacent lands.	
GENERAL PLAN - LAND USE	
GOALS	
Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County.	C
Protect and encourage the intensive and extensive utilization of the County's important agricultural lands.	C

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Protect and preserve forest, water, natural and scientific reserves and open areas.	C
POLICIES	
Zone urban types of uses in areas with ease of access to community services and employment centers and with adequate public utilities and facilities.	C
Promote and encourage the rehabilitation and use of urban areas that are serviced by basic community facilities and utilities.	C
Allocate appropriate requested zoning in accordance with the existing or projected needs of neighborhood, community, region and County.	C
Conduct a review and re-evaluation of the real property tax structure to assure compatibility with land use goals and policies.	NA
Incorporate innovations such as the "zone of mix" and "mixed use zones" into the Zoning Code.	NA
Encourage the development and maintenance of communities meeting the needs of its residents in balance with the physical and social environment.	C
Establish a program of continuing review of the Zoning Code in light of emerging new industries and technologies and incorporate revisions to land use regulations as necessary.	NA
Develop community development or regional plans for all of the districts or combinations of districts in cooperation with community residents and periodically review and amend these documents as necessary or as mandated.	C
Ensure that condominium property regimes (CPR) comply with the requirements of the Zoning Code, Subdivision Control Code and other applicable rules and regulations.	NA
Encourage urban development within existing zoned areas already served by basic infrastructure, or close to such areas, instead of scattered development.	C
COMMENTARY: The reclassification of the subject property from the State Agricultural District to the State Urban District and a change in County zoning would be in accordance with the existing and projected needs of the neighborhood, community, region, and ~~the~~ County.	
GENERAL PLAN - LAND USE AGRICULTURE	
GOALS	
Identify, protect and maintain important agriculture lands on the island of Hawai'i.	C
Preserve the agricultural character of the island.	C
Preserve and enhance opportunities for the expansion of Hawai'i's Agricultural Industry.	C
POLICIES	
Implement new approaches to preserve important agricultural land.	NA
Assist in the development of basic resources such as water, roads, transportation, and distribution facilities for the agricultural industry.	NA
Assist other State agencies, such as the University of Hawai'i, College of Tropical Agriculture and Human Resources, University of Hawai'i at Hilo, College of Agriculture, Forestry and Natural Resources Management, Department of Business, Economic Development and Tourism, Office of Planning, Department of Land and Natural Resources and Department of Agriculture, on programs that aid agriculture.	NA
Agricultural land may be used as one form of open space or as green belt.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
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Coordinate and encourage efforts to solve the problems of the agricultural industry in the County of Hawai'i.	NA
In order to minimize the potential conflicts between agricultural and non-agricultural uses, standards and guidelines for the establishment of well defined buffer areas as part of new, non-agricultural developments that are located adjacent to important agricultural lands shall be developed.	NA
Land zoned for use in the Rural District shall be expanded, where appropriate.	NA
Develop subdivision standards that make a distinction between agricultural and urban land uses.	NA
Designate, protect and maintain important agricultural lands from urban encroachment.	C
Ensure that development of important agricultural land be primarily for agricultural use	C
Support the development of private and State agricultural parks to make agricultural land available for agricultural activities.	NA
Assist in the development of agriculture.	NA
Assist in the development of water for agricultural purposes.	NA
Investigate possibilities to prevent non-agricultural uses that could interfere with potential or existing agricultural activities on important agricultural lands.	NA
Support efforts to provide tax relief and other incentives to enhance competitive capabilities of commercial farms and ranches, thereby insuring long-term preservation, enhancement, and expansion of viable agricultural lands.	NA
Ensure that condominium property regimes (CPR) on agricultural-designated lands comply with the requirements of the Zoning Code and other applicable laws, rules and regulations.	NA
Farm labor housing projects shall be developed in a manner that minimizes the use of important agricultural lands and is consistent with the character of surrounding land uses.	NA
Encourage, where appropriate, the establishment of visitor-related uses and facilities that directly promote the agriculture industry.	NA
Important agricultural lands shall not be rezoned to parcels too small to support economically viable farming units.	C
Discourage speculative residential development on agricultural lands.	C
Encourage other compatible economic uses that complement existing agricultural and pastoral activities.	C
COURSES OF ACTION North Kona	
Protect important agricultural lands within the Kona Coffee Belt from urban encroachment through the use of zoning and other mechanisms.	C
Encourage the University of Hawai'i at Hilo to accelerate research on agricultural, aquaculture and forestry products that are or could be of economic value to Kona.	NA
Encourage buffer zones or compatible uses between important agricultural land and adjacent uses of land.	NA
COMMENTARY: The Keahuolu property is classified in the State Agricultural District, but is of limited agricultural productivity due to its poor soil quality. It is designated by the State and County for urban expansion and a smaller portion is designated Low Density Urban by the County. Therefore, its proposed reclassification to the Urban District is not anticipated to have a significant impact upon agricultural productivity in the region.	
GENERAL PLAN - LAND USE COMMERCIAL DEVELOPMENT	

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
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GOALS	
Provide for commercial developments that maximize convenience to users.	C
Provide commercial developments that complement the overall pattern of transportation and land usage within the island's regions, communities, and neighborhoods.	C
POLICIES	
Urban renewal, rehabilitation, and/or redevelopment programs shall be undertaken in cooperation with communities, businesses and governmental agencies	NA
Commercial facilities shall be developed in areas adequately served by necessary services, such as water, utilities, sewers, and transportation systems. Should such services not be available, the development of more intensive uses should be in concert with a localized program of public and private capital improvements to meet the expected increased needs.	C
Distribution of commercial areas shall meet the demands of neighborhood, community and regional needs.	C
Existing strip development shall be converted to more appropriate uses when and where it is feasible.	NA
Encourage the concentration of commercial uses within and surrounding a central core area.	C
The development of commercial facilities should be designed to fit into the locale with minimal intrusion while providing the desired services. Appropriate infrastructure and design concerns shall be incorporated into the review of such developments.	C
Applicable ordinances shall be reviewed and amended as necessary to include considerations for urban design, aesthetic quality and the protection of amenities in adjacent areas through landscaping, open space and buffer areas.	C
Require developers to provide basic infrastructure necessary for development.	C
Encourage commercial areas to develop on an axis perpendicular to the highway.	C
COURSES OF ACTION North Kona	
Controls to prevent speculative practices on commercially zoned lands may be established.	NA
Implementation of programs to correct existing deficiencies shall be undertaken.	NA
Appropriately zoned lands shall be provided as the need arises.	NA
COMMENTARY: The proposed commercial floor area for the project is consistent with the goals, policies and courses of action stated above.	
GENERAL PLAN - LAND USE - INDUSTRIAL	
GOALS	
Designate and allocate industrial areas in appropriate proportions and in keeping with the social, cultural, and physical environments of the County.	NA
Promote and encourage the rehabilitation of industrial areas that are serviced by basic community facilities and utilities.	NA
POLICIES	
Support the creation of industrial parks in appropriate locations as an alternative to strip development.	NA
Achieve a broader diversification of local industries by providing opportunities for new industries and strengthening existing industries.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
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Locate industrial areas convenient to transportation facilities, and provide a variety of industrial zoned districts and lot sizes, depending on the needs of the industries and the communities.	NA
Improve the aesthetic quality of industrial sites and protect amenities of adjacent areas by requiring landscaping, open spaces, buffer zones, and design guidelines.	NA
Industrial development shall be located in areas adequately served by transportation, utilities, and other essential infrastructure.	NA
Provide flexibility within the Zoning Code to accommodate emerging new industries.	NA
Industrial-commercial mixed use districts shall be provided in appropriate locations.	NA
Require developers to provide basic infrastructure necessary for development.	NA
COURSES OF ACTION North Kona	
Identify sites suitable for future industrial activities.	NA
Additional industrial acreage should be provided at the Kona International Airport at Keāhole for support facilities for the airport.	NA
Industrial development should be in harmony with surrounding uses and the environment.	NA
Industrial-commercial mixed-use districts may be provided in appropriate locations.	NA
Service oriented Limited Industrial and/or Industrial-Commercial uses may be permitted in the Kainaliu-Honalo area although the area is not currently identified on the LUPAG map.	NA
COMMENTARY: No industrial land uses are proposed within the Keahuolu project site.	
GENERAL PLAN – LAND USE - MULTIPLE RESIDENTIAL	
GOALS	
To provide for multiple residential developments that maximize convenience for its occupants.	C
To provide for suitable living environments that accommodate the physical, social and economic needs of the island residents.	C
To enhance the overall quality of life in our residential communities.	C
POLICIES	
Appropriately zoned lands shall be allocated as the demand for multiple residential dwellings increases. These areas shall be allocated with respect to places of employment, shopping facilities, educational, recreational and cultural facilities, and public facilities and utilities.	C
Incorporate reasonable flexibility in applicable codes and ordinances to achieve a diversity of socio-economic housing mix.	C
Encourage flexibility in the design of residential sites, buildings and related facilities to achieve a diversity of socio-economic housing mix and innovative means of meeting the market requirements.	C
The rehabilitation and/or utilization of multiple residential areas shall be encouraged.	C
To assure the use of multiple residential zoned areas and to curb speculation and resale of undeveloped lots only, the County may impose incremental and conditional zoning, which shall be based on performance requirements.	C
Applicable codes and ordinances shall be reviewed and amended as necessary to include consideration for urban design, and aesthetic quality through landscaping, open space, and buffer areas.	C

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Support the rezoning of those multiple residentially zoned lands that are used for other purposes to a more appropriate zoning designation.	C
Require developers to provide basic infrastructure necessary for development.	C
COURSES OF ACTION North Kona	
Re-evaluation of existing zoned areas and re-allocation of lands in appropriate locations shall be undertaken.	C
Appropriately zoned lands shall be allocated as the need for multiple residential development increases.	C
COMMENTARY: The majority of the Keahuolu property is designated as Urban Expansion with the remainder as Low-Density Residential by the General Plan's Land Use Pattern Allocation Guide. The ultimate configuration of the units is not yet determined ~~as~~ at the time of this writing. However, the conceptual plans provide multi-unit high density development near the core of the community, which could be a mixed-use configuration with commercial floor area.	
GENERAL PLAN – LAND USE - SINGLE-FAMILY RESIDENTIAL	
GOALS	
To maximize choices of single-family residential lots and/or housing for residents of the County.	C
To ensure compatible uses within and adjacent to single-family residential zoned areas.	C
To rehabilitate and/or rebuild deteriorating single-family residential areas.	NA
To provide single-family residential areas conveniently located to public and private services, shopping, other community activities and convenient access to employment centers that takes natural beauty into consideration.	C
To enhance the overall quality of life in our residential communities.	C
POLICIES	
To assure the orderly use of single-family residential zoned areas and to curb speculation and resale of undeveloped lots, the County may impose incremental and conditional zoning, which would be based on performance requirements. This is to assure that a certain percentage of buildings will be constructed.	C
Encourage innovative uses of land with respect to geologic and topographic conditions through the use of residential cluster and planned unit development.	C
Encourage and coordinate with the State in providing fee simple and leasehold single-family residential lots to the residents through State and/or County Housing Programs.	C
Incorporate reasonable flexibility in codes and ordinances to achieve a diversity of socio-economic housing mix and to permit aesthetic balance between single-family residential structures and open spaces.	C
Re-evaluate existing undeveloped single-family residential zoned areas and reallocate zoned lands in appropriate locations.	NA
Designate and allocate single-family residential zoned lands at varying densities for future use in accordance with the needs of the communities and the stated goals, policies, and standards.	C
Rural-style residential-agricultural developments, such as new small scale rural communities or extensions of existing rural communities, shall be encouraged in appropriate locations.	NA
Review and amend land use ordinances and codes to include considerations for rural-style residential subdivisions in appropriate locations. Standards and criteria for the establishment of these areas shall be developed.	NA
Require developers to provide basic infrastructure necessary for development.	A

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
COURSES OF ACTION North Kona	
Encourage the development of appropriately located and serviced privately-held and State-owned lands for houselots.	A
Improve and develop roadways, water and sewerage systems, and other basic facilities necessary to encourage development of lands suitable for residential use.	A
Encourage the concentration of residential structures to avoid strip residential development	A
Encourage the use of more innovative types of housing development, such as zones of mix and cluster and planned unit developments.	A
COMMENTARY: The Keahuolu project may include a variety of housing unit types and densities with the emphasis on providing the maximum number of affordable housing units in the shortest amount of time. The Keahuolu project is consistent with and is intended to implement the General Plan's housing policies.	
GENERAL PLAN - LAND USE RESORTS	
GOALS	
Maintain an orderly development of the visitor industry.	NA
Provide for resort development that maximizes conveniences to its users and optimizes the benefits derived by the residents of the County.	NA
Ensure that resort developments maintain the cultural and historic, social, economic, and physical environments of Hawai'i and its people.	NA
POLICIES	
The County may impose incremental and conditional zoning that would be based on performance requirements.	NA
Promote and encourage the rehabilitation and the optimum utilization of resort areas that are presently serviced by basic facilities and utilities.	NA
Lands currently designated Resort should be utilized before new resorts are allowed in undeveloped coastal areas.	NA
Zoning of resort areas shall be granted when the proposed development is consistent with and incorporates the stated goals, policies and standards of the General Plan.	NA
Continue to seek funds from the State Capital Improvement Program to help develop visitor destination areas in accordance with the County's General Plan.	NA
Designate and allocate future resort areas in appropriate proportions and in keeping with the social, economic, and physical environments of the County.	NA
Evaluate resort areas and the areas surrounding existing resorts to insure that viable quality resorts are developed and that the surrounding area contributes to the quality, ambience and character of the existing resorts.	NA
Encourage the visitor industry to provide resort facilities that offer an educational experience of Hawai'i as well as recreational activities.	NA
Coastal resort developments shall provide public access to and parking for beach and shoreline areas.	NA
Re-evaluate existing undeveloped resort designated and/or zoned areas and reallocate these lands in appropriate locations.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Require developers to provide the basic infrastructure necessary for development.	NA
COURSES OF ACTION North Kona	
Discourage strip resort development along Ali'i Drive	NA
Re-evaluate some areas currently zoned for resort use.	NA
Improve and provide adequate roadways, sewer and water systems, and other basic amenities in all areas where higher density uses are allowed.	NA
COMMENTARY: The proposed project does not include a resort component.	
GENERAL PLAN - LAND USE - OPEN SPACE	
GOALS	
Provide and protect open space for the social, environmental, and economic well-being of the County of Hawai'i and its residents.	C
Protect designated natural areas.	C
POLICIES	
Open space shall reflect and be in keeping with the goals, policies, and standards set forth in the other elements of the General Plan.	C
Open space in urban areas shall be established and provided through zoning and subdivision regulations.	C
Encourage the identification, evaluation, and designation of natural areas.	C
Zoning, subdivision and other applicable ordinances shall provide for and protect open space areas.	C
Amend the Zoning Code to create a category for lands that should be kept in a largely natural state, but that may not be in the Conservation District, such as certain important viewplanes, buffer areas, and very steep slopes.	NA
COMMENTARY: The Keahuolu project provides neighborhood parks and open space and the preservation of archeological areas. These elements are consistent with the intent of the General Plan's open space policies.	
GENERAL PLAN - LAND USE – PUBLIC LANDS	
GOALS	
Utilize publicly owned lands in the best public interest and to the maximum benefit for the greatest number of people.	A
Acquire lands for public use to implement policies and programs contained in the General Plan.	A
POLICIES	
Encourage uses of public lands that will satisfy specific public needs, such as housing, recreation, open space and education.	A
Encourage the adoption of State programs for State lands consistent with the General Plan.	C
State and County Capital Improvement Programs should continue to be coordinated.	NA
A sub-classification, University use, shall continue to be utilized, permitting the primary institutional and numerous supportive and accessory uses required for establishing and/or expanding a public university. Its designation shall continue to be shown on the Land Use Pattern Allocation Guide map.	NA

ELEMENTS OF THE HAWAI'I COUNTY GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Support the U.S. Department of Interior, National Park Service's expansion plans for the Hawai'i Volcanoes, Puukohola and Puuhonua O Honaunau National Historic Parks.	NA
Encourage the State to continue the Villages of La'i 'Opua project at Kealakehe.	C
COMMENTARY: Approximately 172 acres of the 272 acres of the Keahuolu project was a part of the Villages of La'i 'Opua project at Kealakehe and embodies the goals and policies for use of public lands to continue the Villages of La'i 'Opua project and satisfy specific public needs, such as housing, recreation, open space and education.	

5.13 KEAHOLE TO KAILUA DEVELOPMENT PLAN

The County initiated in July 1988 the Keahole to Kailua Development Plan study (Keahole Plan) with the intent of developing the area. The Keahole Plan serves as an implementing tool for the General Plan of the County and as a sub-regional plan and developmental framework for the West Hawai'i Plan.

The County contracted R.M. Towill Corporation to prepare the Keahole Plan, and in 1990 adopted it to serve as a guide for future infrastructure and land uses in the region. The Hawai'i County Council in 1991 amended the plan to incorporate electricity and telephone accommodations that would allow improvements as demand increased. HELCo estimated at the time that full development could entail an additional 100 ~~megawatts~~ MW of power.

5.13.1 Goals and Objectives of the Keahole to Kailua Plan

The goal of the Keāhole Plan was to develop a mixed residential, commercial, resort, industrial, and recreational community, with appropriate shoreline uses, public facilities, and infrastructure, which would be built in phases over the course of 20 years.

The objectives were to: (1) develop a plan for an integrated community that can be served by the required infrastructure in phases and provide a mix of land uses~~;~~, (2) develop design guidelines for critical visual aspects~~;~~, (3) develop an efficient, safe and pleasing road network over the next 10-20 years~~;~~, (4) identify all areas subject to flood and tsunami inundation and develop a comprehensive flood control system~~;~~, (5) develop a water system with 6 mgd capacity to serve land uses~~;~~, (6) develop area-wide system of sewage facilities with 6 mgd capacity~~;~~, (7) develop adequate solid-waste facilities~~;~~, (8) develop recreational facilities that would meet the rise of

new residents~~;~~, and (~~8~~9) develop a financing approach that provides infrastructure financing, feasible land development, and feasible level of County capital expenditures.

Four alternative concept plans were slated for the area. A regional center; residential development; elementary, middle and high schools; a university site; community, district, and waterfront parks; a municipal golf course; a regional sports complex; an industrial component; judiciary and, hospital accommodations; and a fire station~~,~~ and cemetery were included in these plans.

5.13.2 Land Use Plan for the Area

The major growth assumptions of the plan were that (1) the Keahole to Kailua area would be the location for a new "Civic and Business Center" with civic and commercial uses; (2) 4,500 new residential units would be built between 1990 and 2010; (3) a number of facilities were planned that would serve a much larger region, including a municipal golf course, a regional sports complex, and the ~~University of Hawai'i~~ UH - West Hawai'i College; and (4) the project area would accommodate resort development in the range of 1,500 visitor units.

A flexible land use plan was developed for the area to provide a framework for future growth, infrastructure costs, public-private implementation of major infrastructure projects, and State and County action on designating lands for urban development. However, more importantly than specific boundaries, the plan emphasized that four major development themes should guide the planning and development of the area: (1) three major development zones~~;~~, (2) a new civic and business center~~;~~, (3) major new roadways~~;~~, and (4) a regional greenbelt system.

5.13.3 Current and Projected Resident Population in West Hawai'i

The population in the North Kona region increased 62 percent in 1980-1990 from 13,748 to 22,284, and 28 percent in 1990-2000 from 22,284 to 28,543. (U.S. Census 2000). The following table shows the numbers as of 2000 and the projected population to the year 2020.

Table 5-6: Projection of Resident Population by District Year 2000 to 2020

District	2000	2005	2010	2015	2020
North Kohala	6,038	6,622	7,917	9,446	11,273
South Kohala	13,131	15,659	18,184	21,072	24,426
North Kona	28,543	30,467	34,024	37,922	42,275
South Kona	8,589	10,253	11,414	12,681	14,092
Ka'u	5,827	6,443	7,050	7,698	8,408
	64,128	71,449	80,599	90,834	102,494

Economic Assessment, PKF Hawaii, January 2000
U.S. Census, 2000
Hawai'i County Department of Research and Development

According to the County General Plan, various resort and resort-residential complexes are currently under construction or are planned for construction in the near future. Most of these developments are concentrated in West Hawai'i in the Kohala and Kona Districts, which will continue to accommodate the majority of the visitor market within the County. Visitor accommodation units within the County totaled 9,655 ~~units~~ in 1998, up from 8,952 ~~units~~ in 1990. Bed and Breakfast units, although not a significant part of the total visitor unit count, have been the fastest growing segment of the industry, growing from 55 units in 1990, to 171 units in 1998.

5.13.4 Conformance and Support of the Keahole to Kailua Plan

The Keahuolu project conforms to the goal of the plan to provide a significant number of new residential units in the planning area. Since the Keahuolu project site is designated for Urban Expansion and Low Density Urban, the project is consistent with the plan. The project also includes development of new infrastructure systems that will benefit the region.

5.14 KEAHOLE TO HONAUNAU REGIONAL CIRCULATION PLAN - COUNTY ACTION PLAN (2006)

As presented in the Planning Department's report,

> "Traffic congestion in Kona is bad and growing worse. The congestion is fueled by the rapid growth and exarcerbated [sic] by the road network (lack of connectivity that funnels traffic to main arterials) and land use patterns (affordable housing being pushed to the outskirts resulting in more and longer commutes). The congestion and commuting is deteriorating Kona's quality of life. Road improvements have not kept pace with development. Past development has eliminated or compromised future roadway corridor options. Major road improvements take a long time and limited financial resources need to be prioritized and supplemented by innovative funding sources. The scope of this action plan is to address these problems."

The report includes an action strategy. ~~Following are~~Table 5-7 includes the strategies that are relevant to the Keahuolu Affordable Housing Project, with relevant commentary.

Table 5-7: Keahole to Honaunau Regional Circulation Plan Action Strategies

Keahole to Honaunau Regional Circulation Plan	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
Strategy #2: Improve connectivity with a road network that spreads the traffic rather than funneling all the traffic to the major arterials.	A
COMMENTARY: The Keahuolu project is consistent with this strategy. The project's internal roadways are to make feasible connections to existing and future developments on adjacent lands, which will contribute towards the implementation of this strategy.	
Strategy #2-F: Keanalehu/Manawalea Street Extension. The connection of Manawalea to Keanalehu would provide another link between the Kealakehe elementary, middle, and high schools for the residents of La'i' Opua and Kealakehe (in the vicinity of the elementary and middle schools). These roads are nearly "construction-ready" since the EIS has been completed, and the design is almost complete. The County will advance the funds and DHHL will reimburse the County its proportionate share.	A
COMMENTARY: The Keanalehu/Manawalea Street Extension is under construction and will provide access from the project site to lands and roadways east of the subject property.	
Strategy #2-I: Ane Keohokalole Extension (aka Henry Street Extension or Mid-Level Road). This project will extend Henry Street from Palani Road to the existing terminus of Ane Keohokalole makai of Kealakehe High School. The 2006 State legislature appropriated $6 million for this project. Once constructed, this road will enable someone to drive from Kailua village to the Kaloko Industrial Park via Henry Street and the Kamanu Street Extension, without having to drive on Queen Ka'ahumanu Highway.	A

Keahole to Honaunau Regional Circulation Plan	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
COMMENTARY: The attributes of the Keahuolu project are all consistent with the intent of this strategy. The planned Ane Keohokalole Highway extension will be along the project site's makai boundary and will therefore provide significant access to the project site.	
Strategy #4: Increase multimodal choices to reduce dependency on the automobile.	A
COMMENTARY: The attributes of the Keahuolu project are all consistent with the intent of this strategy.	
Strategy #5: Reduce commuting needs by directing growth to existing compact urban areas; encouraging affordable housing within these core urban areas; and mixing land uses so that jobs and/or daily requirements are within walking distances.	A
COMMENTARY: The attributes of the Keahuolu project are all consistent with the intent of this strategy.	
Strategy #5-B: Growth Management Policies. Infill higher density rezoning within the urban core that includes affordable housing and mixed uses, and discourage development in the fringe areas. The Community Development Plan will play a major role to encourage more innovative development concepts that provide mixed uses and higher density in a manner that fits the character of this area, and manages growth in fringe areas in a manner that balances private property rights and furthers public interests in infrastructure management, agricultural/cultural/ecological resource protection, and rural character preservation.	A
COMMENTARY: The attributes of the Keahuolu project are all consistent with the intent of this strategy. The project proposes mixed-use higher density development within an area designated for urban expansion.	
Strategy #6: Implement a concurrency system.	A
COMMENTARY: The project supports the concurrency system recognizing that there may be complicated multi-party negotiations in instances where several land owners and/or agencies are involved.	
Strategy #6-A: Projects that provide affordable housing or increase the infrastructure capacity should be allowed to proceed even if the transportation infrastructure may not be adequate on the basis that such developments reduce demand (i.e., housing closer to jobs thereby reducing commuting) or build important connector roads.	A
COMMENTARY: The Keahuolu's project's affordable housing component fulfills the intent of this strategy. The project site will have access onto the Keanalehu Drive expansion, which is to be completed in ~~20~~ 2008.	

5.15 KONA COMMUNITY DEVELOPMENT PLAN

The Hawai'i County General Plan requires that community development plans be adopted by the County Council for each judicial district in the county. The Kona Community Development Plan is intended to be first of the new plans and will serve as a model for the remaining districts. It is intended to provide detail to the elements presented in the General Plan and emphasize those elements most relevant to the issues and conditions of the specific plan area.

As of the writing of this EIS, some draft sections of the Kona Community Development Plan have been posted to the internet. In January 2007, the planning consultant published the Kona Regional Profile for the plan. Given the anticipated schedule, it presently appears that this EIS will precede adoption of the Kona Community Development Plan. ~~Therefore, for the purposes~~

~~of this EIS, the Kona Community Development Plan is identified as an Unresolved Issue. Should publication of the plan occur during the review and comment period for this EIS, the authors will make every attempt to address the plan in the Final EIS for the Keahuolu project.~~

~~6~~CHAPTER SIX: ALTERNATIVES

The alternatives that were considered to the proposed action are limited to those which would allow the objectives of the proposed project to be met, while minimizing potential adverse environmental impacts, according to Section 11-200-17(f), HAR. Feasible alternatives must provide for-sale dwelling units on State-owned land.

The Alternative Concept Plans presented in this EIS were developed during the master plan process and with preliminary input from governmental agencies, surrounding land owners and stakeholders. The intent of the conceptual planning process was to understand the physical, environmental and cultural character of the land and then propose land use plans that would fulfill HHFDC's mission and objectives, as well as general State and County land use policies for the region.

This section presents other alternatives and potential impacts that have been considered during the planning process. The remainder of the EIS concentrates on discussing and analyzing the impacts of the three Alternative Concept Plans.

6.1 THE "NO ACTION" ALTERNATIVE

The No Action Alternative would mean that the site would remain vacant and undeveloped and there would be no immediate change to the property. The no-action alternative would not fulfill HHFDC's mission to develop low- and moderate-income housing projects. The No Action Alternative would not respond to the need to provide affordable housing in West Hawai'i as discussed in Section 1.5, and would not be consistent with State and County polices and priorities to provide affordable housing, in particular near job centers.

Under the No Action Alternative, the site would remain vacant in an area that is being developed with housing. The project site is in a prime location to provide housing in close proximity to

Kailua-Kona. The site, if vacant, would be significantly underutilized in terms of meeting the demand for long-term affordable housing in West Hawai‘i.

The No Action Alternative would not meet the project’s objectives to:

- Develop affordable housing near job centers, in particular West Hawai‘i, which would lessen regional road congestion;
- Build a variety of housing unit types in response to the increase in population in West Hawai‘i and the demand for affordable housing;
- Create a walkable, bikable, active-lifestyle community;
- Develop infrastructure that will be required for the project, but also benefit the region;
- Create a community that will integrate the project site with the area’s current and future transportation network, as well as adjacent lands;
- Provide a transit-oriented high density development within easy walking distance of future bus stops along Ane Keohokalole Highway;
- Create a community with a mixed-use town center that contains multi-family housing, ground-floor commercial space and civic open space;
- Contribute to the greater community by providing a site for a new DOE elementary school; and
- Retain archaeological preserve areas and provide open space and neighborhood parks.

6.2 ALTERNATIVE LOCATIONS

HHFDC’s primary objective for the Keahuolu project is to provide affordable dwelling units, including for-sale units in West Hawai‘i. The Keahuolu site is non-ceded land and is HHFDC’s only non-ceded property on the island of Hawai‘i. Development of non-ceded lands provides the option of offering affordable for-sale housing in fee simple ownership. Therefore, State-owned ceded lands at other locations were not considered because they are not viable alternatives that would meet HHFDC’s goals and objectives for this project.

In terms of the larger picture of HHFDC’s mission to develop and finance low- and moderate-income housing projects throughout the state of Hawaii, the objective of the current project is to provide affordable housing in response to demand in West Hawai‘i. Therefore, locating this project on another island or in another location on the island of Hawai‘i are not viable

alternatives. HHFDC's objectives for the Keahuolu project can be met at the proposed site. There are no other viable locations on the island of Hawai'i that would allow the project's objectives to be met.

6.3 THE ALTERNATIVE OF POSTPONING ACTION UNTIL FURTHER STUDY

The alternative to postpone action and conduct further study would not allow HHFDC to meet its objective to provide affordable for-sale housing units in a timely manner in response to the current strong market demand in West Hawai'i. This alternative is not warranted because the environmental impact statement and its related technical studies provide a thorough evaluation of the project's potential impacts; subsequent entitlement processes will provide for public individual and government agency input and comment, as well as the opportunity to request more information or further study; and significantly delaying the project will likely increase the price of moderate- to market-priced units that may be a part of the ultimate developer's project. Delays for more study will only further aggravate housing demand and increase prices.

~~7~~CHAPTER ~~SIX~~SEVEN: CONTEXTUAL

7.1 RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE OF LONG-TERM PRODUCTIVITY (SUSTAINABILITY ANALYSIS)

The Keahuolu Affordable Housing P~~p~~roject site is primarily classified as State Agricultural and zoned for 5-acre agriculture lots. (A small portion is State Urban and zoned residential RS-15.). The project site's current potential use is generally limited to agricultural uses. However, the soil quality is relatively poor. Consequently, it has remained unutilized and vacant, constituting an open space area.

The project site is proposed for reclassification from the State Agricultural District to the State Urban District, and subsequent rezoning to allow its development as a mixed-use residential master planned community. These actions would commit the property to residential and commercial use, which would require the provision of infrastructure in the form of new roadways; potable water wells, reservoirs, and a water transmission system; a wastewater collection system; and electrical and telecommunications utilities.

Development of the property as a residential community constitutes a permanent commitment that would remove the property from the inventory of available agricultural land. This action is consistent with the State and County plans for the area. The region of North Kona between Keahole and Kailua-Kona is intended to function as a residential and commercial center for West Hawai‘i. Reclassification of the property to the Urban District is consistent with that intent.

Demand for homes in North Kona is already strong and expected to exceed planned production, especially of housing for middle-income families. The housing market continues to be active, even though prices have reached levels that many families cannot afford. About a third of Hawai‘i County respondents expecting to move named North Kona as their preferred destination.

The project's impact on housing can be estimated in relation to demand indicators. The 2006 *Hawaii Housing Policy Study* suggests that there is demand from about 7,200 resident households for units in North Kona in the next few years. In addition, population growth will account for formation of at least 2,370 new households. Given a regional demand for approximately 9,570 units (7,200 units existing demand plus 2,370 new households), the net contribution of the project amounts to 5.3 to 18.7 percent of regional demand.

The HHFDC Keahuolu project is planned as a response to the regional needs for housing and the desire to reduce congestion on regional highways due to residents' traveling long distances between home and work.

Short-term uses and long-term productivity relate to the short-term construction phases and the long-term socioeconomic benefits that would accrue to the State and the County in the form of affordable housing near employment centers in North Kona and added revenue resulting from economic activity that would otherwise not occur on the property.

~~6.~~27.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Development of the subject property as a residential community will permanently alter the use and character of the land:

Soil: The terrain will be crushed and graded to allow the construction of roads that comply with county road design standards. The land abutting the roads may be terraced to accommodate home sites. Aggregate rock and topsoil will be imported.

Quarry material: High quality aggregate rock is an important natural resource in an island environment. As the subject property is not considered to be a source of potential quarry material (grade-A basalt), there will be no loss of this particular natural resource by reclassifying the property from Agricultural to Urban. However, development of the project will require large amounts of aggregate rock for the construction of roadbeds and house foundations, and the production of concrete and asphalt.

Flora: Much of the existing flora will be removed (grubbed) prior to site development. Residential properties will eventually be landscaped with new plant material~~,~~ including, where practicable, drought-tolerant species.

Fauna and avifauna: Existing fauna and avifauna will be displaced during the development process. With the exception of rats and pigs, most displaced species of fauna and avifauna will likely return once the property has been re-landscaped.

Cultural Resources: Archaeological sites and cultural resources determined to be significant under State criteria will be preserved. Sites identified for data collection will be further analyzed and recorded in an effort to increase the understanding of the historical use of the area. Sites identified for preservation will be preserved. This process must be completed in accordance with the requirements of the SHPD.

Development of the project will require the expenditure of energy in the form of fuel for construction vehicles and equipment and the consumption of natural and man-made resources in the form of construction materials (metal, glass, wood, plastic, etc.). Construction of the project will also require the consumption of potable water. However, some of the water used for dust control will percolate back into the soil while the remainder will evaporate.

The project will require the investment of human labor that might otherwise be employed elsewhere.

The so-called operational phase of the project, that is to say once the project is completed and the homes have been built and occupied, will require an ongoing commitment of potable water, electrical energy, and fuel for privately owned vehicles and motorized equipment.

~~6.3~~7.3 CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are defined as impacts on the environment ~~which~~ that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative impacts

can result from individually minor but collectively significant actions taking place over a period of time.

The Keahuolu Affordable Housing Pproject represents a potentially significant contribution of affordable housing units to the much larger "landscape" of the emergence of the city of Kailua-Kona and area developments. Over the past 40 years, Kailua-Kona has grown from a small community to a regional growth center, with much of the growth occurring in the past 10 years.

The construction of the Queen Ka'ahumanu Highway in the early 1970s led to the development of several visitor destination areas along the North Kona/South Kohala coastline, including Mauna Kea Resort, Mauna Lani Resort, Waikoloa Resort, and the Hualalai Resort. The resulting demand for resort employees led the State and the County to designate the area of North Kona between Kailua-Kona and Keahole as the primary growth area for residential and commercial development in West Hawai'i.

The rapid expansion of commercial centers, including the Kona Coast Shopping Center, Makalapua Center, and the Kaloko Industrial Park clearly demonstrate the demand for new goods and services generated by an expanding residential population. Continuing residential expansion is evidenced by other proposed projects in the area.

Unfortunately, the pace of commercial and residential growth has exceeded the development of transportation infrastructure to accommodate it, leaving traffic conditions along the principal arterials (Queen Ka'ahumanu Highway and Mamalahoa Highway) to deteriorate. The rapid emergence of this "crisis" has caught many residents and community leaders by surprise, leading for calls to carefully examine the future of the area.

However, Kailua-Kona is already on a path of growth fueled by an abundance of developable land, lack of existing housing stock, a highly desirable climate, and a constant supply of visitors to West Hawai'i. Noticeably, the commercial and population expansion around Kailua-Kona parallels the health of the visitor industry. Since recovering from the downturn of visitor arrivals in the early 1990s, the visitor industry has enjoyed a decade of expansion. Economic cycles are inevitable and a resolution of the traffic "crisis" will likely occur when the current visitor

industry cycle ends and a downturn in visitor arrivals allows the gap between roadway capacity and travel demand to narrow. The challenge facing taxpayers at that time will be the courage to support public investment in infrastructure during an economic downturn. However, that is precisely when jobs will be needed the most.

As a mixed-use affordable housing community, the cumulative impact of the Keahuolu project will be its contribution to the long term stability of the resident population of the city of Kailua-Kona. The Keahuolu project and other emerging housing developments will help to fulfill the goal of a strong and healthy West Hawai‘i economy and the provision of affordable housing in proximity to employment centers.

The term “secondary impact” means effects ~~which~~ that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. These impacts may include ~~growth~~ growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems including ecosystems.

The Keahuolu Affordable Housing P~~p~~roject’s primary impacts include an increase in the supply of affordable housing, an increase in commercial floor area in the Kailua-Kona region, population growth, increased traffic, and the demand for potable water and energy. The project’s secondary impacts are effects that are induced by these primary impacts, such as the additional jobs created in the economy, and the effects resulting from the project residents’ demand for goods and services.

~~6.~~47.4 OFFSETTING CONSIDERATIONS OF GOVERNMENTAL POLICIES

The proposed project is consistent with State and County policies that identify the property and its surrounding area for urban expansion to support economic growth in West Hawai‘i. The project is also consistent with the County General Plan’s designation of Urban Expansion / Low Density Residential. Other policies of the State and County promote the preservation of agricultural land. However, because the subject property is not considered to be prime

agricultural land~~,~~ due to its poor soil quality, its proposed development for residential use is not inconsistent with the goal of preserving important agricultural resources.

~~6.5~~7.5 UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared. ~~See Chapter Six, Section 6.4, for a discussion of these unresolved issues.~~

Final Development Scheme and Schedule: The HHFDC is reviewing proposals from qualified developers to develop the Keahuolu Affordable Housing P~~p~~roject. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing: the total number of housing units; the mix of affordable units and market units; the mix of single-family and multi-family; the mix of low density, medium density, and high density; the total square footage of commercial floor area; the alignment/route of off-site wastewater lines that will service the project. The Board of Directors of HHFDC approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement. However until the development agreement is signed, there is the possibility that an agreement may not be reached between HHFDC and Forest City, and thus the search for a developer would continue until one is selected and a development agreement is signed. Until that time, the details of the proposed project and the developer's schedule for the project are not available. That information will become available prior to subsequent permitting processes, which will provide the opportunity for public and agency input and comment, as well as the opportunity to request additional information.

~~**Kona Community Development Plan**: It is likely that this EIS will be published for public and agency review and comment prior to the publication of the first draft of the Kona Community Development Plan. Thus, the content of the plan is unknown. *UPDATE PRIOR TO FINAL EIS*~~

Concurrency Ordinance: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and water supply in

change of zone actions. According to the County of Hawai‘i Planning Department, rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project, and that there would also be standard expectations for water supply for new rezonings.

It is the intention of the HHFDC that the project developer submit the project to the State LUC and the County of Hawai‘i under the expedited approval process provided for under Section 201H-38, HRS. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the concurrency standards would or would not apply. ~~At the time this EIS is being prepared the Hawai‘i County Council is considering a bill for an ordinance that would require the concurrent development of project-related infrastructure. It is unknown if the ordinance will be adopted, what its final language might contain, when it might become effective, and if it might impact the Keahuolu project.~~

County Council Deferred Action on Change of Zone Applications: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai‘i Planning Department clarified that Resolution No. 529 08 was adopted on March 12, 2008. According to the County, it extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, whichever occurs first.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai‘i under the expedited approval process provided for under Section 201H-38, HRS. According to the estimated permit schedule in Table 1-4 of this EIS, it is anticipated that a zone change application for the Keahuolu project would at the earliest be submitted to the County on January 1, 2009, which is after the December 1, 2008 deadline for the temporary delay of Council action on rezoning applications. It is unknown whether the County’s deadline will be extended and if the Council will continue to defer action on change of zone applications. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the Council’s deferral on change of zone applications would or would not apply, if it is still in effect.

~~In early 2007, the Hawai'i County Council adopted a resolution calling to defer action on any Change of Zone applications prior to adoption of the Kona Community Development Plan. It is unknown when and how this resolution might impact the Keahuolu Affordable Housing project.~~

~~8~~CHAPTER ~~SEVEN~~EIGHT: LIST OF PREPARERS

This Draft EIS has been prepared by Belt Collins Hawaii Ltd., 2153 North King Street, Suite 200, Honolulu, Hawaii, 96819. The staff involved in the preparation of this document includes:

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Karon Aoki	Graphic Designer
Daughn O'Neill	Word ~~Processing~~Processor/Editor
Lynn Fukuhara	Word ~~Processing~~Processor/Editor

Technical consultants were employed to provide specific assessments of environmental factors for this project. The consultants, their company affiliations and their ~~specialty~~ specialties are listed below:

Dick Kaku	Traffic Consultant	Fehr & Peers/Kaku Associates
Bob Rechtman	Archaeological Surveys	Rechtman Consulting
Paul Rosendahl	Archaeological Surveys	PHRI, Inc.
Art Whistler	Botanical Surveys	Isle Botanica Consulting
Helen Wong-Smith	Cultural Assessment	PHRI, Inc.

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~~10~~CHAPTER ~~NINE~~TEN: PARTIES CONSULTED AND COMMENTS RECEIVED

The HHFDC Keahuolu Affordable Housing Project ~~Environmental Impact Statement Preparation Notice (~~EISPN~~)~~ was sent to the following agencies, organizations, and individuals. The 30-day public comment period on the EISPN began on July 23, 2007 and ended on August 22, 2007.

Respondents and Distribution		Received EISPN	EISPN Comments	Received Draft EIS	Draft EIS Comment	Will Received~~d~~ Final EIS
A. Federal Agencies						
	Department of Housing and Urban Development (HUD)			X		
	Federal Highway Administration	X		X		
	US Army Corps of Engineer	X				
	US Department of the Interior - Fish and Wildlife Service (USFWS)	X		X	X	X
	US Department of the Interior - National Park Service, Pacific West Region	X				
	US Department of the Interior - National Park Service, Koloko-Honokohua National Historic Park	X	X	X	X	X
	US Natural Resources Conservation Service					
B. State Agencies						
	Department of Accounting and General Services	X		X	X	X
	Department of Agriculture	X		X		
	Department of Business, Economic Development and Tourism (DBEDT)					
	- Director	X		X		
	- Land Use Commission (LUC)			X	X	X
	- Office of Planning	X		X	X	X
	- Resources and Technology Division					
	- Strategic Industries Division	X	X	X		
	Department of Defense			X	X	X
	Department of Education (DOE)	X	X	X	X	X
	Department of Hawaiian Home Lands (DHHL)					
	- Chairman	X		X		
	- Land Development Division	X		X		
	Department of Health (DOH)			X		
	- Environmental Planning Office	X	X	X	X	X
	- Office of Environmental Quality Control	X	X	X		X
	Department of Human Services (DHS)					

Respondents and Distribution	Received EISPN	EISPN Comments	Received Draft EIS	Draft EIS Comment	Will Received Final EIS
- Hawaii Public Housing Authority	X		X	X	X
Department of Labor and Industrial Relations					
Department of Land & Natural Resources (DLNR)					
- Chairperson	X		X		X
- Aquatic Resources Division			X		
- Commission on Water Resource Management		X			
- Engineering Division				X	X
- Historic Preservation Division	X		X	X	X
- Land Division, Honolulu		X		X	X
- Land Division, Hawaii District		X			
- Na Ala Hele					
Department of Public Safety					
Department of Transportation (DOT)					
- Director	X	X	X	X	X
- Hawaii District Office, Highways Division	X	X			
Hawaii Housing Finance and Development Corporation	X		X		X
Office of Hawaiian Affairs	X	X	X	X	X
Office of the Governor			X		
Office of the Governor – Kona/West Hawaii	X		X		X
University of Hawai'i – Environmental Center	X		X	X	X
University of Hawaii at Manoa – Water Resources Research Center	X		X		
C. County of Hawai'i					
Civil Defense Agency			X		
Department of Environmental Management					
- Director	X	X	X	X	X
- Solid Waste Division			X		
- Wastewater Division			X		
- Technical Services			X		
Department of Parks and Recreation					
- Director	X		X		
- Parks Maintenance Division					
- Recreation Division					
Department of Public Works					
- Director	X		X		
- Building Division			X		
- Engineering Division			X		
- Highway Maintenance Division			X		
- Traffic Division			X		X
Department of Research and Development	X	X	X		
Department of Water Supply	X	X	X	X	X
Finance Department			X		
- Public Access, Open Space, and Natural Resource Preservation Commission					
- Real Property Tax Division					

Respondents and Distribution		Received EISPN	EISPN Comments	Received Draft EIS	Draft EIS Comment	Will ~~Received~~ Final EIS
	Fire Department	X		X	X	X
	Mass Transit Agency	X		X		
	Office of Housing and Community Development	X		X		
	Office of the Mayor	X		X		X
	Planning Department	X	X	X	X	X
	Police Department	X		X	X	X
D. Elected Officials						
	Senator Daniel K. Akaka	X		X		
	Senator Daniel K. Inouye	X		X		
	Rep. Neil Abercrombie	X		X		
	Rep. Maize Hirono	X		X		
	State Senator Paul Whalen	X		X		
	State Rep. Josh Green M.D.	X		X		
	Councilmember: County District 1	X		X		
	Councilmember: County District 2	X		X		
	Councilmember: County District 3	X		X		
	Councilmember: County District 4	X		X		
	Councilmember: County District 5	X		X		
	Councilmember: County District 6	X		X		
	Councilmember: County District 7	X		X		
	Councilmember: County District 8	X		X		
	Councilmember: County District 9	X		X		
E. News Media						
	Hawai'i Tribune Herald	X		X		X
	Honolulu Advertiser	X		X		X
	Honolulu Star Bulletin	X		X		X
	West Hawai'i Today	X		X		X
F. Public Libraries and Depositories						
	Bond Memorial Public Library			X		
	DBEDT Library	X		X		X
	Hawai'i State Main Library	X		X		X
	Hilo ~~Public~~ Regional Library	X		X		X
	Holualoa Public Library			X		
	Kailua-Kona Public Library	X		X		X
	Kealakekua Public Library	X		X		X
	Legislative Reference Bureau Library	X		X		X
	Thelma Parker Memorial Public/School Library	X		X		
	University of Hawaii – Hamilton Library	X		X		X
	University of Hawaii – ~~Hilo~~ Edwin H. Mookini Library at Hilo	X		X		X
G. Local Utilities						
	Hawaii Electric Light Co., Inc. - Hilo	X		X		
	Hawaiian Electric Light Co., Inc. – Kailua-Kona	X		X		
	Hawaiian Telcom – Hilo	X		X		
	Hawaiian Telcom – Honolulu	X		X		
	Hawaiian Telcom – Kailua-Kona	X		X		

Respondents and Distribution		Received EISPN	EISPN Comments	Received Draft EIS	Draft EIS Comment	Will ~~Received~~ Final EIS
	HECO - Honolulu			X		
	Oceanic Time Warner Cable – Kailua-Kona	X		X		
	The Gas Company – Kailua-Kona	X		X		
H. Community Organizations, Associations, and Other Groups						
	A & B Properties, Inc.	X		X		
	Akinaka and Associates, Ltd.	X		X		
	Stanford S. Carr Development Corporation	X		X		
	Castle & Cooke Homes Hawaii, Inc.	X		X		
	Community Planning and Engineering, Inc.	X		X		
	Concerned Citizens of Kona			X		
	D.R. Horton, Schuler Division	X		X		
	General Contractors Association of Hawaii			X		
	Hawai'i Island Economic Development Board			X		
	Hawai'i Island Board of Realtors			X		
	Hawai'i Island Chamber of Commerce			X		
	Hawai'i Island Community Development Corporation			X		
	Hawai'i Leeward Planning Conference	X		X		X
	Kamehameha Schools			X		
	Kona Board of Realtors			X		
	Kona Community Plan Steering Committee	X		X		
	Kona Hills Estates Community Association					
	Kona-Kohala Chamber of Commerce	X		X		
	Kona Traffic Safety Committee	X		X		
	Kuakini Hawaiian Civic Club			X		
	Maryl Development	X		X		
	Neighborhood Place of Kona	X		X		
	Pacific Kona Landscaping	X		X		
	Queen Liliuokalani Trust	X		X		X
	Steelhead Capital			X		
	UniDev Hawaii, LLC	X		X		
I. Individuals						
	Ms. Elaine Watai	X		X		X
	Mr. Robert Ward, Hawaii County Transportation Commission	X	X	X		X
	Mr. Aaron Stene		X	X		X

COMMENT AND RESPONSE LETTERS

FOR THE EISPN AND DRAFT EIS

Harry Kim
Mayor

Lawrence K. Mahuna
Police Chief

Harry S. Kubojiri
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-2389

March 5, 2008

Ms. Mary O'Leary, AICP
Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. O'Leary:

SUBJECT: Draft Environmental Impact Statement
Project: Keahuolu Affordable Housing Project
Location: Keahuolu, North Kona, Island of Hawaii
Tax Map: (3) 7-4-021: 020 – Housing Site
(3) 7-4-21: por. 21 – Reservoir Site

This responds to your February 20, 2008 letter regarding review and comments of your Draft Environmental Impact Statement (DEIS) for the Keahuolu Affordable Housing Project in North Kona, Hawaii.

Staff has reviewed the above-referenced DEIS and submits the following comments:

- Any additional development/project utilizing Palani Road, Queen Kaahumanu Highway or Hawaii Belt Road as an access will adversely impact traffic conditions throughout Palani Road, Queen Kaahumanu Highway and Hawaii Belt Road, particularly during peak traffic hours or during an emergency condition.

- Recommend against any further development in this area until such time as the second phase of improvements to Queen Kaahumanu Highway (Kealakehe Parkway to Keahole Airport) has been completed and is open to traffic.

- Recommend that the secondary road, Ane Keohokalole Highway (Palani Road to Kealakehe Parkway), be completed and open to traffic prior to occupancy of the project.

- Recommend that Ane Keohokalole Highway be extended north to Kaiminani Drive.

- Recommend that Makala Boulevard be completed between Queen Kaahumanu Highway and Keanalehu Drive prior to occupancy of the project.

If you have any further questions or comments please feel free to contact Acting Captain Chad Basque at 326-4646 extension 249.

Sincerely,

LAWRENCE K. MAHUNA
POLICE CHIEF

JOHN E. DAWRS
ACTING ASSISTANT CHIEF
AREA II OPERATIONS

BeltCollins

September 25, 2008
2006.70.0900 / 08P-317

Chief Lawrence K. Mahuna
Police Department
County of Hawaii
349 Kapiolani Street
Hilo, Hawaii 96720-3998

Dear Chief Mahuna:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of March 5, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. The Hawaii Housing Finance and Development Corporation commissioned a Traffic Impact Analysis Report (TIAR) for the proposed project which studied potential impacts on the roadways surrounding the project site, including Palani Road, Queen Kaahumanu Highway, Henry Street, Ane Keohokalole Highway, and Kealakehe Parkway during peak traffic hours. The project does not have direct access onto Hawaii Belt Road, and the site is approximately three miles from the Hawaii Belt Road. The complete TIAR is located in Appendix F of the Draft Environmental Impact Statement.

   Based on the TIAR study, a number of strategies and roadway improvements were developed to mitigate impacts on street intersections and street segments that would operate at poor levels of service (LOS E or F). With the proposed improvements implemented pursuant to a Fair Share Cost program distributing costs in an equitable manner among affected developments, the impacts would be fully mitigated.

2. Based on communications with the DOT Hawaii District office, the second phase of improvements to Queen Kaahumanu Highway (Kealakehe Parkway to Keahole Airport) may be completed and open to traffic by the end of 2011. It is anticipated that the proposed Keahuolu project would be issued its first certificate of occupancy in 2012. Therefore, this roadway work should be completed prior to the occupancy of the proposed project.

3. We acknowledge your comment recommending that the secondary road, Ane Keohokalole Highway (Palani Road to Kealakehe Parkway), be completed and open to traffic prior to occupancy of the project. Both the State and the County of Hawaii are working together to achieve concurrency.

Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

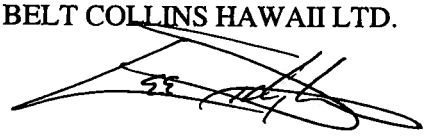
4. We acknowledge your comment recommending that Ane Keohokalole Highway be extended north to Kaiminani Drive. The traffic study for the Keahuolu project used the existing and future street network in the County's *Keahole to Honaunau Regional Circulation Plan* report (County of Hawaii Planning Department, August 2006). The Kona Action Plan and the Draft Kona Community Development Plan both depict the future extension of Ane Keohokalole Highway to Kaiminani Drive and beyond.

5. We acknowledge your comment recommending that Makala Boulevard be completed between Queen Kaahumanu Highway and Keanalehu Drive prior to occupancy of the project. The State is coordinating with the Queen Liliuokalani Trust, the landowner responsible for Makala Boulevard, and the County of Hawaii in an attempt to achieve concurrency.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 10, 2008

LD-GM

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd
2153 North King Street, Suite 200
Honolulu, HI 96819

Dear Ms. O'Leary:

Subject: Keahuolu Affordable Housing Project, North Kona, Hawaii TMK: (3) 7-4-21: 20 and Portion 21 Containing 272 Acres

In response to your February 20, 2008, request for comments on the above referenced subject we offer the following.

The Hawaii Housing Finance and Development Corporation (HHFDC) was the master developer for the Villages of Laiopua, an affordable housing project, when a lawsuit was initiated by the Office of Hawaiian Affairs. The lawsuit resulted in a moratorium prohibiting the sales of ceded lands Statewide.

All but the subject 272 acres of the Villages of Laiopua covered by the draft EIS are classified as ceded land.

The 272 acres were acquired by the State from the Queen Liliuokalani Trust by warranty deed dated May 5, 1992. The acquisition was specifically intended to be part of the Villages of Laiopua development. On July 9, 2007 the Department of Land and Natural Resources, by way of quitclaim deed (Land Office Deed No. S-28884) conveyed the fee simple interest of the 272 acres to HHFDC. Accordingly, we have no objection to the development of the 272 acres as affordable housing.

Thank you for this opportunity to comment. If there are any questions please call Gary Martin at 587-0421.

Sincerely,

MORRIS M. ATTA
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2008 APR -7 PM 2:35
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 3, 2008

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Attention: Ms. Mary O'Leary

Gentlemen:

Subject: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project, North Kona, Hawaii, Tax Map Key: (3) 7-4-21:20, portion 21

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, Land Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 3, 2008

MEMORANDUM

TO: **DLNR Agencies:**
_x_ Div. of Aquatic Resources
_ Div. of Boating & Ocean Recreation
_x_ Engineering Division
_x_ Div. of Forestry & Wildlife
_ Div. of State Parks
_x_ Commission on Water Resource Management
_ ~~Office of Conservation~~ & Coastal Lands
_x_ Land Division – Hawaii District/Gary Martin

FROM: Morris M. Atta
SUBJECT: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project
LOCATION: North Kona, Hawaii, TMK: (3) 7-4-21:20, por 21
APPLICANT: Belt Collins on behalf of Hawaii Housing Finance & Development Corporation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 1, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

(✓) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Gary Martin
Date: MAR 10 2008

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2008 APR 15 PM 3:55
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 11, 2008

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819

Attention: Ms. Mary O'Leary

Gentlemen:

Subject: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project, North Kona, Hawaii, Tax Map Key: (3) 7-4-21:20, portion 21

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to the Division of Aquatic Resources for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
Administrator

BeltCollins

September 25, 2008
2006.70.0900 / 08P-323

Mr. Morris M. Atta, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Atta:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of March 10, 2008 for the above-referenced document.

1. We acknowledge that your office has no objections to the project.

2. We acknowledge that your letter states the approximately 272-acre project site is not ceded land.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RS

AQUATIC RESOURCES: 1446

DIRECTOR	
COMM. FISH.	
AQ RES/ENV	
AQ REC	
PLANNER	
STAFF SVCS	
RCUH/UH	
STATISTICS	
AFRC/FED AID	
EDUCATION	
SECRETARY	
OFFICE SVCS	
TECH ASST	✓
Return to:	
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Copies to:	
Due Date:	

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 3, 2008

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
_Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
_Div. of State Parks
x Commission on Water Resource Management
_Office of Conservation & Coastal Lands
x Land Division – Hawaii District/Gary Martin

RECEIVED
MAR 3 2008
AQUATIC RESOURCES

FROM: Morris M. Atta
SUBJECT: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project
LOCATION: North Kona, Hawaii, TMK: (3) 7-4-21:20, por 21
APPLICANT: Belt Collins on behalf of Hawaii Housing Finance & Development Corporation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 1, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Date: 3/31/08

RECEIVED
Maui
MAR 20 2008

Div. of Aquatic Resources

BeltCollins

September 25, 2008
2006.70.0900 / 08P-332

Mr. Dan Polhemus, Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl, Room 330
Honolulu, HI 96813

Dear Mr. Polhemus:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to your letter of March 3, 2008 for the above-referenced document.

We acknowledge that your office has no comments on the proposed project.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Morris Atta, Land Division Administrator
Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

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Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR

RECEIVED

2008 MAR 14 PM 1:49

BELT COLLINS HAWAII

RUSS K. SAITO
COMPTROLLER

BARBARA A. ANNIS
DEPUTY COMPTROLLER

(P)1074.8

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

MAR 13 2008

Ms. Mary O'Leary, AICP
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

Dear Ms. O'Leary:

Subject: Draft Environmental Impact Statement
Keahuolu Affordable Housing Project
TMK: (3) 7-4-021:020, por. 21

The project does not impact any of the Department of Accounting and General Services' projects or existing facilities and we have no comments to offer.

If you have any questions regarding the above, please have your staff call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

ERNEST Y. W. LAU
Public Works Administrator

DD:mo
c: Ms. Janice Takahashi, HHF&DC
Ms. Katherine P. Kealoha, OEQC
Mr. Glenn Okada, DAGS-Hawaii District

BeltCollins

September 25, 2008
2006.70.0900 / 08P-318

Mr. Ernest Y. W. Lau
Public Works Administrator
Department of Accounting and General Services
State of Hawaii
P.O. Box 119
Honolulu, HI 96810

Dear Mr. Lau:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for your letter of March 13, 2008. We acknowledge that your office has no comments as the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities.

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Glenn Okada, DAGS-Hawaii District
Office of Environmental Quality Control
Janice Takahashi, HHFDC
Stanley Fujimoto, HHFDC

Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

Harry Kim
Mayor

Darryl J. Oliveira
Fire Chief

Glen P.I. Honda
Deputy Fire Chief

RECEIVED
2008 MAR 20 PM 2:28
BELT COLLINS HAWAII

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 981-8394 • Fax (808) 981-2037

March 18, 2008

Belt Collins Hawaii Ltd.
2153 North King Street
Suite 200
Honolulu, Hawaii 96819

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
PROJECT TITLE: KEAHUOLU AFFORDABLE HOUSING PROJECT
LOCATION: KEAHUOLU, NORTH KONA
TAX MAP KEY: (3) 7-4-021:020 – HOUSING SITE
(3) 7-4-21:POR. 21 – RESERVOIR SITE

In regards to the above-mentioned Draft Environmental Impact Statement, the following shall be in accordance:

Fire apparatus access roads shall be in accordance with UFC Section 10.207:

"Fire Apparatus Access Roads

"**Sec. 10.207.** (a) **General.** Fire apparatus access roads shall be provided and maintained in accordance with the provisions of this section.

"(b) **Where Required.** Fire apparatus access roads shall be required for every building hereafter constructed when any portion of an exterior wall of the first story is located more than 150 feet from fire department vehicle access as measured by an unobstructed route around the exterior of the building.

"**EXCEPTIONS:** 1. When buildings are completely protected with an approved automatic fire sprinkler system, the provisions of this section may be modified.

"2. When access roadways cannot be installed due to topography, waterways, nonnegotiable grades or other similar conditions, the chief may require additional fire protection as specified in Section 10.301 (b).

"3. When there are not more than two Group R, Division 3 or Group M Occupancies, the requirements of this section may be modified, provided, in the opinion of the chief, fire-fighting or rescue operations would not be impaired.

"More than one fire apparatus road may be required when it is determined by the chief that access by a single road may be impaired by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

"For high-piled combustible storage, see Section 81.109.

"(c) **Width.** The unobstructed width of a fire apparatus access road shall meet the requirements of the appropriate county jurisdiction.

"(d) **Vertical Clearance.** Fire apparatus access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches.

"**EXCEPTION:** Upon approval vertical clearance may be reduced, provided such reduction does not impair access by fire apparatus and approved signs are installed and maintained indicating the established vertical clearance.

"(e) **Permissible Modifications.** Vertical clearances or widths required by this section may be increased when, in the opinion of the chief, vertical clearances or widths are not adequate to provide fire apparatus access.

"(f) **Surface.** Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities." (20 tons)

"(g) **Turning Radius.** The turning radius of a fire apparatus access road shall be as approved by the chief." (45 feet)

"(h) **Turnarounds.** All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with approved provisions for the turning around of fire apparatus.

"(i) **Bridges.** When a bridge is required to be used as access under this section, it shall be constructed and maintained in accordance with the applicable sections of the Building Code and using designed live loading sufficient to carry the imposed loads of fire apparatus.

"(j) **Grade.** The gradient for a fire apparatus access road shall not exceed the maximum approved by the chief." (15%)

"(k) **Obstruction.** The required width of any fire apparatus access road shall not be obstructed in any manner, including parking of vehicles. Minimum required widths and clearances established under this section shall be maintained at all times.

"(l) **Signs.** When required by the fire chief, approved signs or other approved notices shall be provided and maintained for fire apparatus access roads to identify such roads and prohibit the obstruction thereof or both."

Water supply shall be in accordance with UFC Section 10.301(c):

"(c) **Water Supply.** An approved water supply capable of supplying required fire flow for fire protection shall be provided to all premises upon which buildings or portions of buildings are hereafter constructed, in accordance with the respective county water requirements. There shall be provided, when required by the chief, on-site fire hydrants and mains capable of supplying the required fire flow.

"Water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

"The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be protected as set forth by the respective county water requirements. All hydrants shall be accessible to the fire department apparatus by roadways meeting the requirements of Section 10.207.

Comments to Volume 1, Section 4.10.1.1 "Fire Protection." (Page 4-162)

Keahole Airport fire station should not be included when considering fire protection for this project. Its fire protection services are dedicated to the airport only and except in extreme circumstances, will not respond outside of their jurisdiction.

DARRYL OLIVEIRA
Fire Chief

PBW:lpc

BeltCollins

September 25, 2008
2006.70.0900 / 08P-319

Chief Darryl Oliveira
Fire Department
County of Hawaii
25 Aupuni Street, Suite 103
Hilo, Hawaii 96720

Dear Chief Oliveira:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of March 18, 2008 for the above-referenced document. The responses are provided in the order of your comments.

1. Fire apparatus access roads: The developer of the Keahuolu Affordable Housing project will comply with the applicable regulations for fire apparatus access roads.

2. Water supply: The developer of the Keahuolu Affordable Housing project will comply with the applicable regulations for water supply.

3. The Keahuolu Draft EIS Section 4.10.1.1. "Fire Protection": Your comment that the Keahole Airport fire station should not be included when considering fire protection for this project is acknowledged. We have deleted reference to the station from page 4-162 of the Final EIS.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

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LAND USE COMMISSION
Department of Business, Economic Development & Tourism
State of Hawai`i

March 24, 2008

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Subject: Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
Keahuolu, North Kona, Hawaii
Tax Map Key: 7-4-21: 20 (Housing Site)
7-4-21: por. 21 (Reservoir Site)

We have reviewed the DEIS for the subject project and have the following comments for your consideration:

1) In accordance with section 11-200-17(f), Hawaii Administrative Rules (HAR), alternatives to the proposed action should be described in a separate and distinct section. Please include alternative locations for the proposed action in the analysis.

2) In accordance with section 11-200-17(h), HAR, the status of each identified approval should be described. Therefore, we request that to the extent possible the projected submittal dates (i.e., by month/year) of the applications and plans for approval to the various agencies be provided.

3) In accordance with section 11-200-17(i), HAR, the probable impact of the proposed action on the environment shall be included. Review of the DEIS indicates that no inventory and assessment of arthropods on the subject property was conducted. In the interest of full environmental disclosure, we request that such a study be conducted.

According to the DEIS, the proposed project will have negligible long-term impacts upon the air quality and ambient noise levels of the area. However, there are no studies in the DEIS to support these conclusions. Given the technical and

scientific nature of these issues, it has been customary to assess existing conditions and potential impacts and mitigation measures based on studies conducted by experts in the respective fields. In fact, the location, size, and configuration of the development would appear to require that such studies be done. As such, we request that the conclusions be affirmed by acknowledged experts in the fields in question. In the alternative, we request that the conclusions be comprehensively supported by published studies that have addressed the impacts upon air quality and ambient noise levels from developments in the County of Hawaii that are similar to the proposed project.

Pursuant to section 11-200-17(i), HAR, the interrelationships and cumulative environmental impacts (both direct and indirect) of the proposed action and other related developments should also be discussed, including the potential secondary effects. We note that in the *Cumulative and Secondary Impacts* section of the DEIS, the discussion is generalized with certain developments mentioned in passing. Given the growth in the region, we request that the discussion be more definitive and quantitative in nature by specifically describing the extent to which the proposed project in conjunction with specific planned and existing developments in the region will contribute to the overall cumulative impact to public services and facilities (e.g., highways, schools, wastewater, solid waste, etc.) and resources (e.g., visual, aural and air quality, flora and fauna, etc.).

Finally, a discussion on the existing civil defense conditions and potential impacts and proposed mitigation measures should be included.

4) In accordance with section 11-200(17)(k), HAR, the possibility of environmental accidents resulting from any phase of the project should be included.

5) In accordance with section 11-200-17(m), HAR, mitigation measures proposed to avoid, minimize, rectify, or reduce impact should be considered. Included in this discussion are the timing of each step proposed to be taken in the mitigation process and other provisions to assure that the mitigation measures will, in fact, be taken. Although the proposed project is represented to involve a redistribution of existing and anticipated demand, we believe that it will still generate additional demand in the location of the proposed project and impact public facilities and services and natural resources to the extent that a comprehensive discussion is warranted on the identification and timing of the specific mitigative actions and the measures to assure their implementation.

6) In accordance with section 11-200-17(n), HAR, a separate and distinct section that summarizes unresolved issues should be provided. To the extent that the ultimate development scheme of the project has not been selected, the development schedule has not been determined and should therefore be included as an unresolved issue at this time. As required by this section, a discussion of either how the unresolved issues will be resolved prior to commencement of the project

or what overriding reasons are present to proceed without resolving the problems should also be provided.

7) In accordance with section 11-200-20(d), HAR, the original copy of the DEIS or FEIS should be signed and dated by the applicant indicating that the statement and all ancillary documents were prepared under the signatory's direction or supervision and that the information submitted, to the best of the signatory's knowledge, fully addresses document content requirements as set forth in sections 11-200-17 and 11-200-18, HAR, as appropriate. The DEIS that we reviewed did not comply with this requirement. This should be corrected when the FEIS is filed.

8) In the DEIS, there are numerous references to the term *potable water*. We request that it be replaced by the term *drinking water*. We have been advised that although potable water has generally been used to mean drinking water, the Department of Health (DOH) uses the latter term specifically to indicate water for human consumption that is derived from surface water and/or groundwater and is regulated by the DOH pursuant to chapter 11-20, HAR.

9) We acknowledge that the proposed project will generate revenues to the State and County of Hawaii via increased general excise/income taxes and real property taxes, respectively. We further acknowledge that because the project will serve West Hawaii residents and not a new population, demand for public facilities and services is anticipated to be relocated closer to the urban center, and consequently governmental expenditures are likely to be less than they would be without the project. To substantiate the lower government costs expected with the project, we request that the costs to the State and County be identified for each alternative concept plan by the following areas to include, but not be limited to, roadways (improvements and maintenance), higher/lower education, public safety, health and sanitation, human services, recreation, debt service, and government employee benefits.

10) We acknowledge that preliminary offsite infrastructure costs are provided in the DEIS. However, inasmuch as the number and type of residential units and other uses have been conceptually determined for each alternative, we believe that the onsite costs should also be provided to the extent that construction costs typically associated with residential, commercial, school, and roadway uses can be projected for the project.

11) We would like to point out that the reclassification of land from the State Land Use Agricultural District to the State Land Use Urban District is *not* a trigger for the chapter 343, HRS, environmental review process as stated on page 1-14 of the DEIS.

12) We note that our office previously prepared a boundary interpretation involving the subject property dated August 16, 1990 (BI No. 90-26). Given that the surrounding areas have since been urbanized pursuant to Docket Nos. A90-660/HFDC and A89-646/Liliuokalani Trust, we suggest that a boundary interpretation request be filed with our office pursuant to section 15-15-22, HAR, to ensure that the subject property is consistent with the current land use district boundaries in the area.

13) We acknowledge that a petition for district boundary amendment will be filed with our office in the future by the ultimate developer of the project. Clarification should be provided as to whether said petition will be filed under the expedited approval process provided under section 201H-38, Hawaii Revised Statutes (HRS).

We have no further comments to offer at this time. Thank you for the opportunity to comment on the DEIS.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

Rodney A. Maile

RODNEY A. MAILE
Interim Executive Officer

c: Office of Environmental Quality Control
Janice Takahashi, Chief Planner, HHFDC

BeltCollins

September 25, 2008
2006.70.0900 / 08P-320

Mr. Dan Davidson, Executive Officer
Land Use Commission
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, Suite 406
Honolulu, Hawaii 96813

Dear Mr. Davidson:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments your predecessor, Mr. Rodney Maile, provided in a letter dated March 24, 2008 for the above-referenced document. Our responses are provided in the order of his comments.

1. Alternatives. The Final EIS will include a new section describing the alternatives to the proposed project as shown in **Attachment 1** of this letter.

2. Submittal Dates. The Final EIS will include the estimated projected submittal dates of the applications and plans for approval to the various agencies as shown in **Attachment 2** of this letter.

3. Assessment of Arthropods. The Final EIS, as shown in **Attachment 3** of this letter, will contain the results of a cave biological survey conducted by SWCA Environmental Consultants in August 2008.

   Air Quality and Noise Levels. Other published studies for developments in Hawaii County similar to or larger than the proposed project conclude that there will be no significant future impacts to air quality or noise quality. For example, the Kona Kai Ola Final Environmental Impact Statement (July 2007) contains an air quality study prepared by B.D. Neal & Associates. The Kona Kai Ola project proposes a mixed-use development with approximately 2,503 units on 530 acres. The Kona Kai Ola project site is approximately two to three miles west-northwest of the Keahuolu project site.

   Existing air quality in the area of the Keahuolu project is relatively good. Major sources of air pollution include the Hawaii Electric Light Company's Keahole Power Plant and emissions from vehicles, especially along Queen Kaahumanu Highway. The B.D. Neal study notes that the Department of Health's air quality monitoring site in the Kealakekua area showed that existing sulfur dioxide measurement concentrations were consistently low over a 5-year period (2000-2004), representing about 10 percent of the state and national standard. The study also noted that there were no exceedances

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recorded for the state/national 3-hour and 24-hour Ambient Air Quality Standards (AAQS) for sulfur dioxide.

Future air quality is expected to remain good. According to the B.D. Neal study, in the year 2020 with the Kona Kai Ola project (with approximately 2,500 units), ambient concentrations of carbon monoxide are projected to remain within state and federal standards, even with increased vehicular traffic. Indirect air pollution will be created from oil-fired electrical power generating facilities which will meet the electrical power needs of the project. The analysis presented in the Kona Kai Ola Final EIS shows that the estimated indirect emissions from the Kona Kai Ola project's electrical demand will amount to only eight-percent (8%) of the existing air pollution emissions occurring on the island of Hawaii, assuming all project power is derived from oil. The Kona Kai Ola Final EIS states that no long-term air quality mitigation measures were needed, as projected emissions are expected to remain within both state and national air quality standards. The Keahuolu EIS discusses short-term construction-related air quality impacts and mitigation measures.

The Kona Kai Ola Final Environmental Impact Statement (July 2007) contains a noise assessment prepared by D.L. Adams Associates. The Final EIS states that long-term (24-hour) and short-term (30-minute) noise measurements were made at various locations around the Kona Kai Ola site, which borders Queen Kaahumanu Highway along one side. Long-term measurement shows that hourly noise levels generally ranged from 37 dBA to 56 dBA. This is within the Federal Highway Administration and State Department of Transportation noise limit of 72 dBA.

The vehicular traffic noise analysis for the Kona Kai Ola project anticipates that noise levels could be expected to increase by 1 dB to 2dB with the project; a 3dB change is not considered significant. Even with the expected increase in traffic, future long-term noise levels would be within the federal and state noise limit. The Keahuolu EIS discusses short-term construction-related noise impacts and mitigation measures.

Cumulative Environmental Impacts. The Draft EIS considers cumulative and secondary impacts in three ways. First, infrastructure planning has involved close collaboration between the County of Hawaii and nearby landowners, all of whom recognize the importance of collaboration to minimize impacts of population growth on roads, the wastewater system, and water supply. Next, several impact analysis sections deal with both immediate and cumulative impacts. For example, the traffic analysis deals not only with project-generated traffic, but with cumulative increases in traffic on Kona roadways. Other infrastructure analyses assess project impacts in relation to plans and studies that take into account regional growth projections (e.g., the County's *Updated Integrated Solid Waste Management Plan* and the *Draft Report Hawaii County Water Use and Development Plan Update).* Thirdly, "Section 6.3 Cumulative and Secondary Impacts" of the Draft EIS provides a synthesis of past, ongoing, and emerging growth in the region, and assesses the project's impacts in that context.

The Keahuolu project is planned to serve the region's need for workforce housing near job centers. It will not attract new residents to Hawaii, but will help residents find housing convenient to work, schools, and other urban amenities. Project residents will find better housing and/or shorter commute times in Keahuolu than in their current homes. Consequently, the regional impact is small, and may involve a reduction in the cost of public service delivery, since the project site is close to public safety facilities.

The discussion of "Purpose and Need for the Project" (Section 1.5) includes a brief account of major housing projects, including affordable housing, in West Hawaii and compares regional housing production to the thousands of families in the region and islandwide seeking to move to affordable housing in the next few years. The Hawaii Housing Finance and Development Corporation expects its chosen developer to propose its specific plan based on more detailed market analysis of demand for particular product types, ownership or rental arrangements, and price points, taking into account the actual and likely new production in other developments.

Existing Civil Defense. The Final EIS will contain information regarding the County of Hawaii's Civil Defense Agency as shown in **Attachment 4** of this letter.

4. Section 11-200(17)(k), Hawaii Administrative Rules states, "*The possibility of environmental accidents resulting from any phase of the action shall also be considered.*" The possibility of environmental accidents from any phase of the action was considered. Additional discussion has been added to Section 6.2 of the Final EIS to address the possibility of environmental accidents. The new text states: "The possibility of an environmental accident has also been considered. For the purposes of this discussion, the term "environmental accident" refers to unanticipated occurrences resulting from the failure of a specific component of the proposed action. For example, a bursting subterranean water main resulting in a sinkhole forming in a street would meet our definition of an environmental accident, as opposed to a natural disaster such as the flooding of a neighborhood during a severe thunderstorm resulting in damage to homes. The development of a residential subdivision on previously vacant land introduces the possibility that an environmental accident may occur. This possibility has been considered in the course of site planning for the proposed project. The design and construction of infrastructure, including roadways, utilities, drinking water storage and transmission, and wastewater collection and treatment are all conducted in accordance with applicable federal, State and County rules and regulations in an attempt to prevent an environmental accident from occurring.

5. Mitigation measures were provided in each Section of Chapter 3 and Chapter 4 of the Draft EIS. The timing of most mitigation measures are linked to the sequence of the permitting processes and/or the sequence of development. Some mitigation measures identified in the Draft EIS are required by law, such as a National Pollutant Discharge Elimination System permit, which assures its implementation or the developer would not be allowed to proceed with the project. Other mitigation measures stated in the EIS represent a commitment by HHFDC and its developer. State and county agencies can impose these and other mitigation measures as conditions of approval in permit processes subsequent to completion of the environmental review process.

6. The Final EIS will contain a separate and distinct section that summarizes unresolved issues and discusses of those unresolved issues in relationship to commencement of the project as shown in **Attachment 5** of this letter.

7. The Final EIS will be signed and dated by the applicant.

8. We concur that references to "potable water" are to be replaced with the term "drinking water."

9. The Final EIS will be revised to include the text in Section 4.9.4.2 Economic Impacts – Government Costs as shown in **Attachment 6** of this letter.

10. The Final EIS will contain preliminary on-site costs information as shown in **Attachment 7** of this letter.

11. We acknowledge your comment that reclassification from the State Land Use Agricultural District to the State Land Use Urban District is not a trigger for the Chapter 343, HRS, environmental review process. Section 1.7 of the Final EIS will be revised as shown in **Attachment 8** of this letter.

12. A boundary interpretation request will be filed with the Land Use Commission office.

13. It is the intention of the Hawaii Housing Finance and Development Corporation that the selected developer file the State Land Use District Boundary Amendment with the Land Use Commission office under the expedited approval process provided under Chapter 201H, Hawaii Revised Statues.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachments

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS Section 6 regarding alternatives will be revised as follows:

CHAPTER SIX: ALTERNATIVES

The alternatives that were considered to the proposed action are limited to those which would allow the objectives of the proposed project to be met, while minimizing potential adverse environmental impacts, according to Section 11-200-17(f), HAR. Feasible alternatives must provide for-sale dwelling units on State-owned land. The Alternative Concept Plans presented in this EIS were developed during the master plan process and with preliminary input from governmental agencies, surrounding land owners and stakeholders. The intent of the conceptual planning process was to understand the physical, environmental and cultural character of the land and then propose land use plans that would fulfill HHFDC's mission and objectives, as well as general State and County land use policies for the region.

This section presents other alternatives and potential impacts that have been considered during the planning process. The remainder of the EIS concentrates on discussing and analyzing the impacts of the three Alternative Concept Plans.

6.1 THE "NO ACTION" ALTERNATIVE

The No Action Alternative would mean that the site would remain vacant and undeveloped and there would be no immediate change to the property. The no-action alternative would not fulfill HHFDC's mission to develop low- and moderate-income housing projects. The No Action Alternative would not respond to the need to provide affordable housing in West Hawai'i as discussed in Section 1.5, and would not be consistent with State and County polices and priorities to provide affordable housing, in particular near job centers.

Under the No Action Alternative, the site would remain vacant in an area that is being developed with housing. The project site is in a prime location to provide housing in close proximity to Kailua-Kona. The site, if vacant, would be significantly underutilized in terms of meeting the demand for long-term affordable housing in West Hawai'i.

The No Action Alternative would not meet the project's objectives to:

- Develop affordable housing near job centers, in particular West Hawai'i, which would lessen regional road congestion;
- Build a variety of housing unit types in response to the increase in population in West Hawai'i and the demand for affordable housing;
- Create a walkable, bikable, active-lifestyle community;
- Develop infrastructure that will be required for the project, but also benefit the region;
- Create a community that will integrate the project site with the area's current and future transportation network, as well as adjacent lands;
- Provide a transit-oriented high density development within easy walking distance of future bus stops along Ane Keohokalole Highway;
- Create a community with a mixed-use town center that contains multi-family housing, ground-floor commercial space and civic open space;
- Contribute to the greater community by providing a site for a new DOE elementary school; and
- Retain archaeological preserve areas and provide open space and neighborhood parks.

6.2 ALTERNATIVE LOCATIONS

HHFDC's primary objective for the Keahuolu project is to provide affordable dwelling units, including for-sale units in West Hawai'i. The Keahuolu site is non-ceded land and is HHFDC's only non-ceded property on the island of Hawai'i. Development of non-ceded lands provides the option of offering affordable for-sale housing in fee simple ownership. Therefore, State-owned ceded lands at other locations were not considered because they are not viable alternatives that would meet HHFDC's goals and objectives for this project.

In terms of the larger picture of HHFDC's mission to develop and finance low- and moderate-income housing projects throughout the state of Hawaii, the objective of the current project is to provide affordable housing in response to demand in West Hawai'i. Therefore, locating this project on another island or in another location on the island of

Hawai'i are not viable alternatives. HHFDC's objectives for the Keahuolu project can be met at the proposed site. There are no other viable locations on the island of Hawai'i that would allow the project's objectives to be met.

6.3 THE ALTERNATIVE OF POSTPONING ACTION UNTIL FURTHER STUDY

The alternative to postpone action and conduct further study would not allow HHFDC to meet its objective to provide affordable for-sale housing units in a timely manner in response to the current strong market demand in West Hawai'i. This alternative is not warranted because the environmental impact statement and its related technical studies provide a thorough evaluation of the project's potential impacts; subsequent entitlement processes will provide for public individual and government agency input and comment, as well as the opportunity to request more information or further study; and significantly delaying the project will likely increase the price of moderate- to market-priced units that may be a part of the ultimate developer's project. Delays for more study will only further aggravate housing demand and increase prices.

Attachment 2

In the Final EIS Section 1.9 regarding permit submittal dates will be revised as follows:

1.9 REQUIRED PERMITS AND APPROVALS

The following is a summary of major approvals and permits required for implementation of the proposed project. Additional approvals and permits may be necessary. The HHFDC will not be the developer of the project. The developer will be required to comply with the rules, regulations, ordinances, codes, and standards of the County and any federal and state requirements. It is the intention of the HHFDC that the developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. Chapter 5 includes a more detailed discussion of the project's consistency with federal, state, and local land use plans, policies and controls.

Table 1-5: Required Permits and Approvals

Permit or Approval	What is Needed	Agency	Status
Chapter 343, HRS Compliance	Acceptance of Final EIS	Office of the Governor	Submitted Final EIS on September 2008. The Office of the Governor acceptance of the Final EIS is pending.
Land Use Boundary Amendment	State Agricultural District to State Urban District	State LUC	Filed under Section 201H-38 HRS. Expected submittal January 1, 2009.
Zone Change	A-5a (Agriculture) to new zoning designation(s) to be determined by selected developer	County of Hawai`i County Council	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1 HRS, pending approval of Land Use Commission
Exemptions from statutes, ordinances charter provisions and/or rules	Approval of exemptions	County of Hawai`i County Council	Pending identification of exemptions
Archaeological Inventory Survey of Queen Lili'uokalani Trust Property by PHRI/Donham in 1990	Approval of archaeologist's work and recommendations	State Historic Preservation Division (SHPD)	SHPD approval letter 2/17/1993 Log. 6839, Doc 9302RC34
Archaeological Mitigation Program for Queen Lili'uokalani Trust Property by PRHI/Jensen in 1992	Approval of archaeologist's work and recommendations	SHPD	SHPD approval letter 10/21/1993 Log 10361 Doc. 9312RC02
Data Recovery Work	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
Site Preservation Plan	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
Archaeological Survey for proposed Water Reservoir	Approval of archaeologist's work and recommendations	SHPD	SHPD approval letter xx/xx/2008 Log 2008.1339 Doc. 0805TS02
Monitoring Plan for proposed Water Reservoir	Approval of archaeologist's work and recommendations	SHPD	Archaeologist not yet contracted.
National Pollutant Discharge Elimination System (NPDES) Permit	Approval of plans	State Department of Health (DOH)	Expected submittal July 1, 2009
Subdivision Approval	Preliminary and Final approvals	County of Hawai`i	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1, HRS. pending zoning approval
Grading, building, plan approval and other necessary development permits	Approval of plans	County of Hawai`i	Submit under Section 201H-38 HRS or Sections 46-15 or 15.1, HRS pending subdivision approval.
Production Well(s) Construction Permit / Pump Installation Permit	Approval of plans and water allocation by the County of Hawai'i, Department of Water Supply (DWS)	State Department of Land and Natural Resources (DLNR) Commission on Water Resource Management	Expected submittal July 1, 2009

Attachment 3

In the Final EIS Section 3.8 will be revised to include the 2008 cave biological survey results as follows:

3.8 INVERTEBRATE SURVEY

SWCA Environmental Consultants conducted a biological survey of lava tube caves on the project site. The survey report is included in Appendix H. The study's objectives included: (1) conducting a biological survey of caves within the project area; (2) specifically identifying biologically significant caves; (3) compiling a list of faunal species found in the caves, particularly invertebrates; and (4) providing management recommendations for the more biologically significant caves.

3.8.1 Existing Conditions

SWCA entered onto the project site and conducted a series of cave surveys from June 18-20, 2008. Surface reconnaissance surveys were first conducted to locate and document known cave entrances and any previously unidentified features on the site. Once reconnaissance surveys were completed, a list of cave sites proposed for more detailed inventory survey was developed. The focus of these inventory surveys was to develop a general understanding of the troglobitic[1] cave fauna within the Keahuolu project site.

The SWCA study team found eight cave openings at Keahuolu, of which three caves appeared to have a suitable habitat for troglobitic arthropods. SWCA found a total of 14 distinct species of arthropods within four caves. Of these 14 species, SWCA collected and examined 13 species. Current State and Federal regulations provide no special (or specific) protection for any of these species.

Only two possible native cave species are represented in SWCA's findings: the Rhagidiid mite, which belongs to a group with two known blind cave species and an eyed species known from fumaroles near Kilauea, and the cave moth (*Schrankia* species). The remaining

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[1] Troglobitic animals live entirely in the dark parts of caves and are adapted for life in total darkness.

eleven species are classified as alien invaders. The full list of species is located in Table 2 of Appendix H and summarized below.

Acari (Mites): Only one species of mite was identified. The Rhagidiidae is described as a pale predatory mite with conspicuous eyespots.

Araneae (Spiders): Six species of spiders were identified by SWCA during the survey.

Collembola (Springtails): One species of Springtails was discovered (Entomobryidae: Genus species [unidentified]).

Insecta (Insects): Five species of insects were identified.

3.8.2 Potential Impacts and Mitigation Measures

The lava tubes and caves in the Keahuolu project site contain a variety of invertebrates. SWCA concluded that these biological resources do not present a regulatory obstacle to development. None of the identified species is listed as threatened or endangered.

Potential impacts to these species were evaluated. Ultimately, the disposition of the surveyed caves will depend upon whether they contain significant archaeological or cultural material. Mitigation measures are recommended for those caves and/or lava tubes identified for preservation by the SHPD. A determination as to the preservation of caves and/or lava tubes containing no archaeological or cultural resources will be made by the developer pursuant to the final development plan. In all likelihood, caves and/or lava tubes containing no significant archaeological or cultural resources will be destroyed during site grading and preparation, as the invertebrates inventoried in them do not warrant preservation. Furthermore, the caves pose a liability to the landowner if someone should enter one and become injured. In some instances, a cave or lava tube containing no archaeological or cultural resources may be preserved by the developer because the area surrounding it may not require mass grading. In those cases, the entrance will likely be blocked or hidden to prevent intentional or unintentional trespassing.

SWCA made the following recommendations to minimize impacts on caves, particularly those known to contain cultural resources:

- Minimize adding topsoil or impermeable material to the surface directly above known caves and preserves.
- Control invasive plant species within the preserves. For landscaping, utilize native plants and avoid aggressive, fire-prone, non-native grasses.
- Exercise care to minimize surface disturbance during construction within the general vicinity of known caves.
- Prevent wildfires and develop a rapid response plan to fires within the proposed project area.
- If unsurveyed caves are encountered during construction and the caves are accessible, allow a biological survey if appropriate.

Attachment 4

In the Final EIS Section 4.10.1.1 regarding civil defense will be revised as follows:

4.10.1.1 EXISTING CONDITIONS

Civil Defense. The County's webpage states that the role of the Civil Defense Agency is to direct and coordinate the development and administration of the County's total emergency preparedness and response program to ensure prompt and effective action when natural or man-caused disaster threatens or occurs anywhere in the County of Hawai'i.

Attachment 5

In the Final EIS Section 7.5 regarding unresolved issues will be revised as follows:

7.5 UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared.

Final Development Scheme and Schedule: The HHFDC is reviewing proposals from qualified developers to develop the Keahuolu Affordable Housing Project. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing: the total number of housing units; the mix of affordable units and market units; the mix of single-family and multi-family; the mix of low density, medium density, and high density; the total square footage of commercial floor area; the alignment/route of off-site wastewater lines that will service the project. The Board of Directors of HHFDC approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement. However until the development agreement is signed, there is the possibility that an agreement may not be reached between HHFDC and Forest City, and thus the search for a developer would continue until one is selected and a development agreement is signed. Until that time, the details of the proposed project and the developer's schedule for the project are not available. That information will become available prior to subsequent permitting processes, which will provide the opportunity for public and agency input and comment, as well as the opportunity to request additional information.

Concurrency Ordinance: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and water supply in change of zone actions. According to the County of Hawai'i Planning Department, rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project, and that there would also be standard expectations for water supply for new rezonings.

It is the intention of the HHFDC that the project developer submit the project to the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the concurrency standards would or would not apply.

County Council Deferred Action on Change of Zone Applications: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Resolution No. 529 08 was adopted on March 12, 2008. According to the County, it extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, whichever occurs first.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. According to the estimated permit schedule in Table 1-4 of this EIS, it is anticipated that a zone change application for the Keahuolu project would at the earliest be submitted to the County on January 1, 2009, which is after the December 1, 2008 deadline for the temporary delay of Council action on rezoning applications. It is unknown whether the County's deadline will be extended and if the Council will continue to defer action on change of zone applications. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the Council's deferral on change of zone applications would or would not apply, if it is still in effect.

Attachment 6

The Final EIS Section 4.9.4.2 regarding government costs will be revised as follows:

4.9.4.2 FUTURE SOCIO-ECONOMIC CONDITIONS WITH THE PROJECT

As a workforce housing development, the project is planned to have beneficial socio-economic impacts. This section provides detailed accounts of specific impacts, covering both immediate and cumulative impacts.

Economic Impacts

Construction Employment and Wages

Development of the Keahuolu project is expected to involve residential construction over a period of four to eight years, as shown in Table 4-47. Commercial construction could follow residential development and occur in two phases. Project construction work will include off-site infrastructure development, on-site development of lots and infrastructure, and housing construction. The next table shows construction spending and direct construction labor, estimated in full-time equivalent jobs, for selected years and cumulatively over the construction period.[2]

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[2] Many specialized construction jobs are short-term. For example, an electrician may spend a week or less on a project where others work throughout the year. The number of workers hired is likely to be larger than the estimated number of full-time equivalent jobs. Also, the direct construction workforce includes workers in the offices and baseyards of firms involved in a project, as well as ones actually on-site.

Table 4-47: Preliminary Timetable for Construction

Year	Concept A No. Units	Concept B No. Units	Concept C No. Units	Commercial (SF)
2010	300	300	300	
2011	300	300	300	
2012	300	300	300	
2013	120	300	300	
2014		300	300	
2015		300	300	
2016		40	300	
2017			230	
2018				100,000
2019				
2020				97,000
Total	1,020	1,840	2,330	197,000

Source: HHFDC.

Direct jobs are created within firms and by engaging subcontractors in building the project. When these jobholders in turn buy materials and equipment in the local economy, they contribute to the creation of indirect jobs (for example, in home supply stores or from concrete manufacturing firms.) When in turn direct and indirect workers spend their wages, they create induced jobs, supported by the movement of capital from those wages through the local economy. Induced jobs largely consist of retail, service, and government jobs.

Wages can be estimated from records of average wages in the construction industry in the County. The indirect and induced jobs are spread throughout the economy, so they are estimated from average wages of all workers.

Table 4-48: Construction-Related Spending, Jobs, and Wages

	2010	2015	2020	Cumulative, to 2020
Total construction consts (Millions)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Direct construction workforce (annual person-years)				
Concept A	639	-	37	2,044
Concept B	634	364	37	3,030
Concept C	573	309	37	3,159
Total construction-related workforce (annual person-years)				
~~Concept A~~	~~1,527~~	~~-~~	~~88~~	4,885
Concept B	1,516	869	88	7,241
Concept C	1,369	738	88	7,549
Direct construction wages (Millions, constant 2007 $s)				
Concept A	$34.2	$0.0	$2.0	$109.5
Concept B	$34.0	$19.5	$2.0	$162.3
Concept C	$30.7	$16.5	$2.0	$169.2
Total construction-related wages (Millions, constant 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$211.9
Concept B	$65.8	$37.7	$3.8	$314.1
Concept C	$59.4	$32.0	$3.8	$327.5

Notes: Construction costs estimated by Belt Collins Hawaii. Cost estimates cover on-site and off-site infrastructure, residential and commercial construction. School construction costs are not included. Workforce full-time equivalent jobs are estimated based on the relation between statewide construction spending and the construction workforce. Indirect and induced construction-related workforce calculated from the State's Inter-County Input-Output Model (2002 version). Wages estimated from 2005 average annual industry wage for Hawai'i County and total covered employment (for indirect and induced jobs), using 2005 data adjusted to 2007 in line with increases in the Consumer Price Index.

Sources: DBEDT, State of Hawaii Data Book 2006 (Honolulu, HI: 2007); *The Hawaii Inter-County Input-Output Study: 2002 Benchmark Report.* Honolulu, HI. 2007. Posted at http://www.hawaii.gov/dbedt/info/economic/data_reports/2002_Intercounty_I-O/. Department of Labor and Industrial Relations, Employment and Payrolls in Hawaii, 2005. Honolulu, HI. 2006.

On the average, some 204 to 243 full-time direct jobs will be involved in construction of the Keahuolu Project annually, while total construction-related employment will reach 489 to 581 jobs annually, as shown in Table 4-49.

Table 4-49: Average Annual Construction-Related Workforce

Concept	Construction Period	Average Annual Construction Workforce	
		Direct	*Total*
A	10 years	204	489 person-years
B	13 years	233	557 person-years
B	13 years	243	581 person-years

Operations Employment and Wages

Residential projects do not result in the creation of many permanent jobs. Resident managers and a few landscape, maintenance, and security workers could be employed on a permanent basis at Keahuolu. Within the neighborhood commercial area, as many as 800 jobs could be located when it is fully built out and occupied. These jobs would exist in Hawai'i County wherever families find it possible to live: they would still exist even if the project is not built.

The location of direct jobs at the project site is a socio-economic impact, affecting residents and their neighbors. The indirect and induced jobs associated with operations on the project site are not, since those operations, funded by resident spending, would occur somewhere in the County with or without the project. Accordingly, indirect and induced jobs associated with operations are not calculated here.

Labor Force Impacts

The Keahuolu project will affect the regional labor force in part by creating jobs, but more importantly, by providing housing for service, retail, managerial, and professional workers. As more housing units are built, fewer workers will face unacceptable housing choices and/or difficult daily commutes. People living close to Kailua-Kona are likely to have more employment options, including full- and part-time employment. By shortening the commute time for workers and their families, the project is likely to increase labor force participation, with some joining the labor force and others changing from part-time to full-time

employment. For young people, the number of easily accessible jobs is far greater in Kailua-Kona than in outlying areas. Consequently, high-school student participation in the labor force will likely be higher. (In 2000, civilian workers amounted to 70 percent of persons 16 and over in North Kona, compared to 53 percent in Ka'u and 54 percent in North Kohala.)

With fewer obstacles to work, residents living near job centers are more likely to keep their jobs than ones with long commutes. A long-term result of increasing the housing stock for Kailua-Kona workers will likely be lower job turnover.

Population Impacts

Table 4-51 shows calculations for on-site population. When fully built, the Keahuolu project will house some 2,988 to 6,826 residents.

The project is unlikely to attract any new residents or visitors to Hawai'i. Affordable units will be sold or rented to full-time occupants. A resident preference will be established for the initial sale of market units. While some market units could theoretically be sold to non-residents, this seems unlikely given both strong resident demand and the design of the project as a community for residents, not a resort.

Table 4-50: Direct Operations Jobs and Wages: Annual Estimates for Selected Years

	2010	2015	2020
Operations Jobs			
Concept A			
Residential			
Building Services	4	12	12
Security	1	3	3
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	20	808
Concept B			
Residential			
Building Services	4	24	25
Security	1	6	6
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	34	823
Concept C			
Residential			
Building Services	6	36	47
Security	2	9	12
Grounds and maintenance	4	4	4
Commercial	-	-	788
	12	49	850
Operations Wages			
(In Millions of Constant 2007 $s)			
Concept A	$0.2	$0.5	$22.0
Concept B	$0.2	$0.9	$22.4
Concept C	$0.3	$1.2	$23.1

Notes: Building services and security jobs are associated with multifamily construction; grounds and maintenance jobs are associated with opening up and using the entire project site. Commercial jobs estimated at 4 jobs per 1,000 square feet gross leasable area.

Table 4-51: On-Site Occupancy and Population

	2010	2015	2020
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Units Occupied			
Concept A	291	989	989
Concept B	291	1,746	1,785
Concept C	291	1,746	2,260
Resident Population			
Concept A	879	2,988	2,988
Concept B	879	5,273	5,390
Concept C	879	5,273	6,826

Notes: Occupancy is estimated at 97%, to allow for normal vacancies due to sales or change in renters. Because of strong demand, occupancy is expected to be high from initial construction through the period studied. Population estimated from the 2000 Census data for Census Tract 215.01, which contains a broad mix of local residents. Its average household size (3.02 persons per household) was well above the district average (2.70 persons per household).

Impacts on the Housing Market

Demand for homes in North Kona is already strong and expected to exceed planned production, especially of housing for middle-income families. (See the discussion of housing demand in 2006, in Chapter 2.) Also, the district resident population is expected to increase by some 6,400 persons between 2010 and 2020. That increase accounts for approximately 2,370 households at the 2000 district average household size of 2.70 persons/household. Additional housing demand at the regional level will be due to movement of the island of Hawai'i residents to homes nearer the urban center and to purchases by non-residents, whether for vacation homes or retirement.

Initial plans for the Keahuolu project call for production of 300 housing units annually, with the first homes available in 2010.[3] Taken together with additional DHHL increments in La'i 'Opua, affordable units and some of the market housing produced in Palamanui, new housing in Waikoloa Village, and smaller projects, the cumulative impact of planned housing developments should be a significant reduction in demand. With much more housing available for residents, the price of moderate homes can be expected to stabilize. A wide range of prices and housing types (including apartments, condominiums, townhomes, homes, self-help housing, and properties in leased-land as well as fee-simple communities) will be available to West Hawai'i residents.

The project's impact on housing can be estimated in relation to demand indicators. The 2006 *Hawaii Housing Policy Study* suggests that there is demand from about 7,200 resident households for units in North Kona in the next few years. In addition, population growth will account for formation of at least 2,370 new households.

Some 1,020 to 2,330 units are proposed in the different concepts for the Keahuolu project. The net increase in units is smaller, since the project also includes operational jobs, and the workers in those jobs will need housing. Table 4-52 shows the net housing impact of the project. The net addition to the housing stock is estimated as 511 units under Concept A to 1,794 units under Concept C. Given a regional demand for approximately 9,570 units (7,200 units existing demand plus 2,370 new households), the net contribution of the project amounts to 5.3 to 18.7 percent of regional demand.

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[3] As noted in earlier chapters, the three conceptual alternatives represent the range of potential development that could be done in response to HHFDC's Request for Proposals. The actual volume and timing of construction will be refined by the developer over time.

Table 4-52: Net Housing Impact of Keahuolu Project

	2010	2015	2020
On-site Jobs			
Concept A	9	20	808
Concept B	9	34	823
Concept C	12	49	850
On-site Workers' Households (1)			
Concept A	5	12	509
Concept B	6	22	519
Concept C	7	31	536
Population supported by On-site jobs (2)			
Concept A	16	37	1,539
Concept B	17	65	1,568
Concept C	22	93	1,620
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Net Units (Units Built - On-site Workers' Households)			
Concept A	295	1,008	511
Concept B	294	1,778	1,321
Concept C	293	1,769	1,794

Notes:

1 Workers' households are assumed to include 1.585 workers per household, on average, based on averages for CT 215.01 in 2000.

2 Workforce households assumed to average 3.02 persons/household (based on 2000 average household size, CT 215.01).

Fiscal Impacts

Government Revenues

Development of the Keahuolu project will result in revenues for the State associated with construction and sale of property. The County will gain revenues from taxes on homes and residential land.

The State is expected to gain from corporate income taxes on firms building the project, from excise taxes on spending by construction-related workers in the local economy, and from income taxes on construction-related workers' wages. Because the project is being built to increase the supply of affordable housing, direct construction revenues will be exempted from the excise tax. State revenues associated with construction are derived in Table 4-53. Conveyance taxes might be levied on some market units, but these are not included in Table 4-53. The cumulative increase in State revenues is estimated as approximately $19 to $28 million by the end of the construction period.

The County will see increased revenues from real property taxes. As government land, the project site is not now yielding property taxes. When housing and commercial facilities are occupied, they will be taxable. However, some or all of the housing in the project would likely be assessed at below-market rates, and taxed at special rates for homeowners and affordable rentals. The treatment of low-income rentals at the homeowner rate is a new County practice, and the applicable laws could well be revised before any homes are built at Keahuolu. To derive a minimal estimate of new tax revenues, this analysis assumes that all housing within the project is sold and resold at affordable rates, and that all is taxed at homeowner and affordable rental rates.

For the County of Hawai'i, the minimal real property taxes associated with development of the Keahuolu project are estimated to range from $1.2 million to $1.7 million (2007 dollars) annually by 2020 and to reach a cumulative total of $9.4 million to $13.0 million through 2020. Table 4-54, Table 4-55, and Table 4-56 show calculations for the three project concepts.

Table 4-53: State of Hawai'i Tax Revenues Associated with Construction, Keahuolu Project

	2010	2015	2020	Cumulative
Total construction costs (Millions of 2007 $s)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Total construction-related wages (Millions of 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$239.0
Concept B	$65.8	$37.7	$3.8	$342.3
Concept C	$59.4	$32.0	$3.8	$355.4
Corporate income taxes (Thousands of $s) (1)				
Concept A	$112.6	$0.0	$6.5	$406.4
Concept B	$111.8	$64.1	$6.5	$581.8
Concept C	$100.9	$54.4	$6.5	$604.1
Excise Tax on workforce spending (Thousands of $s) (2)				
Concept A	$1,659.6	$0.0	$95.7	$5,988.0
Concept B	$1,647.3	$944.4	$95.7	$8,573.8
Concept C	$1,487.3	$802.1	$95.7	$8,902.5
Personal Income Tax (Thousands of $) (3)				
Concept A	$3,462.5	$0.0	$199.7	$12,493.2
Concept B	$3,436.9	$1,970.4	$199.7	$17,888.1
Concept C	$3,103.1	$1,673.4	$199.7	$18,574.0
Total State Revenues (Thousands of $s)				
Concept A	$5,234.7	$0.0	$302.0	$18,887.5
Concept B	$5,196.1	$2,978.9	$302.0	$27,043.8
Concept C	$4,691.4	$2,530.0	$302.0	$28,080.7

Sources: Hawaii State Department of Taxation, 2001, 2005.

Notes:

(1) Corporate income tax historically averages 0.17% of corporate revenues (data from 2000).

(2) Excise tax at 4% of workforce disposable income. Share of spending subject to excise tax estimated from 2002 expenditure data.

(3) Personal income tax historically 5.22% of resident incomes (average, 1998-2002).

Table 4-54: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept A

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	239	813	813	813
For Rent (1)	61	207	207	207
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$59.5	$202.4	$202.4	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.6	$32.5	$32.5	
Additional Housing Exemption (5)	$11.9	$40.5	$40.5	
Net Taxable Value, Housing	$48.0	$163.3	$163.3	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$266.6	$906.5	$906.5	$8,851.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$266.6	$906.5	$1,172.4	$9,387.4

Notes:

(1) One-third of multifamily units assumed to be rentals.

(2) Average housing unit assumed to be unit affordable for sale to family of four with income 110% of median, (priced at $217,900 in 2007).

(3) All rentals assumed to be "affordable," so units qualify for homeowner tax classification. Value of rentals extrapolated by assuming 5.7% cap rate, 95% occupancy, and that the average unit is a two-bedroom unit rented at the top of the affordable range for West Hawaii ($822). Cap rate based on NCREIF moving average.

(4) Basic exemption for homeowners = $40,000 of value.

(5) Since 2005, Hawaii County exempts 20% of the homeowners' property values, up to $400,000 in value.

(6) Commercial property value estimated from assumed construction costs.

(7) Homeowner class residential property is taxed at $5.55/$1,000 value.

(8) Commercial property is taxed at $9.00/$1,000 value.

Sources: Hawaii County property tax information, as posted at
http://www.hawaiipropertytax.com/pdffiles/HOME%20EXEMPTIONS%20Brochure.pdf
http://www.hawaiipropertytax.com/pdffiles/RP%20Form%2019-53(h)%20Affordable%20Rental%20Program%20Application.pdf
National Council of Real Estate Investment Fiduciaries data posted at http://www.ncreif.com/#

Table 4-55: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept B

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	233	1,396	1,427	1,427
For Rent (1)	67	404	413	413
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$57.9	$347.2	$355.0	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.3	$55.8	$57.1	
Additional Housing Exemption (5)	$11.6	$69.4	$71.0	
Net Taxable Value, Housing	$47.0	$255.9	$260.9	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$260.8	$1,420.5	$1,447.8	$12,449.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$260.8	$1,420.5	$1,713.8	$12,985.3

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Table 4-56: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept C

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	200	1,200	1,553	1,553
For Rent (1)	100	600	777	777
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$49.8	$298.6	$386.5	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$8.0	$48.0	$62.1	
Additional Housing Exemption (5)	$10.0	$59.7	$77.3	
Net Taxable Value, Housing	$41.8	$224.8	$281.0	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$232.0	$1,247.8	$1,559.7	$12,268.6
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$232.0	$1,247.8	$1,825.6	$12,804.5

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Government Costs

From a planning perspective, the Keahuolu project is a case of "smart growth." This concept is usually discussed in terms of alternative futures: sprawling urbanization vs. compact growth, especially infill growth in existing urban zones. Sprawl involves calculable costs to individuals (travel time and costs; less physical activity and higher incidence of obesity), to communities (lower involvement of adults as volunteers and community participants), and to municipal or regional authorities (higher costs of providing infrastructure over greater distances). For calculations, please see *Costs of Sprawl – 2000* published in the "Transit Cooperative Research Program Report 74," 2002.

In the context of Hawai'i County, it is clear that delivery of some services – notably police and fire control – can be accomplished more efficiently and at lower cost if homes are concentrated near police and fire stations. The impact on roadways is also obvious. With concentrated development, traffic congestion may continue to be a serious problem in Kailua-Kona, but it is likely to be less severe over the many road-miles that commuters from Ka'u, South Kona and North Kohala now travel to and from work. The analysis becomes

more complex with regard to wastewater facilities, which exist in urban, but not rural areas. The developer will be responsible for onsite and offsite costs of infrastructure that can be dedicated to the County. The County will thereby acquire assets. The County will also be responsible for operations and maintenance of those assets, but will be able to bill users for these costs. Again, an urbanized population may well make greater demands for recreation services than a dispersed one, but the developer will be responsible for adding parks within the project area.

Increases in certain government revenues are quantified in the EIS because these can be calculated in a straightforward manner. Costs and other revenues are not calculated because the assumptions needed to calculate them are far more complex and may depend on future agency funding decisions (e.g., the timing and extent of park improvements). Since the total costs associated with public facilities for smart growth are likely to be smaller than with dispersed development, it is appropriate to disclose this likely positive impact but not necessary to calculate it in detail.

The project will serve West Hawai'i residents and not a new population. It does not create a new demand for government services but rather relocates that demand to a site near the urban center. Consequently, the costs of government service delivery to Keahuolu project residents are likely to be less than they would be without the project.

Social Impacts

Impacts on West Hawai'i

The Keahuolu project will house a large number of working residents in Kailua-Kona, increasing demand for commercial and public services in the urban area.

The project contributes to a cumulative impact, the differentiation of urban and "country" areas in West Hawai'i. As young working families concentrate in or near Kailua-Kona, outlying areas will tend to have older populations and lower labor force participation. The urban area will be more densely settled, while other areas will be more "country" in

appearance and ambiance. Retirees and some workers willing to commute long distances will still be found throughout West Hawai'i – the impact is the intensification of an ongoing trend, not a qualitative change.

As a rule, the shorter the commute, the easier it is for adults to participate in the life of their home communities, whether as volunteers, as parents involved with their children's schools and teams, or simply as participants in everyday life. Community involvement is likely to increase. On the other hand, residents moving from areas in which they grew up and have family ties can find a new development to be less vibrant and lacking the networks, occasions, and places in which they enjoy community life. The Keahuolu project's design as a walkable community with parks and schools nearby that will help to encourage resident community participation. On balance, then, the project is likely to increase West Hawai'i residents' ability to contribute to community life.

Traffic congestion on Palani Road has long been a source of resident dissatisfaction in Kona. By concentrating residents near Palani Road, close to Kailua-Kona job sites, the project is likely to worsen congestion on that route during its early years. In time, with highway improvements and the construction of new roads, the project will help to limit congestion throughout the region because a smaller share of workers will be commuting long distances on a few through roads.

Impacts on the Project Site and Surrounding Area

The immediate area will change due to the cumulative impact of development in the project, in QLT lands, and in DHHL lands. That change has been anticipated and most of the sites in question are already designated as Urban or Urban Expansion. A new residential center will be created for Kailua-Kona. With the eventual development of new roadways, the project and adjoining sites will have internal circulation, so that trips between homes and schools, community facilities, or commercial areas will not rely on major through roads. The commercial and public facilities within the project will likely help to encourage residents of the project and adjoining areas to limit trips outside the immediate area, and tend to engender a sense of Kealakehe/Kealuolu as a distinctive community or neighborhood in Kailua-Kona.

The new neighborhood will be characterized by design elements intended to encourage walking, bicycling, and public transit use. As a neighborhood with much of the new construction in Kailua, it will likely be more desirable than older areas with homes at similar prices. As a community with a mix of rental and for-sale units, the Keahuolu project will not fit the negative stereotypes associated with low-income housing.

Attachment 7

On-Site Costs:

Table 4-48: Construction-Related Spending, Jobs, and Wages

	2010	2015	2020	Cumulative, to 2020
Total construction consts (Millions)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Direct construction workforce (annual person-years)				
Concept A	639	-	37	2,044
Concept B	634	364	37	3,030
Concept C	573	309	37	3,159
Total construction-related workforce (annual person-years)				
Concept A	1,527	-	88	4,885
Concept B	1,516	869	88	7,241
Concept C	1,369	738	88	7,549
Direct construction wages (Millions, constant 2007 $s)				
Concept A	$34.2	$0.0	$2.0	$109.5
Concept B	$34.0	$19.5	$2.0	$162.3
Concept C	$30.7	$16.5	$2.0	$169.2
Total construction-related wages (Millions, constant 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$211.9
Concept B	$65.8	$37.7	$3.8	$314.1
Concept C	$59.4	$32.0	$3.8	$327.5

Notes: Construction costs estimated by Belt Collins Hawaii. Cost estimates cover on-site and off-site infrastructure, residential and commercial construction. School construction costs are not included. Workforce full-time equivalent jobs are estimated based on the relation between statewide construction spending and the construction workforce. Indirect and induced construction-related workforce calculated from the State's Inter-County Input-Output Model (2002 version). Wages estimated from 2005 average annual industry wage for Hawai'i County and total covered employment (for indirect and induced jobs), using 2005 data adjusted to 2007 in line with increases in the Consumer Price Index.

Sources: DBEDT, State of Hawaii Data Book 2006 (Honolulu, HI: 2007); *The Hawaii Inter-County Input-Output Study: 2002 Benchmark Report.* Honolulu, HI:. 2007. Posted at http://www.hawaii.gov/dbedt/info/economic/data_reports/2002_Intercounty_I-O/. Department of Labor and Industrial Relations, Employment and Payrolls in Hawaii, 2005. Honolulu, HI:. 2006.

LINDA LINGLE
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

PHONE (808) 733-4300
FAX (808) 733-4287

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

March 31, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Draft Environmental Impact Statement
Keahuolu Affordable Housing Project, North Kona, Island of Hawaii

Thank you for the opportunity to comment on this development. After careful review of the documents for this development, we request that the developer install one outdoor warning siren close to Makala Boulevard near the eastern end of the commercial district complex. We also recommend that the minimum-size siren be 121 DBC, solar powered with omni-directional sound properties. Please refer to the mark on the attached Figure 2-11 CONCEPT PLAN A map for the approximate location of the siren. (Note: The circles are approximate coverage areas only.)

If you have any questions, please call Mr. Norman Ogasawara, Assistant Telecommunications Officer, at (808) 733-4300, ext. 531.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

Enc.

c: HCDA
State Civil Defense Radio Shop

BeltCollins

September 25, 2008
2006.70.0900 / 08P-321

Mr. Edward T. Teixeira
Vice Director of Civil Defense
Department of Defense
State of Hawaii
3949 Diamond Head Road
Honolulu, HI 96816-4495

Dear Mr. Teixeira:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of March 31, 2008 for the above-referenced document.

The project developer will install one outdoor warning siren (minimum size 121 DBC solar powered with omni-directional sound properties) at a central location within the development.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

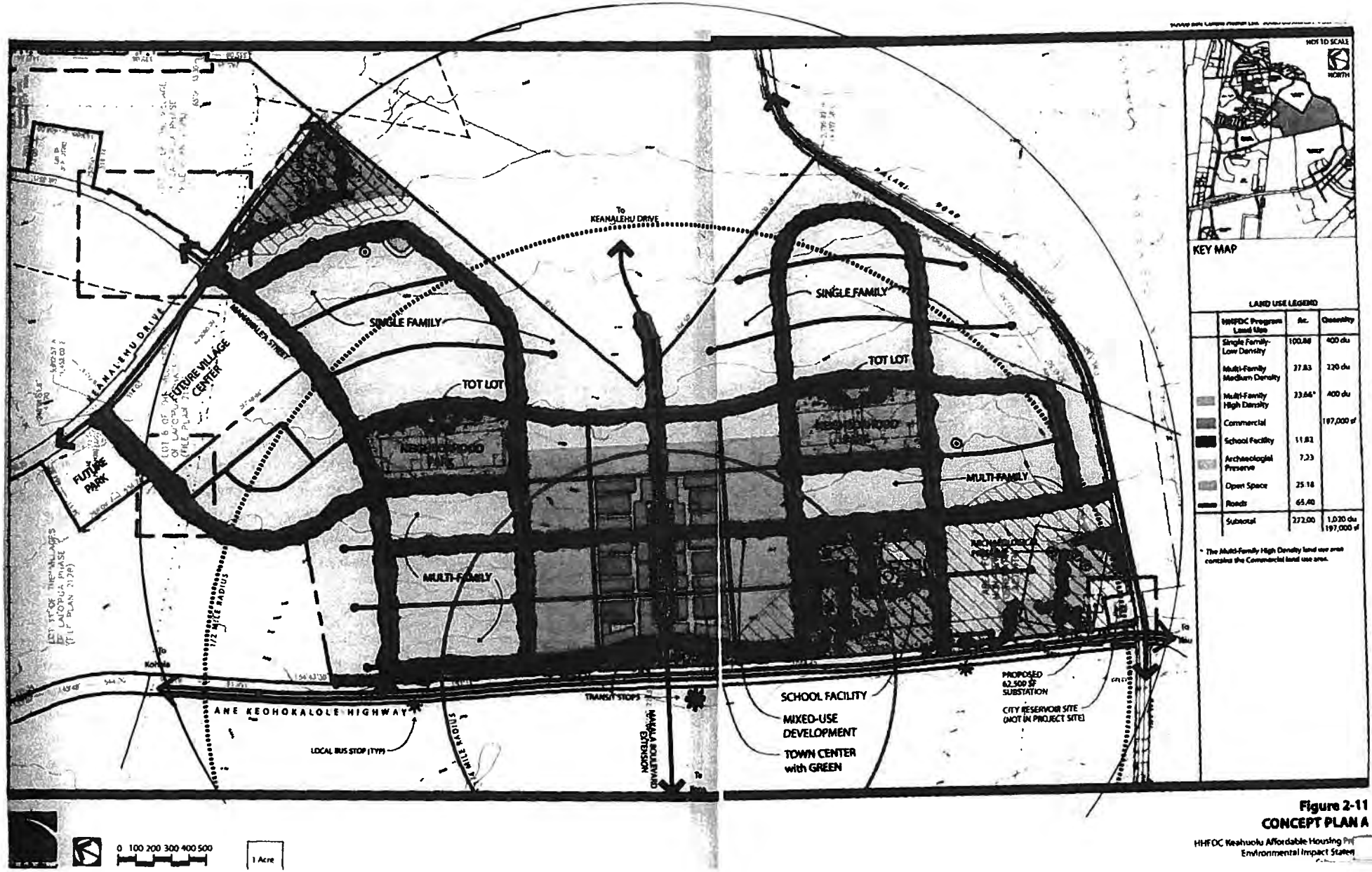


Figure 2-11
CONCEPT PLAN A

HHFDC Keahuolu Affordable Housing Pro
Environmental Impact Statem

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES
[redacted]

April 1, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai`i 96819

Dear Ms. O'Leary:

SUBJECT: Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii, TMK: (3) 7-4-021:020

The Department of Education (DOE) has reviewed the Draft Environmental Impact Statement (DEIS) for the Keahuolu Affordable Housing Project.

As previously noted in our response letter for the EISPN, dated August 10, 2007, the 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. Under this new law, we believe that the project will be required to pay an impact fee. We will be able to calculate the amount of fee per residential unit after we know which of the concepts is selected so that we have more definitive numbers of single-family and multi-family units, general price range, size and number of bedrooms.

Our comments on the DEIS are as follows:

Section 2.5.3, School Facility Site, page 2-30: Your narrative in this section is incorrect. Act 245 does not have provisions allowing educational facility requirements to be satisfied by providing for charter schools, day care centers or early learning centers. Please also advise the HHFDC that the RFP that you refer to should be corrected to reflect that Act 245 does not provide for such flexibility.

It is required, therefore, that a site for the elementary school, as mentioned in the DEIS, be conveyed to the State of Hawaii for use by the DOE. The DOE will request that this site be at

least 12 usable acres in size. The planned location of school sites and options for meeting other fair-share requirements will be discussed at future meetings between the DOE and the developers.

Section 4.10.2.1, Education, Existing Conditions, page 4-163: Please update enrollment numbers. Current numbers are as follows:

Actual and Projected Enrollments at Department of Education Schools

	Actual Enrollment Done Fall 2007	Projected Enrollment - Done Spring 2006-2007				
	School Year 07-08	2008	2009	2010	2011	2012
Kealakehe El.	984	1106	1229	1285	1339	1371
Kealakehe Inter.	909	911	922	911	893	910
Kealakehe High	1638	1601	1596	1584	1586	1555

Should you have any questions, please call George Casen of the Facilities Development Branch at 377-8308.

Sincerely yours,

Duane Y. Kashiwai
Public Works Administrator
Facilities Development Branch

DYK:jmb

cc: Patricia Hamamoto, Superintendent
Randolph Moore, Assistant Superintendent, OSFSS
Arthur Souza, CAS, Honokaa/Kealakehe/Kohala/Konawaena Complex Areas
Janice Takahashi, Chief Planner, Office of the Governor
Katherine P. Kealoha, Director, OEQC

BeltCollins

September 25, 2008
2006.70.0900 / 08P-336

Mr. Duane Kashiwai
Public Works Administrator
Facilities Development Branch
State Department of Education
P.O. Box 2360
Honolulu, HI 96804

Dear Mr. Kashiwai:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 1, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. We acknowledge your comment that under Act 245, the Keahuolu project will likely be required to pay an impact fee.

2. Section 2.5.3, School Facility Site, page 2-30: The Final EIS will be corrected to reflect that Act 245 does not have provision allowing education facility requirements to be satisfied by providing for charter schools, day care center or early learning centers as shown in **Attachment 1** of this letter. A copy of your letter has been given to the Hawaii Housing Finance and Development Corporation.

3. We acknowledge your comment that the Department of Education will request that a school site be at least twelve (12) usable acres in size, and that the DOE will discuss in the future with the selected developer the location of school sites and options for meeting other fair-share requirements.

4. Section 4.10.2.1, Education, Existing Condition, page 4-163: The Final EIS will include the updated enrollment numbers as provided by your office. The Final EIS will be edited as shown in **Attachment 2** of this letter.

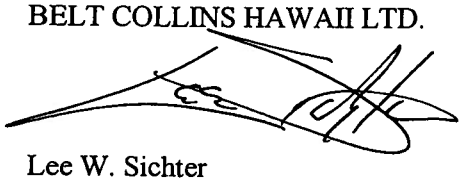
Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

LWS:lf

Attachments

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS "Section 2.5.3 School Facility Site" will be revised as follows:

2.5.3 School Facility Site

An approximately 12-acre school site is designated along Ane Keohokalole Highway. There is a deed reservation for a school facility site to be conveyed in fee for set-aside to the Department of Education (DOE).

Attachment 2

In the Final EIS "Section 4.10.2.1 regarding "Education – Existing Conditions" will be revised as follows:

4.10.2.1 Education - Existing Conditions

The Keahuolu project site is within the Kealakehe school catchment area. It is served by:

- Kealakehe Elementary School. Located on Kealaka'a Street, this school serves nearly 990 students from kindergarten through grade five. It has 60 full-time equivalent teaching positions, including regular education, special education, and supplemental instructors.

- Kealakehe Intermediate School. Also located on Kealaka'a Street, this school has approximately 900 students in grades six through eight, and a teaching staff of 58 positions.

- Kealakehe High School. Opened in 1997 in the Villages of La'i 'Opua, this school serves students from Hualalai to Waikoloa Village. In the 2007-2008 school year, 1,638 students were enrolled. A total of 76.5 teaching positions are allocated to the school.

The following enrollment information is provided by the DOE:

Table 4-57: Actual and Projected Enrollments at Department of Education Schools

	Actual Enrollment Done Fall 2007	Projected Enrollment – Done Spring 2006-2007				
	School Year 07-8	2008	2009	2010	2011	2012
Kealakehe Elementary	984	1106	1229	1285	1339	1371
Kealakehe Intermediate	909	911	922	911	893	910
Kealakehe High School	1638	1601	1596	1584	1586	1555

Private schools in North Kona include:

- Hualalai Academy, with 160 students in grades K through 12, located on Kealaka'a Street;
- The Kona campus of the Hawai'i Montessori School (serving grades K through six); and
- Makua Lani Christian School in Holualoa, and the Kona Christian Academy.

In addition, Hawai'i Preparatory School, located in Waimea, South Kohala, is a K-12 school with approximately 585 students. It regularly enrolls students from North Kona, as well as ones from South Kohala and boarders. The Kea'au campus of the Kamehameha Schools enrolls more than 1,100 Native Hawaiian students from the County. Some students commute from West Hawai'i, catching buses from Ka'u or Waimea.

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2008 APR -7 PM 2:35
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 3, 2008

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Attention: Ms. Mary O'Leary

Gentlemen:

Subject: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project, North Kona, Hawaii, Tax Map Key: (3) 7-4-21:20, portion 21

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, Land Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 3, 2008

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
~~Div. of Boating & Ocean~~ Recreation
x Engineering Division
x ~~Div. of Forestry &~~ Wildlife
Div. of State Parks
x Commission on Water Resource Management
Office of Conservation & Coastal Lands
x Land Division – Hawaii District/Gary Martin

FROM: Morris M. Atta
SUBJECT: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project
LOCATION: North Kona, Hawaii, TMK: (3) 7-4-21:20, por 21
APPLICANT: Belt Collins on behalf of Hawaii Housing Finance & Development Corporation

'08 MAR 03 AM 11:29 ENGINEERING

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 1, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:
Date: 3/13/08

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/MorrisAtta
REF.: DEISKeahuoluAffordHousing
Hawaii.373

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The National Flood Insurance Program does not have any regulations for developments within Zone X.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.

( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

(X) **The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.**

( ) Additional Comments:_____

_____

( ) Other:_____

_____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: _____
for ERIC T. HIRANO, CHIEF ENGINEER

Date: 3/17/08

BeltCollins

September 25, 2008
2006.70.0900 / 08P-322

Mr. Eric T. Hirano, Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Hirano:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of March 17, 2008 for the above-referenced document.

1. We acknowledge your comments that the project site is located in Zone X according to the Flood Insurance Rate Map and that the National Flood Insurance Program does not have any regulations for development within Zone X. The Final EIS will be revised as shown in **Attachment 1** of this letter.

2. The Hawaii Housing Finance and Development Corporation will require the project developer to provide the water demands and calculations to the Engineering Division for inclusion into the State Water Projects Plan Update.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachment

cc: Morris Atta, Land Division Administrator
Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

Attachment 1

In the Final EIS, Section 3.3.1.2 Surface Water and Drainage will be revised as follows:

3.3.1.2 Surface Water and Drainage

There are no perennial streams, existing drainage facilities, or defined natural drainage ways on the project property or the reservoir site. The high permeability of the existing soils is evident by the absence of any natural storm water channels or gullies in the project area. No floodways have been identified in the project area. The project site is located in Flood Zone X according to the Flood Insurance Rate Map (FIRM). The National Flood Insurance Program does not have any regulations for developments within Zone X. In general, because of the high permeability of the soil types on the project lands, drainage of surface waters is relatively rapid.

LINDA LINGLE
GOVERNOR

CHAD K. TANIGUCHI
EXECUTIVE DIRECTOR

RECEIVED
2008 APR -8 PM 2:21
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
HAWAII PUBLIC HOUSING AUTHORITY
1002 NORTH SCHOOL STREET
P.O. BOX 17907
Honolulu, Hawaii 96817

IN REPLY REFER TO:
08:CMS/055

April 3, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Subject: Draft Environmental Impact Statement
Keahuolu Affordable Housing Project
North Kona, Island of Hawai'i

Thank you for your letter dated February 20, 2008 regarding the proposed Keahuolu Affordable Housing Project.

We have no comments on the Draft Environmental Impact Statement for the above project.

Should you have any questions, please call Mr. Derek H. Fujikami, State Housing Development Administrator, at 832-6020.

Sincerely,

Chad K. Taniguchi
Executive Director

c: Office of the Governor
c/o Hawaii Housing Finance & Development Corporation
Attn: Ms. Janice Takahashi, Chief Planner
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

BeltCollins

September 25, 2008
2006.70.0900 / 08P-325

Mr. Chad K. Taniguchi, Executive Director
Hawaii Public Housing Authority
Department of Human Services
State of Hawaii
1002 North School Street
Honolulu, HI 96817

Dear Mr. Taniguchi:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to your letter of April 3, 2008 for the above-referenced document.

We acknowledge that your office has no comments on the Draft Environmental Impact Statement.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Honolulu
Bangkok
Boulder
Guam
Hong Kong
Manila
Seattle
Shenzhen
Singapore

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-08-033

April 3, 2008

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

SUBJECT: Draft Environmental Impact Statement (DEIS) for Keahuolu Affordable Housing Project
Kailua-Kona, North Kona, Island of Hawaii, Hawaii
TMK: (3) 7-4-021: 020; 272.63 acres

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch, Waste Water Branch and General comments.

Clean Water Branch

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

   b. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.

   c. Hydrotesting water.

   d. Construction dewatering effluent.

   e. Treated effluent from well drilling activities.

   You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html.

3. For types of wastewater not listed in Item 3 above or wastewater discharging into Class 1 or Class AA waters, you may need an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html.

4. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at http://www.hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 586-4309.

Waste Water Branch

The document proposes to develop and finance low and moderate income housing projects and administer homeownership programs. The Hawaii Housing Finance & Development Corporation (HHFDC) is proposing the development of the Keahuolu Affordable Housing project to serve the people employed in West Hawaii. The project is intended to be a mixed-use community with affordable and market-priced housing as well as commercial space and public facilities.

The EIS proposes connection of the subject development's wastewater generation to the Kealakehe Wastewater Treatment Plant (WWTP). The Department will not object to the tie-in to the Kealakehe sewer system but the following Department of Health's concerns should be addressed:

1) The County continues to utilize the temporarily approved infiltration basin as the facility's principal disposal method. Recycled water projects have been slow to materialize. The EIS should address the long term water reuse and disposal of effluent;

2) Although the Kealakehe WWTP appears to have enough capacity to handle concept A of the development plan, the plant had effluent violations based on the 2008 operation and maintenance inspection of the Department;

3) An assessment of the adequacy of the WWTP to handle the additional loadings should be performed based on the current conditions of the plant; and

4) The County had submitted planning documents to the Department that Kealakehe WWTP will be upgraded to R1- facility. The County should update the Department of the status of this proposal.

All wastewater plans must meet Department's Rules, HAR Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. If you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

General

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB
WWB

BelteCollins

September 25, 2008
2006.70.0900 / 08P-326

Mr. Kelvin Sunada, Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Sunada:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 3, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

Clean Water Branch

1. The project developer will comply with the antidegradation policy (HAR, Section 11-54-1.1), the designated uses (HAR, Section 11-54-3) and the water quality criteria (HAR, Sections 11-54-4 through 11-54-8), as applicable.

2. The project developer will obtain a National Pollutant Discharge Elimination System (NPDES) Permit and will comply with the applicable NPDES requirements. The project developer will submit separate Notice of Intent (NOI) forms if required.

3. The project developer will comply with NPDES individual permit requirements, as applicable.

4. The project developer will submit the NOI or NPDES permit application to the State Department of Land and Natural Resources - State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the Clean Water Branch that SHPD has or is in the process of evaluating the project.

5. The project developer will comply with the State's Water Quality Standards for all discharges related to the project construction or operation activities.

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Waste Water Branch

1. In response to this EIS, the County Department of Environmental Management has indicated the County's intention to upgrade the Kealakehe Wastewater Treatment Plant (WWTP) in FY 10-11 to produce R-1 water. The County Department of Environmental Management has also indicated that the County intends to phase in reuse water infrastructure, implementing infrastructure improvements near the WWTP. The planned first phase of the reuse water will be along Queen Kaahumanu Highway.

2. It is our understanding that the County has started assessing the WWTP's capacity and what improvements are to be made to upgrade the facility. It is our understanding that the County will develop a Master Plan for the WWTP for incremental upgrades to the facility.

3. The project developer will develop all wastewater plans in conformance to the applicable Department of Health Rules, HAR Chapter 11-62, "Wastewater Systems."

4. We acknowledge your comment that your office wishes to have Hawaii County update the State Department of Health on the status of the County's proposal to upgrade the Kealakehe WWTP to an R1-facility.

General

We acknowledge your recommendation that the developer review all of the Standard Comments on your website and that any comments specifically applicable to the proposed project should be adhered to.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Bobby Jean Leithead-Todd, Director, Hawaii County Dept. of Environmental Management
Bruce McClure, Director, Hawaii County Department of Public Works
Office of Environmental Quality Control
Stanley Fujimoto, Project Manager, HHFDC

LINDA LINGLE
GOVERNOR

BRENNON T. MORIOKA
INTERIM DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.2825

April 4, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Subject: Keahuolu Affordable Housing Project
Draft Environmental Impact Statement (Draft EIS)
Hawaii Housing Finance & Development Corporation
(HHFDC)

The Department of Transportation (DOT) submits the following comments on the proposed subject project as presented in the Draft EIS:

1. The project will contribute to its share of the existing traffic on the surrounding State highways.

2. While the project directly accesses existing and planned local county streets, the merger of these local streets onto the State highways requires that the project provide traffic mitigation measures and highway/intersection transportation improvements, as determined by the DOT Highways Division. In particular, the actual (versus estimated) implementation schedule of the proposed streets will influence the impacts to the State highways. Coordination and timing of the necessary transportation improvements with the DOT is important.

   The project's January 2008 traffic study assumed that 20% of the projected 2020 traffic on Queen Kaahumanu Highway would be diverted by the proposed County extension of Kuakini Highway from Makala Boulevard to Kealakehe Parkway and the proposed extension of Ana Keohokalole Highway from Palani Road to Hina Lani Street. A supplemental evaluation of the progress made on implementing these road extensions and a discussion of the resultant impacts if these road extensions are not completed by 2020 should be included in the project's Final EIS.

3. The project calls for prospective developers to select from the various development alternatives presented in the Draft EIS and formulate a development plan for HHFDC's acceptance. Following HHFDC's selection of a developer and final development plan, the DOT requests that a thorough analysis of the transportation impacts associated with the selected plan be presented to the DOT for review and approval.

4. The analysis should include, at a minimum: a) a traffic impact analysis report (TIAR) of the project's local and regional impacts and the requisite mitigation measures, and b) submission of a detailed development plan in accordance with the TIAR, showing the street network; types and location of uses; unit types, quantities and occupancy count; parking; number of increments or phases and construction schedules, including infrastructure; community and public facilities, and other related information to accurately reflect the growth of the project through full build out.

   Any drainage from the project that could potentially impact State highway facilities should also be covered in the analysis and presented to the DOT.

   The DOT reserves the right to require additional information and revisions to the development plan, as regards impacts to State transportation facilities.

5. The DOT requests that it be kept apprised the selection of the developer/development plan. The updates will permit the DOT to communicate questions or concerns, as needed.

We appreciate the opportunity to provide comments.

Very truly yours,

BRENNON T. MORIOKA, Ph.D, P.E.
Director of Transportation

BelteCollins

September 25, 2008
2006.70.0900 / 08P-330

Mr. Brennon Morioka, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Morioka:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 4, 2008, letter number STP 8.2825, for the above-referenced document. Our responses are provided in the order of your comments.

1. We acknowledge your comment that the proposed project will contribute to the overall projected increase in traffic on State highways in the surrounding area. The actual implementation schedule of the proposed future streets in the area surrounding the project site will influence future travel patterns.

2. We acknowledge your comment that the project will be required to provide traffic mitigation measures and highway/intersection transportation improvements, as determined by the State Department of Transportation (DOT). It is agreed that coordination between the project developer and the State DOT on the timing of future street improvements will be important.

   Input on the future street network to be assessed in the Draft Environmental Impact Statement (EIS) traffic analysis was sought from both State and County staff upon initiation of the traffic impact analysis report. During the agency coordination that was conducted early in the study process, County staff indicated that the presence of these planned future streets should be assumed. While State DOT staff did not respond directly to a detailed memorandum outlining the proposed scope and assumptions for the TIAR, they were informed through subsequent e-mail correspondence regarding the assumptions being made for the purposes of the Draft EIS traffic analysis.

   The comment requests that supplemental analysis be conducted to assess future traffic impacts in the event that Kuakini Highway is not extended northward to Kealakehe Parkway and in the event that Ane Keohokalole Highway is not extended from Palani Road to Hina Lani Street. If the construction of these planned future streets were delayed beyond the 2020 horizon year, it would be expected that other streets in the area would carry more traffic than is projected in the Draft EIS, potentially resulting in level of service operation below LOS D at some locations. Given the time required to secure the necessary

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development approvals, it would appear to be most prudent for the project developer to update the TIAR at the time development is eminent. This will ensure DOT that the updated TIAR is based on upon the most current regional development scenario.

3. A thorough analysis of the transportation impacts associated with the proposed project site has been completed and is included in Section 4.4 of the Draft EIS, beginning on page 4-32 and in the Traffic Impact Analysis Report (TIAR) in Appendix F. The Draft EIS assesses a reasonable range of conceptual development alternatives for the proposed Keahuolu Affordable Housing project that differed primarily in the number of new housing units to be constructed. As stated on page 4-82 of the Draft EIS, "The number of traffic impacts would be the same under Concepts A, B and C; however, the magnitude of those impacts would be greatest with Concept C."

4. At this time, detailed construction plans for the project, including phases of development, are not available. As more detailed planning for development of the project site occurs, the project developer will submit those plans to State and County agencies, as required, for review and approval.

   In compliance with the County's Storm Drainage Standard, the project will not be allowed to increase runoff flow rates and volumes from the project site.

   We acknowledge your comment that the DOT reserves the right to require additional information and revisions to the development plan, as it regards impacts to State transportation facilities.

5. On April 11, 2008, the Board of Directors of the Hawaii Housing Finance and Development Corporation approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Harry Kim
Mayor

Bobby Jean Leithead Todd
Director

Nelson Ho
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

April 7, 2008

Ms. Mary O'Leary, AICP
Senior Planner
Belt Collins Hawai'i, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

Re: Draft Environmental Impact Statement
Keahuolu Affordable Housing Project
Keahuolu, North Kona
TMK: (3) 7-4-021:020 – housing site
(3) 7-4-21:por.21 – reservoir site

Dear Ms. O'Leary,

We have reviewed the subject document and offer the following comments:

Technical Services Section
See attached memo.

Wastewater Division
All commercial developments shall comply with Sewer Ordinance 21-7 and 21-9. Grease Interceptor designed in accordance with City and County of Honolulu standards, shall be required for all restaurants.

Thank you for offering us the opportunity to review and comment on this project.

Sincerely,

Bobby Jean Leithead Todd
DIRECTOR

cc: TSS
WWD
OEQC
Office of the Governor, c/o Hawai'i Housing Finance & Development Corp.

105004

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
TECHNICAL SERVICES SECTION

COUNTY OF HAWAII - 108 RAILROAD AVENUE - HILO, HI 96720
HILO (808) 961-8083 FAX (808) 961-8086

Memorandum

Date April 4, 2008 **Memo** Keahuolu 040208

To: Bobby-Jean Leithead Todd, Director

From: Dora Beck, P.E., Technical Services Chief

Subject: Draft Environmental Impact Statement
Keahuolu Affordable Housing Project, Kailua-Kona, Hawai`i

The Technical Services Section (TSS) has reviewed the Draft Environmental Impact Statement (DEIS) for the Keahuolu Affordable Housing Project in Kailua-Kona, Hawai`i and provides the following comments for department consideration and/or action:

Section 4.8.4.2

- The Design Average Flows for the project are stated as follows:
  i. Concept A – 430,598 gpd
  ii. Concept B – 665,436 gpd
  iii. Concept C – 720 856 gpd

- The latter two exceeds the sewer treatment capacity of 431,360 gpd allotted to HHFDC. Under Section 2.5.7.2, the developer state that they will be responsible for securing adequate sewage treatment capacity at the Kealakehe Wastewater Treatments Plant and for the payment of any facilities charges for connections or capacities required for the project.

- In support of this, HHFDC states they will quitclaim any rights they may have to sewage treatment capacities related to their agreement with the County dated March 19, 1992 up to a maximum of 431,360 gallons per day.

- Correction to projected KWWTP upgrade costs: Aeration Upgrade is $6,450,000 (versus $1,500,000).

- Correction to the statement that the County has no plans to upgrade the WWTP to produce R-1 water. The County is very interested in establishing an effluent reuse program in North Kona. The Department of Environmental Management has projected upgrade of the facility to produce R-1 Water to occur in FY 10-11. Moreover, DEM is requesting the following:
  i. A reservoir site for storage off R-1 water in the vicinity of the proposed potable water reservoir as shown in Figure 4-16.
  ii. Installation of reuse water infrastructure for the project site. Increasing flows to the treatment plant will require other means for effluent disposal such as irrigation within private developments.

- Correction: R-3 water is discharged at the seepage pit in accordance with DOH requirements in lieu of R-2 water.

Should there be any comments or questions on the above, please contact me at 808-961-8028 (dbeck@co.hawaii.hi.us).

cc: Lyle Hirota, TSS

BeltCollins

September 25, 2008
2006.70.0900 / 08P-329

Ms. Bobby Jean Leithead-Todd, Director
Department of Environmental Management
County of Hawaii
25 Aupuni Street
Hilo, HI 96720

Dear Ms. Leithead-Todd:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 7, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

Technical Services Section Memo

1. We acknowledge your comments. The Hawaii Housing Finance and Development Corporation (HHFDC) will provide your letter to the project developer regarding the sewer treatment capacity at the Kealakehe Wastewater Treatment Plant (WWTP).

   The Final EIS and civil report will contain the correct aeration upgrade cost which is $6,450,000 (not $1,500,000) as shown in **Attachment 1** of this letter.

   The Final EIS and civil report will reflect the Department's statements regarding future plans to upgrade the WWTP to produce R-1 Water and correct statements regarding R-3 water discharged at the seepage pit as shown in **Attachment 1** of this letter.

2. Since the Department of Environmental Management is still in the conceptual planning stages for the reuse water system, this information will be provided by the HHFDC to the project developer to plan for future implementation of the reuse water system infrastructure.

Wastewater Division

1. The project developer will comply with Sewer Ordinance 21-7 and 21-9, and that any and all restaurants within the Keahuolu Affordable Housing Project site shall be required to have a grease interceptor(s) which shall be designed in accordance with the City and County of Honolulu's standards.

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Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachment

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS Section 4.8.4.2 Proposed Wastewater System Design will be revised as follows:

4.8.4.2 Proposed Wastewater System Design

The proposed sewer system would be developed in accordance with the Hawai'i County Department of Environmental Management criteria. For details of the sewer system criteria, see Appendix G. Design and construction of the proposed off-site and on-site sewer systems would meet County Standards for dedication to the County Department of Environmental Management. The projected sewer flows, presented in Table 4-30, are summarized in Appendix G.

Table 4-30: Sewer Requirements

Development Plan	Design Average Flow (gpd)	Design Peak Flow (gpd)
Concept A	430,598	1,915,899
Concept B	665,436	2,568,875
Concept C	720,856	2,710,213

The project has reserved 431,360 gpd capacity at the Kealakehe WWTP. Additional capacity at the WWTP would be required to accommodate Concepts B and C, which are projected to exceed the reserved capacity. The Department of Environmental Management would have to expand the WWTP and is currently undertaking a master plan to review options to upgrade the WWTP. Two improvement projects to the WWTP are planned: (1) sludge removal $4,600,000 (County of Hawai'i FY 07-08 budget), and (2) aeration upgrade $6,450,000 (County of Hawai'i FY 07-08 budget). The two improvement projects will allow the WWTP to continue to operate at the present capacity and allow for future capacity upgrades.

R-3 Water (undisinfected secondary recycled water) from the Kealakehe WWTP is discharged to a pond in the lava fields makai of Queen Ka'ahumanu Highway in the DHHL/Villages of La'i 'Opua. R-3 Water is not suitable for irrigation use for the project. The County would have to further treat the effluent to R-1 Water (significant reduction in viral and bacterial pathogens) before the effluent would be suitable for irrigation use on the project site. The County has plans to upgrade the WWTP to produce R-1 Water in FY 10-11. In addition, a pump system, and storage and transmission lines for the recycled effluent system would be required, but there are no detailed plans by the County for a system to the project area.

Potential Off-Site Wastewater System Alignments

Sewer lines from the project site to the WWTP would be routed either through QLT lands or through DHHL/Villages of La'i 'Opua lands. Figure 4-18 and Figure 4-19 show the QLT route for the off-site sewer system for development Concept A and Concepts B and C, respectively. Figure 4-20 and Figure 4-21 show the La'i 'Opua route for the off-site sewer system for Concept A and Concepts B and C, respectively. Sewer lines would be sized to accommodate sewer flows from the project site, lands immediately mauka of the project, and the makai lands adjacent to the sewer line alignment. The sewer line alignment and sizes are subject to change based on the final development concept.

Based on the design flows, a new 30-inch sewer line would be required for either route to convey sewer flows from the project site, across Queen Ka'ahumanu Highway, to the WWTP. A sewer line through the QLT route can convey wastewater flows from the entire project site to the WWTP. A sewer line through the Villages of La'i 'Opua route can convey the majority of the flows from the site. A low-elevation portion, approximately 40 acres of the project parcel near Palani Road, could be developed with activities not requiring sewer service, such as parking lots, open spaces, preserve areas, and playfields and parks with restroom facilities located outside the low area. If sewer service is required for the low area, either a pump station would be required or a sewer line would have to be constructed through QLT land to convey flows from the low area. Figure 4-18 and Figure 4-19 show the proposed sewer line to service this low area through the QLT lands.

The order-of-magnitude costs in Table 4-31 for sewer system construction assume that the low area would be developed with sewage-generating facilities. For details on the sewer system costs, see Appendix G. These cost estimates are based on the best available information on DHHL and QLT plans for future development of their properties. QLT is in preliminary planning, and actual routing and sewer flows may change.

Table 4-31: Off-Site Wastewater System Costs

Off-Site Water System	Concept A	Concept B	Concept C
Through QLT Lands	$6,381,000	$6,663,000	$6,663,000
Through DHHL / Villages of La'i 'Opua			
Through La'i 'Opua	$5,983,000	$5,983,000	$5,983,000
Through QLT Lands	$4,297,000	$4,543,000	$4,543,000
Subtotal	$10,280,000	10,526,000	10,526,000

Proposed On-Site Wastewater System

The on-site sewer system would consist of sewer lines within the roadway network. The system would connect to sewer line routed through either the DHHL/Villages of La'i 'Opua lands or the QLT lands. The sewer system would have a minimum pipe size of 8 inches in diameter and a maximum pipe size of 21 inches in diameter for the DHHL/Villages of La'i 'Opua route or 15 inches in diameter for the QLT route. The sewer lines would be sized to convey the design peak flow from the upstream tributary areas.

Harry Kim
Mayor

Christopher J. Yuen
Director
Brad Kurokawa, ASLA
LEED® AP
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-4224
(808) 961-8288 • FAX (808) 961-8742

April 8, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd
2153 North King Street, Suite 200
Honolulu HI 96819

Dear Ms. O'Leary:

Draft Environmental Impact Statement
Request for Comments
Keahuolu Affordble Housing Project
Tax Map Key: 7-4-21:20 (Housing Site)
Tax Map Key: 7-4-21: Portion of 21 (Reservoir Site)

This is to acknowledge receipt of your letter dated February 20, 2008, requesting our comments on the proposed Keahuolu Affordable Housing Project in North Kona.

We affirm the State and County land use designations and that the project site is outside of the Special Management Area.

We have the following comments:

A. Chapter 1.14 Summary of Unresolved Issues and Chapter 6.5 Unresolved Issues:

1. Final Development Scheme: Of the three alternatives, we strongly prefer the 1,840 residential dwelling units which includes 600 single-family areas. We hope that the State can continue to offer affordable single-family living for local families.
2. Kona Community Development Plan: This plan is in the final stages of preparing the draft.
3. Concurrency Ordinance: Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and water supply in change of zone actions. Rezoning would not take effect unless improvements to the traffic situation occur

before the occupancy of the project. There would also be standard expectations for water supply for new rezonings.

4. County Council Deferred Action on Change of Zone Applications: Resolution No. 529 08 was adopted on March 12, 2008. It extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, which ever occurs first.

B. There is a very large General Commercial (CG-10) area along the Queen Kaahumanu Highway and another area along Palani Road as well as a General Commercial (CG-20) area along Henry Street. This proposed commercial area should be developed to meet the needs of the immediate residential community; therefore we question the size of the proposed commercial area.

C. The trip generation estimates shown in Tables 4-10 through 4-12 do not correspond to the trips at intersections #5 and #7 (main project entrances) shown in Figures 4-7 through 4-9. For example, Table 4-12 assigns 973 trips into the project area during the P.M. peak hour; however, only 876 trips are assigned into the project area at intersections #5 and #7 in Figure 4-9. What intersection will the 97 remaining trips be assigned to? Please explain this discrepancy or correct the traffic volumes in these tables and figures.

Thank you for the opportunity to comment on the proposed project. Should you have questions, please contact Esther Imamura of my staff at 961-8288, ext. 257.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

ETI:pk
P:\wpwin60\ETI\EIS RESPONSES\Keahuolu Affordable Housing.doc

xc: Office of the Governor
c/o Hawaii Housing Finance & Development Corporation
Attn: Ms. Janice Takahashi, Chief Planner
677 Queen Street, Suite 300
Honolulu HI 96813

Office of Environmental Quality Control
235 South Beretania Street, Suite702
Honolulu HI 96813

Planning Department, Kona

BelfCollins

September 25, 2008
2006.70.0900 / 08P-324

Mr. Chris Yuen, Director
Planning Department
County of Hawaii
101 Pauahi Street, Suite 3
Hilo, HI 93720-4224

Dear Mr. Yuen:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 8, 2008 for the above-referenced document. Our responses are in the order of your comments.

A. Chapter 1.14 Summary of Unresolved Issues and Chapter 6.5 Unresolved Issues

1. Final Development Scheme: We acknowledge that your office, of the three alternatives, strongly prefers the alternative that has 1,840 residential dwelling units which includes 600 single-family dwelling units. HHFDC will forward your comments to the project developer.

2. Kona Community Development Plan: We acknowledge your comment that a draft of the Kona Community Development Plan is in the final stages of being prepared. The Final EIS will contain a discussion of the project's relationship to the Kona Community Development Plan as shown in **Attachment 1** of this letter.

3. Concurrency Ordinance: We acknowledge your comment that rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project. We acknowledge your comment that there would also be standard expectations for water supply for new rezonings. The Final EIS will contain the information provided by your office as shown in **Attachment 1** of this letter.

4. County Council Deferred Action on Change of Zone Applications: We acknowledge your comment that on March 12, 2008 Resolution No. 529 08 was adopted, which extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, which ever occurs first. The Final EIS will contain the information provided by your office as shown in **Attachment 1** of this letter.

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B. Commercial Area along Queen Kaahumanu

The Hawaii Housing Finance and Development Corporation will recommend to the project developer that the Keahuolu Affordable Housing project's proposed commercial area be developed to meet the needs of the immediate residential community.

C. Traffic Impact Analysis Report

The project trip distribution pattern used in the environmental impact statement's (EIS) traffic analysis is presented in Figure 4-6 of the Draft EIS. The project trip distribution pattern assumes that approximately forty percent (40%) of project traffic will travel to and from the northwest and southwest, and that approximately twenty percent (20%) will travel to and from the northeast.

Your comment correctly notes that the PM peak hour project-generated trips assigned to study intersections #5 and #7 under the Concept C scenario total 876 inbound trips, while a total of 973 inbound trips are estimated under this scenario.

As shown in Figure 4-9 of the Draft EIS, an additional 49 inbound trips were assumed to reach the project site through study intersection #8. The remaining 48 inbound project-related trips were assumed to travel to the project site via the future Holoholo Street. A similar assignment was made for the other two scenarios that were analyzed. Thus, the traffic impact analysis in the Draft EIS assigned all of the project-generated trips to the surrounding street network.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachment

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS, Section 1.14 Summary of Unresolved Issues and Section 7.5 Unresolved Issues will be revised as follows:

1.14 SUMMARY OF UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared. See Chapter Six for a discussion of these unresolved issues.

Final Development Scheme and Schedule: The HHFDC is reviewing proposals from qualified developers to develop the Keahuolu Affordable Housing Project. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing: the total number of housing units; the mix of affordable units and market units; the mix of single-family and multi-family; the mix of low density, medium density, and high density; the total square footage of commercial floor area; and the alignment/route of off-site wastewater lines that will service the project. The Board of Directors of HHFDC approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement. However, until the development agreement is signed, there is the possibility that an agreement may not be reached between HHFDC and Forest City, and thus the search for a developer would continue until one is selected and a development agreement is signed. Until that time, the details of the proposed project and the developer's schedule for the project are not available. That information will become available prior to subsequent permitting processes, which will provide the opportunity for public and agency input and comment, as well as the opportunity to request additional information.

Concurrency Ordinance: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and

water supply in change of zone actions. According to the County of Hawai'i Planning Department, rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project, and that there would also be standard expectations for water supply for new rezonings.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the concurrency standards would or would not apply.

County Council Deferred Action on Change of Zone Applications: Since publication of the February 2008 Draft EIS for the Keahuolu Project, the County of Hawai'i Planning Department clarified that Resolution No. 529 08 was adopted on March 12, 2008. According to the County, it extended the temporary delay of Council action on rezoning applications until the North and South Kona Community Development Plan is adopted by ordinance, or December 1, 2008, whichever occurs first.

It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. According to the estimated permit schedule in Table 1-4 of this EIS, it is anticipated that a zone change application for the Keahuolu project would at the earliest be submitted to the County on January 1, 2009, which is after the December 1, 2008 deadline for the temporary delay of Council action on rezoning applications. It is unknown whether the County's deadline will be extended and if the Council will continue to defer action on change of zone applications. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the Council's deferral on change of zone applications would or would not apply, if it is still in effect.

7.5 UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared.

Final Development Scheme and Schedule: The HHFDC is reviewing proposals from qualified developers to develop the Keahuolu Affordable Housing Project. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing: the total number of housing units; the mix of affordable units and market units; the mix of single-family and multi-family; the mix of low density, medium density, and high density; the total square footage of commercial floor area; the alignment/route of off-site wastewater lines that will service the project. The Board of Directors of HHFDC approved Forest City Hawaii Residential, Inc., as the developer of the project, subject to successful negotiation and execution of a development agreement. However until the development agreement is signed, there is the possibility that an agreement may not be reached between HHFDC and Forest City, and thus the search for a developer would continue until one is selected and a development agreement is signed. Until that time, the details of the proposed project and the developer's schedule for the project are not available. That information will become available prior to subsequent permitting processes, which will provide the opportunity for public and agency input and comment, as well as the opportunity to request additional information.

Concurrency Ordinance: Since publication of the February 2008 Draft EIS for the Keahuolu project, the County of Hawai'i Planning Department clarified that Ordinance No. 07 99 became effective on June 25, 2007. It created concurrency standards for roads and water supply in change of zone actions. According to the County of Hawai'i Planning Department, rezoning would not take effect unless improvements to the traffic situation occur before the occupancy of the project, and that there would also be standard expectations for water supply for new rezonings.

It is the intention of the HHFDC that the project developer submit the project to the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. If the expedited approval process is used by the Keahuolu project

developer, it is unresolved as to what extent the concurrency standards would or would not apply.

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It is the intention of the HHFDC that the project developer submit the project with the State LUC and the County of Hawai'i under the expedited approval process provided for under Section 201H-38, HRS. According to the estimated permit schedule in Table 1-4 of this EIS, it is anticipated that a zone change application for the Keahuolu project would at the earliest be submitted to the County on January 1, 2009, which is after the December 1, 2008 deadline for the temporary delay of Council action on rezoning applications. It is unknown whether the County's deadline will be extended and if the Council will continue to defer action on change of zone applications. If the expedited approval process is used by the Keahuolu project developer, it is unresolved as to what extent the Council's deferral on change of zone applications would or would not apply, if it is still in effect.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2008-TA-0126

APR 08 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Subject: Draft Environmental Impact Statement for Keahuolu Affordable Housing Project, North Kona, Island of Hawaii [TMK: (3) 7-4-008: por. 056]

Dear Ms. O'Leary:

The U. S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Impact Statement (DEIS) for the Keahuolu Affordable Housing Project located north of Kailua-Kona, on the island of Hawaii. This project will be located on 272 acres of land that is currently vacant and undeveloped. The project consists of a master planned community of 1,020 to 2,330 single-family and multi-family residences, commercial/retail space, a site reserved for a school, neighborhood parks, archeological preserve and open space. Based on the project information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, and the Hawaii GAP Program, we recommend you address potential project impacts to the below listed species and native ecosystems and include measures to minimize adverse impacts in your Final Environmental Impact Statement (FEIS). The following recommendations are provided to assist you in the development of your FEIS:

- Hawaiian hoary bats roost and give birth in both exotic and native woody vegetation and leave their young behind in "nursery" trees when they forage. If vegetation is cleared during the bat breeding season (April to August) there is a risk that young bats could inadvertently be harmed or killed. We recommend surveys for this species to determine if they are present. If bats are on the property, then we will help you to develop avoidance and minimization measures so that your project will be in compliance with the Endangered Species Act of 1973, as amended. One simple avoidance measure is to conduct all grading and clearing of vegetation outside of the bat breeding season to avoid impacts to this endangered species.

- The threatened Newell's shearwater (*Puffinus auricularis newelli*) and endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*) (collectively referred to as seabirds) are known to traverse the project site. Potential impacts to seabirds could be

minimized by shielding outdoor lights so the bulb can only be seen from below. Shielding should include lights associated with all buildings, streets and parking lots.

- We were unable to determine from the information you provided whether or not caves or lava tubes are present in the area. The DEIS makes no mention of cave invertebrates. We recommend conducting presence/absence surveys for cave invertebrates (Kaumana cave cricket (*Caconemobius varius*), volcanoes cave cricket (*Thaumatogryllus cavicola*), Doc Bellou cave oliarus planthopper (*Oliarus* spp.), Pahoa cave oliarus planthopper (*Oliarus* spp.), if suitable habitat is present. The Hawaii Speleological Survey may be a good source for this information. Additional detailed surveys may be warranted if rare or federally protected species are found. Survey results for these species should be included in the FEIS.

- This development will lead to an increase in impervious surfaces and thus an increase in stormwater runoff and potentially a decrease in water quality. The DEIS states in section 4.8.2.2 "Storm water runoff from the site would be collected through swales, ditches, gutters, inlets, and catch basins, and transported though pipes to dry wells, seepages wells, or infiltration areas for disposal....It is recommended that BMPs be included in the design of the drainage system, such as vegetated swales, and storm drain filtration devices to capture sediments and prevent pollutants from entering the groundwater". While vegetated swales will likely prevent most nutrients, pesticides and sediments from entering the groundwater, to the best of our knowledge there are no storm drain filtration devices that will capture nutrients and pesticides. In areas with well developed soils, seepage wells or infiltration areas have been shown to prevent nutrients and pesticides from entering the groundwater. However, with the unique geology of North Kona (lava rock and no soil), there is little guarantee seepage wells or infiltration areas will function as they do in areas with better developed soils. We recommend you include the potential impacts of urban run-off and subsequent changes in groundwater quality on aquatic ecosystems in the FEIS.

- The Service is concerned that the long-term demand for water from the Keauhou aquifer system would exceed the aquifer's sustainable yield and increase the salinity of wetlands, fishponds, anchialine pools, and coastal waters in the Kaloko-Honokahau National Park. The shrimp species *Metabetaeus lohena* (candidate) and *Palaemonella burnsi* (candidate) a damselfly *Megalagrion xanthomelas* (candidate) and the Hawaiian stilt (*Himantopus mexicanus knudseni*) and the Hawaiian coot (*Fulica alai*), both endangered species, depend on these aquatic ecosystems and may potentially be adversely impacted by increases in salinity. The Service has designated Kaloko-Honokahau National Park as core wetland for the recovery of Hawaiian waterbirds. Page 4-108 of the DEIS, in the potential long-term impacts to groundwater section, states "In the long-term, water demands in the Keauhou aquifer would exceed the sustainable yield of the aquifer, and alternate water resource enhancement measures would be required to meet the water demands." The DEIS also discusses alternate water resource enhancement measures. However, the mitigation measures are for the high level aquifer, not to protect water flowing to the coast. For example, rainwater catchment systems would decrease the

available water for recharge, and thus would not serve as an enhancement measure. Another alternate water resource enhancement measure identified in the DEIS is desalination from brackish wells between Queen Ka`ahumanu Highway and Mamalohoa Highway. Pumping from the basal lens may put the groundwater-dependent ecosystems at risk. The Service recommends that you analyze the impacts of pumping from brackish wells, as well as high level wells on groundwater-dependent aquatic ecosystems. The FEIS should consider the impacts of water withdrawal in the context of other withdrawals from the aquifer, both existing and planned. Potentially, the cumulative impact to the aquifer may be quite significant. We recommend this issue be studied with a three-dimensional, variable density numerical ground water model.

- Hawaii's native ecosystems are being decimated by exotic invasive plants. Whenever possible we recommend using native plants for landscaping purposes. If native plants do not meet your landscaping objectives, we recommend that you choose species that are thought to have a low risk of becoming invasive. The following websites would be good resources to use when choosing landscaping plants: Pacific Island Ecosystems at Risk (http://www.hear.org/Pier/), Hawaii-Pacific Weed Risk Assessment (http://www.botany.hawaii.edu/faculty/daehler/wra/full_table.asp) and Global Compendium of Weeds (www.hear.org/gcw).

We hope this information assists you in drafting the Environmental Assessment. If you have questions regarding this letter, please contact Dr. Jeff Zimpfer, Fish and Wildlife Biologist, Consultation and Technical Assistance Program (phone: 808-792-9431; fax: 808-792-9581).

Sincerely,

Patrick Leonard
Field Supervisor

BeltCollins

September 25, 2008
2006.70.0900 / 08P-328

Mr. Patrick Leonard, Field Supervisor
Pacific Islands Fish and Wildlife Office
Fish and Wildlife Services
U.S. Department of the Interior
Box 50088
Honolulu, HI 96850

Dear Mr. Leonard:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 8, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. Hawaiian Hoary Bats: The Final EIS, as shown in **Attachment 1** of this letter, will contain the results of an avifaunal and feral mammal survey conducted by Phil Bruner in May 2008.

2. Newell's Shearwater and Hawaiian Petrel: All developments within the island of Hawaii are subject to the County of Hawaii Ordinance No. 88 122 which requires that exterior building light fixtures and parking lot light fixtures be fully shielded if using any light source other than low-pressure sodium lamps.

   To further mitigate any impact, the Hawaii Housing Finance and Development Corporation (HHFDC) will recommend to the project developer that the developer establish covenants requiring that all exterior light fixtures, regardless of light sources, be fully shielded.

   For County dedicable roadways, the fixtures approved by the County of Hawaii Department of Public Works for street light use are also fully shielded as defined above.

   For non- dedicable roadway, the HHFDC will recommend to the project developer that the developer establish covenants requiring that all roadway, area and street light fixtures be fully shielded. It should be noted that privately owned roadway, area and street light fixtures are further constrained by the County's Ordinance 88 122.

Honolulu
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Hong Kong
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Shenzhen
Singapore

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3. Caves / Lava Tubes: The Final EIS, as shown in **Attachment 2** of this letter, will contain the results of a cave biological survey conducted by SWCA Environmental Consultants in August 2008.

4. Storm Water Runoff: The HHFDC will require that the project developer provide educational materials and programs to residents regarding how they can control and prevent non-point source pollution including but not limited to, vehicle maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, the potential impacts of fertilizers and pesticides on the environment, and alternatives to fertilizers and pesticides.

   The HHFDC will require that the project developer establish community association covenants to include landscape management controls, including the use of fertilizers and pesticides, and vehicle maintenance controls, including vehicle washing and maintenance. A discussion on the urban runoff and mitigation measures will be included in the Final EIS.

   Keauhou Aquifer: The existing and planned developments and alternate water resource enhancement measures to the aquifer will have an impact on the aquifer. The HHFDC is participating with two groundwater working groups - the National Park Service group and the Department of Water Supply group – which meet to address the potential impacts of development on the area's water resources. We acknowledge your recommendation concerning the use of a three-dimensional, variable density numerical ground water model to study cumulative impacts on the aquifer. As the issue of impacts on the aquifer is a regional issue, the aforementioned Working Groups represent an appropriate forum for initiating this level of analysis. However, it is our understanding that the recommended model has two significant drawbacks: 1) it is extremely costly; on the order of a million dollars; and 2) because there is so little known about the physical characteristics and function of the high-level aquifer, the viability of the recommended model will be limited by the quality of input data. We understand that an alternate methodology is being pursued by two North Kona area landowners involving the installation of monitoring wells to improve the collective understanding of the aquifer. This seems to be a more practical and potentially productive approach. .

5. Landscaping: The HHFDC will recommend to the project developer that native plants be used for landscaping purposes or choose species that are thought to have a low risk of becoming invasive.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachments

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS Section 3.7 will be revised to include the 2008 avifaunal and feral mammal survey results show as follows:

3.7.1 Existing Conditions

Phillip Bruner conducted a field survey in May 2008 of the proposed Keahuolu Affordable Housing Project and Reservoir site [TMK (3) 7-4-021: 020 and TMK (3) 7-4-021: Por. 021]. The goals of this field survey were:

1. Documentation of the species of birds and mammals currently on the property.

2. Examination of the site for the purpose of identifying the natural resources available to wildlife in this region.

3. Devoting special attention to documenting the presence and possible use of this property by native and migratory species particularly those that are listed as threatened or endangered.

The property examined is presently covered in dense, second growth forest composed of primarily alien species of trees, brush, and grass. The surrounding land contains residential, commercial, schools, and other similar undeveloped property.

The field survey was conducted over two consecutive days (May 27-28, 2008). The observations were made in the early morning and late in the day when the birds are most active. The property was covered on foot and all birds seen or heard were documented.

Native Land Birds:

No native land birds were observed during this field survey. The only species that might be seen, on occasion, in this area is the endangered Hawaiian Hawk (*Buteo solitarius*) and the Hawaiian Short-eared Owl (*Asio flammeus sanwichensis*). The Hawaiian Short-eared Owl

is not listed as endangered or threatened on the island of Hawaii. Aside from the Hawaiian Hawk, no other native land birds would be expected to occur on this property.

Native Waterbirds:

No native waterbirds were recorded and would not be expected on this site. No wetland habitat was found on this survey.

Seabirds:

No nesting seabirds were seen during the field survey and would not be expected to nest in this area due to the human disturbance and predators.

Migratory Birds:

No migratory shorebirds were observed. No habitat suitable for shorebirds currently occurs on this site.

Alien (Introduced) Birds:

Nineteen alien species were observed during the course of this survey. None of the birds are listed as threatened or endangered.

Mammals:

The skeletal remains of a feral pig (*Sus scrofa*) and two live adult pigs were observed on May 27, 2008. No rats (*Rattus spp.*), mice (*Mus musculus*), or cats (*Felis catus*) were seen but likely occur on and around the property. No endangered Hawaiian Hoary Bats (*Lasiurus cinereus semotus*) were detected by the ultrasound device during a night search on the property on May 27, 2008.

3.7.2 Potential Impacts and Mitigation Measures

Potential impacts to the various species were evaluated. All habitats on the property were thoroughly surveyed. The birds and mammals found were those to be expected in this region. The endangered Hawaiian Hawk and the non-endangered Hawaiian Short-eared Owl occur in man-altered as well as native habitats throughout the island of Hawaii. A change in the land use at this site will produce small, local increases and decreases in the populations of alien birds. Ultimately, there are no avifaunal or feral mammal impediments to carrying out the proposed project.

Attachment 2

In the Final EIS Section 3.8 will be revised to include the 2008 cave biological survey results as follows:

3.8 INVERTEBRATE SURVEY

SWCA Environmental Consultants conducted a biological survey of lava tube caves on the project site. The survey report is included in Appendix H. The study's objectives included: (1) conducting a biological survey of caves within the project area; (2) specifically identifying biologically significant caves; (3) compiling a list of faunal species found in the caves, particularly invertebrates; and (4) providing management recommendations for the more biologically significant caves.

3.8.1 Existing Conditions

SWCA entered onto the project site and conducted a series of cave surveys from June 18-20, 2008. Surface reconnaissance surveys were first conducted to locate and document known cave entrances and any previously unidentified features on the site. Once reconnaissance surveys were completed, a list of cave sites proposed for more detailed inventory survey was developed. The focus of these inventory surveys was to develop a general understanding of the troglobitic[1] cave fauna within the Keahuolu project site.

The SWCA study team found eight cave openings at Keahuolu, of which three caves appeared to have a suitable habitat for troglobitic arthropods. SWCA found a total of 14 distinct species of arthropods within four caves. Of these 14 species, SWCA collected and examined 13 species. Current State and Federal regulations provide no special (or specific) protection for any of these species.

Only two possible native cave species are represented in SWCA's findings: the Rhagidiid mite, which belongs to a group with two known blind cave species and an eyed species known from fumaroles near Kilauea, and the cave moth (*Schrankia* species). The remaining

[1] Troglobitic animals live entirely in the dark parts of caves and are adapted for life in total darkness.

eleven species are classified as alien invaders. The full list of species is located in Table 2 of Appendix H and summarized below.

Acari (Mites): Only one species of mite was identified. The Rhagidiidae is described as a pale predatory mite with conspicuous eyespots.

Araneae (Spiders): Six species of spiders were identified by SWCA during the survey.

Collembola (Springtails): One species of Springtails was discovered (Entomobryidae: Genus species [unidentified]).

Insecta (Insects): Five species of insects were identified.

3.8.2 Potential Impacts and Mitigation Measures

The lava tubes and caves in the Keahuolu project site contain a variety of invertebrates. SWCA concluded that these biological resources do not present a regulatory obstacle to development. None of the identified species is listed as threatened or endangered.

Potential impacts to these species were evaluated. Ultimately, the disposition of the surveyed caves will depend upon whether they contain significant archaeological or cultural material. Mitigation measures are recommended for those caves and/or lava tubes identified for preservation by the SHPD. A determination as to the preservation of caves and/or lava tubes containing no archaeological or cultural resources will be made by the developer pursuant to the final development plan. In all likelihood, caves and/or lava tubes containing no significant archaeological or cultural resources will be destroyed during site grading and preparation, as the invertebrates inventoried in them do not warrant preservation. Furthermore, the caves pose a liability to the landowner if someone should enter one and become injured. In some instances, a cave or lava tube containing no archaeological or cultural resources may be preserved by the developer because the area surrounding it may not require mass grading. In those cases, the entrance will likely be blocked or hidden to prevent intentional or unintentional trespassing.

SWCA made the following recommendations to minimize impacts on caves, particularly those known to contain cultural resources:

- Minimize adding topsoil or impermeable material to the surface directly above known caves and preserves.
- Control invasive plant species within the preserves. For landscaping, utilize native plants and avoid aggressive, fire-prone, non-native grasses.
- Exercise care to minimize surface disturbance during construction within the general vicinity of known caves.
- Prevent wildfires and develop a rapid response plan to fires within the proposed project area.
- If unsurveyed caves are encountered during construction and the caves are accessible, allow a biological survey if appropriate.

FAX TRANSMITTAL SHEET

ENVIRONMENTAL CENTER
University of Hawaii
2500 Dole Street, Krauss Annex 19, Honolulu, HI 96822
Telephone: (808) 956-7361 Fax: (808) 956-3980

DATE: 4/8/2008

FROM: Peter Rappa
Environmental Review Coordinator

TO: Stan Fujimoto, HHFDC (587- 0600)

Mary O'Leary, Belt Collins (538-7819)

Janice Takahashi, HHFDC (587-0600)

OEQC (586-4186)

SUBJECT: **REVIEW OF DRAFT EIS**
KEAHUOLU AFFORDABLE HOUSING PROJECT
NORTH KONA, HAWAII

No. of Pages: including cover sheet: _____

Water Resources Research Center
Environmental Center

UNIVERSITY of HAWAI'I MĀNOA

April 8, 2008
RE:778

Mr. Stan Fujimoto
Hawai'i Housing Finance & Development Corporation
677 Queen Street, Suite 300
Honolulu, HI 96813

Dear Mr. Fujimoto:

Draft Environmental Impact Statement
Keahuolu Affordable Housing Project
Keahuolu, North Kona, Hawaii

The HHFDC proposes construction of the Keahuolu Affordable Housing Project, a project that aims to provide affordable housing for individuals working in West Hawaii, thereby reducing commute time for many of the area's workers. The Keahuolu Housing Project is envisioned as a mixed-use community with both affordable and market-priced housing in addition to public facilities and commercial space. The 272-acre project site is located in Hawaii's North Kona district in the ahupua'a of Keahuolu. It is bounded to the north by DHHL's Villages of La'i Opua, to the south by Palani Road, to the west by QLT lands, and to the east by DHHL-proposed housing land. The HHFDC has developed a master plan with three alternative land use concepts for the site. Concept A, B, and C offer single and multi-family housing units in varying densities, with total housing units varying from 1,020 to 2,330. All three concept plans share common elements: the inclusion of 197,000 square feet of commercial space, a civic open space at the town center, and lands reserved for a school, parks, open space, and an archaeological preserve.

This review was conducted with the assistance of Ryan Riddle, Environmental Center.

General Comments

There can be little doubt of the need for affordable housing in Hawaii. An article in the June 10, 2007 *Honolulu Advertiser* by Andrew Gomes said it best "Finding an affordable home to buy or rent tops the challenges facing many people. The simple solution is to build more low-cost homes, but making that happen is far from simple." This draft environmental impact statement (DEIS) enumerates many of the reasons why it is so difficult. In its coverage of the Keahuolu Affordable Housing Project the DEIS is encyclopedic and very informative. In its coverage of the cumulative effects of this and the many other projects that are proposed for this

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area and cited in this document, the DEIS is not as comprehensive. The DEIS should explore what the effects of all the current and proposed development projects will be on the region. We believe that there will be significant impacts on the area's transportation and water resources when all of the projects cited in the DEIS are built. Better analysis of cumulative impacts would give decisionmakers important information they need in approving this project.

In addition to our general comment we have a number of specific issues discussed below.

Overview of Site Conditions, Opportunities, and Constraints (p. 2-5)

On page 2-5, the DEIS states, "The upper or eastern half of the site is steeper; some of the slopes are greater than 15 percent, but the larger portion has slopes less than 15 percent. This organizes the site to be used more intensively in the lower sections with larger footprint uses or higher density residential uses being placed on the flatter areas. The upper sections should be used for smaller footprint residential structures that can accommodate grade changes more easily." This statement appears to indicate a preference for smaller footprint residential structures on the upper sections of the site. We note in Concept C, however, that the upper section of the project site is planned for multi-family medium density residential housing. Since there are no single-family houses called for in Concept C can we assume that there is no way to develop low density housing on the sloped lands?

Concept Plans (pp. 2-21 – 2-22)

In the list of *Common Elements of the Three Alternative Concept Plans* you could have added that all housing will strive for energy efficiency and a low environmental footprint.

Figures 2-11, 2-12, 2-13 (pp. 2-23, 2-25, 2-26)

In Figures 2-11, 2-12, and 2-13, an oval-shaped structure is depicted in the northeast portion of the petition area. We are unsure whether this is an existing structure, or a proposed structure. It would be helpful to have this structure labeled in future conceptual diagrams.

Terrestrial Fauna (p. 3-32)

The avifauna and feral mammal survey referred to in section 3.7 was conducted in 1989, almost two decades ago. We suggest that since the flora survey was updated, the faunal survey should have been updated as well.

Table 4-1 (p. 4-11)

The acronym for further data collection **FCD** is different in the key at the bottom of the table then it is in the column under recommendations **FDC**.

Present Study Scope and Methodology (p. 4-27)

The last sentence on page 4-27 reads, "The study presented in this report s believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area." We believe that you meant "The study area presented in this report *is* believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area."

Roadway Systems (pp. 4-93 – 4-95)

We notice from Figure 4-13 that the Keahuolu Affordable Housing Project adjoins land that the DHHL plans to develop in the future. Looking at the internal road network illustrated in Figures 2-7 to 2-9 on pages 2-15 to 2-17, it seems that there are several streets ending in cul-de-sacs that might connect to the future DHHL development. Has there been any attempt to coordinate the planning of this project with the DHHL so that streets can hook-up, creating an even more fine-grained internal network of streets?

Table 4-26: Water Requirements (p. 4-99)

Table 4-26 estimates the projected average daily water demand under Concepts A, B, and C. The average daily demand under Concept B is 1,158,680, while under Concept C the average daily demand is 1,114,680. Why is there a higher projected demand under Concept B which has fewer dwelling units planned in comparison to Concept C?

Proposed Wastewater System Design (p. 4-110)

There is no plan at present by the County to upgrade its sewage treatment to the R1 level. This upgrade is necessary to allow for the effluent to be reused for irrigation. Since the area may have a need for potable water in excess of the sustainable yield of the aquifer at some time in the future, doesn't it make sense to develop a secondary water distribution system in the new development in the event that the County does upgrade to R1 levels in the future?

The last sentence in this section needs revising.

Solid Waste (pp. 4-117 – 4-120)

The charts on pages 4-119 and 4-120 show the amount of solid waste that will be diverted from the landfill through minimization and recycling. What type of waste minimization and recycling programs can be implemented, will they be voluntary or mandatory, and what happens if the programs fail to divert waste from the waste stream?

Government Costs (p. 4-158)

We find discussion of cost to government of this project lacking in substance. There is no data presented or any attempt to quantify the cost to government of this development. When compared to the amount of data and analysis presented on the benefits of the project, this section is woefully lacking.

Thank you for the opportunity to review this Draft EIS.

Sincerely,

Peter Rappa
Environmental Review Coordinator

cc: OEQC
Janice Takahashi, Hawaii Housing Finance and Development Corporation
Mary O'Leary, Belt Collins
James Moncur, Water Resources Research Center
Ryan Riddle

BeltCollins

September 25, 2008
2006.70.0900 / 08P-327

Mr. Peter Rappa
Environmental Review Coordinator
Environmental Center
University of Hawaii
2500 Dole Street, Krauss Annex 19
Honolulu, HI 96822

Dear Mr. Rappa:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 8, 2008 for the above-referenced document.

General Comments – Potential Impacts on Transportation and Water Resources

The traffic impact analysis report (TIAR) prepared as part of the DEIS was prepared in coordination with staff at both the County and State levels. Projections of future traffic in the study area were based on past traffic growth trends as well as information on other planned development projects in the area. To these cumulative base traffic projections were also added the estimated project traffic under each of the analyzed development scenarios, forming the total estimated future traffic volumes. Thus, the analysis of future traffic conditions was able to assess both project-specific traffic impacts as well as cumulative traffic impacts.

The belief stated in the comment that there would be significant traffic impacts in the future is, in fact, confirmed by the analysis in the Draft EIS, which projected that five analyzed intersections and three analyzed street segments would decline to unacceptable levels of service under future year 2020 traffic conditions. These findings are documented on pages 4-67 to 4-68 and 4-75 to 4-81 of the Draft EIS. Mitigation measures were developed to assess both types of impacts and to achieve the desired level of service at all analyzed locations.

HHFDC is participating in two groundwater working groups, the National Park Service and the County Department of Water Supply, which are meeting to discuss and assess the potential impacts of various developments on the area's water resources and possible mitigation measures. The two working groups were formed earlier this year. Neither group has issued official findings or conclusions at the time of this writing.

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Overview of Site Conditions, Opportunities and Constraints (p. 2-5)

There are no single-family housing units in Concept C because it illustrates a 'maximum number of dwelling units' alterative that utilizes only multi-family housing. Low-density housing can be developed on the sloped lands. The amount of grading required and the potential need for retaining walls to take up grade changes would depend on the footprint size of the structure, whether it is low-density or high-density.

Concept Plans (pp. 2-21 – 2-22)

We acknowledge your comment regarding the Common Elements of the Three Alternative Plans. The Draft EIS states in "Section 2.5.7.1 Energy and Design Considerations" that, to the extent possible, the project must incorporate a number of design features to conserve energy and water usage, in addition to design and construct buildings to meet and receive certification for U.S. Green Building Councils' Leadership in Energy and Environmental Design (LEED) standards.

Figures 2-11, 2-12, 2-13 (pp. 2-23, 2-25, 2-260)

The oval-shaped structure on Figures 2-11, 2-12, and 2-13 is an archeological site. The Final EIS will contain revised Conceptual Plan A, B and C figures as shown in **Attachment 1** of this letter.

Terrestrial Fauna (p. 3-32)

The Final EIS, as shown in **Attachment 2** of this letter, will contain the results of an avifaunal and feral mammal survey conducted by Phil Bruner in May 2008.

Table 4-1 (p. 4-11)

The Final EIS will contain a revised "Table 4-1 Summary of General Significance Assessments and Recommended General Treatments – project Site as shown in **Attachment 3** of this letter.

Present Study Scope and Methodology (p. 4-27)

The Final EIS will correct the last sentence that appeared on page 4-27 of the Draft EIS to read, "The study presented in this report **is** believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area." as shown in **Attachment 4** of this letter.

Roadway Systems (pp. 4-93 – 4-95)

Planning for the Keahuolu project has been coordinated with the Department of Hawaiian Home Lands (DHHL) and Queen Liliuokalani Trust (QLT). Roadway connections shown in the EIS were based on plans from DHHL and QLT for the adjacent parcels.

Table 4-26: Water Requirements (p. 4-99)

The higher projected water demand under Concept B is due to the larger water use for single-family units. Water use for a single family unit is 800 gallons per day, while a multi-family unit consumes 400 gallons per day, per Department of Water Supply criteria. Concept B includes 800 single-family units, while Concept C does not include any single-family units. For detailed calculations, please see the Appendix G – Civil Infrastructure and Appendix B – Water in the Draft EIS.

Proposed Wastewater System Design (p. 4-110)

We received a comment letter from the County of Hawaii Department of Environmental Management on the Draft EIS. The Department clarified that they are "very interested in establishing an effluent reuse program in North Kona." However, upgrade of the Kealakehe Wastewater Treatment Plant is not projected until FY10-11. In discussions with the Department of Environmental Management, the reuse water system is currently a concept and there is no infrastructure design criteria established at present. The Final EIS will be revised as shown in **Attachment 5** based on this new information and will contain the Department's comment letter.

Your comments and letter will be given to the project developer regarding the development of a secondary water distribution system. The developer could design the roadway infrastructure to allow for the future installation of a reuse water system.

In the Final EIS, the last sentence of "Section 4.8.4.2 Proposed Wastewater System Design" will be revised as shown in **Attachment 5**.

Solid Waste (pp. 4-117 – 4-120)

Recycling programs and sites are already established in the County of Hawaii to divert waste from the waste stream. Groups such as Recycle Hawaii provide information on recycling tips and sites to recycle various materials. The project developer (and/or the private contractor(s) that are used to haul waste from the site) can also implement educational waste minimization and recycling programs. If the programs fail to divert waste from the waste stream, the lifespan of the West Hawaii Landfill will be reduced to less than the projected 40 years. However, the County is looking into waste reduction facilities for the island, such as a waste-to-energy incinerator, thermal gasification plant or anaerobic digestion plant.

Government Costs (p. 4-158)

The Final EIS will be revised to include the following text in Section 4.9.4.2 Economic Impacts – Government Costs as shown in **Attachment 6** of this letter.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachments

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

The Final EIS will contain revised Conceptual Plan A, B and C figures as follows.

Table 2-2: Alternative Concept Plans – Housing Unit Totals and Densities

	Alternative Concept Plans		
	A	B	C
Number of residential units:			
High density – multi-family	400	800	800
Medium density – multi-family	220	440	1,530
Low density - single-family	400	600	None
Total Residential Dwelling Units (du)	**1,020 du**	**1,840 du**	**2,330 du**
Density (dwelling units per acre):			
High density – multi-family	12	24	24
Medium density – multi-family	8	16	12
Low density - single-family	4	6	None

Source: The Keahuolu Affordable Housing Master Plan – June 2007

Attachment 2

In the Final EIS Section 3.7 will be revised to include the 2008 avifaunal and feral mammal survey results show as follows:

3.7 TERRESTRIAL FAUNA

3.7.1 Existing Conditions

Phillip Bruner conducted a field survey in May 2008 of the proposed Keahuolu Affordable Housing Project and Reservoir site [TMK (3) 7-4-021: 020 and TMK (3) 7-4-021: Por. 021]. The goals of this field survey were:

1. Documentation of the species of birds and mammals currently on the property.

2. Examination of the site for the purpose of identifying the natural resources available to wildlife in this region.

3. Devoting special attention to documenting the presence and possible use of this property by native and migratory species particularly those that are listed as threatened or endangered.

The property examined is presently covered in dense, second growth forest composed of primarily alien species of trees, brush, and grass. The surrounding land contains residential, commercial, schools, and other similar undeveloped property.

The field survey was conducted over two consecutive days (May 27-28, 2008). The observations were made in the early morning and late in the day when the birds are most active. The property was covered on foot and all birds seen or heard were documented.

Native Land Birds:

No native land birds were observed during this field survey. The only species that might be seen, on occasion, in this area is the endangered Hawaiian Hawk (*Buteo solitarius*) and the

Hawaiian Short-eared Owl (*Asio flammeus sanwichensis*). The Hawaiian Short-eared Owl is not listed as endangered or threatened on the island of Hawaii. Aside from the Hawaiian Hawk, no other native land birds would be expected to occur on this property.

Native Waterbirds:

No native waterbirds were recorded and would not be expected on this site. No wetland habitat was found on this survey.

Seabirds:

No nesting seabirds were seen during the field survey and would not be expected to nest in this area due to the human disturbance and predators.

Migratory Birds:

No migratory shorebirds were observed. No habitat suitable for shorebirds currently occurs on this site.

Alien (Introduced) Birds:

Nineteen alien species were observed during the course of this survey. None of the birds are listed as threatened or endangered.

Mammals:

The skeletal remains of a feral pig (*Sus scrofa*) and two live adult pigs were observed on May 27, 2008. No rats (*Rattus spp.*), mice (*Mus musculus*), or cats (*Felis catus*) were seen but likely occur on and around the property. No endangered Hawaiian Hoary Bats (*Lasiurus cinereus semotus*) were detected by the ultrasound device during a night search on the property on May 27, 2008.

3.7.2 Potential Impacts and Mitigation Measures

Potential impacts to the various species were evaluated. All habitats on the property were thoroughly surveyed. The birds and mammals found were those to be expected in this region. The endangered Hawaiian Hawk and the non-endangered Hawaiian Short-eared Owl occur in man-altered as well as native habitats throughout the island of Hawaii. A change in the land use at this site will produce small, local increases and decreases in the populations of alien birds. Ultimately, there are no avifaunal or feral mammal impediments to carrying out the proposed project.

Attachment 3

Table 4.1 of the Final EIS will be revised as follows:

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES – HOUSING PROJECT SITE

Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological survey and prepared a preliminary CIA for the proposed Keahuolu Affordable Housing Project site, comprised of approximately 272 acres. The CIA study is discussed in Section 4.3. The overall objective of the archaeological survey and the CIA is to comply with the current historic preservation requirements of the Hawai'i SHPD.

The specific objectives of the survey were fourfold: (a) to re-identify and re-locate specific archaeological remains present within the study area; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains. The PHRI archaeological survey report is excerpted below. Appendix D contains the complete report.

Attachment 4

The Final EIS will correct the last sentence that appeared on page 4-27 of the Draft EIS as follows.

The overall rationale guiding the present limited assessment study has been that the level of study effort should be commensurate with the potential of the proposed project for making any adverse impacts upon any Native Hawaiian or other ethnic group cultural practices currently conducted by cultural practitioners within the project area. **The study presented in this report is believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area.**

Attachment 5

In the Final EIS Section 4.8.4.2 Proposed Wastewater System Design is revised as follows.

4.8.4.2 Proposed Wastewater System Design

The proposed sewer system would be developed in accordance with the Hawai'i County Department of Environmental Management criteria. For details of the sewer system criteria, see Appendix G. Design and construction of the proposed off-site and on-site sewer systems would meet County Standards for dedication to the County Department of Environmental Management. The projected sewer flows, presented in Table 4-30, are summarized in Appendix G.

Table 4-30: Sewer Requirements

Development Plan	Design Average Flow (gpd)	Design Peak Flow (gpd)
Concept A	430,598	1,915,899
Concept B	665,436	2,568,875
Concept C	720,856	2,710,213

The project has reserved 431,360 gpd capacity at the Kealakehe WWTP. Additional capacity at the WWTP would be required to accommodate Concepts B and C, which are projected to exceed the reserved capacity. The Department of Environmental Management would have to expand the WWTP and is currently undertaking a master plan to review options to upgrade the WWTP. Two improvement projects to the WWTP are planned: (1) sludge removal $4,600,000 (County of Hawai'i FY 07-08 budget), and (2) aeration upgrade $6,450,000 (County of Hawai'i FY 07-08 budget). The two improvement projects will allow the WWTP to continue to operate at the present capacity and allow for future capacity upgrades.

R-3 Water (undisinfected secondary recycled water) from the Kealakehe WWTP is discharged to a pond in the lava fields makai of Queen Ka'ahumanu Highway in the DHHL/Villages of La'i 'Opua. R-3 Water is not suitable for irrigation use for the project. The County would have to further treat the effluent to R-1 Water (significant reduction in

viral and bacterial pathogens) before the effluent would be suitable for irrigation use on the project site. The County has plans to upgrade the WWTP to produce R-1 Water in FY 10-11. In addition, a pump system, and storage and transmission lines for the recycled effluent system would be required, but there are no detailed plans by the County for a system to the project area.

Potential Off-Site Wastewater System Alignments

Sewer lines from the project site to the WWTPwould be routed either through QLT lands or through DHHL/Villages of La'i 'Opua lands. Figure 4-18 and Figure 4-19 show the QLT route for the off-site sewer system for development Concept A and Concepts B and C, respectively. Figure 4-20 and Figure 4-21 show the La'i 'Opua route for the off-site sewer system for Concept A and Concepts B and C, respectively. Sewer lines would be sized to accommodate sewer flows from the project site, lands immediately mauka of the project, and the makai lands adjacent to the sewer line alignment. The sewer line alignment and sizes are subject to change based on the final development concept.

Based on the design flows, a new 30-inch sewer line would be required for either route to convey sewer flows from the project site, across Queen Ka'ahumanu Highway, to the WWTP. A sewer line through the QLT route can convey wastewater flows from the entire project site to the WWTP. A sewer line through the Villages of La'i 'Opua route can convey the majority of the flows from the site. A low-elevation portion, approximately 40 acres of the project parcel near Palani Road, could be developed with activities not requiring sewer service, such as parking lots, open spaces, preserve areas, and playfields and parks with restroom facilities located outside the low area. If sewer service is required for the low area, either a pump station would be required or a sewer line would have to be constructed through QLT land to convey flows from the low area. Figure 4-18 and Figure 4-19 show the proposed sewer line to service this low area through the QLT lands.

The order-of-magnitude costs in Table 4-31 for sewer system construction assume that the low area would be developed with sewage-generating facilities. For details on the sewer system costs, see Appendix G. These cost estimates are based on the best available information on DHHL and QLT plans for future development of their properties. QLT is in preliminary planning, and actual routing and sewer flows may change.

Table 4-31: Off-Site Wastewater System Costs

Off-Site Water System	Concept A	Concept B	Concept C
Through QLT Lands	$6,381,000	$6,663,000	$6,663,000
Through DHHL / Villages of La'i 'Opua			
Through La'i 'Opua	$5,983,000	$5,983,000	$5,983,000
Through QLT Lands	$4,297,000	$4,543,000	$4,543,000
Subtotal	$10,280,000	10,526,000	10,526,000

Proposed On-Site Wastewater System

The on-site sewer system would consist of sewer lines within the roadway network. The system would connect to sewer line routed through either the DHHL/Villages of La'i 'Opua lands or the QLT lands. The sewer system would have a minimum pipe size of 8 inches in diameter and a maximum pipe size of 21 inches in diameter for the DHHL/Villages of La'i 'Opua route or 15 inches in diameter for the QLT route. The sewer lines would be sized to convey the design peak flow from the upstream tributary areas.

Attachment 6

The Final EIS Section 4.9.4.2 Economic Impacts – Government Costs will be revised as follows:

Future Socio-Economic Conditions with the Project

As a workforce housing development, the project is planned to have beneficial socio-economic impacts. This section provides detailed accounts of specific impacts, covering both immediate and cumulative impacts.

Economic Impacts

Construction Employment and Wages

Development of the Keahuolu project is expected to involve residential construction over a period of four to eight years, as shown in Table 4-47. Commercial construction could follow residential development and occur in two phases. Project construction work will include off-site infrastructure development, on-site development of lots and infrastructure, and housing construction. The next table shows construction spending and direct construction labor, estimated in full-time equivalent jobs, for selected years and cumulatively over the construction period.[1]

[1] Many specialized construction jobs are short-term. For example, an electrician may spend a week or less on a project where others work throughout the year. The number of workers hired is likely to be larger than the estimated number of full-time equivalent jobs. Also, the direct construction workforce includes workers in the offices and baseyards of firms involved in a project, as well as ones actually on-site.

Table 4-47: Preliminary Timetable for Construction

Year	Concept A No. Units	Concept B No. Units	Concept C No. Units	Commercial (SF)
2010	300	300	300	
2011	300	300	300	
2012	300	300	300	
2013	120	300	300	
2014		300	300	
2015		300	300	
2016		40	300	
2017			230	
2018				100,000
2019				
2020				97,000
Total	1,020	1,840	2,330	197,000

Source: HHFDC.

Direct jobs are created within firms and by engaging subcontractors in building the project. When these jobholders in turn buy materials and equipment in the local economy, they contribute to the creation of indirect jobs (for example, in home supply stores or from concrete manufacturing firms.) When in turn direct and indirect workers spend their wages, they create induced jobs, supported by the movement of capital from those wages through the local economy. Induced jobs largely consist of retail, service, and government jobs.

Wages can be estimated from records of average wages in the construction industry in the County. The indirect and induced jobs are spread throughout the economy, so they are estimated from average wages of all workers.

Table 4-48: Construction-Related Spending, Jobs, and Wages

	2010	2015	2020	Cumulative, to 2020
Total construction consts (Millions)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Direct construction workforce (annual person-years)				
Concept A	639	-	37	2,044
Concept B	634	364	37	3,030
Concept C	573	309	37	3,159
Total construction-related workforce (annual person-years)				
~~Concept A~~	~~1,527~~	~~-~~	~~88~~	~~4,885~~
Concept B	1,516	869	88	7,241
Concept C	1,369	738	88	7,549
Direct construction wages (Millions, constant 2007 $s)				
Concept A	$34.2	$0.0	$2.0	$109.5
Concept B	$34.0	$19.5	$2.0	$162.3
Concept C	$30.7	$16.5	$2.0	$169.2
Total construction-related wages (Millions, constant 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$211.9
Concept B	$65.8	$37.7	$3.8	$314.1
Concept C	$59.4	$32.0	$3.8	$327.5

Notes: Construction costs estimated by Belt Collins Hawaii. Cost estimates cover on-site and off-site infrastructure, residential and commercial construction. School construction costs are not included. Workforce full-time equivalent jobs are estimated based on the relation between statewide construction spending and the construction workforce. Indirect and induced construction-related workforce calculated from the State's Inter-County Input-Output Model (2002 version). Wages estimated from 2005 average annual industry wage for Hawai'i County and total covered employment (for indirect and induced jobs), using 2005 data adjusted to 2007 in line with increases in the Consumer Price Index.

Sources: DBEDT, State of Hawaii Data Book 2006 (Honolulu, HI: 2007); *The Hawaii Inter-County Input-Output Study: 2002 Benchmark Report*. Honolulu, HI. 2007. Posted at http://www.hawaii.gov/dbedt/info/economic/data_reports/2002_Intercounty_I-O/. Department of Labor and Industrial Relations, Employment and Payrolls in Hawaii, 2005. Honolulu, HI. 2006.

On the average, some 204 to 243 full-time direct jobs will be involved in construction of the Keahuolu Project annually, while total construction-related employment will reach 489 to 581 jobs annually, as shown in Table 4-49.

Table 4-49: Average Annual Construction-Related Workforce

Concept	Construction Period	Average Annual Construction Workforce	
		Direct	*Total*
A	10 years	204	489 person-years
B	13 years	233	557 person-years
B	13 years	243	581 person-years

Operations Employment and Wages

Residential projects do not result in the creation of many permanent jobs. Resident managers and a few landscape, maintenance, and security workers could be employed on a permanent basis at Keahuolu. Within the neighborhood commercial area, as many as 800 jobs could be located when it is fully built out and occupied. These jobs would exist in Hawai'i County wherever families find it possible to live: they would still exist even if the project is not built.

The location of direct jobs at the project site is a socio-economic impact, affecting residents and their neighbors. The indirect and induced jobs associated with operations on the project site are not, since those operations, funded by resident spending, would occur somewhere in the County with or without the project. Accordingly, indirect and induced jobs associated with operations are not calculated here.

Labor Force Impacts

The Keahuolu project will affect the regional labor force in part by creating jobs, but more importantly, by providing housing for service, retail, managerial, and professional workers. As more housing units are built, fewer workers will face unacceptable housing choices and/or difficult daily commutes. People living close to Kailua-Kona are likely to have more employment options, including full- and part-time employment. By shortening the commute time for workers and their families, the project is likely to increase labor force participation, with some joining the labor force and others changing from part-time to full-time

employment. For young people, the number of easily accessible jobs is far greater in Kailua-Kona than in outlying areas. Consequently, high-school student participation in the labor force will likely be higher. (In 2000, civilian workers amounted to 70 percent of persons 16 and over in North Kona, compared to 53 percent in Ka'u and 54 percent in North Kohala.)

With fewer obstacles to work, residents living near job centers are more likely to keep their jobs than ones with long commutes. A long-term result of increasing the housing stock for Kailua-Kona workers will likely be lower job turnover.

Population Impacts

Table 4-51 shows calculations for on-site population. When fully built, the Keahuolu project will house some 2,988 to 6,826 residents.

The project is unlikely to attract any new residents or visitors to Hawai'i. Affordable units will be sold or rented to full-time occupants. A resident preference will be established for the initial sale of market units. While some market units could theoretically be sold to non-residents, this seems unlikely given both strong resident demand and the design of the project as a community for residents, not a resort.

Table 4-50: Direct Operations Jobs and Wages: Annual Estimates for Selected Years

	2010	2015	2020
Operations Jobs			
Concept A			
Residential			
Building Services	4	12	12
Security	1	3	3
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	20	808
Concept B			
Residential			
Building Services	4	24	25
Security	1	6	6
Grounds and maintenance	4	4	4
Commercial	-	-	788
	9	34	823
Concept C			
Residential			
Building Services	6	36	47
Security	2	9	12
Grounds and maintenance	4	4	4
Commercial	-	-	788
	12	49	850
Operations Wages			
(In Millions of Constant 2007 $s)			
Concept A	$0.2	$0.5	$22.0
Concept B	$0.2	$0.9	$22.4
Concept C	$0.3	$1.2	$23.1

Notes: Building services and security jobs are associated with multifamily construction; grounds and maintenance jobs are associated with opening up and using the entire project site. Commercial jobs estimated at 4 jobs per 1,000 square feet gross leasable area.

Table 4-51: On-Site Occupancy and Population

	2010	2015	2020
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Units Occupied			
Concept A	291	989	989
Concept B	291	1,746	1,785
Concept C	291	1,746	2,260
Resident Population			
Concept A	879	2,988	2,988
Concept B	879	5,273	5,390
Concept C	879	5,273	6,826

Notes: Occupancy is estimated at 97%, to allow for normal vacancies due to sales or change in renters. Because of strong demand, occupancy is expected to be high from initial construction through the period studied. Population estimated from the 2000 Census data for Census Tract 215.01, which contains a broad mix of local residents. Its average household size (3.02 persons per household) was well above the district average (2.70 persons per household).

Impacts on the Housing Market

Demand for homes in North Kona is already strong and expected to exceed planned production, especially of housing for middle-income families. (See the discussion of housing demand in 2006, in Chapter 2.) Also, the district resident population is expected to increase by some 6,400 persons between 2010 and 2020. That increase accounts for approximately 2,370 households at the 2000 district average household size of 2.70 persons/household. Additional housing demand at the regional level will be due to movement of the island of Hawai'i residents to homes nearer the urban center and to purchases by non-residents, whether for vacation homes or retirement.

Initial plans for the Keahuolu project call for production of 300 housing units annually, with the first homes available in 2010.[2] Taken together with additional DHHL increments in La'i

[2] As noted in earlier chapters, the three conceptual alternatives represent the range of potential development that could be done in response to HHFDC's Request for Proposals. The actual volume and timing of construction will be refined by the developer over time.

'Opua, affordable units and some of the market housing produced in Palamanui, new housing in Waikoloa Village, and smaller projects, the cumulative impact of planned housing developments should be a significant reduction in demand. With much more housing available for residents, the price of moderate homes can be expected to stabilize. A wide range of prices and housing types (including apartments, condominiums, townhomes, homes, self-help housing, and properties in leased-land as well as fee-simple communities) will be available to West Hawai'i residents.

The project's impact on housing can be estimated in relation to demand indicators. The 2006 *Hawaii Housing Policy Study* suggests that there is demand from about 7,200 resident households for units in North Kona in the next few years. In addition, population growth will account for formation of at least 2,370 new households.

Some 1,020 to 2,330 units are proposed in the different concepts for the Keahuolu project. The net increase in units is smaller, since the project also includes operational jobs, and the workers in those jobs will need housing. Table 4-52 shows the net housing impact of the project. The net addition to the housing stock is estimated as 511 units under Concept A to 1,794 units under Concept C. Given a regional demand for approximately 9,570 units (7,200 units existing demand plus 2,370 new households), the net contribution of the project amounts to 5.3 to 18.7 percent of regional demand.

Table 4-52: Net Housing Impact of Keahuolu Project

	2010	2015	2020
On-site Jobs			
Concept A	9	20	808
Concept B	9	34	823
Concept C	12	49	850
On-site Workers' Households (1)			
Concept A	5	12	509
Concept B	6	22	519
Concept C	7	31	536
Population supported by On-site jobs (2)			
Concept A	16	37	1,539
Concept B	17	65	1,568
Concept C	22	93	1,620
Units Built			
Concept A	300	1,020	1,020
Concept B	300	1,800	1,840
Concept C	300	1,800	2,330
Net Units (Units Built - On-site Workers' Households)			
Concept A	295	1,008	511
Concept B	294	1,778	1,321
Concept C	293	1,769	1,794

Notes:

1 Workers' households are assumed to include 1.585 workers per household, on average, based on averages for CT 215.01 in 2000.

2 Workforce households assumed to average 3.02 persons/household (based on 2000 average household size, CT 215.01).

Fiscal Impacts

Government Revenues

Development of the Keahuolu project will result in revenues for the State associated with construction and sale of property. The County will gain revenues from taxes on homes and residential land.

The State is expected to gain from corporate income taxes on firms building the project, from excise taxes on spending by construction-related workers in the local economy, and from income taxes on construction-related workers' wages. Because the project is being built to increase the supply of affordable housing, direct construction revenues will be exempted from the excise tax. State revenues associated with construction are derived in Table 4-53. Conveyance taxes might be levied on some market units, but these are not included in Table 4-53. The cumulative increase in State revenues is estimated as approximately $19 to $28 million by the end of the construction period.

The County will see increased revenues from real property taxes. As government land, the project site is not now yielding property taxes. When housing and commercial facilities are occupied, they will be taxable. However, some or all of the housing in the project would likely be assessed at below-market rates, and taxed at special rates for homeowners and affordable rentals. The treatment of low-income rentals at the homeowner rate is a new County practice, and the applicable laws could well be revised before any homes are built at Keahuolu. To derive a minimal estimate of new tax revenues, this analysis assumes that all housing within the project is sold and resold at affordable rates, and that all is taxed at homeowner and affordable rental rates.

For the County of Hawai'i, the minimal real property taxes associated with development of the Keahuolu project are estimated to range from $1.2 million to $1.7 million (2007 dollars) annually by 2020 and to reach a cumulative total of $9.4 million to $13.0 million through 2020. Table 4-54, Table 4-55, and Table 4-56 show calculations for the three project concepts.

Table 4-53: State of Hawai'i Tax Revenues Associated with Construction, Keahuolu Project

	2010	2015	2020	Cumulative
Total construction costs (Millions of 2007 $s)				
Concept A	$126.1	$0.0	$7.3	$455.0
Concept B	$125.2	$71.8	$7.3	$651.5
Concept C	$113.0	$61.0	$7.3	$676.5
Total construction-related wages (Millions of 2007 $s)				
Concept A	$66.2	$0.0	$3.8	$239.0
Concept B	$65.8	$37.7	$3.8	$342.3
Concept C	$59.4	$32.0	$3.8	$355.4
Corporate income taxes (Thousands of $s) (1)				
Concept A	$112.6	$0.0	$6.5	$406.4
Concept B	$111.8	$64.1	$6.5	$581.8
Concept C	$100.9	$54.4	$6.5	$604.1
Excise Tax on workforce spending (Thousands of $s) (2)				
Concept A	$1,659.6	$0.0	$95.7	$5,988.0
Concept B	$1,647.3	$944.4	$95.7	$8,573.8
Concept C	$1,487.3	$802.1	$95.7	$8,902.5
Personal Income Tax (Thousands of $) (3)				
Concept A	$3,462.5	$0.0	$199.7	$12,493.2
Concept B	$3,436.9	$1,970.4	$199.7	$17,888.1
Concept C	$3,103.1	$1,673.4	$199.7	$18,574.0
Total State Revenues (Thousands of $s)				
Concept A	$5,234.7	$0.0	$302.0	$18,887.5
Concept B	$5,196.1	$2,978.9	$302.0	$27,043.8
Concept C	$4,691.4	$2,530.0	$302.0	$28,080.7

Sources: Hawaii State Department of Taxation, 2001, 2005.

Notes:

(1) Corporate income tax historically averages 0.17% of corporate revenues (data from 2000).

(2) Excise tax at 4% of workforce disposable income. Share of spending subject to excise tax estimated from 2002 expenditure data.

(3) Personal income tax historically 5.22% of resident incomes (average, 1998-2002).

Table 4-54: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept A

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	239	813	813	813
For Rent (1)	61	207	207	207
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$59.5	$202.4	$202.4	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.6	$32.5	$32.5	
Additional Housing Exemption (5)	$11.9	$40.5	$40.5	
Net Taxable Value, Housing	$48.0	$163.3	$163.3	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$266.6	$906.5	$906.5	$8,851.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$266.6	$906.5	$1,172.4	$9,387.4

Notes:

(1) One-third of multifamily units assumed to be rentals.

(2) Average housing unit assumed to be unit affordable for sale to family of four with income 110% of median, (priced at $217,900 in 2007).

(3) All rentals assumed to be "affordable," so units qualify for homeowner tax classification. Value of rentals extrapolated by assuming 5.7% cap rate, 95% occupancy, and that the average unit is a two-bedroom unit rented at the top of the affordable range for West Hawaii ($822). Cap rate based on NCREIF moving average.

(4) Basic exemption for homeowners = $40,000 of value.

(5) Since 2005, Hawaii County exempts 20% of the homeowners' property values, up to $400,000 in value.

(6) Commercial property value estimated from assumed construction costs.

(7) Homeowner class residential property is taxed at $5.55/$1,000 value.

(8) Commercial property is taxed at $9.00/$1,000 value.

Sources: Hawaii County property tax information, as posted at
http://www.hawaiipropertytax.com/pdffiles/HOME%20EXEMPTIONS%20Brochure.pdf
http://www.hawaiipropertytax.com/pdffiles/RP%20Form%2019-53(h)%20Affordable%20Rental%20Program%20Application.pdf
National Council of Real Estate Investment Fiduciaries data posted at http://www.ncreif.com/#

Table 4-55: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept B

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	233	1,396	1,427	1,427
For Rent (1)	67	404	413	413
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$57.9	$347.2	$355.0	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$9.3	$55.8	$57.1	
Additional Housing Exemption (5)	$11.6	$69.4	$71.0	
Net Taxable Value, Housing	$47.0	$255.9	$260.9	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$260.8	$1,420.5	$1,447.8	$12,449.4
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$260.8	$1,420.5	$1,713.8	$12,985.3

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Table 4-56: Minimum Estimate of Real Property Tax Revenues, County of Hawai'i, from Development of Project Concept C

	2010	2015	2020	Cumulative
Basis for Valuation				
Units built				
For Sale (1)	200	1,200	1,553	1,553
For Rent (1)	100	600	777	777
Commercial area (GLA in thousands sq. ft.)	-	-	197	197
Value (Millions of 2007 $s)				
Value of housing units				
For Sale (2)	$49.8	$298.6	$386.5	
For Rent (3)	$10.0	$34.0	$34.0	
Homeowner's Exemptions				
Basic Exemption (4)	$8.0	$48.0	$62.1	
Additional Housing Exemption (5)	$10.0	$59.7	$77.3	
Net Taxable Value, Housing	$41.8	$224.8	$281.0	
Value of Commercial Property (6)	$0.0	$0.0	$29.6	
Real Property Taxes (Thousands of 2007 $s)				
Residential (7)	$232.0	$1,247.8	$1,559.7	$12,268.6
Commercial (8)	$0.0	$0.0	$266.0	$536.0
Total	$232.0	$1,247.8	$1,825.6	$12,804.5

Notes: See table for Concept A. By assumption, one third of all multifamily units is assumed to be low-income rentals, so tax return on Concept B is higher than for Concept C, which has no single family units.

Government Costs

From a planning perspective, the Keahuolu project is a case of "smart growth." This concept is usually discussed in terms of alternative futures: sprawling urbanization vs. compact growth, especially infill growth in existing urban zones. Sprawl involves calculable costs to individuals (travel time and costs; less physical activity and higher incidence of obesity), to communities (lower involvement of adults as volunteers and community participants), and to municipal or regional authorities (higher costs of providing infrastructure over greater distances). For calculations, please see *Costs of Sprawl – 2000* published in the "Transit Cooperative Research Program Report 74," 2002.

In the context of Hawai'i County, it is clear that delivery of some services – notably police and fire control – can be accomplished more efficiently and at lower cost if homes are concentrated near police and fire stations. The impact on roadways is also obvious. With concentrated development, traffic congestion may continue to be a serious problem in Kailua-Kona, but it is likely to be less severe over the many road-miles that commuters from Ka'u, South Kona and North Kohala now travel to and from work. The analysis becomes

more complex with regard to wastewater facilities, which exist in urban, but not rural areas. The developer will be responsible for onsite and offsite costs of infrastructure that can be dedicated to the County. The County will thereby acquire assets. The County will also be responsible for operations and maintenance of those assets, but will be able to bill users for these costs. Again, an urbanized population may well make greater demands for recreation services than a dispersed one, but the developer will be responsible for adding parks within the project area.

Increases in certain government revenues are quantified in the EIS because these can be calculated in a straightforward manner. Costs and other revenues are not calculated because the assumptions needed to calculate them are far more complex and may depend on future agency funding decisions (e.g., the timing and extent of park improvements). Since the total costs associated with public facilities for smart growth are likely to be smaller than with dispersed development, it is appropriate to disclose this likely positive impact but not necessary to calculate it in detail.

The project will serve West Hawai'i residents and not a new population. It does not create a new demand for government services but rather relocates that demand to a site near the urban center. Consequently, the costs of government service delivery to Keahuolu project residents are likely to be less than they would be without the project.

Social Impacts

Impacts on West Hawai'i

The Keahuolu project will house a large number of working residents in Kailua-Kona, increasing demand for commercial and public services in the urban area.

The project contributes to a cumulative impact, the differentiation of urban and "country" areas in West Hawai'i. As young working families concentrate in or near Kailua-Kona, outlying areas will tend to have older populations and lower labor force participation. The urban area will be more densely settled, while other areas will be more "country" in

appearance and ambiance. Retirees and some workers willing to commute long distances will still be found throughout West Hawai'i – the impact is the intensification of an ongoing trend, not a qualitative change.

As a rule, the shorter the commute, the easier it is for adults to participate in the life of their home communities, whether as volunteers, as parents involved with their children's schools and teams, or simply as participants in everyday life. Community involvement is likely to increase. On the other hand, residents moving from areas in which they grew up and have family ties can find a new development to be less vibrant and lacking the networks, occasions, and places in which they enjoy community life. The Keahuolu project's design as a walkable community with parks and schools nearby that will help to encourage resident community participation. On balance, then, the project is likely to increase West Hawai'i residents' ability to contribute to community life.

Traffic congestion on Palani Road has long been a source of resident dissatisfaction in Kona. By concentrating residents near Palani Road, close to Kailua-Kona job sites, the project is likely to worsen congestion on that route during its early years. In time, with highway improvements and the construction of new roads, the project will help to limit congestion throughout the region because a smaller share of workers will be commuting long distances on a few through roads.

Impacts on the Project Site and Surrounding Area

The immediate area will change due to the cumulative impact of development in the project, in QLT lands, and in DHHL lands. That change has been anticipated and most of the sites in question are already designated as Urban or Urban Expansion. A new residential center will be created for Kailua-Kona. With the eventual development of new roadways, the project and adjoining sites will have internal circulation, so that trips between homes and schools, community facilities, or commercial areas will not rely on major through roads. The commercial and public facilities within the project will likely help to encourage residents of the project and adjoining areas to limit trips outside the immediate area, and tend to engender a sense of Kealakehe/Kealuolu as a distinctive community or neighborhood in Kailua-Kona.

The new neighborhood will be characterized by design elements intended to encourage walking, bicycling, and public transit use. As a neighborhood with much of the new construction in Kailua, it will likely be more desirable than older areas with homes at similar prices. As a community with a mix of rental and for-sale units, the Keahuolu project will not fit the negative stereotypes associated with low-income housing.

United States Department of the Interior
NATIONAL PARK SERVICE
Kaloko-Honokohau National Historical Park
73-4786 Kanalani St., Suite 14
Kailua-Kona, HI 96740

IN REPLY REFER TO:
L7621

April 8, 2008

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

RE: National Park Service Response to the Draft EIS,
Keahuolu Affordable Housing Project, Keahuolu, Island of Hawaii.

Dear Ms. O'Leary:

Thank you for providing the National Park Service with the opportunity to review and comment on the draft EIS for the Keahuolu Affordable Housing Project at Keahuolu, Hawaii, proposed for development by the Hawaii Housing Finance & Development Corporation (HHFDC). The Keahuolu Affordable Housing Project is situated approximately 1.5 miles from the Kaloko-Honokohau National Historical Park boundary, and has the potential to affect the natural and cultural resources within the National Park. We have reviewed the draft EIS document and provide the following comments.

Kaloko-Honokohau National Historical Park was authorized in 1978 by Congress to preserve, interpret, and perpetuate traditional Native Hawaiian activities and culture (Public Law 95-625). Water quality and quantity in the National Park are vital to the integrity of this mission. The National Park contains two large (11 and 15- acre) ancient Hawaiian fishponds with large associated wetlands, more than 140 known anchialine pools, and 596 acres of marine waters. Each of these water bodies is a significant cultural resource, and they also provide habitat for nine federally protected and candidate endangered species. The National Park water resources are fed by, and in the case of the anchialine pools and `Aimakapa Fishpond, are solely dependent upon, ground water inputs. The anchialine pools support three known candidate endangered species. `Aimakapa Fishpond and wetland is a significant foraging and breeding habitat for the endangered Hawaiian stilt and the Hawaiian coot, and is an important habitat for migratory waterfowl. The Park boundaries also encompass 596 acres of class AA marine waters, which include extensive coral reef habitat, and support four federally protected marine species.

<u>Surface Water Drainage, Non-point Source Pollution</u>
Surface water runoff is a significant nationwide problem for ground-water pollution. The consequences of non-point source pollution include increased risk of disease from water recreation, algae blooms, fish kills, destroyed aquatic habitats, and turbid waters. Upslope development therefore poses a significant threat to West Hawaii coastal resources, including the National Park's resources. Currently the County Department of Public Works standards for

drainage wells do not address protection of significant environmental resources, but rather solely consider flood control and volume of runoff. The National Park Service appreciates the inclusion in the draft EIS (Sections 3.3.2, 4.8.2.2) of proposed storm drainage devices and Best Management Practices beyond those currently required by the County of Hawaii in order to reduce non-point source pollution inputs to ground water, and would like to see in the final EIS a commitment by the developer to implement such measures as well as a commitment to providing specific educational materials and programs to residents regarding how they can control and prevent non-point source pollution including, but not limited to, the topics of vehicle maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, the potential impacts of fertilizers and pesticides on the environment and the National Park, and alternatives to fertilizers and pesticides. In our response letter to the EIS preparation notice for this project, dated 8-21-2007, we also requested that enforceable controls on approved chemicals and uses by property owners and maintenance crews on yards and park common areas be proposed as mitigation to protect ground water. The draft EIS for did not discuss or propose any landscape management controls through a community association covenants, conditions, and restrictions document or other mechanism.

Parks and Open Space

The NPS is pleased to see that the design concepts for the community contain considerable open space and parks (Section 2.5.5). In our response letter to the EIS preparation notice, the NPS asked that the HHFDC or community maintenance crews for the neighborhood parks and open spaces avoid or minimize the use of fertilizers and pesticides and set an example by using alternative methods of controlling pests and weeds. The draft EIS mentions this recommendation in Section 3.3.2, but as above, no mechanism was proposed for enforceable control on fertilizer and pesticide application for common areas and parks.

Water System

A primary concern of the National Park Service is the impacts to the National Park's cultural and natural resources from ground-water withdrawal. The Keahuolu Affordable Housing Project, in the context of other proposed developments in the North Kona area, has the potential to impact cultural and natural resources in the Park that are dependent upon ground-water flow. Ground water within the National Park is considered a cultural resource; essential to the ancient Hawaiian fishponds and the anchialine pools that define the Park, and that are central to the National Park's planned Cultural Live-in Center (NPS 1994 General Management Plan/EIS). The long-term withdrawal of ground water described in the draft EIS will likely adversely affect these ecosystems that are dependent upon the quantity and quality of ground water that is discharging along the coast, and may affect cultural practices associated with these ecosystems. In our response letter to the EIS preparation notice, we raised the concern that the cumulative impact to the aquifer will be quite significant and requested that the HHFDC analyze the potential impacts, direct and cumulative, of water withdrawal to ground-water dependent ecosystems at the coast. In particular, the draft EIS does not analyze these impacts in the context of other withdrawals, existing and planned, from the aquifer.

The National Park Service has reason to be concerned about the amount of ground water available to the National Park. In 1999, the U.S. Geological Survey studied ground water in the National Park and modeled the effects of ground-water withdrawals on the amount of ground-

water flow through the Park (Oki et al., 1999)[1]. Oki et al. (1999) concluded that the major source of fresh ground water is from subsurface flow originating from inland areas to the east of the National Park and that "withdrawals from wells directly up-gradient of the Park had the greatest effect on the model-calculated freshwater coastal discharge within the Park." Simulated withdrawals from all existing and proposed wells permitted prior to March 1998 showed that an increase in withdrawal rates from a 1978 baseline rate to 56.8 MGD, caused a 47% reduction in ground water discharging at the Park coastline and a water-level decline of about 0.6 ft within the Park (Oki et al., 1999). Salinity change to National Park ground water was not included as part of the model, however if the freshwater input into the National Park were reduced by almost half, salinity would certainly increase, potentially affecting rare endemic species and ecosystems.

The projected average water demand for the proposed development is approximately 0.7 to 1.2 million gallons per day (Mgd), depending on which Concept Alternative is selected. It is proposed that the potable water source and storage for the project will be provided by one or two proposed wells referred to in the EIS as "Well #3" and "Well #4." Well 4 is the Keopu Well (state well 3957-03), which would require pump installation and additional infrastructure. Well 3 has not been drilled. Both wells 3 and 4 are located in the Keauhou high-level aquifer, approximately 4 miles from the National Park. A typographical error in the first paragraph under Potential Long-Term Impacts to Groundwater makes the discussion on sustainable yield and project demand difficult to follow. It also appears that the DEIS has an error on page 4-106, Table 4-29, which shows the off-site reservoir as having a capacity of 15 million gallons.

The EIS states that "[i]n the long-term, water demands in the Keauhou aquifer would exceed the sustainable yield of the aquifer and alternate water resource enhancement measures would be required to meet the water demands." Yet it was anticipated that short-term impacts upon the local ground-water quality will not be significant, while the long-term and cumulative impacts of increased ground-water development in the high-level aquifer were not considered. The long-term and cumulative impacts of existing ground-water withdrawals, in addition to the future demand for water in the Kona area, pose a serious threat to the purposes and values for which Kaloko-Honokohau National Historical Park was established. According to recent reports, pumping in the Keauhou aquifer system averages 12.08 Mgd[2]. The National Park Service estimates that satisfying the water needs of all of the currently proposed development in the vicinity of Kaloko-Honokohau National Historical Park, including the Keahuolu Affordable Housing Project, will more than double production in the Keauhou aquifer system.

The U.S. Geological Survey notes that "Arguably, there is no volume of ground-water use that can be truly free of any adverse consequence, especially when time is considered. The direct hydrologic effects will be equal to the volume of water removed, but those effects may require decades to centuries to be manifest." [3] Likewise, if the new well will increase ground-water withdrawals by at least 0.7 Mgd and up to 1.2 Mgd, then the EIS should clearly acknowledge that the short-term impacts of this development will be a lowering of water levels in the vicinity

[1] Oki, DS, GW Tribble, WR Souza, and EL Bolke. 1999. Ground-water resources in Kaloko-Honokohau National Historical Park, Island of Hawaii, and numerical simulation of the effects of ground-water withdrawals. US Geological Survey Water Resources Investigations Report 99-4070. USGS, Honolulu, HI. 49 p.
[2] http://hi.water.usgs.gov/west_hawaii/ west_hawaii_tab.htm
[3] Anderson, Mark T., and Woosley, Lloyd H., Jr., 2005, Water availability for the Western United States--Key scientific challenges: U.S. Geological Survey Circular 1261, 85 p.

of the well, and that the long-term and cumulative impacts will be a decrease in ground-water discharge to the basal aquifer and the nearshore area that is equal to the volume of water pumped. Furthermore, resource enhancement measures mentioned in the draft EIS include measures that would be counterproductive to protecting discharge of ground water to the coastal ecosystems and marine waters. For example, the recommended rainwater catchment system upslope of Mamalahoa Hwy would reduce rainfall recharge to the high level aquifer and further reduce available water in the aquifer. The recommendation to pump from brackish wells (for desalination) in the basal lens is of particular concern to the National Park Service. Basal-lens pumping poses a potential for significant adverse impacts to the ecosystems dependent upon basal-lens ground water by reducing water levels, altering groundwater flow directions, and increasing salinities.

To address these concerns and to confirm the EIS's determination of no significant secondary or cumulative impacts, a network of observation wells to monitor ground-water levels and saltwater intrusion must be established in the Keauhou aquifer system. The National Park Service recognizes that water managers do not yet fully understand how the aquifer responds to pumping stresses, nor does the National Park Service fully understand the quantity of ground water necessary to sustain resources at the National Park. Adequate monitoring of well withdrawals and any changes in water levels and salinity are critical to understanding how the Keauhou aquifer system responds to development and managing for sustainability into the future. The National Park Service is developing a program to monitor water levels and water quality in three shallow wells within the Park's boundaries and is committed to improving our understanding of the National Park's ground-water needs.

Similarly, the HHFDC should work with the Department of Water Supply to identify an observation well in the high-level aquifer near the proposed well, in which water levels and fluid conductivity will be monitored on at least a monthly basis to measure changes in aquifer storage and salinity over time and to ultimately evaluate whether current and proposed water use in the Keauhou aquifer system is sustainable.

In our response letter to the EIS preparation notice, we requested that the developer discuss ways to incorporate to reduce water usage in the proposed development. For example, some proven methods for reducing water usage in new housing developments include planting drought resistant native landscaping, installing low flow toilets and showerheads, installing waterless urinals in public restrooms, and providing information to new residents concerning the importance of water conservation. Water conservation will save the developer and residents operational costs in the long term. The draft EIS does not address water-saving methods or discuss implementing these and similar measures to reduce the water usage to the minimum amount needed for the community.

<u>Plant Species on the Proposed Water Reservoir Site</u>
Section 3.6.2.2 states that no federally listed species were found on the proposed reservoir site. However, the survey did reveal the endemic plant *Bidens micrantha ctenophylla*. The draft EIS incorrectly uses the past-tense in stating that "[the] species ***was*** [emphasis added] a candidate for federal listing as endangered or threatened, ..." In fact, *Bidens micrantha ctenophylla* remains on

the US Fish and Wildlife Service Candidate Species list with a listing priority number of three.[4] The threat status for this species is Magnitude = "High" and Immediacy = "Imminent." Detailed information can be found at: http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=Q2XY. Candidate Species are plants and animals for which the US Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act (ESA), but for which listing has been precluded by other higher priority listing activities. While it is true that Candidate Species receive no statutory protection under the ESA, the US Fish and Wildlife Service encourages formation of partnerships to conserve these species. The Hawaii Housing Finance and Development Corporation should make every effort to protect the *Bidens micrantha ctenophylla* on the proposed project site.

Wastewater and Solid Waste

The draft EIS states that the project has reserved space at the Kealakehe Wastewater Treatment Plant (KWTP) that will accommodate Concept A, but not enough capacity is reserved to accommodate Concepts B or C. The EIS does not discuss the cumulative impacts of increasing development pressure on the KWTP. Currently, the effluent from the plant is discharged into a drainage pit on the mauka side of the highway, which likely drains to Honokohau Harbor and National Park waters. If this situation for discharge continues, the increased nutrients from the proposed project combined with effluent from other new developments would increase the total nutrient load that is discharged into the nearshore waters of the National Park. The HHFDC should explore working with the County and neighboring developments to bring treatment of effluent up to R1.

Archaeology and Cultural Impact Assessment

The Archaeological survey for this project appears to have been based on relocating sites recorded by a previous survey.[5] In an area with dense vegetation, our experience is that many archaeological sites and features are not visible to archaeologists until vegetation is at least thinned. It is likely that the 1990 survey missed significant cultural resources and it appears that the current survey did not attempt to locate additional sites or features.

The draft EIS section, Archaeological Survey, Findings and Conclusions, relied on State Historic Preservation Division approvals dating to 1993. While recommendations made fifteen years ago were very likely wise and prudent at the time, it is not necessarily the case that those same recommendations would be made today. In the past fifteen years, new developments have been proposed and developed, and other archaeological sites and cultural features have been lost to development and other actions. Each individual project has generated recommendations and determinations of affect. However, if all of the archaeological surveys for each development in the Keahuolu ahupua'a were considered as one large undertaking, or the ahupua'a were considered as a "Cultural Landscape," it is likely that mitigation and preservation plans would be significantly different. This issue of cumulative loss of archaeological sites and incremental, cumulative cultural-impacts are not addressed in the draft EIS. We suggest that the HHFDC consider reassessing all archaeological data for the ahupua'a and reassess affects to

[4] Federal Register 12/2007 http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2007_register&docid=fr06de07-20

[5] Donham, T.K. 1990. Archaeological Inventory Survey, Queen Liliuokalani Trust Property. Land of Keahuolu, North Kona District, Island of Hawaii (TMK:3-7-4-8:Por. 2,12).PHRI Report 596-021290. Prepared for Belt, Collins and Associates.

archaeological sites and cultural impacts while considering the Cultural Landscape of the ahupua'a.

Contextual Issues, Cumulative Impacts

Contextual issues and cumulative impacts were not fully addressed in the draft EIS for the Keahuolu Affordable Housing Project. Although the rapid development in the Kona area is well described, cumulative impacts were listed as broad topics but were not analyzed. The cumulative impacts of the project in the context of proposed or approved developments (e.g., Kona International Airport expansion, Air Force military training routes and the short austere air field, highway expansion, Queen Liliuokolani Trust projects, Kona Kai Ola, The Shores at Kohanaiki, O`oma Beachside Village, Kaloko Makai, West Hawaii Business Park, Kaloko Phases III & IV, Kaloko Heights, Kealakehe Planned Community) should be analyzed with regard to the community, cultural and natural resources, visitors, and cultural practitioners in the area.

Thank you for the opportunity to participate in the environmental review process for this proposed project and to provide you with our comments and concerns. If you have any questions on our comments, please contact me at 808-329-6881 x201, or my staff, Richard Boston, Resource Manager, at extension 203.

Sincerely

Geraldine K. Bell
Superintendent

cc: Office of Environmental Quality Control
J. Takahashi, Hawaii Housing Finance & Development Corp.
M. Kobayashi, State Office of Planning
Coastal Zone Management Program, Nonpoint Source Pollution Control Program
C. Hew, Department of Health, Ground Water Protection Program
D. Law ~~S. Yamada~~, Department of Health, Clean Water Branch
P. Leonard, US Fish and Wildlife Service
R. Maile, State Land Use Commission
R. Hardy, Commission on Water Resources Management
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B. McClure, County of Hawaii Department of Public Works
C. Pettee, NPS Water Rights Branch
G. Lind, Office of the Solicitor
NPS Pacific West Regional Office

BeltCollins

September 25, 2008
2006.70.0900 / 08P-331

Ms. Geraldine Bell, Superintendent
Kaloko-Honokohau National Historical Park
National Park Service
U.S. Department of the Interior
73-4786 Kanalani Street, Suite 14
Kailua-Kona, HI 96740

Dear Ms. Bell:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 8, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

Surface Water Drainage, Non-point Source Pollution

HHFDC will require that the project developer utilize storm drainage devices and best management practices beyond those currently required by the County of Hawaii, including the provision of educational materials and programs to residents regarding how they can control and prevent non-point source pollution including, but not limited to, vehicle maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, the potential impacts of fertilizers and pesticides on the environment and the National Park, and alternatives to fertilizers and pesticides. A discussion on the educational materials and programs will be included in the Final EIS.

HHFDC will require that the project developer create landscape management controls on approved chemicals and uses by property owners and maintenance crews on yards and park common areas through community association covenants, conditions or other mechanisms. This statement will be included in the Final EIS.

Parks and Open Space

The community association covenants will include landscape management controls, including the use of fertilizers and pesticides. The project developer will provide the County Department of Parks and the State Department of Education information on the landscape management controls to be used within the Keahuolu site.

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Water System

HHFDC is participating with two groundwater working groups, including the National Park Service's group and the County of Hawaii Department of Water Supply's group. It is our understanding that the working groups are meeting to study, analyze and address the long-term cumulative impacts of increased ground-water development in the high-level aquifer, and the potential impacts of existing and planned developments on the area's water resources.

In the Final EIS, the last sentence of the first paragraph under Potential Long-Term Impacts to Groundwater will be corrected to read, "The project would add approximately 0.7 to 1.2 MGD demand on the aquifer, which is within the sustainable yield of the aquifer."

In the Final EIS, Table 4-29 will be corrected to read that the capacity of the proposed off-site reservoir would be one and one-half million gallons (1.5 million gallons).

The Final EIS and the civil report will acknowledge that one of the potential short-term impacts of this development will be a lowering of water levels in the vicinity of the project's well.

In regards to an observation well in the high-level aquifer, well sites #3 and #4 would be outfitted with sensors to monitor the aquifer.

The project developer will implement water conservation measures including installing low-flow toilets and showerheads, waterless urinals in public restrooms, planting drought-tolerant native landscaping and providing new residents with information on the importance of water conservation. This information will be included in the Final EIS.

Plant Species on the Proposed Water Reservoir Site

The Final EIS will state that the endemic plant *Bidens micrantha ctenophylla* is a candidate for federal listing as endangered or threatened. The project developer will make every reasonable effort to protect the *Bidens micrantha ctenophylla* on the proposed project site.

Wastewater and Solid Waste

We received a comment letter on the Draft EIS from the County of Hawaii Department of Environmental Management. The Department states that upgrades to the Kealakehe Wastewater Treatment Plant to produce R-1 water are planned for FY 10-11. In addition, an R-1 reuse water infrastructure from the drainage pit mauka of the highway will be phased in along Queen Kaahumanu Highway toward the airport after the upgrades to the treatment plant are completed. This information will be included in the Final EIS.

Archaeology and Cultural Impact Assessment

It is true, as stated on page 3 of the current inventory report, that the Donham (1990) survey was the formal archaeological inventory survey for the project area and that the Donham (1990) survey was approved by the Hawaii State Historic Preservation Division (SHPD letter dated February 17, 1993, Log No. 6839, Doc No. 9302RC34). The recent PHRI survey work conducted in 2007 therefore relocated and re-examined the Donham sites that potentially might be impacted in order to confirm the current condition, significance, and general mitigation treatment.

With regards to dense vegetation, the "Field Procedures" section of the Donham (1990, p. 13) report acknowledges dense vegetation in portions of the project area and notes the provisions made for this: *"During pedestrian survey, survey transects were flagged in order to insure complete coverage...In general, surface visibility was such that all or nearly all surface features could be located with persons spaced at approximately 10.0 meters apart....is likely that there are additional rock mounds, pahoehoe excavations, and other minor agricultural features that were not observed during the sweeping or recording phases of field work."*

In other words, the Donham methodology assures that all significant features in the project area have been identified, and that there may remain minor agricultural components of the Kona Field System. Donham makes it clear in her report that minor Kona Field System features are ubiquitous in the project area, and many minor features may be buried in vegetation, and that is why she recommends a sampling block methodology as part of future data recovery work in the project area (Donham 1990: p. 34, para.3-5). The sampling block methodology would involve clearing all vegetation in a large area (400x400 feet), recording every feature in the block, and examining and studying them in terms of the archaeology they represent. This (in conjunction with similar sampling block strategies in Kealakehe and Keahuolu) would then be adequate in representing the Kona Field System within the project area and the general vicinity.

The sampling block methodology is set forth in detail in the subsequent Archaeological Mitigation Plan for the project area (Jensen et al. 1992). This mitigation plan was approved by the SHPD in a letter dated July 28, 1993, Log No. 8976, Doc No. 9307RC40. Based on the Donham methodology and approach, Donham was fully aware of the problems regarding vegetation, and took adequate measures to assure all significant cultural resources were identified, and that the smaller Kona Field System features would be studied in an appropriate manner.

While it is also true that the archaeological findings rely on SHPD approvals dating to 1993, it is also true that SHPD standards and guidelines have not significantly changed, but have been formalized as Hawaii Administrative Rules (HAR). It is also true that current SHPD rules and regulations do not require a re-survey of land that has already undergone an inventory-level survey that the SHPD has approved. Nor does the SHPD require a reconsideration of recommendations because time has passed. PHRI conducts archaeological work in Hawaii to meet current SHPD rules and regulations.

In terms of comments regarding cultural landscape, it is already an SHPD requirement that an archaeological inventory survey report consider the overall pattern of settlement within an ahupua'a, as expressed in Chapter 13-275, Hawaii Administrative Rules, Section 13-276-5: [An inventory report should contain] "a re-evaluation of ideas on the history of land use in the ahupua'a and the parcel." Donham (1990) addresses this matter, as reflected in her review of previous archaeological work, historical documentary research, and in her section "Research Problems and Approach." Again, however, the SHPD does not state that after a given period of time has passed an inventory survey the SHPD has approved is no longer valid, and that re-approval of the survey would be contingent on examining the project area in terms of newly established criteria. The study of the cumulative loss of archaeological site and incremental, cumulative cultural impacts within a cultural landscape seems to fall under the purview of the SHPD and through its approval or disapproval of an archaeologist's significance determinations, mitigation measures and recommendations.

Contextual Issues, Cumulative Impacts

The Draft EIS considers cumulative and secondary impacts in three ways. First, infrastructure planning has involved close collaboration between the County of Hawaii and nearby landowners, all of whom recognize the importance of collaboration to minimize impacts of population growth on roads, the wastewater system, and water supply. Next, several impact analysis sections deal with both immediate and cumulative impacts. For example, the traffic analysis deals not only with project-generated traffic, but with cumulative increases in traffic on Kona roadways. Other infrastructure analyses assess project impacts in relation to plans and studies that take into account regional growth projections (e.g., the County's *Updated Integrated Solid Waste Management Plan* and the *Draft Report Hawaii County Water Use and Development Plan Update).* Thirdly, section 6.3 provides a synthesis of past, ongoing, and emerging growth in the region, and assesses the project's impacts in that context.

The Keahuolu project is planned to serve the region's need for workforce housing near job centers. It will not primarily attract new residents to Hawaii, but will help existing residents find housing convenient to work, schools, and other urban amenities. Residents that will live in the proposed project will likely find better housing and/or shorter commute times in Keahuolu than where they currently live. Consequently, the regional impact is small, and may involve a reduction in the cost of public service delivery, since the project site is close to public safety facilities.

The discussion of Purpose and Need for the Project (Section 1.5) includes a brief account of major housing projects including affordable housing in West Hawaii and compares regional housing production to the thousands of families in the region and islandwide seeking to move to affordable housing in the next few years. HHFDC expects its chosen developer to propose its specific plan based on more detailed market analysis of demand for particular product types, ownership or rental arrangements, and price points, taking into account the actual and likely new production of housing in other developments.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

April 14, 2008

Ms. Mary O'Leary
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

DRAFT ENVIRONMENTAL IMPACT STATEMENT
KEAHUOLU AFFORDABLE HOUSING PROJECT
APPLICANT – HAWAII HOUSING, FINANCE, AND DEVELOPMENT CORPORATION
TAX MAP KEY 7-4-021:020 AND 021 (PORTION)

We have reviewed the subject Draft Environmental Impact Statement (DEIS) and have the following comments.

As indicated in the subject DEIS, extensive offsite improvements and additions will be required to support the proposed development, which shall include, but not be limited to, the development of additional source, concrete storage tanks, booster pumps, and transmission lines. The necessary onsite water system improvements will include, but not be limited to, distribution facilities and fire hydrants. All elements of the offsite and onsite water system improvements must be designed and constructed in accordance with the Department's Water System Standards and Rules and Regulations.

The developer will also be required to enter into a Water Development Agreement with the Water Board, which will establish the necessary offsite water system improvements required to support the development and the allocation of water commitments from any new source(s) developed. Water service within the proposed development will not be granted until the necessary offsite and onsite water system improvements are completed and accepted by/dedicated to the Water Board.

For your information, the Department does not have an existing policy restricting developers to use only 50% of the first well developed for a project. The Department will also note that water is made available for certain developments in Kona, if there are existing water commitments or in areas where the existing water system can support the development. The DEIS indicated that no water is available for new developments in Kona, which is incorrect.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

FM:dms

copy – Office of the Governor c/o Hawaii Housing Finance & Development Corporation
Office of Environmental Quality Control

... Water brings progress...

BeltCollins

September 25, 2008
2006.70.0900 / 08P-334

Mr. Milton Pavao, P.E., Manager
Department of Water Supply
County of Hawaii
345 Kekuanaoa Street, Suite 20
Hilo, HI 96720

Dear Mr. Pavao:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 14, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. The project developer will design and construct all elements of the offsite and onsite water system improvements in accordance with the Department of Water Supply's Water System Standards and Rules and Regulations.

2. The project developer will enter into a Water Development Agreement with the Water Board, which establishes the necessary offsite water system improvements required to support the development and the allocation of water commitments from any new source(s) developed.

   We acknowledge your comment that water service within the proposed development will not be granted until the necessary offsite and onsite water system improvements are completed and accepted by/dedicated to the Water Board.

3. We understand that the Department does not have an existing policy restricting developers to use only fifty percent (50%) of the first well developed for a project. The Final EIS will be corrected with regards to statements about water availability for new developments in Kona as shown in **Attachment 1** of this letter.

   The text of the Final EIS will be revised to indicate that the project has no existing water commitments and that the existing water system cannot support the development as shown in **Attachment 1** of this letter.

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Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachment

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS Section 4.8.3.1 Water Supply and Storage Facilities - Existing Conditions and Section 4.8.3.2 Proposed Water System Design will be revised as follows:

4.8.3.1 Water Supply and Storage Facilities - Existing Conditions

There are no existing water commitments for the Keahuolu project site and the existing water system infrastructure cannot support the development. New source well(s) would be required to support the project. There is no existing water system within the project site.

The majority of the project site is within the 595-foot-elevation Kealakehe High School reservoir's service zone, which extends from the 495-foot elevation to the 225-foot elevation. A portion of the site, along the extension of Keanalehu Drive, above the 495-foot elevation, would have to be serviced from the 935-foot reservoir system to provide adequate water pressure (see Figure 4 15).

Existing water system infrastructure around the project area connects to existing well sites above Mamalahoa Highway. An existing 16-inch water line in Manawale'a Street from the 595-foot-elevation Kealakehe High School reservoir stubs out to the project site and services the 495- to 225-foot-elevation water service pressure zone. A 12-inch water line is under construction in Manawale'a Street as part of the road construction project to provide water service above the 495-foot elevation. There is an existing 16-inch water line in Palani Road along the project site.

A 1.0-million-gallon (MG) reservoir exists at the Kealakehe High School reservoir site. The site is designed for a second 1.0-MG reservoir. *The Villages of La'i 'Opua Water Master Plan* (approved October 26, 2006 by the DWS), prepared by Akinaka & Associates, Ltd. for the DHHL, allocated 472,800 gallons from the two 1.0-MG reservoirs to the Keahuolu Affordable Housing Project.

4.8.3.2 *Proposed Water System Design*

The proposed water system would be developed in accordance with the 2002 State of Hawai'i Water System Standards, Rules and Regulations, and revisions to the standards per discussions with DWS staff. For details of the water system criteria, see the civil infrastructure report in Appendix G. The design and construction of the proposed off-site water system and on-site water system within the road ROW would meet County Standards for dedication to the DWS.

The projected average water daily demand generated by the proposed development plan concepts and reservoir storage requirements are summarized in Table 4 26. Water system calculations are provided in the civil infrastructure report (see Appendix G).

Table 4-26: Water Requirements

Alternative Development Plan	Average Daily Demand (gallons per day [gpd])	Reservoir* (MG)
Concept A	745,820	1.0
Concept B	1,158,680	1.5
Concept C	1,114,680	1.5

* Reservoir calculations utilized 472,800 gallons of capacity in the Kealakehe High School reservoir site allocates for the project parcels in the existing and proposed 1.0 MG reservoirs.

Proposed Off-Site Water System

Proposed Off-Site Wells

Two source wells, numbered 3 and 4 in the *Villages of La'i 'Opua Water Master Plan* (October 26, 2006), have been identified for the project (Figure 4 16). HHFDC and DHHL have discussed HHFDC's development of well 3 and well 4 to provide source water for the project. The proposed wells are within the Keauhou aquifer system.

The DWS has no existing policy allocating the percentage yield of a well to a project that develops the well. For planning purposes, the DWS indicated that a project is allowed 50 percent of the yield for one developed well and 67 percent of the yield for two developed

wells. Well number 4, with a projected 2.0 million gallon per day (mgd) anticipated yield, could provide the Keahuolu project with 1.0 mgd of water to meet the requirements for Concept A, which is 0.7 mgd (see Table 4 27). Well number 4 alone would not be able to support development Concepts B and C water demands, which exceed 1.0 mgd. Development of well number 3, in addition to well number 4, would be required to support Concepts B and C.

The projected yield for well number 3 would be 1.0 mgd. With the development of the two wells 3 and 4, the total anticipated yield would be 3.0 mgd. The project would be allowed 67-percent of the 3.0 mgd, or 2.0 mgd to meet the requirements for Concepts B and C, which are 1.2 and 1.1 mgd, respectively.

Well number 4 would be required for Concepts A, B, and C. Well number 3 would be required in addition to well number 4 for Concepts B and C.

Table 4-27: Off-Site Wells

Concept Plan	Well No. 4 (mgd) 50% or 67% of yield	Well No. 3 (mgd) 67% of yield	Potential Total Supply(MGD)	Average Daily Demand (gpd)
Concept A	1.0		1.0	745,820
Concept B	1.34	0.67	2.0	1,158,680
Concept C	1.34	0.67	2.0	1,114,680

Development of well site number 4 would require outfitting the well with a pump, installation of a well control building with a chlorination system and backup generator, a reservoir, and appurtenant structures. The reservoir would be sized to the average daily production rate of the well, or 2 MG based on the anticipated yield for the well. A new access road would be required from Mamalahoa Highway to the well, well control building and reservoir. A new 16-inch water line would extend from the new reservoir to Mamalahoa Highway and extend approximately 7,000 linear feet north along Mamalahoa Highway to the existing Keahuolu (QLT #1) State Well No. 4057-01 well site.

Development of well site number 3 would require drilling of a new production well, installation of a pump, testing of the well for quality and capacity, installation of a well control building with chlorination system and backup generator, a reservoir, and appurtenant structures. However, well site number 3 does not currently have sufficient land area to accommodate all the structures required for a well site. Additional adjacent private lands would have to be obtained to operate the well. A new 1.0 MG reservoir would be required for the well. A 1.0 MG reservoir is approximately 95 feet in diameter. A new access road would be required from Mamalahoa Highway to the well, well control building and reservoir. A new 16-inch water line would extend from the reservoir to Mamalahoa Highway and connect to the new 16-inch water line between well site number 4 and the existing QLT well site. The well site(s), reservoir(s), water lines, and appurtenant structures would be dedicated to the DWS. Construction of the well site(s) would require well permits, pump installation permits, grading permits, NPDES general permit coverage authorizing discharges of storm water associated with construction activities, and building permits for the structures. An engineering report, including chemical analysis, would be required by the State DOH Safe Drinking Water Branch in the permitting process for the production wells. If dry wells are constructed at the sites, a UIC permit would also be required for the project.

Proposed Off-Site Reservoir on DHHL Property

Either a new 1.0MG reservoir for Concept A or 1.5MG reservoir for Concepts B or C would be required for project water storage, in addition to the 472,800-gallon reserve capacity within the existing Kealakehe reservoir site (Table 4-28). HHFDC and DHHL have discussed construction of a new 595-foot-elevation reservoir site located on the DHHL Keahuolu property at TMK: 7-4-21: portion of 21 (Figure 4 17). The site would be situated off the future extension of Keanalehu Drive, and a temporary access road with two 16-inch water lines would be required within the Keanalehu Drive ROW until Keanalehu Drive is built out. The access road would be located in TMK: 7-4-21: portions of 20 and 21, and grading for the access road would occur on TMK: 7-4-21: portion of 21.

Table 4-28: Projected Off-Site Reservoir Requirements

Development Plan	Reservoir * (MG)
Concept A	1.0
Concept B	1.5
Concept C	1.5

Construction of the reservoir site would require a grading permit, NPDES general permit coverage authorizing discharges of storm water associated with construction activities, and building permits for the reservoir structure. If dry wells are constructed at the reservoir site, a UIC permit would also be required for the reservoir construction.

Proposed Off-Site Water Lines

The *Villages of La'i 'Opua Water Master Plan* identified transmission deficiencies in the off-site water system. Approximately 3,200 linear feet of 8-inch water line in Kealaka'a Street, from Palani Road to Manawale'a Street, would require upsizing to a 12-inch water line. Approximately 800 linear feet of new 12-inch water line would be required in the existing Manawale'a Street. Approximately 2,820 linear feet of 12-inch water line would also be required in Ane Keohokalole Highway, between Palani Road and Makala Boulevard. The water line improvements are shown in Figure 4 16. Upon finalization of the development concept, the DWS has requested that the developer update the *Villages of La'i 'Opua Water Master Plan* to determine whether there are any other system deficiencies and required improvements.

Proposed Off-Site Water System Costs

Order-of-magnitude costs for the off-site water system improvements would be as described in Table 4 29. For details on the water system costs, see the civil infrastructure report in Appendix G. Additional off-site water system improvements or water line size upgrades may be required with the update of the *Villages of La'i 'Opua Water Master Plan.*

Table 4-29: Off-Site Water System Costs

Off-Site Water System	Concept A	Concept B	Concept C
Off-Site Wells and Appurtenances *			
Well Site Number 4	$11,296,000	$11,296,000	$11,296,000
Well Site Number 3		$7,175,000	$7,175,000
Off-Site Reservoir on DHHL Property **			
1.0 million gallon	$7,403,000		
1.5 million gallon		$8,385,000	$8,385,000
Off-Site Water Lines ***			
3,200 linear foot of 12-inch in Kealaka'a Street	$873,000	$873,000	$873,000
800 linear foot of 12-inch in Manawale'a Street	$287,000	$287,000	$287,000
2,820 linear foot of 12-inch in Ane Keohokalole Hwy	$798,000	$798,000	$798,000
TOTAL Estimated Water System Costs**	**$20,657,000**	**$28,814,000**	**$28,814,000**

* Well Site Number 4 required for all concepts. Well Site Number 3 required in addition to Well Site Number 4 for Concepts B or C.

** One reservoir would be required.

*** Upgrades required for all concepts.

**** Additional water system improvements may be required.

Proposed On-Site Water System

The on-site water system would consist of water lines within the roadway network. The system would be connected to the existing water system at Keanalehu Drive and Manawale'a Street and at Palani Road and Ane Keohokalole Highway, forming a looped water system. The Keahuolu water system network would have a minimum pipe size of 8 inches in diameter and a maximum pipe size of 16 inches in diameter, based on the proposed roadway layout and development layout and densities. The water lines would be

sized to meet the maximum daily demand plus fire flow, with a residual pressure of 20 pounds per square inch (psi) at the critical fire hydrant or a residual pressure of 40 psi to meet peak hour demand.

Potential Short-Term Impacts to Surface Waters

There are no surface water bodies on or near the project site. The developer would be required to comply with the NPDES permit requirements, including the BMP plan, and Chapter 10 – Erosion and Sedimentation Control - of the County Code during construction, and prevent the discharge of sediment from the site. As areas of the site are developed, drainage systems would collect runoff and discharge it to the subsurface. The project would be designed to comply with the County's Storm Drainage Standard such that runoff volumes and rates would not increase as a result of site development. The project would have no significant short-term effects on surface waters because there would be no increase of runoff from the site.

Potential Short-Term Impacts to Groundwater

Precipitation on the site currently percolates to the underlying groundwater. This would continue to be the case during and after site development. The NPDES permit requirements, including the BMP plan, would require the contractor to manage materials to prevent the discharge of pollutants to the ground. It is recommended that during and after development, landscape management practices be applied in public and private areas to minimize the use of fertilizers and pesticides that could potentially enter the groundwater. The developer and its contractor would be required to conform with the NPDES permit requirements during construction. BMPs, such as storm drainage filtration devices, are recommended to mitigate pollutants from entering the groundwater. With these measures, short-term impacts upon local groundwater quality would not be significant.

Potential Short-Term Impacts to Water Supply

Water supply infrastructure, including source wells, storage reservoirs, and distribution lines, would be constructed as required and approved by the County DWS. Short-term localized water system shut-downs and road closures may be required as the new water

infrastructure is connected to the existing water system. No short-term detrimental impacts on the existing water supply system are anticipated as a result of the proposed project.

Potential Long-Term Impacts to Surface Waters

Rainfall runoff from the developed site would be collected in the drainage systems and percolated into the ground in the on-site seepage areas, seepage wells, and dry wells. Runoff volumes and rates would not increase as a result of site development, in compliance with the County's Storm Drainage Standard, and the project would have no significant long-term effects on surface waters.

Potential Long-Term Impacts to Groundwater

The source wells would draw the high-level groundwater from the Keauhou aquifer system. The projected sustainable yield from the Keauhou aquifer is 38 mgd, while the projected 2018 demand is 4.98749 mgd. The project would add approximately 0.7 to 1.2 mgd demand on the aquifer, which is its sustainable yield.

The full build-out water demands of the Keauhou aquifer based on the Hawai'i County General Plan is 170.8 mgd without agricultural demands and 245.4 mgd with agricultural demands. Based on the County Zoning, the full build-out water demands of the Keauhou aquifer is 39.1 mgd without agricultural demands and 111.6 MGD with agricultural demands. In the long-term, water demands in the Keauhou aquifer would exceed the sustainable yield of the aquifer, and alternate water resource enhancement measures would be required to meet the water demands. Alternative water resource enhancement measures that have been identified in the *Draft Report Hawaii County Water Use and Development Plan Update* (December 2006) by Fukunaga and Associates would include rainwater catchment systems in the areas mauka of Mamalahoa Highway, wastewater reclamation for use within close proximity of the wastewater treatment facilities, and desalination from brackish wells between Queen Ka'ahumanu Highway and Mamalahoa Highway. Future reduction in development density, development of water conservation programs by the DWS, and continued monitoring of the aquifer have also been identified in the *Draft Report*

Hawaii County Water Use and Development Plan Update to mitigate long-term impacts on the Keauhou aquifer.

It is recommended that the developer implement measures to reduce the amount of pollutants from entering the groundwater by including BMPs such as vegetative swales, bioretention areas, storm drain filtration devices, ground stabilization with landscape and hardscape, educational warning signs on the drainage systems with wording such as "DUMP NO WASTES. GOES TO GROUNDWATER AND OCEAN. HELP PROTECT HAWAI'I'S ENVIRONMENT," and coordinating environmental educational programs for project area residents with the DOH Clean Water Branch.

Potential Long-Term Impacts to Water Supply

The long-term impacts of the project on the DWS water source, storage, and transmission system would be an improvement of the existing system. The additional source well(s) for the project would increase water available to the region, as DWS only allocates a portion of the well yield to the project. As previously noted, DWS allows a project 50 percent of the yield for one developed well and 67 percent of the yield for two developed wells for a project. The project would add storage reservoirs and improve the area water transmission system, as required to provide water service from the source well(s) down to the site. No long-term detrimental impacts on the existing water supply system are anticipated as a result of the project.

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Ref. No. P-12086

April 14, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii Ltd.
2153 N. King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Subject: Draft Environmental Impact Statement (EIS) for Keahuolu Affordable Housing Project, North Kona, Island of Hawaii
Tax Map Key: 7-4-021: 020-Housing site, and 7-4-021: Portion 21-Reservoir site

We have reviewed the above referenced Draft EIS, and have the following comments:

1. We note that this affordable housing project is proposed by the Hawaii Housing Finance & Development Corporation (HHFDC). According to HHFDC, a Request for Proposals has been initiated for the project, but a developer has not been chosen.

2. There are three project concepts at this time; concept A with a total unit count of 1,020 units; concept B with 1,840 units; and concept C with 2,330 units. The developer(s) will be presenting proposals to HHFDC and the exact mixture of affordable and market units will be finalized during this process.

3. The proposal will require State Land Use Commission reclassification from the State Agricultural to the Urban District. Subsequent to a reclassification, other permits will be needed prior to land development.

4. We note that no threatened or endangered species of flora were found. However, some endemic and indigenous species were discovered on-site. We note that no mitigation measures were recommended, but we recommend that native plants be used to vegetate the common areas of the development as much as possible.

5. The Cultural survey indicates that there are parties that have been gathering native vegetation on this site, and that this access should be preserved. The issue of gathering rights and public access should be further discussed.

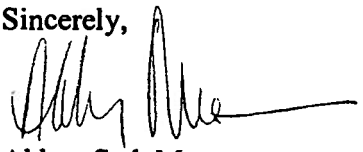
6. According to the archaeological information, some caves have been found on the site. Mammal studies were completed and documented, but no cave invertebrate study has been done. We are concerned that endangered or threatened cave invertebrates might be found in the lava tubes and caves in the Kona area. We are also concerned that more lava tubes and caves may be found on the property.

7. We note that there was no study done for avifauna at the reservoir site. Please provide information as to whether a bat detector was used to determine the presence of the endangered Hawaiian Hoary Bat.

8. Coastal Water Quality/Nonpoint Source Pollution. While the subject property does not abut the ocean, it is upslope from coastal waters. We note that the DEIS (Sections 3.3.2, 4.8.2.2) mentions proposed storm drain devices and best management practices beyond those required by the County. With respect to discussions of proposed impacts, Appendix A provides tables for water and sewer requirements under the three concepts A, B & C. There is no corresponding table for surface water runoff. Discuss surface water runoff relative to the three concepts.

Thank you for the opportunity to comment. If you have any questions, please contact Lorene Maki of my staff at 587-2888.

Sincerely,



Abbey Seth Mayer
Director

BeltCollins

September 25, 2008
2006.70.0900 / 08P-333

Mr. Abbey Seth Mayer, Director
Office of Planning
Department of Business, Economic Development & Tourism
State of Hawaii
235 South Beretania Street, 6th Floor
Honolulu, HI 96813

Dear Mr. Mayer:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 14, 2008 for the above-referenced document. Our responses are numbered according to your comments.

4. Landscaping: The Hawaii Housing Finance and Development Corporation (HHFDC) will recommend to the project developer that native plants be used for landscaping purposes. For non-native species, HHFDC will recommend that the project developer choose species that are thought to have a low risk of becoming invasive.

5. Cultural Survey: Helen Wong-Smith's study, despite considerable effort, yielded only limited information regarding the gathering of native vegetation on the site. An informant indicated that several plants in the project area were important in pre-contact times. The botanical surveys conducted as part of this EIS identified three of these plants in the project area: pili, pilo, and alahe'e. One informant reported that he gathers pilo for medicinal uses. The study did not identify any other present-day gathering activities. In a cultural impact assessment prepared for the Kona Commons project located at Keahuolū, makai/seaward of Queen Ka'ahumanu Highway, Ms. Wong-Smith (2007) reported that contemporary cultural practices include gathering of pilo (or maiapilo) from the 300-foot elevation seaward. The HHFDC parcel is at a higher elevation, above 300 feet. Based on these findings, it is determined that the proposed action would have limited impact on gathering practices. HHFDC will recommend to the developer that care is taken to preserve habitat of endemic plants such as pilo and to assure access for gathering activities in common areas. Furthermore, as stated above, HHFDC will recommend that native plants be used for landscaping.

6. Cave Invertebrates: The Final EIS, as shown in **Attachment 1** of this letter, will contain the results of a cave biological survey conducted by SWCA Environmental Consultants in June 2008.

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7. Avifauna at the Reservoir Site: The Final EIS, as shown in **Attachment 2** of this letter, will contain the results of an avifaunal and feral mammal survey conducted by Phil Bruner in May 2008.

8. Coastal Water Quality/Nonpoint Source Pollution: As noted in the text of the Draft EIS, the project will be required to comply with the County's Storm Drainage Standard such that runoff volumes and rates would not increase as a result of site development.

   The project developer will construct on-site seepage areas, seepage wells and dry wells to contain the additional runoff generated on-site due to the development.

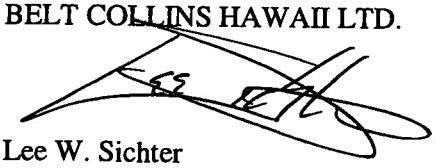
   The project developer will undertake percolation testing in the area of the proposed drainage improvements and select a drainage structure or a combination of structures to dispose of runoff. The selected drainage structure will also depend on the location within the development, such as in a road or within a park, and which type of structure is used. Seepage areas, seepage wells and dry wells are all drainage structures that have been used extensively and effectively in Kona.

   In addition, the developer will utilize storm drainage devices and best management practices beyond those currently required by the County of Hawaii such as providing educational materials and programs to residents on mitigating non-point source pollution including, but not limited to, vehicle maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, the potential impacts of fertilizers and pesticides on the environment, and alternatives to fertilizers and pesticides.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

LWS:lf

Attachments

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

In the Final EIS Section 3.8 will be revised to include the 2008 cave biological survey results as follows:

3.8 Invertebrate Survey

SWCA Environmental Consultants conducted a biological survey of lava tube caves on the project site. The survey report is included in Appendix H. The study's objectives included: (1) conducting a biological survey of caves within the project area; (2) specifically identifying biologically significant caves; (3) compiling a list of faunal species found in the caves, particularly invertebrates; and (4) providing management recommendations for the more biologically significant caves.

3.8.1 Existing Conditions

SWCA entered onto the project site and conducted a series of cave surveys from June 18-20, 2008. Surface reconnaissance surveys were first conducted to locate and document known cave entrances and any previously unidentified features on the site. Once reconnaissance surveys were completed, a list of cave sites proposed for more detailed inventory survey was developed. The focus of these inventory surveys was to develop a general understanding of the troglobitic[1] cave fauna within the Keahuolu project site.

The SWCA study team found eight cave openings at Keahuolu, of which three caves appeared to have a suitable habitat for troglobitic arthropods. SWCA found a total of 14 distinct species of arthropods within four caves. Of these 14 species, SWCA collected and examined 13 species. Current State and Federal regulations provide no special (or specific) protection for any of these species.

---

[1] Troglobitic animals live entirely in the dark parts of caves and are adapted for life in total darkness.

Only two possible native cave species are represented in SWCA's findings: the Rhagidiid mite, which belongs to a group with two known blind cave species and an eyed species known from fumaroles near Kilauea, and the cave moth (*Schrankia* species). The remaining eleven species are classified as alien invaders. The full list of species is located in Table 2 of Appendix H and summarized below.

Acari (Mites): Only one species of mite was identified. The Rhagidiidae is described as a pale predatory mite with conspicuous eyespots.

Araneae (Spiders): Six species of spiders were identified by SWCA during the survey.

Collembola (Springtails): One species of Springtails was discovered (Entomobryidae: Genus species [unidentified]).

Insecta (Insects): Five species of insects were identified.

3.8.2 Potential Impacts and Mitigation Measures

The lava tubes and caves in the Keahuolu project site contain a variety of invertebrates. SWCA concluded that these biological resources do not present a regulatory obstacle to development. None of the identified species is listed as threatened or endangered.

Potential impacts to these species were evaluated. Ultimately, the disposition of the surveyed caves will depend upon whether they contain significant archaeological or cultural material. Mitigation measures are recommended for those caves and/or lava tubes identified for preservation by the SHPD. A determination as to the preservation of caves and/or lava tubes containing no archaeological or cultural resources will be made by the developer pursuant to the final development plan. In all likelihood, caves and/or lava tubes containing no significant archaeological or cultural resources will be destroyed during site grading and preparation, as the invertebrates inventoried in them do not warrant preservation. Furthermore, the caves pose a liability to the landowner if someone should enter one and become injured. In some instances, a cave or lava tube containing no archaeological or

cultural resources may be preserved by the developer because the area surrounding it may not require mass grading. In those cases, the entrance will likely be blocked or hidden to prevent intentional or unintentional trespassing.

SWCA made the following recommendations to minimize impacts on caves, particularly those known to contain cultural resources:

- Minimize adding topsoil or impermeable material to the surface directly above known caves and preserves.
- Control invasive plant species within the preserves. For landscaping, utilize native plants and avoid aggressive, fire-prone, non-native grasses.
- Exercise care to minimize surface disturbance during construction within the general vicinity of known caves.
- Prevent wildfires and develop a rapid response plan to fires within the proposed project area.

If unsurveyed caves are encountered during construction and the caves are accessible, allow a biological survey if appropriate.

Attachment 2

In the Final EIS Section 3.7 will be revised to include the 2008 avifaunal and feral mammal survey results as follows:

3.7 TERRESTRIAL FAUNA

3.7.1 Existing Conditions

Phillip Bruner conducted a field survey in May 2008 of the proposed Keahuolu Affordable Housing Project and Reservoir site [TMK (3) 7-4-021: 020 and TMK (3) 7-4-021: Por. 021]. The goals of this field survey were:

1. Documentation of the species of birds and mammals currently on the property.
2. Examination of the site for the purpose of identifying the natural resources available to wildlife in this region.
3. Devoting special attention to documenting the presence and possible use of this property by native and migratory species particularly those that are listed as threatened or endangered.

The property examined is presently covered in dense, second growth forest composed of primarily alien species of trees, brush, and grass. The surrounding land contains residential, commercial, schools, and other similar undeveloped property.

The field survey was conducted over two consecutive days (May 27-28, 2008). The observations were made in the early morning and late in the day when the birds are most active. The property was covered on foot and all birds seen or heard were documented.

Native Land Birds:

No native land birds were observed during this field survey. The only species that might be seen, on occasion, in this area is the endangered Hawaiian Hawk (*Buteo solitarius*) and the

Hawaiian Short-eared Owl (*Asio flammeus sanwichensis*). The Hawaiian Short-eared Owl is not listed as endangered or threatened on the island of Hawaii. Aside from the Hawaiian Hawk, no other native land birds would be expected to occur on this property.

Native Waterbirds:

No native waterbirds were recorded and would not be expected on this site. No wetland habitat was found on this survey.

Seabirds:

No nesting seabirds were seen during the field survey and would not be expected to nest in this area due to the human disturbance and predators.

Migratory Birds:

No migratory shorebirds were observed. No habitat suitable for shorebirds currently occurs on this site.

Alien (Introduced) Birds:

Nineteen alien species were observed during the course of this survey. None of the birds are listed as threatened or endangered.

Mammals:

The skeletal remains of a feral pig (*Sus scrofa*) and two live adult pigs were observed on May 27, 2008. No rats (*Rattus spp.*), mice (*Mus musculus*), or cats (*Felis catus*) were seen but likely occur on and around the property. No endangered Hawaiian Hoary Bats (*Lasiurus cinereus semotus*) were detected by the ultrasound device during a night search on the property on May 27, 2008.

3.7.2 Potential Impacts and Mitigation Measures

Potential impacts to the various species were evaluated. All habitats on the property were thoroughly surveyed. The birds and mammals found were those to be expected in this region. The endangered Hawaiian Hawk and the non-endangered Hawaiian Short-eared Owl occur in man-altered as well as native habitats throughout the island of Hawaii. A change in the land use at this site will produce small, local increases and decreases in the populations of alien birds. Ultimately, there are no avifaunal or feral mammal impediments to carrying out the proposed project.

PHONE (808) 594-1888 FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD08/3011C

April 16, 2008

Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

RE: Request for comments on the Draft Environmental Impact Statement for the Keahuolū Affordable Housing Project, North Kona, Hawai'i Island, TMKs: (3) 7-4-21: 20 and por. 21.

Dear Mary O'Leary,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-referenced Draft Environmental Impact Statement. The Hawaii Housing Finance & Development Corporation (HHFDC) is proposing to develop 271.865 acres of agricultural land in North Kona into an affordable housing subdivision. The applicant's three alternative plans call for the construction of between 1,020 to 2,330 homes. Each plan also contains a 197,000-square-foot commercial element. OHA has reviewed the project and offers the following comments.

OHA has substantive obligations to protect the cultural and natural resources of Hawai'i for its beneficiaries, the people of this land. The Hawaii Revised Statutes mandate that OHA "[s]erve as the principal public agency in the State of Hawaii responsible for the performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians; . . . and [t]o assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conducting advocacy efforts for native Hawaiians and Hawaiians." (HRS § 10-3)

As a general rule, we disapprove of any land reclassification that would result in the reduction of urban development protections afforded to a property. OHA would only approve of such land reclassifications in special cases in which the increased development is merited. We believe that agricultural lands and their status as such should be preserved, as their purpose fulfills a crucial need of the Native Hawaiian community and the state as a whole. However, the reclassification

of these lands from the agricultural district to the urban district is important for providing much-needed affordable housing to the West Hawai'i region.

OHA appreciates that the applicant will work with the State Historic Preservation Division and the Hawai'i Island Burial Council to develop a burial treatment plan for the project area in the event that any human remains are discovered at Sites 13395, 13408 and 13409. We recommend that the applicant conduct this data collection prior to the completion of the final EIS because the discovery of iwi could have a significant impact on the overall project and which alternative concept is ultimately chosen.

OHA asks to review all preservation plans for preservation sites, and the monitoring plan for the reservoir site, when they become available. As a general rule, OHA prefers that all archaeological sites be preserved "as is," and therefore requests more information on the method the applicant used to determine which archaeological sites would receive greater protections than others. Perhaps that information is located in the 1990 Archaeological Inventory Survey or the 1992 Archaeological Mitigation Program for the Queen Lili'uokalani Trust's Keahuolū lands. While you state in your February 12, 2008, letter to OHA that we were on the mailing list for the Queen Lili'uokalani Trust's draft EIS for its Keahuolū lands in 1990, we do not currently have that document on file. Therefore, we request to receive those documents for review.

We further request the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

In addition, OHA recommends that the applicant use native vegetation in its landscaping plan for the subject parcel. Landscaping with native plants furthers the traditional Hawaiian concept of mālama 'āina and creates a more Hawaiian sense of place. We ask the applicant to use the many endemic, indigenous and Polynesian-introduced plants found in the area in landscaping plans.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

C: Office of the Governor
c/o Hawaii Housing Finance & Development Corporation
Attn: Ms. Janice Takahashi, Chief Planner

677 Queen Street, Suite 300
Honolulu, HI 96813

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

OHA West Hawai'i Office

BeltCollins

September 25, 2008
2006.70.0900 / 08P-335

Mr. Clyde W. Namuo
Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Namuo:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of April 16, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. We acknowledge your comment that reclassification of the project lands from the agricultural district to the urban district is important for providing much needed affordable housing to the West Hawaii region.

2. Sites 13395, 13408 and 13409 are in an area where no development is proposed. All three concept plans designate the lower southwest corner of the project site as an "Archaeological Preserve" where no development is proposed. The archaeological preserve is in the location of Block E. As explained in PHRI's December 2007 "Archaeological Survey and Cultural Impact Assessment" for the subject project, Block E was established as an archaeological sample block of the Queen Liliuokalani Trust mitigation plan. Block E (400 feet by 400 feet) was chosen so that data collected from it could be compared with similar-sized blocks on the Queen Liliuokalani Trust Property. The PHRI report states, "During future data recovery work, each feature within Block E is to be recorded in detail, and sites within the block are to undergo further data collection. Further data collection at Sites 13395, 13408, and 13409 will include testing features to determine whether human skeletal remains are present." If any burials are identified, a burial treatment plan must be prepared, approved, and implemented.

3. The developer will provide the Office of Hawaiian Affairs (OHA) with copies of all preservation plans for preservation sites, and the monitoring plan for the reservoir site, when they become available.

   We acknowledge your comment that OHA prefers that all archaeological sites be preserved "as is."

   According to PHRI, protection for archaeological sites is determined primarily based on significance assessments initially established following the archaeological inventory survey of the project area (Donham 1990). Significance criteria used to make the assessments are based on the National Register Criteria for evaluation as outlined in the

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Code of Federal Regulations (36 CFR Part 60), which the Hawaii State Historic Preservation Division uses for evaluating cultural resources. The Donham report discusses in detail the criteria used to establish significance assessments. The assessments were reiterated in the Jensen et al. (1992) mitigation plan for the project area, and were later amended in PHRI Letter Report 1152-052493, which outlined a sampling block mitigation strategy for the project area. The State Historic Preservation Division approved all three reports.

Sites that are to be preserved generally have value beyond their information content (Criterion D) (see Table 4-1 of the Draft EIS). For example, they may also have cultural value, or be an excellent example of a particular site type. In some cases, however, a site may only have information value but still be recommended for preservation simply because it is convenient to do so; for example, the site happens to be near other sites slated for preservation in a designated Archaeological Preserve Area.

Copies of the 1990 Archaeological Inventory Survey and the 1992 Archaeological Mitigation Program for the Queen Liliuokalani Trust's Keahuolu Lands will be mailed to your office.

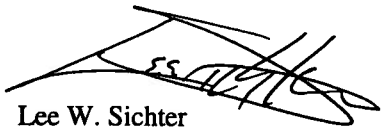
4. In the event that any sites or remains such as shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings or walls are encountered during construction, the developer and its contractors shall stop work and contact the State Historic Preservation Division and comply with its requirements. This statement is in the Hawaii Housing Finance and Development Corporation's "Request for Proposals" dated July 23, 2007 document, which was provided to prospective developers.

5. The Hawaii Housing Finance and Development Corporation (HHFDC) will recommend that the project developer use native plants for landscaping purposes or choose species that are thought to have a low risk of becoming invasive.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

LWS:lf

cc: Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

May 6, 2008

Ms. Mary O'Leary, AICP, Senior Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

LOG NO: 2008.0496
DOC NO: 0805TS01
Archaeology

Dear Ms. O'Leary:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Keahuolū Draft EIS in Support of Land Use District Boundary Amendment Petition
Keahuolū and Kealakehe Ahupua`a, North Kona District, Island of Hawai'i
TMK: (3) 7-4-021: por. 14, 20 and 21

Thank you for the opportunity to review the aforementioned project, which we received on March 06, 2008. We apologize for the delay in our response.

The applicant seeks to amend a State Land Use Boundary in order to reclassify 272 acres from Agricultural to Urban classification. We are unable to determine that no historic properties will be affected by this project for the following reasons.

The supporting "Archaeological Survey and Cultural Impact Assessment in Support of an EIS for the Kona Non-Ceded Lands" (prepared by Paul H. Rosendahl, Ph.D., Inc., Corbin and Wong-Smith 2007, included as Appendix D) is inadequate. The survey purports to have relocated all the sites in the project area that were recorded in the original Archaeological Inventory Survey (Donham 1990). Twelve sites are then listed (-13394, -13395, -13398, 13400, 13408, 13409, 13410, 13441, 13450, 13452, 13471, 13474) and the original significance assessments and recommended general mitigation treatments are reiterated. Comparison of this report with the 1990 Survey report indicates that many if not a majority of the previously recorded sites are not reported.

The Mitigation Plan, prepared in 1993, is represented in Appendix D as having been completed. This Plan was not approved as final. The letter referenced (log# 8976 doc# 9307RC40) states that several revisions are still required before approval. The proposed mitigation which includes data recovery fieldwork has not been completed, to date. Furthermore, the commitment to prepare a Preservation Plan for the project area, likewise has not been received by the SHPD.

Though the proposed action is not a ground altering activity, these discrepancies and the incomplete status of the historic preservation review process is cause for our concern. We request that the Final EIS include an up-to-date mitigation plan (including Data Recovery and Preservation Plans). Preferably this would be submitted for our office for review prior to inclusion in the EIS. We request that you also provide a schedule for the completion of these mitigation commitments. In addition, where applicable, Burial Treatment Plans for those that exist on the property must also be approved by the Hawaii Island Burial Council.

The second report submitted in support of the current DEIS, "An Archaeological Survey for the Proposed Development of a Water Reservoir and Service Road" (Ketner and Rechtman 2008) has been reviewed and is approved as final (Log# 2008.1339, Doc# 0805TS02). The SHPD looks forward to receiving a Monitoring Plan for review and approval.

If you have any questions or concerns regarding this letter please contact Assistant Hawaii Island Archaeologist, Timothy E. Scheffler, Ph.D. at (808) 981-2979 (timothy.e.scheffler@hawaii.gov).

Aloha,

Nancy McMahon, Archaeology and Historic Preservation Manager
State Historic Preservation Division

TS
Chris Yuen, Planning Director, HI County Department of Planning, Aupuni Center, 101 Pauahi Street, Suite 3, Hilo, HI 96720

BeltCollins

September 25, 2008
2006.70.0900 / 08P-337

Ms. Nancy McMahon
Archaeology and Historic Preservation Manager
State Historic Preservation Division
Department of Land and Natural Resources
601 Kamokila Boulevard, Room 555
Kapolei, HI 96707

Dear Ms. McMahon:

Response to Comments
Draft Environmental Impact Statement (DEIS)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided in your letter of May 6, 2008 for the above-referenced document. Our responses are provided in the order of your comments.

1. Adequacy of Archaeological Survey and Cultural Impact Assessment in Support of an EIS for the Kona Non-Ceded Lands prepared by PHRI, 2007, included as Appendix D.

   The scope of PHRI's 1990 "Archaeological Inventory Survey - Queen Liliuokalani Trust (QLT) Property" report encompassed approximately 1,100 acres of land in Keahuolu.

   The scope of PHRI's 2007 "Archaeological Survey and Cultural Impact Assessment in Support of an EIS for the Kona Non-Ceded Lands" report involves approximately 272 acres of the original 1,100 acres. Therefore, only those previously recorded sites within the current Hawaii Housing Finance and Development Corporation's (HHFDC) 272-acre project site are reported on in PHRI's 2007 document.

   The 2007 report is not in itself an inventory survey, which would require relocation and reporting on all sites. As indicated on page 12, paragraph 2, and elsewhere in PHRI's report, the project site already has an SHPD-approved inventory survey related to the 1990 work done for QLT. The specific scope for the current HHFDC project is outlined in detail on page 3 of the PHRI's report. PHRI will make the following revisions to their report:

   Page ii – delete the word "inventory" in paragraph 1, line 2.

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Page 1 – delete the word "inventory" in paragraph 1, lines 2 and 7; replace the phrase "identify all potentially significant" in paragraph 2, line 13, with "re-identify and relocate specific...."

Section 4.1 of the Final EIS will be revised as shown in **Attachment 1** of this letter.

2. 1993 Mitigation Plan: We believe that the confusion is due to a few inaccuracies in the PHRI 2007 report text which may lead the reader to believe that the mitigation plan has not been approved. However, it is clearly stated on page 12, paragraph 2, and elsewhere in PHRI's report, that: "The assessments and recommendations were reiterated in an archaeological mitigation plan for the project area (Jensen et al. 1992) (SHPD approval letter of 12/21/93; Log 10361; Doc 9312RC02) see Appendix)." The SHPD approval letter is in Appendix A of PHRI's 2007 report, which is Appendix E of the Keahuolu Draft EIS.

   Not only has the mitigation plan been approved, but implementation of the plan has already begun (Block C data recovery; PHRI Report 1483-060101, Corbin 2001). PHRI will make the following revisions to their report:

   Page 3 – last paragraph, line 9, replace "10/21/93" with "12/21/93."

   Page 12 – replace the last five lines in paragraph 2 with; Log 10361, Doc 9312RC02; see Appendix); the plan had been amended by PHRI Letter Report 1152-052493, which outlined the sampling block methodology to be used during mitigation (dated June 10, 1993; PHRI Letter 1152-052493, to D. Hibbard, SHPD, from A. Walker, PHRI). The final significance assessments and recommendations are summarized in Table 1.

   The revisions above to page 12 of the 2007 PHRI report refer to Appendix A of the 2007 report, and to Table 1 of the 2007 PHRI report. Table 1 of the PHRI report is Table 4.1 in the HHFDC Keahuolu Draft EIS.

3. Up-to-date Mitigation Plan: The EIS process does not require the inclusion in an EIS of a completed archaeological mitigation plan (although an SHPD-approved mitigation plan for the project area does exist), or a completed preservation plan. This is because the EIS needs approval first; if it is not approved and the project is halted, then the preservation plan, for example, may have been created to no purpose. What usually happens in a case such as this is that the developer commits to a Special Condition of a State Land Use Commission approval. The Special Condition would require the developer's commitment to fulfill all of the historic preservation requirements of the SHPD, which includes fulfilling mitigation commitments, and preparing appropriate documents such as preservation and burial treatment plans.

Whatever the case, the developer is fully committed to follow through with appropriate and responsible measures to mitigate effects to archaeological properties.

Again, thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

LWS:lf

Attachment

cc: Paul H. Rosendahl, PHRI Inc.
Office of Environmental Quality Control
Stanley Fujimoto, HHFDC

Attachment 1

Section 4.1 of the Final EIS will be revised as follows:

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES – HOUSING PROJECT SITE

Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological survey and prepared a preliminary CIA for the proposed Keahuolu Affordable Housing Project site, comprised of approximately 272 acres. The CIA study is discussed in Section 4.3. The overall objective of the archaeological survey and the CIA is to comply with the current historic preservation requirements of the Hawai'i SHPD.

The specific objectives of the survey were fourfold: (a) to re-identify and re-locate specific archaeological remains present within the study area; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains. The PHRI archaeological survey report is excerpted below. Appendix D contains the complete report.

EISPN LETTERS

From:request_info@beltcollins.com [mailto:request_info@beltcollins.com]
Sent: Saturday, July 28, 2007 1:51 PM
To: Honolulu Belt Collins
Subject: Request for more information

Name: Aaron Stene
Company: N/A
Address1: 73-4181 Malino Place
Address2:
City: Kailua-Kona
State: HI
Country: USA
Zipcode: 96740
Phone: 325-7916
Fax:
Email: aaron@hawaiiantel.net

Comments: For Mary O'Leary:

Dear Ms.O'Leary,

In regards to Keahuolu Affordable Housing Project here in Kona, I hope the State and the developer will address the infrastructure impacts from this project. The existing infrastructure here in Kona is already at the breaking point. We don't need more houses built here, afforable or not, WITHOUT adequate infrastructure in place to support these new homes. I've lived here in Kona 31 years. It has changed very negatively over that period of time because all these homes were built without adequate supporting infrastructure. I hope those mistakes won't be repeated again with this project.

Best Regards, Aaron Stene

February 12, 2008
2006.70.0900 / 08P-049

Mr. Aaron Stene
73-4181 Malino Place
Kailua-Kona, HI 96740

Dear Mr. Stene:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on July 28, 2007 via electronic mail from aaron@hawaiiantel.net to request_info@beltcollins.com. The Draft Environmental Impact Statement will discuss existing and proposed infrastructure improvements required to support the proposed project and related potential impacts and mitigation measures.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

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Best Regards, Aaron Stene

Aaron Stene <aaron@hawaiiantel.net>

07/28/2007 01:54 PM
Please respond to aaron@hawaiiantel.net

To library@dbedt.hawaii.gov
Cc Subject For Stanley Fujimoto

Stanley Fujimoto, State Department of Business, Economic Development and Tourism, Hawaii Housing and Finance and Development Corporation, 677 Queen St. Suite 300, Honolulu, HI 96813.

Aloha Mr. Fujimoto,

In regards to Keahuolu Affordable Housing Project here in Kona, I hope the State and the developer will address the infrastructure impacts from this project. The existing infrastructure here in Kona is already at the breaking point. We don't need more houses built here, afforable or not, WITHOUT adequate infrastructure in place to support these new homes.

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Best Regards,
Aaron Stene
--
****
Aaron Stene
Kailua-Kona, Hawaii
http://aaronstene.blogspot.com/
****

February 12, 2008
2006.70.0900 / 08P-050

Mr. Aaron Stene
73-4181 Malino Place
Kailua-Kona, HI 96740

Dear Mr. Stene:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on July 28, 2007 via electronic mail from aaron@hawaiiantel.net to library@dbedt.hawaii.gov . The Draft Environmental Impact Statement will discuss existing and proposed infrastructure improvements required to support the proposed project and related potential impacts and mitigation measures.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

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Thailand

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T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

From:request_info@beltcollins.com [mailto:request_info@beltcollins.com]
Sent: Saturday, July 28, 2007 1:51 PM
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Zipcode: 96740
Phone: 325-7916
Fax:
Email: aaron@hawaiiantel.net

Comments: For Mary O'Leary:

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Best Regards, Aaron Stene

Aaron Stene <aaron@hawaiiantel.net>

07/28/2007 01:54 PM
Please respond to aaron@hawaiiantel.net

To library@dbedt.hawaii.gov
Cc Subject For Stanley Fujimoto

Stanley Fujimoto, State Department of Business, Economic Development and Tourism, Hawaii Housing and Finance and Development Corporation, 677 Queen St. Suite 300, Honolulu, HI 96813.

Aloha Mr. Fujimoto,

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I've lived here in Kona 31 years. It has changed very negatively over that period of time because all these homes were built without adequate supporting infrastructure. I hope those mistakes won't be repeated again with this project.

Best Regards,
Aaron Stene
--
****
Aaron Stene
Kailua-Kona, Hawaii
http://aaronstene.blogspot.com/
****

LINDA LINGLE
GOVERNOR

BARRY FUKUNAGA
INTERIM DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAII DISTRICT
50 MAKAALA STREET
HILO, HAWAII 96720
TELEPHONE: (808) 933-8866 • FAX: (808) 933-8869

IN REPLY REFER TO:

HWY-H 07-2.0711

July 27, 2007

Ms. Mary O'Leary
Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai'i 96819

Dear Ms. O'Leary:

SUBJECT: Environmental Impact Statement Preparation Notice
Palani Road, Route 190
Hawaii Housing Finance & Development Corporation (HHFDC)
Affordable Housing Project
T.M.K. 3rd Div. 7-4-008:056 por.
Project No. 19BC-01-71
Keahuolu, North Kona, Hawai'i

Thank you for your transmittal requesting our review of the subject project.

The project does not have direct access to our highway facilities. However we retain an interest in any development that will indirectly impact our highway system.

We appreciate your providing this advance notice and for the opportunity to provide comments.

If you have any questions please call Mr. Clinton Yamada at 933-1951.

Very truly yours,

STANLEY M. TAMURA
Hawai'i District Engineer

February 12, 2008
2006.70.0900 / 08P-051

Mr. Stanley M. Tamura, Hawaii District Engineer
Highways Division - Hawaii District
Department of Transportation
State of Hawaii
50 Makaala Street
Hilo, HI 96720

Dear Mr. Tamura:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on July 27, 2007 for the above-referenced document. We understand that the proposed project does not have direct access to a state highway facility. A copy of the Draft Environmental Impact Statement will be mailed to your office.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
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T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR OF HAWAI'I

LAURENCE K. LAU
ACTING DIRECTOR

RECEIVED
2007 AUG -6 PM 3:08
BELT COLLINS HAWAII

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
LEIOPAPA A KAMEHAMEHA, SUITE 702
HONOLULU, HAWAI'I 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Electronic Mail: OEQC@doh.hawaii.gov

August 2, 2007

Orlando "Dan" Davidson
Executive Director
Hawaii Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Davidson:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
Keahuolu, Kailua-Kona, Hawaii
TMK (3) 7-4-008: por. 056

Thank you for the opportunity to review the subject document. The Office of Environmental Quality Control has no comments at this time.

Please call Herman Tuiolosega at (808) 586-4185 if you have any questions.

Sincerely,

George Casen

George Casen
Planner

c: Sue Sakai, Belt Collins Hawaii Ltd.
Mary O'Leary, Belt Collins Hawaii Ltd.

February 12, 2008
2006.70.0900 / 08P-052

Mr. George Casen, Planner
Office of Environmental Quality Control
Department of Health
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Mr. Casen:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. As stated in your August 2, 2007 letter regarding the above-referenced document, we understand that your office does not have any comments at this time. A copy of the Draft Environmental Impact Statement will be mailed to your office.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
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PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

August 2, 2007

HRD07_3011B

Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai'i 96819

Dear Ms. O'Leary:

Re: Environmental Impact Statement Preparation Notice
Keahuolu Affordable Housing Project
Keahuolu Ahupua'a, North Kona District, Hawai'i Island
Tax Map Key: (3) 7-4-008: por. 56

The Office of Hawaiian Affairs (OHA) is in receipt of your July 20, 2007 Environmental Impact Statement Preparation Notice (EISPN) for the subject Hawai'i Housing Finance & Development Corporation (HHFDC) affordable housing project on 272 acres of State land in Keahuolu Ahupua'a, North Kona District, Hawai'i Island.

OHA is obligated to work towards the betterment of Native Hawaiians, and to serve the needs and interests of this wide and diverse beneficiary group. OHA must also ensure that other agencies, on the State and County levels, uphold their constitutionally, statutorily and judicially mandated obligations to the Native Hawaiian people.

The EISPN indicates that an archaeological inventory survey (AIS) of 1,135 acres (including the 272 acre project area) was conducted in 1990 and that the draft EIS will include the results of current work to validate and update the findings of this earlier archaeological inventory survey. OHA requests verification that this 1990 AIS was conducted pursuant to applicable laws, rules and regulations and submitted to the appropriate agencies for review and approval. OHA seeks clarification on the necessity of the above mentioned current work to validate and update the findings of the 1990 AIS.

OHA notes that section 13-284-6 (c), HAR, states:

> (c) Prior to submission of significance evaluations for properties other than architectural properties, the agency shall consult with ethnic organizations or members of the ethnic group for whom some of the historic properties may have significance under criterion "e", to seek their views on the significance evaluations. For native Hawaiian properties which may have significance under criterion "e", the Office of Hawaiian Affairs also shall be consulted.

Neither the developer's archaeological consultant nor the State Historic Preservation Division possess the capacity to determine whether any historical site found and evaluated, meets the criteria for having an "important value to the native Hawaiian people." Thus the obligation to meaningfully consult with the Office of Hawaiian Affairs so that the Hawaiian people can determine what is valuable to them. It is unclear whether this consultation with OHA has ever occurred.

Based on our experience with past development projects of this size in this part of the North Kona District, it is possible that additional Native Hawaiian traditional, cultural and burial sites will be identified during construction activities. Thus, archaeological monitoring for all construction machinery operating within the subject project area is warranted. Furthermore, project planners and engineers should be prepared to explore and implement all means necessary to accommodate the preservation in place of any identified native Hawaiian burial, traditional, and cultural sites.

In the event trails and lava tubes containing traditional or cultural resources have been identified within your project area, OHA is concerned how the integrity of these resources will be protected due to the need for excavations related to infrastructure requirements throughout the project area.

As previously stated in our May 3, 2007 letter to your company, we are sure individuals and organizations with specific knowledge of cultural resources, practices and beliefs within the project area will be identified and consulted as required by State law. Our staff is familiar with the following individuals as having familial connections to Keahuolu Ahupua'a: Clarence A. Medeiros, Jr., J. Curtis Tyler III, Mahealani Pai, Ruby P. Keana'aina McDonald and Reginald Lee. Please keep in mind that this list of individuals is by no means all encompassing and we are sure that additional individuals and organizations with connections to your project area will be identified as you begin your consultation process.

OHA seeks assurances that the Cultural Impact Assessment (CIA) will follow the guidelines established by the Office of Environmental Quality Control. Office of Environmental Quality Control guidelines recommend preparers of assessments *"identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a"*. Thus, the larger traditional and cultural landscapes of Keahuolu and nearby ahupua'a bear consideration.

The overall goal of this HHFDC project certainly responds to the need for affordable housing for working families in and around North Kona and it is possible that many of these working families are OHA beneficiaries. With this in mind, OHA hopes that through meaningful consultation and appropriate collaboration between government agencies, a new paradigm for responsible development as it relates to the protection of Native Hawaiian traditional, cultural and burial sites can be established.

Thank you for the opportunity to provide comments on the EISPN and we look forward to the opportunity for a comprehensive review of the draft EIS when it is completed. Should you have any questions, please contact Keola Lindsey, Lead Advocate- Culture at 594-1904 or keolal@oha.org.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

C: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Ruby McDonald
OHA Community Resource Coordinator- West Hawai'i
75-5706 Hanama Place, Suite 107
Kailua-Kona, HI 96740

Christopher Yuen, Director
Hawai'i County Planning Department
Aupuni Center, 101 Pauahi Street, Suite 3
Hilo, HI 96720

State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawai'i 96707

February 12, 2008
2006.70.0900 / 08P-053

Mr. Clyde W. Namuo, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Namuo:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Chapter 343 (HRS) public and agency review process. We are writing in response to the comments you provided on August 2, 2007 for the above document. The following responses have been prepared with the assistance of the consulting project archaeologist, Paul H. Rosendahl, Ph.D., Inc. (PHRI). The responses are provided in the order of your comments. Your comments are quoted from your letter and appear in italics.

Comment:

1. *The EISPN indicates that an archaeological inventory survey (AIS) of 1,135 acres (including the 272 acre project area) was conducted in 1990 and that the draft EIS will include the results of current work to validate and update the findings of this earlier archaeological inventory survey. OHA requests verification that this 1990 AIS was conducted pursuant to applicable laws, rules and regulations and submitted to the appropriate agencies for review and approval. OHA seeks clarification on the necessity of the above-mentioned current work to validate and update the findings of the 1990 AIS.*

Response: The 1990 archeological inventory survey (AIS) conducted by Donham was conducted pursuant to applicable s laws, rules and regulations. The AIS report is titled and referenced as:

> Archaeological Inventory Survey, Queen Liliuokalani Trust Property, Land of Keahuolu, North Kona District, Island of Hawaii (TMK 3-7-4-8:Por.2, 12). PHRI Report 596-021290. August 1990. Prepared for Belt Collins and Associates.

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

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2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
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The AIS report was submitted to the State Historic Preservation Division for review and acceptance. The State Historic Preservation Division approved the AIS in its letter dated February 17, 1993 (Log No: 6839, Doc No: 9302RC34). Approval letters will be included in the Draft EIS.

The AIS report was prepared for inclusion in the 1990 Draft and Final Environmental Impact Statements, prepared by Belt Collins, for the Queen Liliuokalani Trust Property project.

The current work conducted by PHRI in 2007 for the Keahuolu Affordable Housing project was necessary to (1) validate the original findings, and (2) to update and confirm the status of sites, because seventeen years has passed since the 1990 archaeological inventory survey was conducted. Also, new technology, global positioning systems equipment (GPS), was employed to more precisely and accurately re-locate the previously identified archeological sites. No new archaeological sites were encountered in PHRI's efforts to relocate the previously identified archeological sites.

Comment:

2. *OHA notes that section 13-284-6 (c), HAR, states: (c) Prior to submission of significance evaluations for properties other than architectural properties, the agency shall consult with ethnic organizations or members of the ethnic group for whom some of the historic properties may have significance under criterion "e', to seek their views on the significance evaluations. For native Hawaiian properties which may have significance under criterion "e", the Office of Hawaiian Affairs also shall be consulted.*

   Neither the developer's archaeological consultant nor the State Historic Preservation Division possess the capacity to determine whether any historical site found and evaluated, meets the criteria for having an "important value to the native Hawaiian people." Thus the obligation to meaningfully consult with the Office of Hawaiian Affairs so that the Hawaiian people can determine what is valuable to them. It is unclear whether this consultation with OHA has ever occurred.

Response: Please find enclosed a copy of the 1990 mailing list submitted by Belt Collins to the Office of Environmental Quality Control for the 1990 "Draft Environmental Impact Statement – Liliuokalani Trust Keahuolu Lands, Kailua-Kona, Hawaii". The Office of Hawaiian Affairs, Mr. Thomas K. Kaulukukui,

Chairman, was mailed a copy of the Draft EIS. The 1990 Final EIS does not contain a comment letter on the Draft EIS from the Office of Hawaiian Affairs. Historical Researcher and Cultural Resources Specialist Helen Wong Smith is working on the Cultural Impact Assessment for the Keahuolu Affordable Housing area. Her study will include documentary and informant research. If properties other than architectural ones are identified, they will be discussed with informants and the Office of Hawaiian Affairs.

Comment:

3. *Based on our experience with past development projects of this size in this part of the North Kona District, it is possible that additional Native Hawaiian traditional, cultural and burial sites will be identified during construction activities. Thus, archaeological monitoring for all construction machinery operating within the subject project area is warranted.*

Response: The approved mitigation program for the project area includes an Archaeological Monitoring Plan (Jensen et al. 1992; SHPD approval letter dated December 21, 1993, Log No: 10361, Doc No: 9312/RC02), which ensures protection if additional traditional, cultural, and burial sites are encountered during the course of construction. The SHPD rules and regulations provide the procedures for mitigation of such post inventory survey "inadvertent finds."

Comment:

4. *Furthermore, project planners and engineers should be prepared to explore and implement all means necessary to accommodate the preservation in place of any identified native Hawaiian burial, traditional, and cultural sites.*

Response: PHRI assumes that project planners and engineers will reasonably accommodate the preservation in place of any identified native Hawaiian, traditional and cultural sites assessed by the SHPD as requiring preservation.

Comment:

5. *In the event trails and lava tubes containing traditional or cultural resources have been identified within your project area, OHA is concerned how the integrity of these resources will be protected due to the need for excavations related to infrastructure requirements throughout the project area.*

Response: As noted above, the SHPD rules and regulations require that all sites (including trails and lava tubes) assessed as requiring preservation be protected if there is a need "for excavations related to infrastructure requirements." Protection measures are addressed in an Interim Site Protection Plan, an Archaeological Monitoring Plan, and a Site Preservation Plan. The final Site Preservation Plan will address the specific preservation requirements for each site.

Comment:

6. *As previously stated in our May 3, 2007 letter to your company, we are sure individuals and organizations with specific knowledge of cultural resources, practices and beliefs within the project area will be identified and consulted as required by State law. Our staff is familiar with the following individuals as having familial connections to Keahuolu Ahupua'a: Clarence A. Medeiros, Jr., 1. Curtis Tyler III, Mahealani Pai, Ruby P. Keana'aina McDonald and Reginald Lee. Please keep in mind that this list of individuals is by no means all encompassing and we are sure that additional individuals and organizations with connections to your project area will be identified as you begin your consultation process.*

Response: As noted above, Historical Researcher and Cultural Resources Specialist Helen Wong Smith is currently working on the Cultural Impact Assessment for the project area. Her study will include informant research. All of the above-listed people have already been contacted concerning the project, and additional individuals and organizations have been identified.

Comment:

7. *OHA seeks assurances that the Cultural Impact Assessment (CIA) will follow the guidelines established by the Office of Environmental Quality Control. Office of Environmental Quality Control guidelines recommend preparers of assessments "identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a". Thus, the larger traditional and cultural landscapes of Keahuolu and nearby ahupua'a bear consideration.*

Response: The Cultural Impact Assessment study for the project area will follow the guidelines established by the Office of Environmental Quality Control, as well as all other applicable rules and guidelines, as specified by the DLNR-SHPD. The CIA report addresses the guidelines established by the OEQC.

Again, thank you for your participation in the Chapter 343 comment and review process. A copy of the Draft Environmental Impact Statement will be mailed to your office

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Enclosures

cc: Ms. Ruby McDonald
OHA Community Resource Coordinator – West Hawaii
75-5706 Hanama Place, Suite 107
Kailua-Kona, HI 96740

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

August 10, 2007

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai`i 96819

Dear Ms. O'Leary:

Subject: Keahuolu Affordable Housing Project Environmental Impact Statement Preparation Notice, Kailua-Kona, TMK: 7-4-008: por. 056

The Department of Education (DOE) has reviewed the Environmental Impact Statement Preparation Notice (EISPN) for the Hawaii Housing Finance and Development Corporation (HHFDC) residential project in Keahuolu, North Kona. The DOE submitted comments on a brief description of the project in a May 2, 2007, letter to Susan A. Sakai. A copy of that letter is attached. In the letter we asked for additional information on the type of housing being proposed so that we can generate an estimated count of the number of public school students who would be living in the HHFDC project. We are awaiting that additional information.

The 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. Under this new law, we believe the Keahuolu project will be required to pay an impact fee. We currently do not know the amount of the fee per residential unit but we should have a better idea once our questions are answered.

Thank you for the opportunity to comment. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:jmb

Attachment

c: Randolph Moore, Assistant Superintendent, OBS
Duane Kashiwai, Public Works Administrator, FDB
Art Souza, CAS, Honokaa/Kealakehe/Kohala/Konawaena Complex Areas
OEQC

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF BUSINESS SERVICES

May 2, 2007

Ms. Susan A. Sakai, Vice President
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai`i 96819-4554

Attention: Ms. Lynn Fukuhara

Subject: Request for Early Comments on Plans for Keahuolu, Kailua-Kona

To make a meaningful contribution to your planning effort at Keahuolu, the Department of Education (DOE) requests the following information:

- More descriptive information on the type of housing being considered for the project.
- Type of single-family housing being considered, including lot size, general size of the units, and targeted price range.
- For the multi-family housing, additional information about the differences between 24 units per acre and 12 units per acre (i.e., Would the multi-family housing be in large structures, several stories high, or, would it be more like two-story structures with 8 to 12 units?).
- An estimate of the size and price of the multi-story units.
- Numbers of affordable units and affordable to what income levels.
- Whether a significant number of multi-family units are expected to be rentals.

The additional information would enable us to generate a more accurate estimate of the number of public school students expected to live in the project.

The DOE is concerned with any increase in enrollment at the schools presently serving the Kealakehe area. Kealakehe Elementary has reached its facility capacity this school year and is expected to exceed its capacity each succeeding year. Kealakehe Intermediate School and Kealakehe High School are not expected to grow as fast; but with more development planned in the areas north of Kealakehe, enrollment increases are possible.

Both of the land use concepts in your illustrations place the school in a generally good location as far as access along three or four of the site's boundaries. It would be helpful if you could explain why there is a designation for "non-sewer generating activity" on the school site. To properly evaluate the site, we would want to know the amount of slope on the site.

It is also important to the DOE to have as much information as possible about other development plans in the immediate vicinity. While it appears that the first need in Kealakehe is for an additional elementary school, the need for an additional middle school and a high school are not too far behind.

The DOE appreciates the opportunity to offer comments in this preliminary stage of planning. We hope that the DOE will be consulted during each new phase of planning for the project. If you can provide DOE with more information on the housing types, we can provide you will a student enrollment estimate.

If you have any questions, please call Heidi Meeker at 733-4862.

Sincerely yours,

Duane Y. Kashiwai
Public Works Administrator

DYK:jmb

February 12, 2008
2006.70.0900 / 08P-054

Ms. Patricia Hamamoto, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, HI 96804

Dear Ms. Hamamoto:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 10, 2007 for the above-referenced document.

The Draft Environmental Impact Statement will include provisional estimates of school impacts derived from standard formulae. Belt Collins has consulted with the DOE as we have prepared the provisional estimates. A copy of Draft Environmental Impact Statement will be sent to your office.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
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Belt Collins Hawaii Ltd.
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Harry Kim
Mayor

Jane H. Testa
Director

Diane L. Ley
Deputy Director

County of Hawaii

DEPARTMENT OF RESEARCH AND DEVELOPMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8366 • Fax (808) 935-1205
E-mail: chresdev@co.hawaii.hi.us

August 10, 2007

TO: ✓ Ms. Mary O'Leary, Senior Partner
Belt Collins Hawai`i Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

FR: Diane Ley,
Deputy Director

RE: Environmental Impact Statement Preparation Notice
Keahuolu Affordable Housing Project - Keahuolu, Island of Hawai`i

On behalf of the County of Hawai`i's Department of Research and Development, thank you for the opportunity to provide comments on the Environmental Impact Statement Preparation Notice for the Keahuolu Affordable Housing Project.

Over the past year, the Department has been engaged with the Hawai`i County Planning Department in providing the community process piece for the development of the North and South Kona Community Development Plan (CDP). Through this process there has been a wealth of information gathered relative to the community's concerns and desires for the future of the region. It is recommended that the CDP website be visited for information that may be relevant to the planning process for the Keahuolu Affordable Housing Project. The website is www.hawaiiislandplan.com, or contact the Planning Department for further details.

Additionally, it is recommended that research be conducted to mitigate the demand for electricity and minimize monthly electrical bills for individual residential, commercial and public or community units and project-wide auxiliary service components. Considerations may include setting minimum standards for energy efficiency with the U.S. Environmental Protection Agency's Energy Star rating program, installation of radiative barriers in roofs and walls, and the installation of net-metered photovoltaic systems.

Finally, it is recommended that landscaping and green space initiatives include the utilization of drought-tolerant plants and use of on-site generated mulch.

Again, we appreciate this opportunity to share our comments.

CC: Harry Kim, Mayor County of Hawaii

February 12, 2008
2006.70.0900 / 08P-055

Ms. Diane Ley, Deputy Director
Department of Research and Development
County of Hawaii
25 Aupuni Street, Room 109
Hilo, HI 96720-4252

Dear Ms. Ley:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 10, 2007 for the above-referenced document. Our responses are provided in the order of your comments.

1. The website www.hawaiiislandplan.com is visited at different times to review the North and South Kona Community Development Plan.

2. The Hawaii Housing Finance and Development Corporation has undertaken a Request for Proposal process for the purpose of soliciting proposals from developers interested in developing the Keahuolu Affordable Housing project. Your letter will be conveyed to the selected developer.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

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Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King St, Suite 200
Honolulu, HI 96819

RE: Keahuolu Affordable Housing Project

Dear Ms. O'Leary:

I would like to offer the following comments for the proposed affordable housing Environmental Impact Statement Preparation Notice. The proposed location and conceptual layout are excellent. They promote a sense of community while enriching lifestyles. A walkable community with mixed-use development and transportation options fulfils the objectives of the Community Development Plan.

There are, however, a few opportunities for improvement that should be considered in the early development stages of this project.

- The access circles in Figure 2-4 should be converted to ovals to reflect the impediments to walking attributable to negotiating steeper slopes.
- If the street grid remains predominantly oriented with transverse streets running mauka-makai, the grades must be mitigated to encourage walking and bicycling. This could include utilizing meandering shared-use pathways.
- The street grid could be angled to reduce the maximum grades. Orientation parallel and perpendicular the easterly and northerly boundaries would also preserve land use efficiency.
- The pedestrian scale streets proposed in Figure 2-9 may need to be refined. On street parallel parking presents hazards to bicycling. Parking does not need to be continuous. So alternating back-in diagonal parking from side to side could provide a safer solution for bicyclist and motorists while integrating an element of traffic calming.
- Pedestrian scale lighting should be provided to encourage pedestrians and bicyclists. Innovative approaches such as broad umbrella canopies that also provide shade and shelter while satisfying the "dark skies" initiative should be considered

- Circulation plans are often focused exclusively on motor vehicles. A broader perspective that clearly delineates bicycle routes, pedestrian pathways and "Safe Routes to School" should be addressed in the TIAR and incorporated into the Official Network Map.

- Attention to integrating walkability into the surrounding community should be considered. If special considerations for pedestrians crossing the Ane Keohokalole Highway are needed, provisions should be addressed in the early planning stages.

- Traffic calming devices should not be added. Traffic calming should be integrated into the design of the local streets.

Thank you for your consideration,

Robert Ward
77-6526 Ho`olaupa`i St
Kailua Kona, HI 96740

Cc: Office of Environmental Quality Control
235 South Beretania St, Suite 702
Honolulu, HI 96813

February 12, 2008
2006.70.0900 / 08P-056

Mr. Robert Ward
77-6526 Hoolaupai Street
Kailua Kona, HI 96740

Dear Mr. Ward:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided via facsimile to Belt Collins on August 17, 2007 for the above-referenced document.

Our proposed master plan accommodates a program on the site and illustrates its development potential. However, the final plan may vary from the proposed plan. On July 23, 2007, following a master plan process, the Hawaii Housing Finance and Development Corporation (HHFDC) issued a Request for Proposal ("RFP") for the purpose of soliciting proposals from interested developers who met the qualifications set forth by the HHFDC to plan, design, and develop "mixed income rental and/or for sale units" on the vacant and undeveloped project site comprised of approximately 272 acres.

Therefore, each developer who submits a proposal to HHFDC will formulate proposals based on their own plans and costs to meet the affordability requirements of the project and the requirements of the RFP. Some developers may seek to maximize the allocation into the house structure itself, versus others who may propose a higher quality site finish. Belt Collins and HHFDC worked together to develop master plan concepts that define the program accommodation and provide the developer with freedom to design their own layout based on the minimum suggested program defined by the master plan concepts.

Our responses are provided in the order of your comments.

1 Access circles are guidelines and show approximate accessibility to neighborhood nodes. Uphill and downhill travel distances could be said to average out to a circle as either the longer time for the uphill leg will be offset by the shorter time for the downhill leg. Regardless, if the nodes were within a 5- to 10-minute walking distance, it would still be relatively walkable and accessible to the neighborhood it served.

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2 The maximum grade of the mauka-makai roads is less than 5 percent between the two neighborhood parks and Ane Keohokalole. This is an acceptable grade for the majority of the site area. The two sections of residential lands on the eastern third of the site are on steeper lands and most of the mauka-makai roads have an average grade of 7.5 percent. While this is not optimum for walking and biking, bringing the grades down to 5 percent will make the roads 40 percent longer. Secondly, it was felt to be important to connect these roads directly to the neighborhood parks, which were sited in centralized locations of the project. The tradeoff was in a shorter, more direct connection versus a steeper one.

3 Only the southeast corner of the site does not align to the property lines as suggested in your comment letter, but if one studies the existing grades of the proposed alignment, they are very similar to the grades along the property line.

4 Parallel parking may be broken into segments to allow for driveways if the developer's proposal so chooses. Similarly, back-in parking will be up to the developer should they choose to propose it.

5 Pedestrian-scaled lighting is proposed. Umbrella canopy trees are a function to the tree root pit being large enough to support such a canopy. Native trees have been recommended that are not large enough to provide large canopies. Only the Kamani tree would be large enough but their seed pods would provide a nuisance for those parking under them.

6 In Section 2.3.1 of the EISPN regarding design principals, the subsection on multimodal connectivity (pages 2-7, 2-8) offers a full array of transportation options through the site including walking, biking, and bus transit connections.

7 Connections to the adjacent properties have been considered and coordinated by the County of Hawaii. During the master plan process, meetings took place in Kona to discuss future connections and those shown on the proposed master plan reflect these discussions..

8 Traffic calming devices other than speed bumps or ramps would need adoption by the County Public Works Department if such devices are proposed by developers.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-07-153

August 13, 2007

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

SUBJECT: Environmental Impact Statement Preparation Notice for Keahuolu Affordable Housing Project
Keahuolu, Island of Hawaii, Hawaii
TMK: (3) 7-4-008: 056 (portion)

Thank you for allowing us to review and comment on the project. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Wastewater Branch, Safe Drinking Water Branch and General comments.

Wastewater Branch

Use of onsite wastewater systems is not allowed as the number of lots to be developed is greater than a 50. However, we do concur with the project connecting to the County's service system and wastewater being treated and disposed of at the Kealakehe Sewage Treatment Plant. We strongly encourage the developer to work with the County and utilize recycled water for irrigation and other non-potable water purposes such as parks, golf courses and other open spaces or landscaping areas.

All wastewater plans must meet Department's Rules, HAR Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to Applicable rules. If you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Safe Drinking Water Branch (SDWB)

1. The Department of Water Supply, County of Hawaii will not provide the potable water required for this project. Consequently, the HHFDC will need to drill new wells for water and obtain Department of Health (DOH) approval to use the raw water for potable water use. An Engineering Report which includes chemical analyses for contaminants in the water, is required as part of the process to obtain DOH approval to use the water for potable water service.

2. The Safe Drinking Water Act as amended in 1996 requires all new public water systems which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents to demonstrate adequate technical, managerial, and financial capacity with respect to each primary drinking water regulation in effect, or likely to be in effect, on commencement of operations after October 1, 1999.

3. The DOH's SDWB is the primacy agency in Hawaii implementing the Safe Drinking Water Act regulations. Additional information on the Engineering Report submittal to use raw water for potable water service and information on technical, managerial and financial capacity for new public water systems are available at the SDWB office at 919 Ala Moana Blvd., Honolulu, HI 96814, or by calling (808) 586-4258.

If you have any questions, please contact Don Yasutake of the Safe Drinking Water Branch at 586-4258.

General

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

If there are any questions about these comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
WWB
SDWB
EH-Hawaii

February 12, 2008
2006.70.0900 / 08P-057

Mr. Kelvin H. Sunada, Manager
Environmental Planning Office
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Sunada:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 13, 2007 for the above-referenced document. Our responses are provided in the order of your comments.

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Wastewater Branch

1. The Draft Environmental Impact Statement (EIS) will contain a civil infrastructure study.

   We note that your August 13, 2007 letter concurs with the project connecting to the County's service system and wastewater being treated and disposed of at the Kealakehe Sewage Treatment Plant.

2. We acknowledge your office's comment that all wastewater plans must conform to applicable provisions of Chapter 11-62 of the Hawaii Administrative Rules for the Department of Health, "Wastewater Systems." The design and construction of the proposed offsite sewer system and onsite sewer system within the roadway system will be required to meet County Standards for dedication to the County Department of Environmental Management.

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Safe Drinking Water Branch

4. The Hawaii Housing Finance and Development Corporation (HHFDC), County Department of Water Supply (DWS), and Department of Hawaiian Home Lands (DHHL) have been discussing water source, storage, and transmission requirements for the project. DHHL completed the *Villages of La`i`opua Water Master Plan,* which was approved by DWS and includes approximately half of the Keahuolu project site. Two wells have been identified for the Keahuolu project, which are included in the *Villages of La`i`opua Water Master Plan.* One of the wells, Keopu Well, State Well No. 3957-03 was drilled as Keopu-HFDC Exploratory Well No. 1 in August 2000. The design and construction of the proposed water system, including the source, storage, and transmission network will be required to meet County standards for dedication to the County DWS.

5. We acknowledge your office's comment that the Safe Drinking Water Act, as amended in 1996, requires all new public water systems that serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents, to demonstrate adequate technical, managerial, and financial capacity with respect to each primary drinking water regulation in effect, or likely to be in effect on commencement of operation after October 1, 1999. The design and construction of the proposed water system, including the source, storage, and transmission network will be required to meet County standards for dedication to the County DWS.

6. We acknowledge your office's comment that additional information on the Engineering Report submittal regarding use of raw water for potable water service and other information on technical, managerial, and financial capacity for new public water systems are available at the Safe Drinking Water Branch offices.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

LINDA LINGLE
GOVERNOR

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.2576

August 14, 2007

Ms. Mary O'Leary
Senior Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Subject: Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
Hawaii Housing Finance & Development Corporation (HHFDC)
TMK: 7-4-008: por. 56

We have the following comments on the proposed subject project as described in the EIS Prep Notice:

1. The project will have a significant project impact as well as being a contributing factor to the cumulative impact on our highway facilities. We described this concern earlier in our letter STP 8.2475 dated May 7, 2007 (copy attached) to your firm. Our comments are still valid and would continue to be applicable for the EIS Prep Notice.

2. We understand a traffic impact analysis report (TIAR) is being done for the subject project. We look forward to reviewing the TIAR and the forthcoming draft environmental impact statement report, and will defer further comment until the documents are completed and submitted to us for review.

3. We wish to receive at least four (4) copies of the TIAR/Draft EIS report.

We appreciate the opportunity to provide comments.

Very truly yours,

BARRY FUKUNAGA
Director of Transportation

Attach.

c: Office of Environmental Quality Control
Office of Planning (DBEDT)

LINDA LINGLE
GOVERNOR

BARRY FUKUNAGA
INTERIM DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.2475

May 7, 2007

Ms. Susan A. Sakai
Vice President
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Attention: Ms. Lynn Fukuhara

Dear Ms. Sakai:

Subject: Early Consultation, Environmental Impact Statement
Hawaii Housing Finance & Development Corporation (HHFDC)
Master Plan Affordable Housing Project, Keahuolu, Kailua-Kona

Thank you for your early consultation on the proposed subject development project. We have the following initial comments:

1. Both of the two alternatives presented will create a significant transportation impact particularly on our highway facilities by adding and generating additional vehicle trips. We will need to be an interested party because of the impact.

2. Your environmental assessment work should provide a development plan for the proposed project that is detailed and comprehensive with, but not limited to, a description of units and buildings to be built, construction phasing, drainage plans and infrastructure plans. Also a traffic impact analysis report (TIAR) should accompany and be matched to the development plan and the project's phasing to full build out. The TIAR needs to cover both project and regional impacts and the project and regional mitigation measures HHFDC will provide.

3. We will be especially interested in how the roadway and intersection impacts are addressed with the need to provide timely connectivity of the local roads surrounding and running through or adjacent to the development project to other parts of the greater Kailua-Kona community. Such connectivity is needed to avoid development projects only funneling onto and a reliance and dependence on the State highways as the sole principal route of travel in the area.

4. When completed, at least four (4) copies of your draft environmental report should be provided to us for further review and comment by our departmental and divisional staff.

We appreciate the courtesy of your advance notification and for the opportunity to provide our initial comments.

Very truly yours,

BARRY FUKUNAGA
Interim Director of Transportation

DS:km

February 12, 2008
2006.70.0900 / 08P-058

Mr. Brennon Morioka, Interim Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Morioka:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments your office provided on August 14, 2007 for the above-referenced document. A traffic impact analysis report for the proposed project will be included in the Draft Environmental Impact Statement (EIS). We will send the State Department of Transportation four (4) copies of the Draft EIS as requested.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

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Harry Kim
Mayor

Christopher J. Yuen
Director

Brad Kurokawa, ASLA LEED® AP
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-4224
(808) 961-8288 • FAX (808) 961-8742

August 21, 2007

Ms. Mary O'Leary
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu HI 96819

Dear Ms. O'Leary:

Subject: EIS Preparation Notice for Keahuolu Affordable Housing Project
Land Owner: State of Hawaii
Applicant: Hawaii Housing Finance & Development Corporation (HHFDC)
Tax Map Key: 7-4-21:20, Keahuolu, North Kona, Hawaii

In response to the above referenced document submitted for our review, we have the following to offer:

1. Final subdivision approval for SUB 06-000289 was granted on September 7, 2006. The subject parcel is now identified as TMK: 7-4-21:20.

2. In reference to the parcel's Land Use Designation of Agricultural by the State and Agricultural (A-5a) by the County, an area in the northeast corner of the parcel is designated Urban by the State Land Use Commission and zoned Single-Family Residential (RS-15) by the County.

3. General Plan:
   a. The goals, policies, standards and courses of action of the General Plan and the applicability to the proposed project should be discussed in the Draft Environmental Impact Statement.
   b. According to the General Plan's Land Use Pattern Allocation Guide Map, an area in the northeast corner of the parcel and an area along the southeast portion of the parcel are designated Low Density Urban. Low Density Urban is categorized as *"Residential, with ancillary community and public uses, and neighborhood and convenience-type commercial uses; overall residential density may be up to six units per acre"*.

c. The Urban Expansion area *"Allows for a mix of high density, medium density, low density, industrial, industrial-commercial and/or open designations in areas where new settlements may be desirable, but where the specific settlement pattern and mix of uses have not yet been determined".*

4. Permits/Approvals Required:
   a. Subdivision: Creation of lots with split-zoning should be avoided.
   b. A Change of Zone to allow for specific commercial and residential type uses would require a Planning Commission hearing and County Council approval.
5. The Kona Community Development Plan (KCDP) is still in progress and draft sections are currently being reviewed. The KCDP must be adopted by the County Council as an ordinance to give it the force of law.

6. Roadway Improvements – Road inter-connectivity with the future DHHL-Keahuolu Housing and QLT Phase 2A and 2B projects should be discussed.

Thank you for allowing us the opportunity to comment on the EIS Preparation Notice Submittal for OEQC filing.

If you have questions, please contact Esther Imamura of this office at 961-8288, extension 257.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

ETI:cd
P:\wpwin60\ETI\EAdraftPre-consul\O'Leary Keahuolu AH 7-4-8-56 07.rtf

xc: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu HI 96813

Planning Department, Kona

February 12, 2008
2006.70.0900 / 08P-059

Mr. Christopher J. Yuen, Director
Planning Department
County of Hawaii
101 Pauahi Street, Suite 3
Hilo, HI 96720-4224

Dear Mr. Yuen:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 21, 2007 for the above-referenced document. Our responses are provided in the order of your comments.

1. The Draft Environmental Impact Statement (EIS) will refer to the project property as TMK (3) 7-4-21:20 per the final subdivision approval for SUB 06-000289 granted on September 7, 2006.

2. State Land Use Classification. Please find enclosed a figure that illustrates the existing State Land Use designations for the subject property. Based on the enclosed Land Use Commission Boundary Interpretation Map 90-26, a small portion – 0.198 acres – of the property is classified as State Urban while the remainder – 271.865 acres – is classified as State Agriculture.

   Zoning. Please find enclosed a figure that illustrates the existing Hawaii County zoning designations for the subject property, which is A-5a. The information in the figure is based on geographic information system data from the Hawaii County Data Systems Department.

3. General Plan.

   a. The General Plan for the County of Hawaii and applicability to the proposed project will be addressed in the Draft EIS.

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b. Please find enclosed a figure that illustrates the General Plan's Land Use Pattern Allocation Guide designations for the subject property, which is primarily Urban Expansion and a portion is Low Density Urban.

4. Permits/Approvals Required. We have noted your comments regarding the permits and approvals required from the County of Hawaii for the proposed project. The Draft EIS will identify the permits and approvals required for the proposed project, including a Change of Zone or exemptions from zoning.

5. Kona Community Development Plan. We have noted your comments regarding the Kona Community Development Plan (KCDP) and that it is still in progress and not yet adopted by the County Council.

6. Roadway Improvements. The Draft EIS will contain a traffic impact analysis report (TIAR). Interconnectivity with the Department of Hawaiian Home Lands, Keahuolu Housing and Queen Liliuokalani Trust projects will be addressed in the Draft EIS and the TIAR.

Again, thank you for your participation in the Chapter 343 comment and review process. A copy of the Draft EIS will be sent to your office.

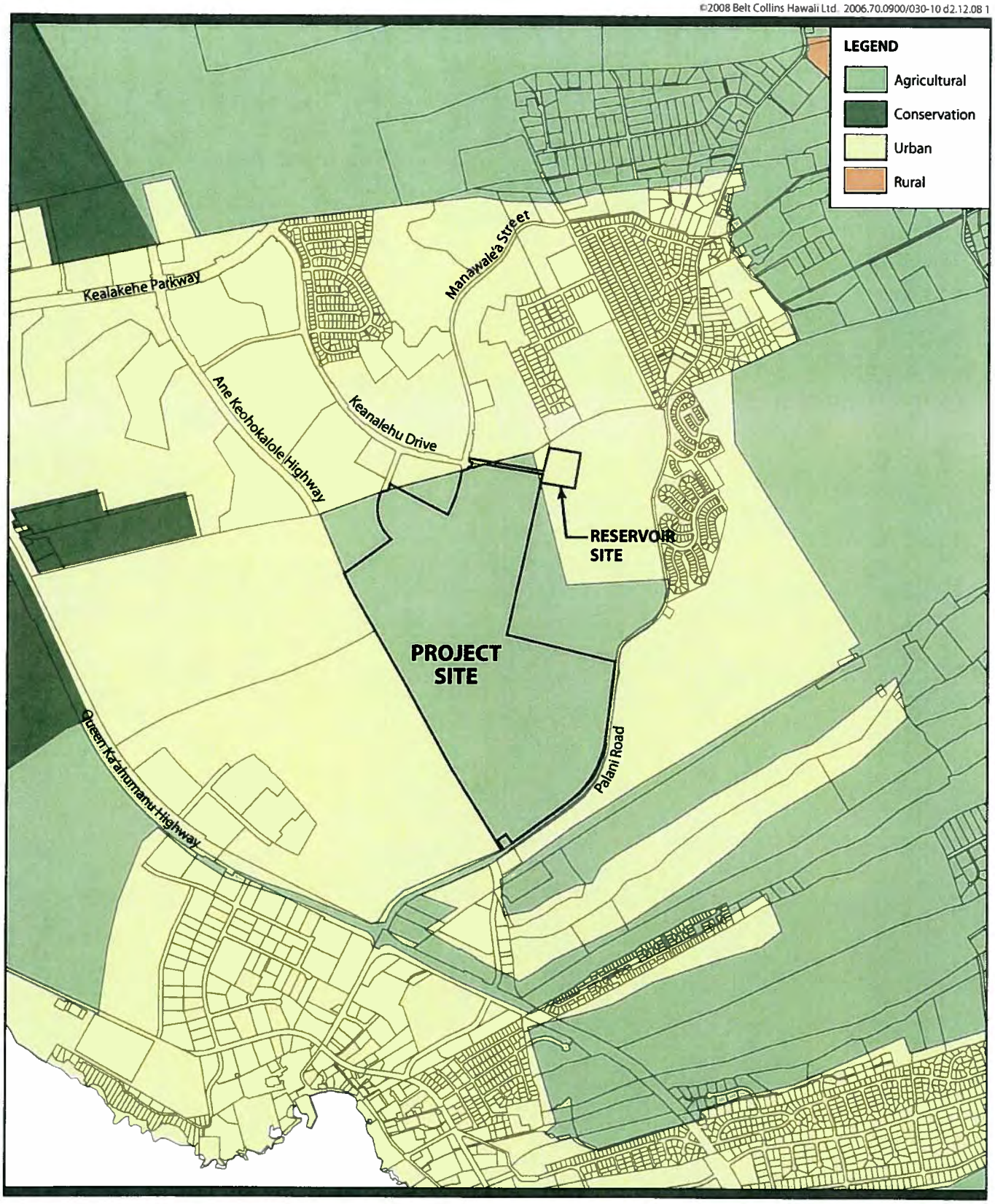
Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

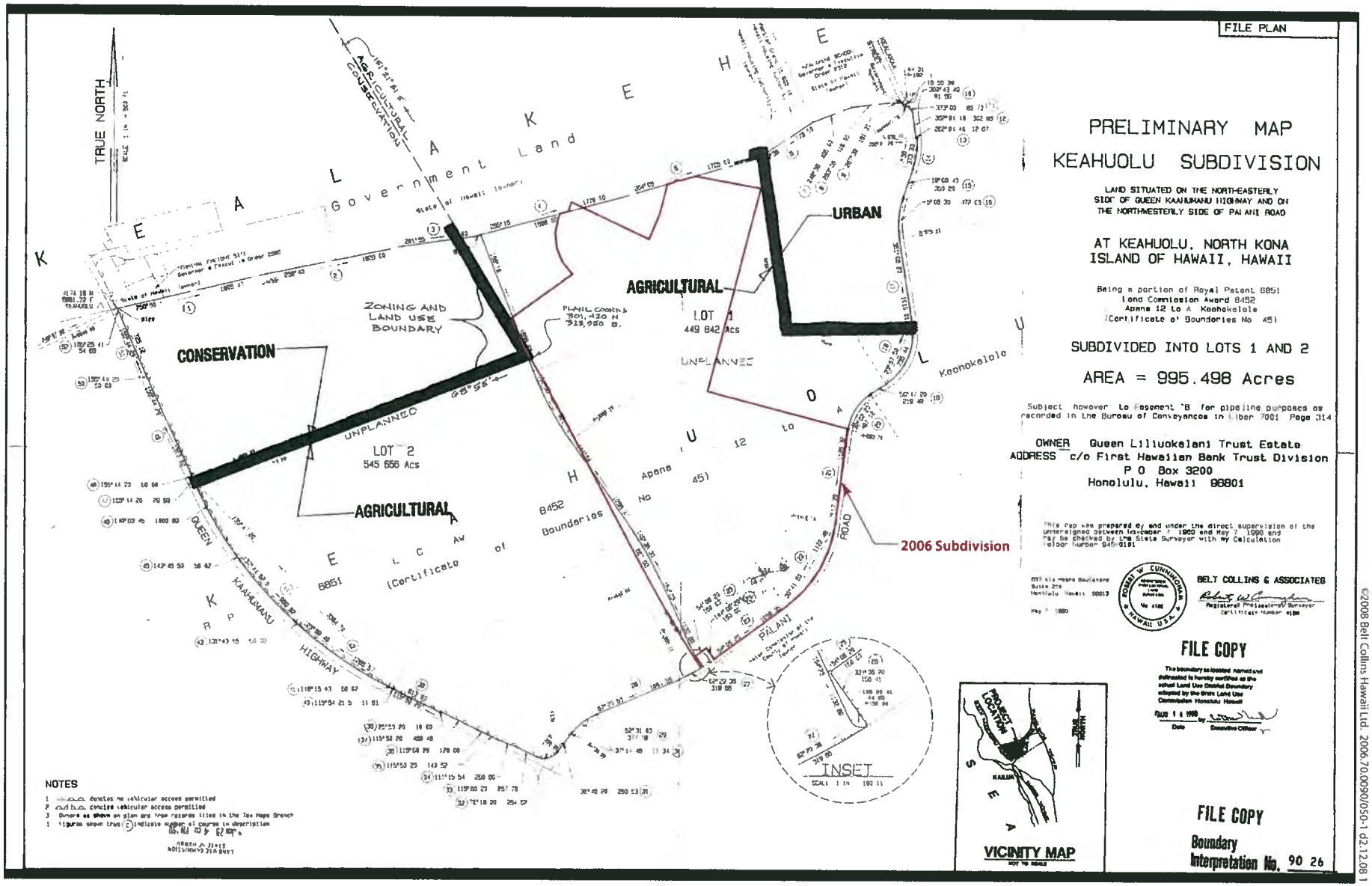
Enclosures



BeltCollins

STATE LAND USE DISTRICTS

HHFDC Keahuolu Affordable Housing Project
February 2008



BeltCollins

NORTH

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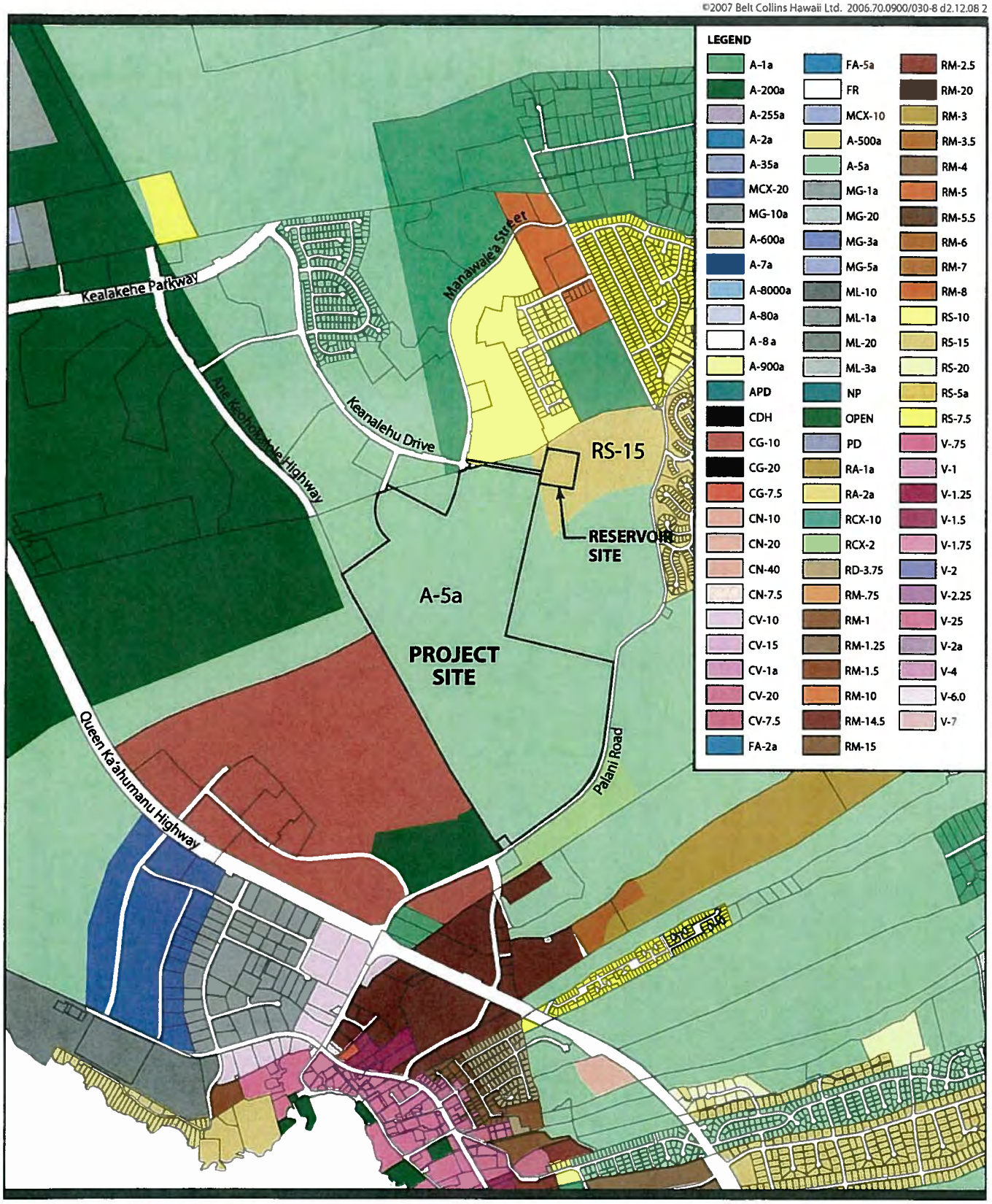
SCALE IN FEET

LAND USE COMMISSION
BOUNDARY INTERPREATION MAP 90-26

HHFDC Keahuolu Affordable Housing Project
February 2008



BeltCollins

NORTH

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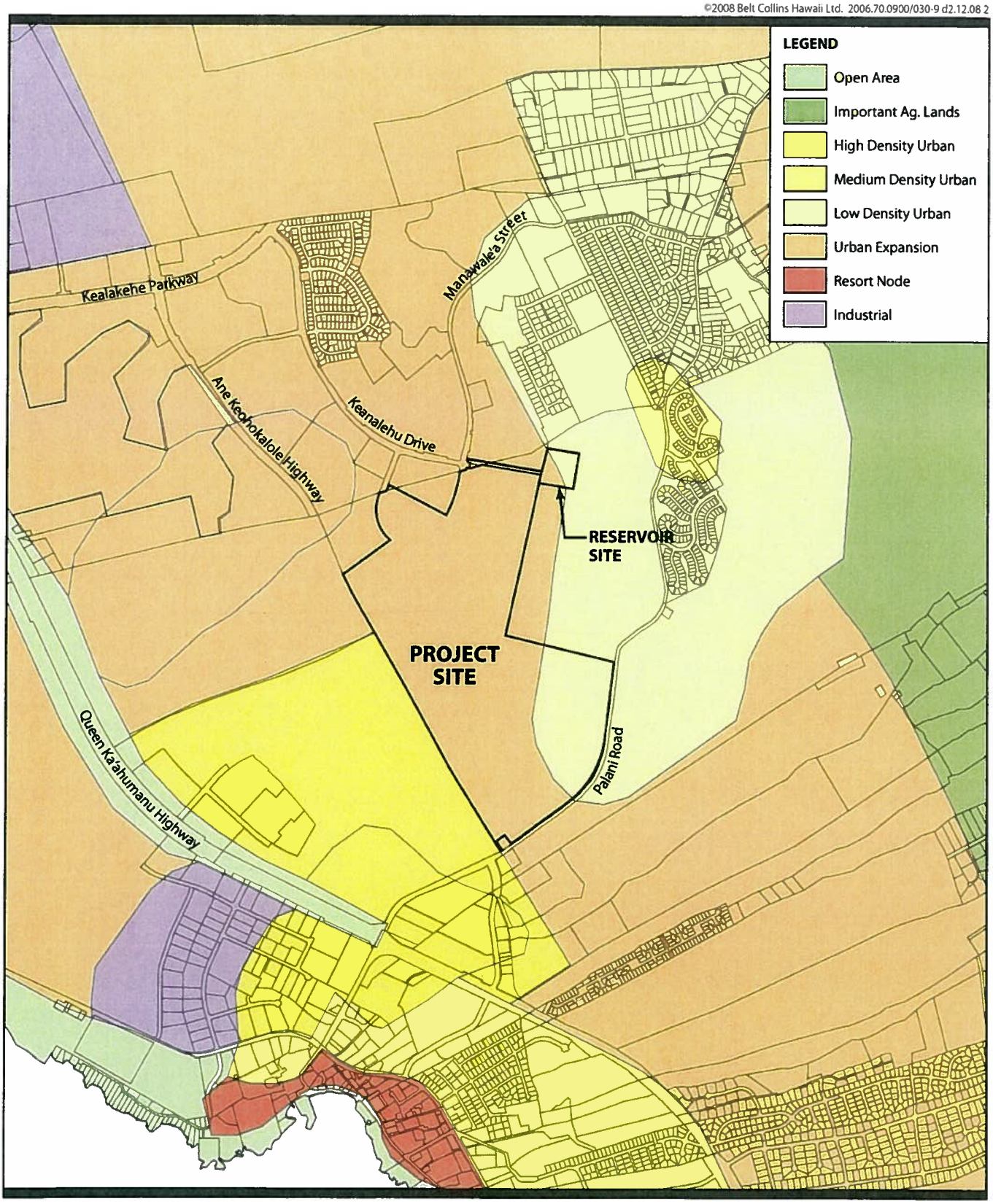
SCALE IN FEET

COUNTY ZONING

HHFDC Keahuolu Affordable Housing Project
February 2008



GENERAL PLAN'S LAND USE PATTERN ALLOCATION GUIDE

HHFDC Keahuolu Affordable Housing Project
February 2008

United States Department of the Interior

NATIONAL PARK SERVICE
Kaloko-Honokohau National Historical Park
73-4786 Kanalani St., Suite 14
Kailua-Kona, HI 96740

IN REPLY REFER TO:
L7621

August 21, 2007

VIA FACSIMILE and MAIL

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

RE: National Park Service Review of the EIS Preparation Notice,
Keahuolu Affordable Housing Project, Keahuolu, Island of Hawaii.

Dear Ms. O'Leary:

Thank you for providing the National Park Service with the opportunity to review and comment on the EIS Preparation Notice for the Keahuolu Affordable Housing Project at Keahuolu, Hawaii proposed for development by the Hawaii Housing Finance & Development Corporation (HHFDC). We have reviewed the document and would like to provide the following comments, which are focused on water resources and the potential cumulative impacts of the Keahuolu Affordable Housing Project in the context of the rapidly urbanizing landscape identified in the project area. We recently commented on the Environmental Assessment for the Villiages at Lai`i`opua, which neighbors the Keahuolu project area. Many of our concerns regarding these two projects are the same.

Kaloko-Honokohau National Historical Park was authorized in 1978 by Congress to preserve, interpret, and perpetuate traditional native Hawaiian activities and culture (Public Law 95-625). The authorization was based on a study and report by a congressional advisory commission comprised of native Hawaiians. The study recommended that the site that is the Honokohau Settlement National Historical Landmark (designated in 1962) and its adjacent waters be preserved for the benefit of the Hawaiian people and the nation as part of the national park system. Water quality and quantity are vital to the integrity of this mission. The National Park contains two large (11 and 15-acre) Hawaiian fishponds with large associated wetlands, more than 140 known anchialine pools, and 596 acres of marine waters. Each of these water bodies are significant cultural resources and also provide habitat for nine federally protected and candidate endangered species. The National Park water resources are fed by, and in the case of the anchialine pools and `Aimakapa Fishpond, are solely dependent upon, ground water inputs. The anchialine pools support three known candidate endangered species. `Aimakapa Fishpond and wetland is a significant foraging and nesting habitat for the endangered Hawaiian stilt and the Hawaiian coot, and is an important habitat for migratory waterfowl.

The National Park is located within two miles *makai* of the proposed project as identified in the preparation notice. The project site is upslope and slightly to the east of the Honokohau Harbor.

Water System

The Environmental Impact Statement Preparation Notice (EIS-PN) Section 2.6.3 states that "[n]o water is available from the County for new developments in the Kona area" and that "[n]ew source wells will be required to support the proposed project." However, an existing well is listed (SW #4067-04) as a source. It is unclear in the EIS-PN exactly what new and existing well sources are required. The NPS requests that the Draft EIS explain in detail which wells will provide project water, how much water from each well will be required for Concept Plans A, B and C, and analyze the impacts, direct and cumulative, of water withdrawal to ground-water dependent ecosystems at the coast. Water system criteria to determine water consumption rates for various land uses and densities, demand factors, fire flow requirements, pipeline and reservoir sizing and well yields that are identified in the EIS-PN should be further explained in the EIS as stated.

The EIS-PN estimates between approximately 0.7 and 1.2 million gallons per day of water is required for the Concept Plans. Although this withdrawal amount may be small relative to the recharge rate of the aquifer, it must be noted that this project is only one of a multitude of proposed housing and urban developments in the aquifer that will require many millions of gallons a day of potable water. The source wells for existing and future local development withdraw from the same aquifer as the ground water that discharges through the National Park, and many are located, or are sited to be drilled, inland of the Park. The NPS is highly concerned about the impacts of water withdrawal to the cultural and natural resources in the Park that are dependent upon ground-water flow. The Draft EIS should consider impacts of water withdrawal in the context of other withdrawals, existing and planned, from the aquifer. Ultimately, the cumulative impact to the aquifer will be quite significant.

Ground water within the National Park is considered a cultural resource; essential to the ancient Hawaiian fishponds and the pools that define the Park and are central to the National Park's planned Cultural Live-in Center (NPS 1994, General Management Plan/EIS). The NPS requests that the EIS under preparation evaluate the potential environmental and cultural impacts of water withdrawal on cultural activities and practices, threatened and endangered species, wetlands, fishponds, anchialine pools, and coastal waters in the National Park.

The National Park Service has reason to be concerned. In 1999, the U.S. Geological Survey studied ground water in the National Park and modeled the effects of ground-water withdrawals on the amount of ground-water flow through the Park (Oki et al., 1999). Oki et al. (1999) concluded that the major source of fresh ground water is from subsurface flow originating from inland areas to the east of the National Park and that "withdrawals from wells directly up-gradient of the Park had the greatest effect on the model-calculated freshwater coastal discharge within the Park." Simulated withdrawals from all existing and proposed wells permitted prior to March 1998 (including the three source wells for this project) showed that an increase in withdrawal rates from a 1978 baseline rate to 56.8 Mgd, caused a 47% reduction in ground water discharging at the Park coastline and a water-level decline of about 0.6 ft within the Park (Oki et al., 1999). Salinity changes to National Park ground water was not included as part of the model, however salinity would certainly increase, and potentially affect rare endemic species and ecosystems, if the freshwater input into the National Park were reduced by almost half.

The NPS requests that the HHFDC join a workgroup being established to look at the ground- water situation on the Kona coast. The agencies and developers need to work together to reach solutions for the ongoing groundwater supply issues.

The NPS also requests that the HHFDC look for ways to reduce water usage in the new development. Some proven methods for reducing water usage in new housing developments include planting drought resistant native landscaping, installing low flow toilets and showerheads, installing waterless urinals in public restrooms, and providing information to new residents concerning the importance of water conservation. Water conservation will save the HHFDC, and the residents, operational costs in the long term. The NPS requests that the HHFDC implement these and similar measures to reduce the water usage to minimum amount needed for the community.

Surface Water Drainage, Non-point Source Pollution

As the 2007 EIS-PN accurately points out (Sections 3.2, 3.3), the prevailing geologic condition of the proposed project site is highly permeable prehistoric lava with few accumulated soils. Rain and runoff water can potentially carry pollutants quickly to ground water, on to coastal anchialine pools, and into the nearshore waters. Kona has no streams or typical surface waters other than anchialine pools, which are essentially exposed ground water. Therefore, ground-water flow may be considered similar to an underground stream, that is, a conduit for pollutants to surface waters at the coast. The EIS-PN does not describe that the Draft EIS will assess impacts from polluted surface-runoff in the project's developed areas, roadways, houses, commercial and industrial areas etc. to ground water and to anchialine pools, wetlands, fishponds and the marine waters down slope in the coastal areas adjacent to the National Park.

Surface water runoff is a significant nationwide problem for ground-water pollution. The consequences of non-point source pollution include increased risk of disease from water recreation, algae blooms, fish kills, destroyed aquatic habitats, and turbid waters. Upslope development therefore poses a significant threat to West Hawaii coastal resources, including the National Park's resources. The Draft EIS should acknowledge that roadways and other impermeable surfaces are exposed to and can introduce petroleum products, metals, pesticides, nutrients, and other pollutants to ground water. Mitigation measures should be proposed and discussed in the Draft EIS to protect coastal resources and water quality.

In 2001 the National Park Service intervened in a petition by TSA Corporation for a land-use district boundary amendment before the state Land Use Commission (LUC). The NPS intervened not to halt development, but rather to request protective conditions be placed on the development to protect water resources in the National Park from non-point source pollution. The LUC recognized the potential adverse impacts of upslope development and the legal and constitutional obligation to protect and preserve the resources of the Park.

The LUC expressly determined that:

> [N]ative Hawaiian rights and natural and cultural resources would be damaged or destroyed by the pollution of groundwater that reaches the National Park from surrounding areas, including [TSA]'s proposed development at the Kaloko Industrial

> Park. Appropriate mitigation measures are, therefore, required under the Hawaii Constitution . . . in order to approve reclassification of the project area.
> (LUC 2002, Docket A00-732 Findings of Fact Conclusions of Law Decision and Order; Conclusion of Law ¶ 7)

Following the 2002 Decision and Order of the LUC on Docket A00-732, the neighboring commercial/industrial developers with petitions before the LUC, (Lanihau Partners and McClean Honokohau Properties), came to agreement with the National Park Service on protective conditions to be put in place on redistricting by the LUC.

To properly mitigate potential impacts to ground water, coastal waters and National Park resources from *mauka* project developments, the HHFDC should adopt those LUC conditions concerning protection of water resources (storm and surface water runoff, pollution prevention, ground water quality monitoring) for the entire Planned Community.

Project roadway and parking-lot drainage wells should be made to filter petrochemical pollutants by including oil/water separators or similar technology in the drainage basin. Such filters should be installed as mitigation because the design specifications of drainage wells in compliance with the Hawaii County Public Works and State Department of Health standards do not inherently incorporate any structure or other design feature to remove petroleum, oil, or any contaminants contained in runoff.

Currently the County Codes for drainage wells currently do not address protection of significant environmental resources, but rather solely consider flood control and volume of runoff. (2002 LUC FF ¶¶418-421). There is no State law or County code currently in place to ensure that pollutants carried with surface runoff below the UIC line do not get into the environment through groundwater. In 2002, the Hawaii County Council also recognized the need to address non-point source pollution and applied the following condition to Ordinance No. 02 114 amending the County Zoning Code for the TSA project:

> In order to address and mitigate potential impacts from non-point source pollutants, the applicant shall participate with the County of Hawaii in a pilot storm drain program for roadways within the Kaloko-Honokohau region. This pilot program may potentially include other developments within the County and apply to all other government and private developments. ... The drainage system within road rights-of-way shall include storm drain filtration devices...
> (2002 County of Hawaii Ordinance No. 02 114, Section 2, Condition F)

In consideration of the above, the National Park Service requests that the HHFDC plan to install pollution filtration devices as mitigation to protect water resources. In addition, the NPS asks that the HHFDC provide the new residents with information about controlling non-point source pollution including vehicle maintenance and proper disposal of vehicle fluids, the impacts of washing cars on the street, and storm-drain stenciling.

The NPS is pleased to see that the design concepts for the community contain considerable open space and parks. Enforceable controls on approved chemicals and uses by property owners and maintenance crews on yards and park common areas should be proposed as mitigation to protect ground water. Again, please assist the new homeowners in understanding the potential impacts of

fertilizers and pesticides on the environment and the Park. The NPS asks that the HHFDC or community maintenance crews for the neighborhood parks and open spaces avoid or minimize the use of fertilizers and pesticides and set an example by using alternative methods of controlling pests and weeds.

Wastewater and Solid Waste

Section 4.5.1 acknowledges that there is a solid waste component that must be handled by the infrastructure and utility systems. To address the issues of wastewater, the Draft EIS should indicate that the project has space reserved (431,360 gallons per day) at the Kealakehe Wastewater Treatment Plant, and details should be provided on how the HHFDC will resolve the issue of additional capacity needed. A recent article in West Hawaii Today suggests the plant maybe near maximum capacity due to unforeseen circumstances (WHT May 7, 2007). Full explanation of the current situation and capacity of the WWT for the expected effluent of all Concept Plans should be included.

Contextual Issues, Cumulative Impacts

Contextual issues and cumulative impacts are very important and should be addressed in the Draft EIS. The majority of properties and developments around the project have environmental review documents, including the EIS for the National Park. These documents should be consulted and the cumulative impacts of the HHFDC project in the context of these proposed or approved developments (e.g., airport expansion, Air Force military training routes and the short austere air field, highway expansion, Queen Liliokolani Trust, Kona Kai Ola, The Shores at Kohanaiki, O`oma Beachside Village, West Hawaii Business Park, Kaloko Phases III & IV, Kaloko Heights, and others) should be analyzed with regard to the cultural and natural resources, visitors, and cultural practitioners in the area. Cumulative and direct impacts that will affect Park visitors and those engaged in traditional and cultural practices, particularly traffic, as well as noise, air pollution, light pollution, mauka views, and water resources must be considered.

I appreciate the opportunity to provide comments and request that your office add our park to the mailing list in order to receive future review notification in a timely manner. I can be reached at the above address; by phone at 808-329-6881 ext. 201; or by email at Geraldine_Bell@nps.gov

Sincerely,

Geraldine K. Bell
Superintendent

cc: Office of Environmental Quality Control
County of Hawaii Planning Department
County of Hawaii Department of Water Supply
Commission on Water Resources Management
NPS Pacific West Regional Office
Hawaii Housing Finance & Development Corporation

February 12, 2008
2006.70.0900 / 08P-060

Ms. Geraldine K. Bell, Superintendent
United States Department of the Interior
National Park Service, Kaloko-Honokahau National Historical Park
73-4786 Kanalani Street, #14
Kailua-Kona, Hawaii 96740

Dear Ms. Bell:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Chapter 343 Hawaii Revised Statutes public and agency review process. We are writing in response to the comments you provided on August 21, 2007 for the above document.

The Hawaii Housing Finance & Development Corporation has undertaken a Request for Proposals process for the Keahuolu Affordable Housing project. A copy of the National Park Service's August 21, 2007 letter was included in the HHFDC's RFP materials in order to inform the prospective developers of the issues raised in your August 21, 2007.

At the time of this writing, the Keahuolu Affordable Housing project is in the conceptual planning stage. The project's Draft EIS addresses issues raised in your letter to the extent such details are available. A civil infrastructure study for the Keahuolu Affordable Housing project will be in the Draft EIS. Along with other topics, the civil infrastructure study will address the wells that are proposed to support the Keahuolu Affordable Housing project, the related water supply and storage system, and discuss storm water runoff and pollution prevention measures

The developer of the potable water wells required for the project will be obligated to complete a rigorous environmental review process for the development of the wells into production wells according to the Office of Environmental Quality Control's *Environmental Guidebook* and its "Guidelines for Assessing Water Well Development Projects".

We acknowledge your comments regarding informing new residents about controlling non-point source pollution, proposing enforceable controls on chemical used by property owners and maintenance crews, and to avoid or minimize the use of fertilizers and pesticides. The developer of the Keahuolu Affordable Housing project will be informed of these issues raised in your letter. As the project is still in the conceptual planning stages, these details will be addressed at a future stage.

A representative from the Hawaii Housing Development Corporation will attend the February 27, 2008 meeting to discuss the formation of a Kona Ground Water Working Group.

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

STRATEGIC INDUSTRIES DIVISION
235 South Beretania Street, Leiopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-3807
Fax: (808) 586-2536
Web site: www.hawaii.gov/dbedt

August 10, 2007

Ms. Mary O'Leary, Senior Planner
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. O'Leary:

Re: Environmental Impact Statement Preparation Notice (EISPN
Keahuolo Affordable Housing Project, Island of Hawaii
Tax Map Key: (3) 7-4-008: por.56

Thank you for the opportunity to review the EISPN for Keahuolo Affordable Housing Project, Island of Hawaii, which is a master-planned community of 1,020 to 2,330 affordable dwelling units (single-family and multi-family residences); mixed-used development, and civic open space at a town center; commercial/retail space; and other uses.

We would like to call your attention to: (l) State energy conservation goals; and, (2) energy and resource efficiency and renewable energy and resource development.

1. **State energy conservation goals.** Project buildings, activities, and site grounds should be designed and/or retrofit with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c) (4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies.

2. **Energy and resource efficiency and renewable energy and resource development.** We do not note any proposed covenants to enhance the sustainability of the development, including green architecture, photovoltaic energy for appliances, shading of exterior lighting, and water conservation measures. We do note that the development will be based on smart growth principles.

We encourage the parties to this development to make a further commitment to energy and resource efficiency and include a requirement in the Conditions, Covenants, and Restrictions for this affordable housing development that, at a minimum, requires R19 insulation in roofs and R11 insulation in exterior walls of dwellings, solar water heating, efficient lighting, and EnergyStar appliances.

Our website (http://www.hawaii.gov/dbedt/info/energy/efficiency/) provides detailed information on guidelines, directives and statutes, as well as studies and reports on aspects of energy efficiency. Please also do not hesitate to contact Carilyn Shon, Energy Efficiency Branch Manager, at telephone number 587-3810, for additional information on green buildings, energy efficiency, and renewable energy resources.

Sincerely,

Maurice H. Kaya
Chief Technology Officer

c: OEQC

February 12, 2008
2006.70.0900 / 08P-061

Mr. Maurice H. Kaya
Chief Technology Officer
Strategic Industries Division
Dept. of Business, Economic Development & Tourism
State of Hawaii
P.O. Box 2359
Honolulu, HI 96804

Dear Mr. Kaya:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes (HRS), Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 10, 2007 for the above-referenced document.

The Draft EIS will contain a discussion of the project's compliance with Chapter 344 and Chapter 226. The Hawaii Housing Finance and Development Corporation has undertaken a Request for Proposal process for the purpose of soliciting proposals from developers interested in developing the Keahuolu Affordable Housing project. Your letter and comments regarding State energy conservation goals and energy, and resource efficiency and renewable energy and resource development will be conveyed to the selected developer.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

August 22, 2007

Ms. Mary O'Leary
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
KEAHUOLU AFFORDABLE HOUSIN G PROJECT
TAX MAP KEY 7-4-008:056 (PORTION)

We have reviewed the subject Environmental Impact Statement Prepartion Notice (EISPN) and have the following comments.

The Department's existing water system facilities are unable to support the proposed development at this time. As stated in the subject EISPN, the Department's existing water system lacks adequate source and transmission capacity to provide the anticipated amount of water needed. In addition, the developer will also be required to construct the necessary storage facilities to provide for the estimated maximum daily water usage for the development.

Further, it should be noted that the developer will also be required to show the Department that they have obtained all necessary rights and permits to develop the proposed wells or otherwise develop their own new wells.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

FM:dfg

copy – Office of Environmental Quality Control
Hawaii Housing Finance and Development Corporation

... Water brings progress...

February 12, 2008
2006.70.0900 / 08P-062

Mr. Milton D. Pavao, P.E., Manager
Department of Water Supply
County of Hawaii
345 Kekuanaoa Street, Suite 20
Hilo, HI 96720

Dear Mr. Pavao:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 22, 2007 for the above-referenced document. The Draft Environmental Impact Statement will contain a civil infrastructure study which will identify the proposed potable water source, storage, and transmission and distribution system required to support the proposed project.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

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T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2007 SEP -5 PM 2:31
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 31, 2007

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819

Attention: Ms. Mary O'Leary

Gentlemen:

Subject: Environmental Impact Statement Preparation Notice, Keahuolu Affordable Housing Project, Keahuolu, Hawaii, Tax Map Key: (3) 7-4-8:portion 56

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Land Division – Hawaii District, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Russell Y. Tsuji
Administrator

February 12, 2008
2006.70.0900 / 08P-063

Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Tsuji:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to your August 31, 2007 letter regarding the above-referenced document.

We note that the Department of Land and Natural Resources (DLNR) Land Division in Honolulu distributed the EISPN to DLNR divisions for their review and comment. Two comment letters were received, one from the Commission on Water Resource Management and one from the Land Division – Hawaii District.

We have copied your office on our responses to those divisions. Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

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LINDA LINGLE
GOVERNOR OF HAWAII

ALLAN A. SMITH
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
07 JUL 26 A8:33

July 25, 2007

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
_x_Commission on Water Resource Management
__Office of Conservation & Coastal Lands
_x_Land Division – Hawaii District/Gary Martin

FROM: Russell Y. Tsuji
SUBJECT: Environmental Impact Statement Preparation Notice for Keahuolu Affordable Housing Project 1-4-8:
LOCATION: Keahuolu, Hawaii, Tax Map Key: (3) ~~7-4-8~~:portion 56
APPLICANT: Belt Collins on behalf of Hawaii Housing Finance & Development Corporation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 15, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
( ) Comments are attached.

Signed: _____
Date: _____

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

August 28, 2007

REF: EISPN Keahuolu Affordable Housing Project.dr

TO: Russell Tsuji, Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: EISPN Keahuolu Affordable Housing Project, Keahuolu, HI TMK 7-4-8:portion 56

FILE NO.:

RECEIVED
LAND DIVISION
2007 AUG 31 A 10:
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at *http://www.hawaii.gov/dlnr/cwrm*.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☒ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☒ 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at *www.hawaii.gov/dlnr/cwrm/forms.htm*.

☐ 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.

☒ 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.

☒ 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.

☐ 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.

☒ OTHER:

The EIS should discuss groundwater resources in the area and the potential impact of the proposed development upon such resources. The Commission's Water Resource Protection Plan provides information on hydrologic unit boundaries and groundwater sustainable yields (http://www.hawaii.gov/dlnr/cwrm/planning/hwp.htm). In addition, the County of Hawaii, Department of Water Supply (DWS) is in the process of updating its Water Use and Development Plan for the island of Hawaii; we recommend you contact the DWS to obtain current information on existing and projected water demands for this area.

If there are any questions, please contact Lenore Nakama at 587-0218.

LN:ss

February 12, 2008
2006.70.0900 / 08P-064

Mr. Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

Dear Mr. Kawahara:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to the comments you provided on August 28, 2007 for the above-referenced document. Our responses are provided in the order of your comments.

1. The Hawaii Housing Finance & Development Corporation and Belt Collins Hawaii Ltd. have met with the Hawaii County Department of Water Supply and the Department of Hawaiian Home Lands to determine water source, transmission, and storage requirements for the project. The majority of the project lands are part of the Villages of La'i'opua Water Master Plan area, which was prepared for the Department of Hawaiian Home Lands and approved by the Department of Water Supply on October 26, 2006. The developer will be required to update the Water Master Plan based on the proposed development.

2. Copies of the EISPN for the Keahuolu Affordable Housing project were sent to the Department of Land and Natural Resources for distribution to the Engineering Division. At the time of this writing, no comments have been received from the Engineering Division.

3. The project will be required to comply with all State Department of Health reviews and approvals including, but not limited to, underground injection control and National Pollutant Discharge Elimination System general permits to mitigate ground or surface water degradation/ contamination.

4. We note your comment regarding the well construction permit required before the commencement of any well construction work. The developer of the project will be required to obtain the well construction permit before commencement of any well construction work.

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 ▪ Honolulu, Hawaii 96819-4554 USA
T/808 521 5361 ▪ F/808 538 7819 ▪ honolulu@beltcollins.com ▪ www.beltcollins.com

5. We note your comment regarding the pump installation permit required before ground water is developed as a source of supply for the project. The developer of the project will be required to obtain the pump installation permit before ground water is developed as a source of supply for the project.

6. Reclaimed wastewater for the project was discussed with the Department of Environmental Management (DEM). Per discussions with Ms. Dora Beck, effluent from the Kealakehe Wastewater Treatment Plant is R-3 water, which can be processed to R-2 water. The effluent would have to be treated to R-1 water for irrigation use for the project; however, DEM has no current plans to upgrade the treatment plant to produce R-1 water. DEM is working on a project to install infrastructure for reclaimed water within Queen Kaahumanu Highway out to Hina Lani Street. However, DEM has no plans to extend the infrastructure (piping and reservoirs) mauka of the highway.

7. The Draft EIS will contain a civil infrastructure study that identifies groundwater resources in the area and the water source for the project. In preparation of the civil infrastructure report, Belt Collins has consulted with the Hawaii County Department of Water Supply and has reviewed the Department's "Draft Report - Hawaii County Water Use and Development Plan Update, December 2006".

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

cc: Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

LINDA LINGLE
GOVERNOR OF HAWAII

ALLAN A. SMITH
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 25, 2007

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
_x_Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
_x_Commission on Water Resource Management
__~~Office of Conservation~~ & Coastal Lands
_x_Land Division – Hawaii District/Gary Martin

FROM: Russell Y. Tsuji
SUBJECT: Environmental Impact Statement Preparation Notice for Keahuolu Affordable Housing Project
LOCATION: Keahuolu, Hawaii, Tax Map Key: (3) ~~7-4-8~~ 7-4-8: portion 56
APPLICANT: Belt Collins on behalf of Hawaii Housing Finance & Development Corporation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 15, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Date: 8/9/07

February 12, 2008
2006.70.0900 / 08P-065

Mr. Wesley T. Matsunaga, Land Agent
Hawaii District Land Office
Land Division
Dept. of Land and Natural Resources
State of Hawaii
75 Aupuni Street, Room 204
Hilo, HI 96720

Dear Mr. Matsunaga:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to your August 9, 2007 letter for the above-referenced document. We acknowledge that your office has no comments at this time.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

cc: Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, HI 96809

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Harry Kim
Mayor

Bobby Jean Leithead-Todd
Director

Nelson Ho
Deputy Director

County of Hawaii

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

25 Aupuni Street , Hilo, Hawai`i 96720-4252
(808) 961-8083 • Fax (808) 961-8086
email: cohdem@co.hawaii.hi.us

September 19, 2007

Ms. Mary O`Leary, Senior Planner
Belt Collins Hawai`i, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819

Re: Environmental Impact Statement Preparation Notice
Keahuolu Affordable Housing Project
Keahuola, Island of Hawai`i

Dear Ms. O`Leary,

Please accept my apologies for the lateness of this response. Our department has no comments to offer.

Thank you for allowing us the opportunity to review the subject Draft Environmental Impact Statement.

Bobby Jean Leithead-Todd
DIRECTOR

cc: Office of Environmental Quality Control

February 12, 2008
2006.70.0900 / 08P-066

Ms. Bobby Jean Leithead-Todd, Director
Department of Environmental Management
County of Hawaii
25 Aupuni Street
Hilo, HI 96720-4252

Dear Ms. Leithead-Todd:

Environmental Impact Statement Preparation Notice (EISPN)
Keahuolu Affordable Housing Project
North Kona, Island of Hawaii

Thank you for participating in the Hawaii Revised Statutes, Chapter 343, public and agency review process. We are writing in response to your September 19, 2007 letter for the above-referenced document. We acknowledge that your office has no comments at this time.

Again, thank you for your participation in the Chapter 343 comment and review process.

Very truly yours,

BELT COLLINS HAWAII LTD.

Mary O'Leary, AICP
Senior Planner

MO:lf

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Philippines
Seattle
Singapore
Thailand

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