FINAL
ENVIRONMENTAL IMPACT STATEMENT

WAIKOLOA HIGHLANDS
State Land Use Boundary Amendment
South Kohala District, Island of Hawai'i
TMK: (3) 6-8-002: Portion of Parcel 016)

May 2007

PETITIONER:
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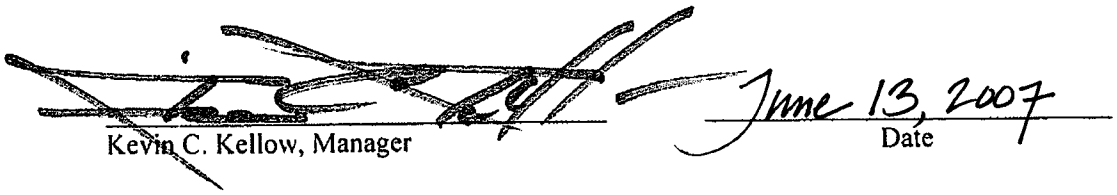
This Final EIS and all ancillary documents were prepared under my direction, and to the best of my knowledge fully addresses the content requirements of Chapter 11-200, Hawai'i Administrative Rules, and Chapter 343, Hawai'i Revised Statutes.



Kevin C. Kellow, Manager

June 13, 2007
Date

ACCEPTING AUTHORITY:
State Land Use Commission
State of Hawai'i

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EXECUTIVE SUMMARY

(Editing notes: New material is underscored while changed or deleted materials are delineated by ~~strike-through~~.)

This ~~Draft~~ Final Environmental Impact Statement ("~~D~~FEIS") has been prepared in support of the Land Use District Boundary Amendment ("LUDBA") petition for the Waikoloa Highlands project. The LUDBA petition has been submitted to the State Land Use Commission ("SLUC") by the Waikoloa Mauka, LLC ("Petitioner") to reclassify the project area from the ~~Agriculture~~ State Agricultural to the Rural District.

PROPOSED ACTION

The Petitioner proposes to subdivide and construct infrastructure improvements for a 398-lot subdivision near Waikoloa Village, South Kohala District, Island of Hawai'i. The ~~744.40~~ 731.581-acre project site is identified as TMK (3) 6-8-002:016 (por.).

During the initial phases of project design, a 12.819-acre area of the project parcel was intended to be used for drainage improvements to handle additional stormwater that would be generated from the proposed project. However, after further examination of infrastructure requirements, it was determined that sufficient drainage improvements could be handled within a 731.581-acre area of the property. The 12.819-acre area is now removed from the project.

The area designated for reclassification in the LUBDA petition is 731.581 acres. ~~The project area includes 12.819 acres of land that is impacted by drainage improvements.~~ The rural residential lots will be a minimum of one-acre per lot.

ALTERNATIVES CONSIDERED

Alternatives to the proposed action that were considered included no action; alternative layouts for a low density residential subdivision; golf course with residential estate lots; and redesignation of the site to the State Urban District.

The No Action alternative, which would retain the property in its current undeveloped state, was rejected because it would not meet the project objective to develop a high quality, low-density, rural residential subdivision in the Waikoloa area.

Alternative~~s~~ layouts for a similar rural residential subdivision were considered, including smaller (half-acre) and larger minimum lot sizes. These were determined to be less preferable than the proposed action in accommodating existing drainageways and providing a unified circulation network.

~~Golf~~ A golf course with residential estate lots is allowed under the current zoning, and was proposed for the site by the previous owner. However, this concept would require the development of a non-potable water system for golf course irrigation, as well as more intensive earthwork. This alternative was rejected as a viable alternative.

Redesignating the project area from the State Agricultural to the Urban District was an option, but ~~deemed~~ was determined to be inappropriate because of the site's location outside the Waikoloa Village core area. Rather, the project site is considered a transition area between the Waikoloa Village urban area~~s~~ and surrounding agricultural areas.

PROJECT IMPACTS AND MITIGATION

Physical Environment

The project will not adversely impact site topography. Some minor grading will be required to construct the project roadways and infrastructure. The distance between the project site and upwind residential uses should minimize construction-period air and noise impacts. Dust control measures will be employed during construction. In the long-term, there will ~~not be a~~ be no significant degradation of air quality or noise impacts due to increased traffic.

Biological Resources

There are no plant or animal species on the site currently listed as endangered, threatened, or proposed for listing. Potential impacts to nocturnally flying Hawaiian Petrels and Newell's Shearwaters will be mitigated by shielding the subdivision street lights to reduce the potential for bird collisions with man-made structures. This mitigation measure also complies with the Hawaii County Code which requires lowering ambient glare for the astronomical observatories located on Mauna Kea.

Social and Built Environment

Social Impact

Waikoloa Highlands is one of six major residential projects in-development in Waikoloa. Based on an anticipated selling price for the Waikoloa Highlands lots ranging from $768,600 to $1,058,400, and based on current construction costs, families will need annual incomes in the range of $192,000 to $264,000. This project will bring to Waikoloa Village a segment of the population that is not highly represented there today based on census data for the area. The Social Impact Assessment concluded that this will create a more balanced community with a wider range of incomes, interests, experiences, and contributions to the community's fabric. The average daily de facto population at build-out of the project ~~was~~ is projected at 1,068 persons, including 907 full-time residents. The developer has assumed that the buyers of the lots will be full-time owner occupants at build out of approximately 40 percent.

Economic and Fiscal Impact

The development of the Waikoloa Highlands subdivision over a ten year build-out period and its ongoing operation will result in the creation of direct, indirect and induced jobs on the Big Island

and throughout the state. Both the Social Impact Assessment (SMS Research, 2006) and the Market Study (The Hallstrom Group, 2006) projected the number of jobs created by the project.

SMS Research has estimated that direct jobs will equal some 2,011 person-years of employment. The project will also support some 3,280 indirect and induced person-years of employment. In total approximately 5,291 person-years of employment will be created through the infrastructure and single-family home construction.

The Hallstrom Group estimated that direct jobs created by the construction and ongoing use and maintenance of the subdivision will equal 2,296 person years both on- and off-site. On a stabilized basis, home and unit maintenance will support about 40 full-time equivalent on-site jobs and contribute to another 16 off-site jobs.

State tax revenues generated by the project were estimated to be anywhere from $33.4 million (SMS, Research 2006) to $41.5 million. (The Hallstrom Group, 2006) over the ten-year project build-out period. County property tax revenues were estimated by SMS to be $600,000 to $750,000 annually (or $6 to 7.5 million over the initial 10 year period), and by Hallstrom to total $24.4 million during the first ten years, and $3.5 million per year thereafter.

Despite the differing revenue projections, both the SMS and Hallstrom data support the conclusion that State and County tax revenues will far exceed public costs of services. That is, the project would have a positive fiscal impact on both the State and Hawai‘i County governments.

Market Study
The Market Study conducted for the project (The Hallstrom Group, 2006) concluded that the property is well-suited for the proposed subdivision and will provide currently unavailable purchase opportunities for residents and second-home buyers in the village. Complete market absorption of the 398 house lots was estimated to require four to six years from the commencement of presale offerings.

Archaeological and Cultural Impact
The project will have no effect on archaeological resources. Previous studies have identified and confirmed one archaeological feature on the site, a modest wall segment, for which no further treatment was recommended. Cultural Surveys Hawai‘i recently verified confirmed verbally with the SHPD that no further study or documentation was required. Written confirmation is pending from the SHPD.

Visual Impact
The creation of a rural subdivision will alter the visual environment, and views from Waikoloa Road toward Pu‘u Hīna‘i. Adverse visual impacts will be mitigated by setbacks, landscaping, and ample open space throughout the property. The development will not obstruct views of Pu‘u Hīna‘i or obstruct or alter views toward Mauna Kea from Waikoloa Road.

Transportation and Utilities

The subdivision will include an internal spine road with two access points off Waikoloa Road. While the project will increase traffic volumes, there will be no change in levels of service on Waikoloa Road. In the short term, the installation of traffic signals by the Petitioner at the intersection of Waikoloa Road, Pua Melia Street and Paniolo Avenue will mitigate poor levels of service during peak hours. Traffic signals and the addition of right-turn lanes will provide adequate intersection capacity for peak hour traffic at project build out. As traffic volumes increase due to other developments in the Waikoloa area, construction of a second eastbound left-turn lane will mitigate conditions. The additional east bound 2025 traffic generated (50 and 30 vehicles AM and PM, respectively, during peak hours) will not impact the intersection at Mamalahoa Highway because it will still be operating under capacity. West bound 2025 traffic generated (110 and 45 vehicles, AM and PM, respectively, during peak hours) will add to the already congested intersection at Queen Ka‘ahumanu Highway. The 14 percent AM and 10 percent PM increases in traffic volume attributable to the project will have a cumulative impact at the intersection. Mitigation, through the installation of a second left turn lane, when required, will be coordinated with the Department of Transportation (DOT).

The County of Hawai‘i has requested the consideration of a round-about at the intersection of Waikoloa Road, Paniolo Avenue and Pua Melia Road. This proposal is currently under review by the County as an amendment to Ordinance 05-157. An analysis of the intersection was performed and was found to be an acceptable alternative. If the County Council votes to approve this new proposal, then the applicant will proceed with the round-about improvement. However, if the decision to proceed with the round-about is not made before final subdivision is approved, the applicant will proceed to bond the project with the proposed signalization and roadway re-striping.

On-site drainage improvements will consist of thirty-five drywells, which will be used to dispose of any increase in roadways surface flows. ~~Flows~~ Storm flows not disposed of using drywells or detention basins will be directed through the subdivision using roadway culverts. There will be no increase in off-site flows or adverse drainage impact off-site. Best Management Practices will be used during construction to minimize erosion and prevent sediments from leaving the project site.

Water service will be provided by the private West Hawai‘i Utility Company (WHUC). The Petitioner is currently negotiating the cost for the water service and the cost sharing of the off-site transmission and storage. The Waikoloa Water Master Plan recommends development of a new potable water well at an upper elevation to accommodate the Waikoloa Highlands development. The proposed well, however, will be developed by WHUC to serve this project as well as other projects in the area.

There will be no significant impacts to existing electrical or telecommunication systems. The Petitioner will comply with utility company rules and regulations to insure compatibility with existing systems. Individual Wastewater Systems, constructed by each homeowner, are proposed for the individual residential lots. No adverse impacts ~~on~~ to groundwater or surface water are anticipated.

Public Facilities and Services

The anticipated increase in population may increase the need for police and fire protection services. The Petitioner will continue to keep the County Police and Fire Departments informed of its plans to ensure adequate service. Mitigation to address impacts to public services will be met by the developer through the payment of impact fees to the County of Hawai‘i as prescribed in Ordinance 05-157 (see additional discussion in Section 2.2.6, Development Costs). In the interim, alternatives such as securing the services of a private security company, installing an entry gate to the community, and/or instituting neighborhood security watches will be considered by the developer to promote and maintain public safety. The installation of fire breaks around the homes will be recommended to new homeowners to reduce the risk to dwellings that are constructed. This action will be done in consultation with the Fire Department.

The Department of Education (DOE) has indicated that the Waikoloa Highlands project will have ~~an~~ some impact on area schools through additional students that will be added to the existing school's population. The DOE, however, has indicated that no new schools will be required due to the small number of additional students. The DOE provided the Petitioner with information on how the Petitioner can mitigate potential impacts to schools through the payment of fees and/or the provision of land. The Petitioner is continuing to work with the DOE to mitigate the project's impact on school facilities.

SECONDARY AND CUMULATIVE IMPACTS

Secondary Impacts

Secondary impacts that are anticipated include: a potential increase in retail sales in Waikoloa Village; a decrease in available agricultural land; and changes to the landscape from open space to developed land.

Increase in retail sales. It is anticipated that there will be increased retail sales at the Waikoloa Village Shopping area as a result of increased population. This will also increase the demand on retail services available at the shopping area, such as grocery, personal services, and dining. The proposed project does not anticipate the provision of commercial-retail facilities within the project area. The landowner owns property to the north of the subject project that is currently zoned for retail-commercial uses, however, the owner does not have any plans to develop this site at the present time.

Decrease in available agricultural land. The proposed project will have the effect of decreasing the availability of agricultural lands in the area. Recent agricultural activities were limited to pastures. The area has not been known for intensive agriculture primarily due to the poor soil composition, mostly rock and the low rainfall. Development of intensive agriculture would require the development of new water sources.

Change in the landscape. The principal change in the landscape will be from a pastoral to a more rural setting. Where open space now occurs, there will be residences. This change however, is anticipated to be similar to the experience with other projects within the Waikoloa region.

However, because the planned subdivision will be comprised of larger 1-acre lots, the area is expected to more readily maintain an open space and rural setting.

Cumulative Impacts

The proposed project will add an additional 398 residential units and approximately 1,068 persons to the Waikoloa Village housing stock and population. This document discloses the anticipated project demand on services that are currently available including roadways, schools and parks.

Cumulative impacts that are anticipated include: increased water demand (approximately 400,000 gallons per day); additional traffic on Waikoloa Road (an additional 50 eastbound and 110 westbound trips would be generated during the AM peak, and 85 eastbound and 45 westbound trips would be generated during the PM peak); additional demand on public services, e.g. police, fire, schools, solid waste, and parks use based on an increase in population by 1,068 persons; and an increase in housing stock by 398 units.

A. Water Demand. The basic design assumptions for the Waikoloa Highlands drinking water system are as follows:

Future water demand for the Waikoloa area, including the Waikoloa Highlands project, is estimated at 16.34 mgd. Combined with the Waimea, Lalamilo, and Puako areas, water demand from the Waimea Aquifer is projected to be 33 mgd, which would require transporting water from the Anaehoomalu Aquifer to support the Waimea Aquifer. This would result in a projected demand for the Anaehoomalu Aquifer of 15-16 mgd, which is well below the sustainable yield of 30 mgd from this aquifer.

According to an update of the hydrologic capacity of the area there is sufficient water resource capacity to meet project demand of 1,000 gallons per day (gpd) per lot, or approximately 400,000 gpd for the project (1,000 gpd x approximately 400 lots). (WWSI 2007).

The developer is currently in negotiation with the West Hawai'i Utility Company (WHUC) to determine the water allocation, and the facilities development charge for the source well(s), storage, and transmission facilities.

In addition to the facilities development charge, a water distribution network will be required to distribute water within the project. The cost of the distribution network will be paid for by the developer and will include the installation of storage facilities (a water reservoir or tank), water lines, and appurtenances providing water to each of the 398 metered lots.

Potential for adverse impacts to the water resources of the area are not anticipated based on the availability of developable water for the proposed project. The potential for long-term cumulative impacts to regional water resources will be addressed with the developer's proposal to encourage conservation practices to preserve and prolong the long-term capacity of the Waimea and Anaehoomalu Aquifers.

Each of the proposed lots will have one lateral water line with two meters, one to monitor domestic use and the other to monitor irrigation use. The individual homeowners will be assessed differently for domestic water and irrigation water. Water uses for the project will be limited to 1,000 gpd per lot. If the water use is above the 1,000 gpd limit, restrictions may be imposed such as a special water use assessment to reduce demand and waste. This proposal would conserve water, reduce wasteful practices, and encourage the use and planting of drought-tolerant vegetation.

B. Traffic Impact. Traffic on all roadways in the area is anticipated to increase as development continues with several projects. The Traffic Impact Assessment Report (TIAR) included estimated traffic generated by these projects, that are expected to be completed by 2010. A summary of these projects include:

- Kilohana Kai (currently under construction): Assumes completion and full occupancy of 200 single-family detached dwelling units.
- Wehilani at Waikoloa (referred to in the traffic impact analysis as "Sunset Ridge"): Assumes project completion and a new bridge over Auwaiakeakua Gulch and linking roadways west of the existing Waikoloa Village, which will provide an alternative route for traffic from the existing Waikoloa Village via Hulu Street.
- Partial completion and occupancy of two projects located beyond the existing north end of Paniolo Avenue: the County of Hawai'i workforce housing project and Waikoloa Heights, for a total of 480 dwelling units.

The TIAR noted that other projects, including the infill of existing undeveloped property, are not expected to generate significant traffic volume. The new bridge over Auwaiakeakua Gulch is part of the ongoing Wehilani development that has access directly to Waikoloa Road, but will also relieve traffic on Paniolo Avenue. Future (2010) peak hour conditions at the study intersection were projected. Even with the creation of dedicated right turn lanes, the change in traffic volumes are anticipated to result in over-capacity conditions at the intersection of Waikoloa Road, Pua Melia Street, and Paniolo Avenue. Traffic signals would be warranted for four hours of an average day, using projections based on the peak hour traffic assignments and the hourly distribution from the traffic counts. The use of traffic signals will distribute the delays to all movements and help to mitigate the over-capacity condition.

Further development of the County workforce housing project and Waikoloa Heights is expected beyond 2010, and other projects may also be proposed and developed. Therefore, the traffic assignments for 2010 were increased at an average rate of 2.5 percent per year to account for expected continued growth.

The TIAR estimated future (2025) traffic conditions with the project. Project traffic was distributed to local destinations within Waikoloa Village and onto Waikoloa Road in proportion to existing turning movements at the study intersection. The analysis found that while the overall intersection Level of Service (LOS) can be maintained within an acceptable range, the high volume left turn movement (westbound and southbound) will experience very long delays and LOS E conditions. The projected volumes and predicted LOS are identified in the TIAR, and are provided in this FEIS, in Table 3-5, Waikoloa Road Levels of Service.

C. Schools. DOE reports that based on population projections and the number of housing units planned that the project is estimated to contribute 24 additional elementary school students, 9 middle school students, and 7 high school students. Based on this projection, the DOE has determined that no additional schools will be needed. According to discussions with Heidi Meeker, DOE, the DOE will request that the Land Use Commission impose a school fair-share condition similar to conditions that the Land Use Commission has imposed on other recent developments. Discussions with the DOE are continuing to determine how the Petitioner will mitigate the project's impact on school facilities and ~~study~~ identify its fair share requirements.

D. Population Increase. The Social and Economic Impact Analysis (SMS Research, 2006) examined the social impacts of the proposed Waikoloa Highlands project. The average de facto population at build out of the project is projected to be 1,068 persons, including 907 full time residents. Although the project will have minimal regional impact, its presence will be felt in the nearby village of Waikoloa.

Waikoloa was originally intended to be a town of much larger size, designed as a complete community. After a relatively slow growth period in its first 30 years, current proposals may push the Village to its original intentions.

If only half of the proposed plans were to become reality, Waikoloa would more than double in size. As a community significantly off the coastline, it is unlikely that Waikoloa would develop into a community dominated by tourism investment. Rather it will, in all likelihood, develop into a diverse community whose members work throughout the region, from Kamuela to Kailua-Kona, both in and out of the visitor industry. As a mid-point between the established community of Kamuela and the bustling coastline, Waikoloa will probably continue with a suburban character, perhaps with a more defined town center offering a wider array of commercial and public services.

The lots of Waikoloa Highlands are not a unique product to the region. Similar lots have been and are available in various parts of Kamuela and along the coast. The proposed project will not change the regional pattern of growth or significantly affect the character of the region.

The Hallstrom Group study also concurred that during the project's estimated ten-year build-out, a number of construction, equipment operator, and specialty trade jobs will be created, both on and off-site. The Hallstrom Group estimated that construction of the subdivision and its ongoing use and maintenance will create between 92 and 265 positions annually, totaling some 2,296 "worker/years" of employment on the Big Island during the first decade. Of this, 1,445 worker/years (average of 145 positions) would be direct construction oriented jobs, 195 would be ongoing maintenance/operating positions, and 656 would be off-site worker requirements. Associated wages during this ten-year build out period are estimated at $113.1 million. (Hallstrom Group, May 2006).

After completion of the homes, there will be significant additional employment positions created. These include landscape, service, maintenance and renovation service jobs. The Hallstrom Group estimated that home and unit maintenance will support about 40 full-time equivalent on-site jobs and contribute to another 16 jobs offsite, with total wages of $1.6 million annually. (Ibid).

The project's public fiscal impacts were also examined by both SMS Research and The Hallstrom Group. Although projections of public revenues differed, both concluded that the project would result in positive fiscal benefits to the State and County governments.

The SMS Social and Economic Impact Analysis projected new State and County tax revenues. The study noted that no major new commitment of County or State funds is needed to support this project. Construction spending of $340.3 million was estimated to result in $12.8 million in direct state tax revenues. Over a ten-year period, it was estimated that the project will generate $33.4 million in state tax revenues. (SMS Research, 2006).

E. Increased Housing Stock. There are five major projects in development, approved or proposed in the Waikoloa Village area totaling approximately 2,133 units. These projects are: Wehilani (756 units), 17th Fairway (27 units), Sunset Ridge (120 units), Kilohana Kai (230 units), and a County of Hawai'i project for workforce housing (1,000 units). Combined with the approximately 2,400 existing units in the Waikoloa Village area there would be a total of 4,533 units. (SMS Research 2006).

The proposed Waikoloa Highlands is not anticipated to significantly impact the existing community fabric of Waikoloa Village. If homes were built and occupied on every lot in Waikoloa Highlands, the project alone would increase the current size of the village by 23 percent. However, in the context of development of other projects, the impact of the Highlands project would contribute only be 9 percent (398 units divided by 4,533 units). While the increased units will result in increased demand for traffic and public services, as some Waikoloa residents noted in interviews, the Highlands development would help to support the current resident pleas for additional services. (SMS Research 2006).

F. Mitigation of Impacts. In each instance where impacts are anticipated, mitigation measures are identified and include the proposed use of traffic signals at the intersection of Waikoloa Road and Paniolo Avenue, and the provision of affordable housing in accordance with Ordinance 05-157, calling for the assessment of impact fees for the provision of public services such as affordable housing, parks, roadways, police service, fire service and solid waste. In addition, the Petitioner is continuing to discuss this project with the DOE to determine and provide a fair share contribution to meet public educational requirements. No further adverse cumulative impacts to the region and environmental resources of the region are anticipated.

CONSISTENCY WITH LAND USE PLANS, POLICIES AND CONTROLS

The proposed project is consistent with the Hawai‘i State Plan and Functional Plans. The site is currently in the State Agricultural District, but is not considered highly productive and is only marginally suitable for intensive agricultural use such as truck crops and orchards. The surrounding land uses are primarily low-scale residential and commercial areas, and not in active agricultural production. A petition for a LUBDA for the property has been filed with the SLUC, requesting redesignation from the Agricultural District to the Rural District.

The project is consistent with the County General Plan, which identify the site as "Rural" and "Open" on the current LUPAG map. In 1995, the County rezoned the property to the Open (O)

and Residential-Agricultural (RA-1a) zoning districts. The proposed subdivision is consistent with these designations.

UNRESOLVED ISSUES

Potable Water

Discussions with WHUC ~~(Waikoloa Water Company)~~ to negotiate the cost of the project's water service, source development, and the cost-sharing of the off-site transmission and storage are ongoing. ~~Also under discussion is the provision and location of a new upper elevation well to support the project~~. Although the negotiated cost for the water supply is pending, sufficient water resources are available for development of the project.

Schools

Discussions with the DOE regarding project impacts on area schools ~~and appropriate mitigation are ongoing.~~ have determined that the proposed project will not require the development of new schools. Discussion concerning appropriate mitigation to address educational requirements are ongoing to identify a fair and equitable solution. To date, mitigation measures that were discussed include~~s~~ the provision of developable land, or in lieu fees calculated on a per-student basis. ~~The~~ For example, the Petitioner has proposed land across Waikoloa Road on the Waikoloa Village side for use by the DOE. However, in order for this land to be fully utilized, infrastructure, including water, wastewater, and drainage systems must be identified, cost estimated, and then developed.

Affordable Housing

Discussions are ongoing with the County regarding compliance with Hawai‘i County Code and Ordinance ~~95-157~~ 05-157, which requires that the Petitioner earn affordable housing credits equal to 20 percent of the number of units or lots. The Petitioner is committed to meeting its affordable housing requirement per Ordinance ~~95-157~~ 05-157, by providing land on an adjoining parcel of land that is fully entitled for multifamily use. The parcel is identified by Tax Map Key (3) 6-8-03, parcel 31 and is located west of the project area. ~~but the method is yet undetermined. To date, discussions with the County have centered on providing affordable housing on a site located west of the subject project, in an area designated for multi-family residential units.~~

Relocation of Transmission Line

The Petitioner has proposed relocation of the existing 69 KV transmission lines that traverse the project area. Hawai‘i Electric ~~and~~ Light Company (HELCO) has agreed in principle, but has requested that additional studies be conducted. Discussions are ongoing with HELCO to determine an appropriate course of action.

SUMMARY OF DRAFT EIS COMMENTS AND RESPONSES

A table summarizing the written comments received from the DEIS, the responses prepared, and the FEIS page numbers referencing the responses, as appropriate, ~~are~~ is provided in Table ES-1, Summary of Draft EIS Comments and Responses.

Table ES-1: Summary of Draft EIS Comments and Responses
Waikoloa Highlands Final Environmental Impact Statement (DEIS)

May 17, 2007

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
1. Anthony J.H. Ching, Executive Offiicer State Land Use Commission	10/31/2006		
A. Include figure identifying the location of the 12.819 acres impacted by drainage improvements in the area. Confirm is the area is a portion of TMK: 6-8-003: 032 and make changes to the EIS to include the TMK as appropriate.		The 12.819 acres located at the northernmost portion of the subject property at the intersection of Waikoloa Road and Pua Melia Road is not required and will be excluded from this project. This parcel is designed as Tax Map Key: (3) 6-8-002, portion of parcel 016. The 12.819-acre area is now removed from this project. The new project acreage and petition area comprises 731.358 acres. This change will be reflected in the Final EIS.	-Section 1.3 Proposed Action and Location, Page 1-2 -Figures 1-Project Location, Page 1 3; 2-Site Plan, Page 1-5; and 3-Tax Map, Page 1-6.
B. The Executive Summary of the FEIS should include a discussion of the project impact and mitigation to include cumulative and secondary impacts.		The Executive Summary has been revised to include this information.	Executive Summary, Secondary and Cumulative Impacts, Page ES-5.
C. Clarify in Section 1.2 which state or county lands may be impacted by the project. Indicate if the project requires any public lands of funds.		Section 1.2 includes this information as: (1) the intersection of Waikoloa Road and Paniolo Drive where traffic signals will be installed and the intersection will be re-striped; (2) a new intersection proposed along Pua Melia Road; and (3) a new intersection proposed where turn-lanes will be installed on Waikoloa Road, east of Paniolo Avenue. Section 1.2, will also include a statement to clarify that state or county funds will not be required to complete the roadway improvements.	Section 1.2 Purpose of This Final Environmental Impact Statement, Page 1-2.
D. Clarify the phasing and development timetable. Approximately how long will Phase 2 take to complete.		Section 2.2.2 Phasing Plan includes this information. Phase 1 is scheduled to last approximately 8-10 months with Phase 2 scheduled to commense upon completion of Phase 1. Phase 2 construction activities will last approximatley 8 - 10 months, with completion anticipated by Fall 2009 or early 2010.	Section 2.2.2 Phasing Plan, Page 2 3.
E. Resolve the inconsistency regarding the golf course in Section 2.5 Golf Course with Residential Estate Lots, that indicates this alternative will not be developed, and in Section 4.1.2 State Land Use Classification, that indicates that a golf course may be proposed. If a golf course is proposed the environmental impacts and mitigation measures must be disclosed.		The golf course identified in the DEIS was cited in error and is not a part of the proposed project based on major additional infrastructure requirements and the uncertain market for another new golf course in the region. The golf course will not be developed and will be removed as a proposed part of the project from the FEIS.	Section 4.1.2 State Land Use Classification, starting on Page 4-4.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
F. Identify the landowner of a large cinder quarry at the base of Puu Hinai and the approximate date the quarry operations were terminated.		Pu'u Hīna'i is owned by Waikoloa Mauka, LLC. The Draft EIS reported incorrectly that the quarry operations were terminated. The quarry is currently permitted by Special Use Permit No. SP70-85, and is operated by Deluz Trucking and Gravel, LLC. An amendment to the permit was approved by the LUC on January 9, 2006 which extended the life of the permit from December 11, 2005 to December 11, 2010. This information will be provided in the Final EIS, Section 3.2.3, Topography.	Section 3.2.3 Topography, Page 3-2.
G. Inlcude a figure in the FEIS that depicts the location, acreage and unit count of the proposed affordable housing. Describe why this was not integrated into the project layout.		A new figure will be provided in the Final EIS identifying Tax Map Key (3) 6-8-003: parcel 031, comprising 3.710 acres, as the location for an affordable housing parcel. The selection of the affordable housing site was based on the underlying 1-acre zoning of the planned Waikoloa Highlands project, and the developer's ownership of other nearby property that possessed the necessary zoning for affordable housing uses. In summary, this represents 20 percent of the planned 398 units of the project in accordance with Section 11-4, HCC; and (2) the location of the parcel is within 15 miles of the project site in accordance with Section 11-5, HCC.	-Figure 3-Tax Map, Page 1-6. -Section 3.7.3, Affordable Housing, Page 3-63. -Section 4.2.5, County Affordable Housing (Hawai'i County Code, Chapter 11, Article 1), page 4-12 and 4-13.
H. Include a figure in the FEIS depicting the Underground Injection Control (UIC) line in relation to the petition area. The FEIS should discuss the relationship of the UIC line to the project and how it may impact underground injection disposal of stormwater and/or wastewater.		A figure delineating the HIC line has been provided in the FEIS. Discussion concerning potential for impacts to the UIC line are provided in Section 3.5.5, Wastewater.	-Figure 20-Underground Injection Control Line, Page 3-54 -Section 3.5.5, Wastewater, Page 3 53.
I. The FEIS should include an estimate of "soft costs" including impact fees and fair-share contributions with the projected development cost to more accurately portray what the total development costs to the project might equal.		An estimate of the project's soft costs will be provided in the Final EIS, Table 2-3, Additional Costs. Table 2-3, will identify the impact fees and fair-share contributions that can be quantified at this time.	Table 2-3, Additional Costs, Page 2 7.
J. Provide a figure in the FEIS depicting the potential location of the new upper elevation well, under consideration as an optional water source. The location of this well may dictate that this item be included in the scope of the FEIS. However, no further discussion (other than a statement) may be necessary if the location and development of the drinking water source is construed to be another separate project.		The development of off-site improvements is the responsibility of West Hawai'i Utility Company (WHUC), a Public Utilities Commission regulated utility company, who will designate the specific locations of well(s) and reservoirs. Although the specific locations of these well(s) and reservoirs are not known by the project developer, information that is known includes the approximate elevation of the reservoirs so tha sufficient pressure can be provided to meet water system requirements. The Final EIS, Appendix A, Waikoloa Water Master Plan, 1991, identifies these water storage elevations at 1,300 feet and 1,800 feet relative to mean sea level (msl).	-Section 3.5.3, Drinking Water, Pages 3-49 to 3-52. -Figure 19, Water Distribution Plan, Page 3-51. -Appendix J, Waikoloa Highlands Water Distribution System, September 2006.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
K. Include a figure in the FEIS demonstrating the potential location and acreage of the school site across Waikoloa Road on the Waikoloa Village side, which is under consideration by the petitioner and the DOE.		The DEIS, Section 3.6.4, Schools, previously indicated that approximately 3-acres of developable land would be considered to meet school educational requirements. This proposal has since been revised based on a change in the formula used by the DOE to estimate school enrolment. DOE reports that based on the number of units planned that the proposed Waikoloa Highlands project will contribute 24 additional elementary school students, 9 middle school students, and 7 high school students. The DOE has determined that no additional schools will be needed based on this projection. The petitioner is continuing to discuss their fair-share requirement with the DOE and as required, will contribute their fair-share to mitigate the potential for adverse impacts on the provision of public educational services.	-Section 3.6.4, Schools Pages 3-60 to 3-62. -Section 3.7.2, Schools, Page 3-62.
L. The statement made by Ms. Maigret, SHPD, April 17, 2006, indicates it is her inclination "that additional work is not necessary…", and reads as a tentative approval which will require review and sign-off by Ms. Maigret's supervisor. However, on page 3-34, the DEIS states that SHPD recently "confirmed that additional work is not neccessary..." Note that page 15 of the Cultural Impact Assessment (Appdx. F) states that "...recent consultation with the SHPD (4/17/06) has indicated that no further work is neccessary." Please provide documentation to evidence this confirmation from SHPD.		We have requested a clarification of the requirements of the SHPD and will forward their response to the LUC upon our receipt. We are aware that Ms. Mary Anne Maigret, Hawai'i Island Archaeologist, has since left the SHPD and her assignments have been temporarily transferred. We are in communication with the SHPD and intend to provide documentation concerning this item as soon as possible.	Section 3.4.5, Archaeological, Historic and Cultural Resources. Page 3-36.
M. Please add a figure to the FEIS to describe the locations of the proposed on-site reservoirs. Please also clarify how reservoir water levels will be maintained in an area with low annual rainfall (in relation to a relatively high mean annual evapotranspiration rate) and where soil permeability ranges from moderate to rapid.		Proposed reservoirs (tanks) to serve this project are located off-site on property owned by the applicant. The general location of the proposed reservoirs will be provided in the Final FEIS, in Figure 19, Water Distribution Plan, as well as in Appendix J, Waikoloa Highlands Water Distribution System, September 2006. The water source for this project will be from the West Hawai'i Utilities well field number 2 and 3. The approximately 400,000 gallons per day of water required for this project will be stored in covered tanks that will minimize water losses through evaporation.	Figure 19, Water Distribution Plan, Page 3-51. Appendix J, Waikoloa Highlands Water Distribution System, Sept. 2006.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
N. Add a subsection to the FEIS to segregate the description of the project irrigation water from the drinking water supply. Clarify if nonpotable water will be used to irrigate project landscaping. Clarify if the recommendations of Appendix K would apply to the proposed project. Clarify the relationship of the Waikoloa Water Master Plan, 1991, Appendix A, to the drinking and irrigation water needs of the project. In addition, describe what parts of the 1991 Master Plan will not apply to the project. The FEIS should describe the project drinking water source, storage, and transmission requirements in the body of the document without reference to Appendix A.		The Final EIS will clarify that the proposed project will utilize a potable water system to meet irrigation and domestic water needs. We confirm that the recommendations of Appendix K, Highlands Golf Estates Landscape Irrigation Water Study, August 2005, are intended to help guide the use of water conservation measures and do not imply the development of a golf course, which is not now a part of the proposed project. The proposed water system will provide a separate water meter for each lot that will provide metering for both domestic and irrigation needs up to a water allowance of 1,000 gallons per day per lot. In order to encourage water conservation, homeowners will be advised to use drought tolerant plants when landscaping. If water uses exceed 1,000 gallons per day, the homeowner will be assessed a higher fee for any water usage over the 1,000 gallons per day water allowance. Please refer to the response to Item M, above.	Section 3.5.3, Drinking Water, Page 3-49 to 3-51. Section 3.2.8, Hydrology, Pages 3-12 to 3-14.
O. The FEIS should acknowledge the DOH in its EISPN comment letter dated August 21, 2006, recommending that the project utilize a centralized wastewater system. The FEIS should discuss why a centralized wastewater system was not considered. Clarify if septic tanks are the sole option for individual wastewater system disposal for the project.		A summary of the discussion involving consideration of the centralized wastewater system information is provided in the Final EIS, Section 3.5.5, Wastewater.	Section 3.5.5, Wastewater, page 3-53 to 3-55.
P. Clarify what is meant by the statement that with a "full staff" of police officers for the South Kohala Police Station in Waimea, the project will be adequately serviced. Is the police station currently not fully staffed.		A summary of the following will be provided in the Final EIS, Section 3.6.1, Police: There are currently two patrol officers per watch. The Police Department is authorized to have another 5 officers. Because these positions are vacant there are delays in service. If additional officers are needed, they are generally dispatched from Waimea. The Waimea area, however, is also only served by 2 officers suggesting that if these officers are called, there will be delayed service. In accordance with Ordinance 05-157, the applicant is required to pay fees to the County of Hawai'i for each lot to mitigate impacts to Police service. Until such time that the vacant police positions can be filled, the applicant will: (1) encourage an active community neighborhood watch program; (2) utilize private security personnel to perform random site and drive-through inspections; and/or (3) provide a gate at the entry to the development.	Section 3.6.1, Police, page 3-58.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
Q. The FEIS should provide a breakdown of the number of elementary, middle school, and high school students the project is expected to generate.		The DOE reports that based on the number of units planned that the proposed Waikoloa Highlands project will contribute 24 additional elementary school students, 9 middle school students, and 7 high school students. The DOE has determined that no additional schools will be needed based on this projection.	Section 3.6.4, Schools, Pages 3-60 to 3-62.
R. The FEIS should respond to the DOE's request in their comment letter dated August 9, 2006 to provide: a confirmation of whether accessory dwellings will be permitted; the range of lot sizes and minimum required price for homes built in the project; and, the best estimate of the number of home expected to be occupied at any given time and the number of homes expected to be occupied full time when the project is completely built out.		The FEIS will note the following: Section 2.2.1, Subdivision Plan: One single family home will be permitted in the development for each lot of record in accordance with Ordinance 05-157. Restrictions on additional units will be stated in the Covenants, Conditions and Restrictions (CC&Rs) for the project. Section 3.4.3, Socio-Economic Environment: The lots at Waikoloa Highlands will sell for $768,600 to $1,058,400. Executive Summary: The developer has assumed that the buyers of the lots will be owner occupants with a preliminary estimate of full-time occupancy at build out of approximately 40 percent.	-Section 2.2.1, Subdivision Plan, Page 2-1. -Section 3.4.3, Socio-Economic Environment, Page 3-28. -Executive Summary, Page ES-2.
S. If accessory dwellings will be permitted, revise the project impacts and mitigation measures in the FEIS to account for the potential increase in the project's density.		Accessory dwellings or multiple dwellings on the lot are not permitted in accordance with Ordinance 05-157 (2005).	Section 2.2.1, Subdivision Plan, Page 2-1.
T. Clarify what studies and projected timeframes for these studies would be necessary to determine the feasibility of relocating the existing electric transmission lines to the perimeter of the petition area.		According to Hawai'i Electric Light Company (HELCO), the planning, design and relocation of the existing transmission lines to the perimeter of the petition area is anticipated to take two years. Appropriate studies will be prepared during the planning and design process to review the specific project requirements. This is not anticipated to impact the planned construction of the project infrastructure.	Section 3.5.4, Electrical and Telecommunications, Page 3-52.
U. The FEIS should describe the project's applicability to each of the coastal zone management program policies and objectives defined in chapter 205A-2, HRS.		The FEIS, Section 4.2.4, Coastal Zone Management/Special Management Area, will indicate the applicability of the project to each of the coastal zone management program policies and objectives.	Section 4.2.4, Coastal Zone Management/Special Management Area, Page 4-11.
V. If Ordinance No. 05-157 amended Ord. No. 95-51 clarify the relevance of Ord. No. 05-157 to the project. Include the applicable rezoning ordinances as appendices to the FEIS.		Ordinance 95-157 does not have any relevance to this project and was a typographic error. It will be corrected in the Final EIS. The correct Ordinance number is 05-157.	Correct references provided throughout FEIS document.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
W. The DEIS references the Drainage Report for the Waikoloa Highlands Subdivision, Phase 1. The FEIS should address drainage impacts and mitigation measures for both or all phases of the project.		Concern involving stormflows across both phases of the project is in the DEIS, Appendix H, Floodplain Limits and Flood Control Plan. A combination of ditches and culverts were identified for drainage improvement to protect the site from flooding and flood impacts that include erosion of soils and sediments discharging downstream to state waters. The plan identifies both phases of the project and includes ditch and culvert controls to ensure stormflows are properly managed and addressed, in accordance with state and county regulations. In this regard, the potential for drainage impacts as well as the consideration and provision of appropriate mitigation measures are provided.	Appendix H, Floodplain Limits and Flood Control Plan. See also Section 3.5.2, Drainage, for construction practices to control storm water runoff from the site, starting on Page 3-46.
X. The FEIS should include a discussion of the interrelationships and cumulative environmental impacts of the project to other related projects.		The FEIS, Executive Summary, will provide further discussion of secondary and cumulative impacts as a result of the proposed project.	Executive Summary, Secondary and Cumulative Impacts, Page ES-5.
2. Patricia Hamamoto, Superintendent of Education	11/6/2006		
Department of Education			
A. The DEIS does not make clear the number of dwelling units in the project.		The proposed subdivision envisions only 1 dwelling unit per lot for a total of 398 units.	Section 2.2.1. Subdivision Plan, Page 2-1.
B. The DEIS does not explain how it was determined that 233 students would be generated.		The applicant has been in contact with DOE staff and have been provided with the following information regarding anticipated student enrollment. Based on the number of units planned and the projected population, the DOE estimates that the project will contribute 24 additional elementary school students, 9 middle school students, and 7 high school students. The DOE staff also concluded due to the small number of additional students, that the project will not require additional school facilities. This information will be provided in the Final EIS, Section 3.6.4, Schools.	Section 3.6.4. Schools, Pages 3-60 to 3-62.
C. The DOE requests a school fair share condition based on the actual number of dwelling units.		Applicant agrees in principle to the DOE fair share condition.	Section 3.6.4. Schools, Page 3-62.
3. Derek. D. Pacheco, Assistant Chief, Area II Operations	11/15/2006		
Police Department, County of Hawaii			
A. Development of the proposed proejct will have an increase in motor vehicle traffic that will have an effect on adjacent subdivisions.		We acknowledge that the proposed project will increase the overall volume of traffic on the streets and roads in the area. To mitigate the impact resulting from this project, the developer will be upgrading the intersection at Waikoloa Road and Paniolo Avenue. The proposed improvements will assist traffic movement through this important intersection.	-Section 2.2.3, Access and Circulation, Pages 2-3 to 2-6. -Section 2.2.6, Development Costs, Page 2-7.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
B. Calls for police service will increase in direct proportion to the increase in population of the proposed project. Police response to calls for service in the area may be delayed due to the increase in population.		We further acknowledge that with the general increase in population in the area, the Police Department will be faced with additional calls for service. In order to mitigate this impact and as provided by Ordinance 05-157, the developer will be paying an impact fee to the County of Hawai'i for police services and facilities.	Table 2-3, Additional Costs, Page 2 7.
4. Darryl Oliveira, Fire Chief	11/6/2006		
Fire Department, County of Hawaii			
A. Fire apparatus access roads should be provided for the proposed project in accordance with UFC, Section 10.207, attached per letter.		We have reviewed the comments and note that the proposed project will be developed in accordance with UFC Section 10.207 relating to fire apparatus access.	Section 3.6.2, Fire and Emergency Medical Services, Page 3-58.
B. Water supply should be provdied in accordance with UFC, Section 10.301(c), attached per letter.		In addition, the project will be developed in accordance with UFC Section 10.301(c) relating to water supply.	Appendix N, Comments and Responses-Draft EIS, See Letter to Darryl Oliveira, Fire Department.
5. Orlando "Dan" Davidson, Executive Director	11/16/2006		
Hawaii Housing Finance and Development Corporation			
A. 398 lots that are a minimum of one acre in size will be provided. The anticipated selling prices range from $768,000 to $1,058,000.		We acknowledge that the subject project will include 398 low-density rural residentia units. The anticipated selling prices as stated in the FEIS are between $768,600 to $1,058,400.	Section 3.4.3, Socioeconomic Environment, Page 3-28.
B. Discussions regarding the provision of affordable housing are ongoing with the County. The Applicant has indicated that it will comply with the County's affordable housing requirements per Ordinance 95-157 (Bill 25).		Ordinance 05-157 (not 95-157) requires the developer to accrue housing "credits" equal to 20% of the total number of units being proposed. Chapter 11 of the Hawai'i County Code allows the accrual of credits by building affordable housing, providing in-lieu fees, and/or the provision of land. The developer has elected to provide land on a parcel adjacent to the subject project. This parcel of land is designated as Tax Map Key (3) 6-8-003: parcel 31. The land is owned by the applicant and is zoned for multifamily residences.	Section 3.7.3, Affordable Housing, Page 3-62.
C. It appears that affordable housing units may be located on a site located west of the subject project, in an area designated for multifamily housing units. Please elaborate on this, particularly in relationship to Hawai'i State Plan policy of increasing homeownership and rental opportunities and choices in terms of quality, location, cost densities, style and size of housing.		While the provision of affordable housing addresses the Hawai'i State Plan policy of increasing homeownership, the site location is designed to comply with the requirements of the Hawaii County Code (HCC). In summary: (1) a total of 80 affordable housing units will be provided. This represents 20 percent of the planned 398 units of the project in accordance with Section 11-4, HCC; and (2) the location o the parcel is within 15 miles of the project site in accordance with Section 11-5, HCC. The factors that influenced the selection of the site included the underlying 1-acre zoning of the planned Waikoloa Highlands project, and the developer's ownership of other nearby property that possessed the necessary zoning for affordable housing uses.	-Figure 3, Tax Map, Page 1-6. -Table 4-1, Summary of Compliance with the Hawai'i State Plan, Page 4-1 and 4-2. -Table 4-2, Compliance with Affordable Housing Objectives. Pages 4-2 and 4-3.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
6. Genevieve Salmonson, Director Office of Environmental Quality Control	11/22/2006		
A. What is the estimated percentage of the homes that will be purchased by second-home buyers?		Approximately 40% of the lots will be purchased by second home buyers, as referenced in the DEIS, Appendix D, Market Study, Economic Impact Analysis and Public Cost/Benefits Assessment, May 2006. (Appendix D is also included in the FEIS).	Appendix D, Market Study, Economic Impact Analysis and Public Cost/Benefits Assessment, The Hallstrom Group, Inc., May 2006, Page 32.
B. Please describe whether this residential project will provide affordable housing units?		The developer will provide affordable housing as required by County of Hawaii Ordinance 05-157, by providing land on an adjoining parcel that is entitled for multifamily use. The parcel is identified by Tax Map Key (3) 6-8-03, parcel 31 and is located west of the proposed project area.	Section 3.7.3, Affordable Housing, Page 3-62.
C. Where will the residents shop? Is the nearest shopping area within walking distance?		No commercial or retail amenities are proposed as part of the development. The closest shopping area is in Waikoloa Village, with the closest lots approximately ¼ miles to approximately ½ miles from the shopping area. Additional retail may be planned on properties west of the proposed development.	N/A
D. Will potential home buyers be notified of the potential unexploded bombs on this site?		The project site has been cleared of unexploded ordnance by the U.S. Army Corps of Engineers. However, the developer will notify prospective homeowners of prior clearing activities and the potential for discovery of unexploded ordnance as part of the lot sales program.	Section 3.2.7, Man Made Hazards, Page 3-10.
E. Explain how the introduction of residents with more than 4 times the median income changes the social fabric of the community. What are the potential impacts of this change?		The potential impact to the community will involve the development of a more heterogenous and diverse socioeconomic population than presently exists. Household incomes in Waikoloa Village are highly concentrated around the mean; households with incomes of $150,000 or higher make up only 2.1 percent of the population. After assuming probable construction costs, one can see that many households that buy into this project will need the incomes as estimated in the DEIS in the range of $192,000 to $264,000 annually, thereby increasing that category, flattening the income curve and enabling a more heterogeneous population. In this regard, it is anticipated that greater balance within the Waikoloa community will result from having a greater mix of housing types with residents from diverse socioeconomic backgrounds. It is the developer's expectation that the more heterogeneous a population - whether measured by income, ethnicity, age, home of origin, etc. - the more dynamic the community, the more diverse the social interaction, and the richer the events and activities of that community. We add that this is expected to be facilitated with the greater provision of public services for all residents that will also result from the increased tax revenues made possible with this project.	N/A

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
F. Explain more clearly how this project will create a more balanced community as described on page 3-26 of the Draft EIS.		Please refer to the response provided above.	N/A
7. Ernest Y.W. Lau, Public Works Administrator	11/24/2006		
Dept. of Accounting and General Services			
The project does not impact any of the Dept. of Accounting and General Services projects or existing facilities and we have no comments to offer.		The Department of Accounting and General Services has no comments to offer at this time.	N/A
8. Christopher J. Yuen, Planning Director	11/24/2006		
Planning Department, County of Hawaii			
A. The Draft EIS incorrectly references Change of Zone Ordinance as 95-157. The correct Ordinance is 05-157 which amended Ordinance No. 95-51, which in turn amended Ordinance 90-160. We suggest the referenced Ordinances be attached as Appendices.		We will correct references in the Final EIS relating to Ordinance 05-157. Further, the references provided by your Department will be appended to the Final EIS.	Correct references revised throughout FEIS document.
B. There is a discrepancy as to the number of lots proposed. Page ES-1 states the project will include 398 one acre sized lots. However, page 2-7 in Section 2.5 indicates 286 one to two acre lots.		The proposed project is for 398 lots as stated on page ES-1. The reference to 286 lots (DEIS, page 2-7) was for an alternative that was considered but rejected.	Correct reference to 398 lots made throughout FEIS document.
C. Page ES-1 references a 744.40 acre site. However, the next sentence states the area to be reclassified is 731.581 acres.		The project plans have been modified since the issuance of the Draft EIS. The project area and the Land Use Boundary Petition Area are now 731.581 acres, not 744.40 acres. The Boundary Amendment Petition is requesting the redesignation of 731.581 acres from the State Agricultural District to the State Rural District.	Correct reference to acreage made throughout FEIS document.
D. Page 3-2 references "Richard Smart, present owner of Parker Ranch. Mr. Smart is deceased.		We will correct the reference to lands owned by Parker Ranch.	Section 3.2.2, Land Ownership History, Page 3-1.
E. Page 3-2, Section 3.2.3. states the lease for Puu Hinai cinder quarry was terminated. Is this the same quarry that Edwin De Luz Trucking and Gravel LLC received an extension for last year under Special Permit 70-85?		The Draft EIS incorrectly stated that the lease for quarrying at Pu'u Hinai was terminated. We will correct this reference in the Final EIS.	Section 3.2.3, Topography, Page 3-2.
F. Page 3-35, 3rd paragraph, states that Cultural Surveys Hawaii noted that "It seems odd that a site nearly 150 feet long that presumably had been around for many decades could disappear in the course of 18 years. It also, however, seems unlikely the Jensen crew would have missed Site 22. Has further survey been conducted to determine the location of Site 22?		Cultural Surveys Hawai'i, Archaeologists, conducted additional surveys since the publication of the Draft EIS of the project area and have not been able to locate the site identified by Bevaqua (1972).	Section 3.4.5. Archaeological, Historic, and Cultural Resources, Page 3-35 to 3-37.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
9. Barbara Bell, Director Department of Enviornmental Management County of Hawaii	11/27/2006		
A. The Department's Solid Waste Management Plan Guidelines were incompletely reproduced as part of the Draft EIS. The complete document is enclosed.		Receipt of the Solid Waste Management Guidelines are acknowledged and will be included in the Final EIS as a record of the comment.	Appendix N, Comments and Responses-Draft EIS.
B. We are disappointed that you did not comply with our request for a Solid Waste Management Plan. Please submit a comprehensive plan that addresses the items in the Guidelines, attached per letter		Applicant will develop a Solid Waste Management Plan and submit for the review and approval of the Department of Environmental Management (DEM). The Plan will include recycling and other waste reduction efforts. Applicant will also continue discussions with DEM to develop the Solid Waste Management Plan. Applicant is further aware of the efforts of the Waikoloa Village Association to develop a waste management plan.	Section 3.5.6, Solid Waste, Pages 3-55 and 3-56.
10. Gordon Tribble, Center Director U.S. Geological Survey, Dept. of the Interior	11/30/2006		
The USGS is unable to review the DEIS.		Applicant has acknowledged the USGS is unable to review the DEIS and offers additional contact if there are any questions.	N/A
11. Kelvin H. Sunada, Manager Department of Health, Environmental Planning Office	12/5/2006		
A. There is insufficient informration to determine whether the subdivision will be a regulated public water system (PWS). The DEIS cites the planned use of the West Hawaii Utilities (WHU) water but also implies that other well sources may be developed. Will these new well resources and associated reservoir, booster station and distribution system improvements be turned over to the WHU or will they remain separate and under the subdivision association as a new regulated PWS.		As stated in the DEIS, water service will be provided to each lot in the subdivision by the West Hawai'i Utility (WHU) Company, a Public Utilities Commission, regulated company. The developer will not be developing a separate water system. Therefore, we believe that all Safe Drinking Water Standards are being met if the development uses water from WHU. We have included information on the water distribution system in the DEIS (Section 3.5.3) and the FEIS, same section.	Section 3.2.8, Hydrology, Pages 3-12 to 3-14. Section 3.5.3, Drinking Water, Pages 3-49 to 3-52.
B. If the subdivision system is a regulated PWS it must meet the requirements of HAR, Title 11, Chapter 20.		See above, the subdivision system will be a public water system under control of West Hawai'i Utility Company who will be responsible for all regs. including HAR 11-20.	N/A

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
12. Barry Fukunaga, Director	12/5/2006		
Department of Transportation			
A. The Traffic Impact Assessment Report (TIAR) did not contain a discussion of the project's contribution to the traffic conditions and imapcts at the intersections with the Queen Kaahumanu and Mamalahoa Highways, including the project's factor in the cumulative traffic from other land developments in Waikoloa at the intersections. A supplement should be prepared addressing the impact to the highways and submitted for review and approval.		Based on our projections of traffic generation within the time frames of this project we estimate that this project will add an additional 5 percent to the east bound traffic and 10 percent to the westbound traffic volume. We also note that the Waikoloa Road and Mamalahoa Highway intersection is currently operating under capacity. We acknowledge that the intersection at Queen Ka'ahumanu and Waikoloa Road will require improvements in the future because of development along the highway corridor. We will continue our discussions with your Department other developers along both highway corridors to find an equitable and reasonable solution to mitigate traffic delays at this important intersection.	N/A
B. DOT recommends to the approving agencies that the master developer/landowner and/or each independent or subdeveloper provide the traffic improvements and mitigation measures for impacts from the projects, and participate in and contribute their fair share for regional transportation improvements.		As stated in the Draft EIS, the developer of the project is currently contributing to improvements along Waikoloa Road as a pre-condition of development.	Table 2-3, Additional Costs, Page 2 7.
C. The development of each project in the region, such as Waikoloa Highlands, will affect the applicable drainage basin leading to the ocean and the Queen Kaahumanu Hwy. Each respective project should be discuss and address any downstream impact reaching the highway accumulating from the collective development of the lands in Waikoloa.		The proposed development will not increase flood flows downstream of the project as we are required by County Ordinances to retain or detain the flows caused by the increase of impervious surfaces or through modifications of the drainageways. The proposed project, however, will not be correcting deficiencies in the drainageways that were preexisting.	Section 3.5.2, Drainage, Page 3-46 to 3-48.
13. Pete Hendricks, Chair	12/6/2006		
Mauna Kea Soil & Water Conservation District			
The planned drainage mitigation measures do not address the increased cumulative effects to down stream properties, in particular, the community of Puainako. The narrative only deals with the conveyance off-site and no mitigation to down-stream communities are dealt. The Mauna Kea SWCD encourages the ahupuaa approach to watersheds and their components.		The proposed development will not increase downstream flood flows as required by County of Hawai'i regulations to retain or detain flows caused by the increase of impervious surfaces or through modifications of the drainageways. The analysis conducted for this project takes into account the drainage requirements of the entire watershed which can be likened to an ahupua'a. The proposed project, however, will not be correcting deficiencies in the drainageways that were preexisting.	Section 3.5.2, Drainage, Page 3-46 to 3-48.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
14. Clyde W. Namuo, Administrator Office of Hawaiian Affairs	12/7/2006		
A. Hydrology and potable water analyses are inadequate. The Waikoloa Water Master Plan, prepared in 1991 is outdated and does not address the specific project.		The 1991 Waikoloa Water Master Plan was updated for the EIS by a report prepared by Waimea Water Services Inc., in 2007. The update confirms the conclusion in the 1991 report that sufficient water capacity is available to support the project.	Appendix L, Water Supply for the Highlands Estates at Waikoloa, Nov. 2006 (Rev. 2007) Section 3.2.8. Hydrology, Page 3-12 to 3-14.
B. The DEIS does not address the Waikoloa Highlands water requirements at full build-out.		The project addresses full build out of the proposed 398 units.	Section 3.2.8. Hydrology, Page 3-12 to 3-14.
C. The DEIS, page 3-12 does not indicate if steps have been taken to address the regional water limitation or if a cooperative water allocation solution is underway. Potential impacts of these must be identified and addressed at the earliest possible time to prevent costly delays.		The developer is currently in negotiation with the WHUC to determine the water allocation, and the facilities development charge for the source well(s), storage, and transmission facilities. In addition, the developer will pay for the water distribution network that will be required to distribute water within the project.	Section 3.2.8. Hydrology, Page 3-12 to 3-14.
D. The DEIS, page 3-35 indicates the project will have no effect on archaeological resources. The Cultural Surveys Hawaii Report, page 10, reveals a complex of walls found by Bevacqua, 1972, that have the potential to be found during construction. Further mitigation measures should be considered and planned for prior to the start of construction.		Because of potential concern for the inadvertent discovery of Site 22 during construction activities the developer will promote the use of a an on-call archaeological monitor in the event of a field discovery. The monitor will coordinate archaeological reporting responsibilities for the project and notify the SHPD immediately of any inadvertent discoveries of significant artifacts or human remains. Upon the discovery of a significant site or human remains work will cease until the SHPD has been notified and appropriate action is taken.	Section 3.4.5. Archaeological, Historic, and Cultural Resources, Page 3-35 to 3-37.
E. Clarify the Mary Ann Maigret, SHPD letter dated April 17, 2006 and the Melanie Chinen, Administrator, letter dated July 2, 2006, that identifies archaeological concerns and which is the official SHPD letter of record.		At the request of the State Land Use Commission, a request has been forwarded to the SHPD to provide a letter of clarification to specifically state that the project would not have any effect to historic properties. The response to this request is pending.	Section 3.4.5. Archaeological, Historic, and Cultural Resources, Page 3-36.
15. Milton D. Pavao, P.E., Manager Department of Water Supply, County of Hawaii	12/8/2006		
A. Provide a water system designed to deliver water at adequate pressue and volume under peak-flow and fire-flow conditions in accordance with the State WaterSystem Standards, and the Rules and Regulation of the Dept. of Water Supply.		The water system will be developed in accordance with the Water System Standards of the State of Hawai'i and the Department of Water Supply.	Section 3.5.3, Drinking Water, Page 3-50.
B. Submit construction plans to the Department of Water Supply for review and approval.		Construction plans will be submitted to your office when they become available.	Section 3.5.3, Drinking Water, Page 3-50.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
C. Pay a fee of four-tenths of one percent of the estimated cost for the construction of the water system, but not less that $50 to cover the costs for plan review, testing, and inspection.		Applicant will provide the required payment to the Department of Water Supply.	Section 3.5.3, Drinking Water, Page 3-50.
16. Laura H. Thielen, Director	12/8/2006		
Office of Planning			
Reference pages ES-3, 3-37, and 3-38 of the Draft EIS. The Draft EIS notes there will be an impact on views from Waikoloa Road toward Puu Hinai cinder cone and to Mauna Kea. Include a visual analysis with photos of the views from different locations within and outside of the project area.		Views of the pu'u from the project site are not anticipated to be adversely affected based on: (1) The height of the homes will be limited to 35 feet as provided by zoning. Unless one is directly in back of a residential structure, views of Pu'u Hinai will not be obstructed; and (2) The homes will be constructed on 1-acre lots and spaced far enough apart from each other that views will be readily available between the homes. Further assurance that views are not blocked will be accomplished by prohibiting landscaping involving the use of tall trees along Waikoloa Road that would block northern views toward the ocean, south toward the mountain, and west toward Pu'u Hinai.	Section 3.4.6, Visual and Scenic Resources, Pages 3-39 and 3-40. Figure 17, Site Photos, Page 3-40.
17. Peter Rappa, Environmental Review Coordinator	12/14/2006		
UH Environmental Center			
A. A main concern is the potential for sediments from the proposed development reaching the achialine ponds in the shoreline area of Waikoloa. However, the proposed project is far enough mauka that we believe there will be no impacts on the pond system.		We acknowledge your comment and similarly do not anticipate that sediments from this project will reach the coastline. As noted in the DEIS, Section 3.5.2, Drainage, Page 3-46, "The project will not increase off-site flows or have an adverse drainage impact off-site."	N/A
B. The County is developing community plans as part of the General Plan process. We wonder if you are aware of how frar along the community development plans are and whether they address the area around Waikoloa. The Office of Planning is examining how development will occur in the state's rural areas. They may have some preliminary results which may be applied to the proposed development at Waikoloa.		Representatives of the proposed project remain in contact with members of the community who have shared their concerns and issues. Although the Community Development Plan process is currently in its infancy, the landowner is committed to staying involved with the community.	N/A

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
C. We have a question about the market for housing that is proposed for this project. The DEIS, page 3-26, states a family purchasing a house will need an income between $192,000 and $264,000. How many people on the Big Island have the income needed to purchase a house in the proposed development? If the number is small then this project will not address the need for housing in the local market. What is the target market for this development? Who will live in these expensive houses?		We do not have the data that identifies the specific number of people on the Big Island with the income needed to purchase the lots associated with the proposed project. We do note, however, that the ability to purchase a home does not only involve income. Other factors are involved that include accumulated reserves, equity in real property already owned, financing capabilities, and the availability and cost of borrowing money. If income is the sole determinant of purchasing capacity, then the target market will be families with incomes, as noted in the DEIS, of between $192,000 and $264,000 annually. The families that will purchase and live in this development are expected to include those with space requirements that would not ordinarily be met by the existing vacant lots in Waikoloa Villages. These lots range in size from 10,000 to 50,000 square feet, with the majority of lots far smaller than 1-acre or 43,560 square feet. The proposed project will instead be providing 1-acre lots that will meet a unique demand offering opportunities for land ownership that are not now readily available in the region.	N/A
D. Climate and Air Quality (page 3-7). Under Existing Conditions, the rainfall range is stated as being between 10 to 20 inches and two lines below it is given as 10 t0 15 inches. Which is correct?		Rainfall is between 10 to 15 inches per year. The FEIS, Section 3.2.5, Climate and Air Quality, will provide this corrected information.	Section 3.2.5, Climate and Air Quality, Page 3-6.
E. Natural Hazards (page 3-9). Under Existing Conditions, the Draft EIS indicates the project falls within Zone 3. This indicates a medium-high risk of damage to the proposed development from lava flows. In the section on Project Impacts and Mitigation, it is stated that the project will have no effect on the occurrence of natural hazards or the level of public risk. This may be true, but if people move into the area won't they be at risk in the event that an eruption occurs on Mauna Loa? Is there a planned evacuation strategy for residents?		The residents of the proposed project, as well as surrounding developments will be at risk in the event of an eruption of Mauna Loa. Area residents will also be subject to earthquakes. Until very recently, there was only one exit out of the Waikoloa community, now there are two. Unless the hazard is sudden and catastrophic, residents of this area will have time to evacuate the area, as required. The FEIS, Section 3.2.6, Natural Hazards, will reflect this.	Section 3.2.6, Natural Hazards, starting on Page 3-9.
F. Residents will also be subject to earthquake hazards. The US was mapped into five earthquake hazard zones. The entire island of Hawaii met the criteria for the most hazardous earthquake zone. The largest historical earthquake on the island is the fourth largest in US history when earthquakes from Alaska are excluded.		See response above	Section 3.2.6, Natural Hazards, starting on Page 3-9.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
G. Hydrology (page 3-11 & 3-12). The bottom of page 3-12 indicates the Waikoloa Water Master Plan recommends that sewage treatment effluent be reused for irrigation wherever possible to reduce groundwater pumping etc. Will the proposed development be reusing wastewater effluent in an attempt to conserve limited water resources in the area?		Wastewater reuse is not possible with the adoption of the proposed Individual Wastewater Systems for the project. However, in order to promote water conservation the developer does intend to implement other measures that will include separate metering of domestic and irrigation water, and the use of water restrictions to promote conservation and discourage waste. Homeowners will be advised to use drought tolerant plants when landscaping, and if water uses exceed 1,000 gallons per day, the homeowner will be assessed a higher fee for any water usage over the daily allowance. Regarding sufficiency of water resources, the FEIS, Section 3.2.8, Hydrology, will provide further discussion. In summary, the Waikoloa Water Master Plan (WWMP), 1991, was reviewed and an update of the applicability of the plan to the proposed project was undertaken in 2007, by Waimea Water Services, Inc. (WWSI). According to the update there is sufficient water to meet a minimum project demand of 1,000 gallons per day (gpd) per lot, or approximately 400,000 gpd for the project (1,000 gpd x approximately 400 lots).	Section 3.5.5, Wastewater, Page 3-53 to 3-55. Section 3.2.8, Hydrology, Pages 3-12 to 3-14.
H. Botanical Resources (page 3-15). Page 3-15 indicates there are native species, Uhaloa and Aheahea. Later on page 3-37, it contradicts the above statement under Project Impacts and Mitigation stating that "the project area has changed and there are no native plants..." Botanists have found endemic and native plants growing in areas where they where not recorded previously, possibly due to the revitalization of dormant seed stock caused by a change in environmental conditions and reainfall. We suggest that botanical resources should be reassessed and if any rare, threatened or endangered species are found then the impacts of the proposed project on these resources be mitigated. We recommend the Waikoloa Outdoor Circle be included in this discussion.		The FEIS, Section 3.4.5, Archaeological, Cultural, and Historic Resources, Project Impacts and Mitigation, will revise the DEIS to indicate the following - Historical evidence suggests that the land in Waikoloa was not intensively used, and if used, was a corridor between the mauka lands of Waimea and the coastal areas during historic times and for cattle in latter periods. The vegetation in the project area has changed over the years to a point were there are very few native plants due in part to cattle grazing and wildland fires. Per the suggestion, the botanical study has been forwarded to the Waikoloa Outdoor Circle for review and comment. At this writing a response has not yet been received.	-Section 3.4.5, Archaeological, Historic, and Cultural Resources, Project Impacts and Mitigation, starting on Page 3-38.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
I. Housing (page 3-24). The Draft EiS states as of 2000, "there were 5,348 residential units in South Kohala. On page 3-22, in Demographic Characteristics, it is stated that as of 2000 there was a resident population of 13,079 in 4,648 households. Why is there such a large difference between the two figures? Is the difference attributed to absentee owners or just vacant units?		The difference in numbers between page 3-22 and 3-24 of the DEIS relates to the number of households in the South Kohala District and the number of residential units in the District. Both figures come from the 2000 Census. There is no information in the Census that allows us to definitively answer your questions regarding the reason for the "vacancy." It should be noted, however, that combining the units available for rental, the units available for sale, and the units owned by second-home/vacation buyers, that 13 percent would not be an unusually high "vacancy" for the year 2000 based on the information provided by SMS Research.	N/A
J. Social impacts (page 3-25). The Draft EIS states the project would only contribute 9 percent to all new development proposed. Where did the figure of 4,533 units come from? Going back to pages 3-20 to 3-21, we can only count 3,496 new units proposed for this area. A chart of all new developments and the number of new units proposed would be most helpful in Section 3.4 Social and Built Environment.		The FEIS will provide the following information: There are five major projects in-development, approved or proposed in the Waikoloa Village area. These projects are: Wehilani (756 units), 17th Fairway (27 units), Sunset Ridge (120 units), and Kilohana Kai (230 units). These project have the potential of providing a maximum of 1,133 units (combined single family and multi-family units) to the housing inventory of the area. The County of Hawai'i is also planning a housing project with 1,000 units in the area. Combined, there are approximately 2,133 units proposed for a total of 4,533 units.	Section 3.4.4, Marketing Plan, starting on Page 3-33.
K. Community Balance (3-25 & 3-26). The Draft EIS claims a better balanced community would result from having a number of wealthy people move into the area. Using this logic it could be said that every low income community would do well to have high income people move into the area. This is putting a positive spin on what should be an issue of potential concern. Communities do well when people with a range of incomes and interests move into an area. This analysis is disingenuous at best.		The proposed project will provide the opportunity for a more heterogeneous and diverse socioeconomic population than presently exists. Household incomes in Waikoloa Village are highly concentrated around the mean; households with incomes of $150,000 or higher make up only 2.1 percent of the population. After assuming probable construction costs, one can see that many households that buy into this project will need the incomes as estimated in the DEIS in the range of $192,000 to $264,000 annually, thereby increasing that category, flattening the income curve and enabling a more heterogeneous population. In this regard, it is anticipated that greater balance within the Waikoloa community will result from having a greater mix of housing types with residents from diverse socioeconomic backgrounds. It is the developer's expectation that the more heterogeneous a population – whether measured by income, ethnicity, age, home of origin, etc. – the more dynamic the community, the more diverse the social interaction, and the richer the events and activities of that community. We add that this is expected to be facilitated with the greater provision of public services for all residents that will also result from the increased tax revenues made possible with this project.	N/A

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
L. Public Costs vs. Benefits Assessment (page 3-30 - 3-33). Page 3-30 of the Draft EIS indicates that the project represents only a fraction of the County and State residential inventory and it is unlikely that the Waikoloa Highlands residents will themselves create the need for expansion of public services. By presenting this project as a small fraction of the overall housing unit inventory the Draft EIS is obscuring the fact that this project contributes to the cumulative effect and should be held responsible for mitigation measures where necessary. Though the state and county did not require any level of participation in public services, the project proposers should not consider themselves exempt from providing public services and should strive to collaborate with the community to establish services or facilities needed by the community.		The developer of the Waikoloa Highlands project is cognizant of their responsibility to provide adequate services to new residents of the area and the Waikoloa community in general. We do not suggest that the developer is exempt from providing public services and has in fact been in consultation with many of the agencies responsible for the provision of public services. A summary of actions taken and the mitigation proposed is summarized below. These findings will be reported in the FEIS: -Education: Section 3.6.4, Schools, -Impact Fees: Section 2.2.6, Development Costs, -Affordable Housing: Section 3.7.3, Affordable Housing, -Traffic Improvements: Section 3.5.1, Transportation and Traffic.	-Section 3.6.4, Schools, Page 3-60. -Section 2.2.6, Development Costs, Page 2-7. -Section 3.7.3, Affordable Housing, Page 3-62. -Section 3.5.1, Transportation, Traffic and Utilities, Page 3-41.
M. Proposed Supply (page 3-32). The tigures on the top of the page do not add up to the 3,456. Pn page 3-21, the Draft EIS stated the County is planning to develop 1,000 affordable housing units in the area with 207 being planned in 2007. Where did the figure of 225 county planned units come from? The figures on what is planned changes severeal times throughout the Draft EIS. They should be consistent throughout the document. A few tables would be helpful		See response above, Item J.	N/A
N. Archaeology (page 3-35). In reference to Bevacqua's Site 22, we believe that the site may be significant and suggest that tsearch for it be reinitiated using Hawaiian kupuna with local knowledge. Puu Hinai, which is mentioned several times in the Draft EIS is currently being excavated for building material. Hawaiian residents have indicated the area pu'us are of cultural significance. This issue should be explored more fully in the Draft EIS perhaps after conferring with Hawaiian kupuna.		The FEIS will note that in November 2006, Cultural Surveys Hawai'i undertook another survey of the project area to determine if Site 22 could be located. As a result of both a pedestrian survey and aerial survey, Site 22 was not located and was presumed be destroyed or is located outside of the project area. However, because of potential concern for the inadvertent discovery of Site 22 during construction activities the developer will promote the use of a an on-call archaeological monitor in the event of a field discovery. The monitor will coordinate archaeological reporting responsibilities for the project and notify the SHPD immediately of any inadvertent discoveries of significant artifacts or human remains. Upon the discovery of a significant site or human remains work will cease until the SHPD has been notified and appropriate action is taken.	-Section 3.4.5, Archaeology, Page 3-35.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
		Pu'u Hinai is currently outside of the boundary limits of this project. During the research into cultural practices in the area informants did identify Pu'u Hinai as being culturally significant. The quarrying operations are planned to cease as development progresses on the subject project. State Land Use Commission records for the use of the site indicate that following termination of use that the operator will be responsible for restoring the site.	
O. Traffic (page 3-39). Page 3-39 notes the TIAR noted that other projects are not expected to generate significant traffic volumes, then goes on to say "Even with the creation of dedicated right turn lanes, the change in traffic volumes will result in over-capacity conditions at the intersection of Waikoloa Road, Pua Melia Street and paniolo Avenue. Traffic signals would be warranted for four hours of an average day." This project sould be responsible in some part for the cost of traffic mitigation. When the county council extended the entitlements for this project for 10 years, it was with the condition that one or more traffic lights will be installed by this project.		See response above, Item L.	N/A
P. It is unclear that the number of entrances and exits to this project on Waikoloa Road and Pua Melia are adequate. Community members indicate that the understanding with the developer is that there will be at least three intersections.		Section 2.2.3, Access and Circulation, of the Draft EIS describes the three (3) intersections that are proposed for the subject project. One of the access points is the Waikoloa Road, Pua Melia, Paniolo Avenue intersection described above in comment O. The second access is along Waikoloa Road approximately 2,000 feet east of the Waikoloa Road, Pua Melia, and Paniolo Avenue intersection. This second access into the subdivision will require the approval of the Hawai'i County Council. This proposal is currently pending before the Planning Department.	N/A
Q. We would also point out that since some of the residents of the proposed subdivision will work and shop in Kailua-Kona, it should be acknowledged that the subdivision will contribute to traffic congestion in Kailua-Kona.		We acknowledge that residents of this project will contribute to the overall traffic volume along the major highway corridors, particularly Queen Ka'ahumanu. Specific impacts to traffic congestion in Kailua-Kona were not studied as part of this project.	N/A

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
R. Drainage (page 3-42). The planned drywells may be inadequate to handle runoff from severe floods. In such a case it is possible that runoff would enter the stream. It is an established principle that the largest floods have the greatest loads of sediments and pollutants. Further, because some of the lots border on the stream, it is possible that runoff from roofs and yards will drain towards the stream rather than the street. Such runoff would not be mitigated by the dry wells. Residents with lots bordering the streams should be encouragted to maintain vegetated buffer strips along the edge of the stream. The Draft EIS should acknowledge it is possible that under certain circumstances the subdivision will contribute excess storm runoff and sediment to the streams.		Section 3.5.2, Drainage. The FEIS will describe on site drainage improvements including the use of drywells, which will be used to dispose of any increase in roadways surface flows in accordance with state and county regulations. We also note that under extreme storm conditions that it is possible that drywells, and drainage control structures such as vegetated buffer strips, will not be capable o handling the stormflows. There is occasional evidence of this throughout the state along coastal areas when stormflows eventually reach coastal and low lying areas as a result of heavy storms.	Section 3.5.2, Drainage, Page 3-46 to 3-48.
S. Wastewater (page 3-48 - 3-49). There is no estimate of the amount of wastewater that the proposed development will generate. Approximately how much will be generated and will any of it be reused?		We anticipate an approximate wastewater generation of 1,000 gallons per day per 1-acre lot. According to Chapter 11-23, Hawaii Administrative Rules, the provision of an individual wastewater system will be permitted by DOH. Although opportunities for wastewater reuse for the proposed project are not possible, the developer does intend to implement water conservation measures.	N/A
T. Effluent from the septic tanks will contribute to groundwater pollution at least in some measure because the effluent travels downward until it reaches the water table. Septic tank waste does contain nutrients and possible pathogens. However, we acknowledge that the proposed development meets the county wastewater regulations, which allow septic tanks in low density subdivisions.		We acknowledge your comment that septic tanks are an accepted method for the disposal of wastewater that complies with County and State regulatory requirements	Section 3.5.5, Wastewater, Page 3-53.
U. Solid Waste (page 3-49 & 3-50). The landfill capacity is given in cubic yards but the amount of waste generated by the proposed dedvelopment is given in pounds per day. This makes it difficult to determine how much of the landfill's capacity is taken up by the waste stream generated by the project. It would be helpful if the authors convert one or the other measure or give a rough equivalent so that a calculation can be made.		The DEIS, Section 3.5.6, Solid Waste, notes that the proposed Waikoloa Highlands subdivision is estimated to have an average population at build out of 1,068 persons (The Hallstrom Group, 2006). Using the federal Environmental Protection Agency's per capita estimate of 4.5 pounds of municipal solid waste (MSW) generated per day, the subdivision residents will generate approximately 4,806 pounds of MSW per day. We will provide further information for this section in the FEIS, that the projected solid waste volume per year is approximately 2,192 cubic yards (1068 persons x 4.5 pounds per person per day = 877.09 tons per year x 1.25 cover factors x 2 cubic yard conversion = 2,192 cubic yards per year).	Section 3.5.6, Solid Waste, Page 3-55.
V. The Draft EIS states that given the proposed capacity of the County landfill, that the project is not expected to have an adverse impact on the landfill. Although the amount of solid wate generated by the development is small it will have an adverse impact on the landfill, it will help fill it up and shorten the life of the facility.		We acknowledge that given the current and projected capacity of the County landfill, that the proposed project is not expected to have an adverse impact. However, the developer recognizes that it is in the interest of the greater community to encourage recycling and composting to reduce and divert materials from the waste stream thereby helping to prolong the life of the landfill.	Section 3.5.6, Solid Waste, Page 3-55.

Commenting Party/Itemized Comments	Date of Letter	Summary of Response	FEIS Reference and Page No.
W. The Draft EIS mentions tha the project's developers will encourage practices such as recycling and composting to reduce and divert materials from the waste stream. What will the developer do to encourage this behavior.		The FEIS, Section 3.5.6, Solid Waste, Page 3-55, will begin this process of appropriately managing the solid waste issues associated with the proposed project through the preparation of a Solid Waste Management Plan for review by the County Department of Environmental Management.	Section 3.5.6, Solid Waste, Page 3-55.
X. Public Services and Facilities (page 3-50 - 3-54). It would be helpful to show the service areas of each of the public services discussed in this section. It would be helpful to see what these areas are in relation to the proposed development. It would also be helpful to know the capacity of these services and how much of that capacity the proposed development will take up. The discussion on schools on page 3-53 is a good example of how each of these services should be discussed.		The FEIS, Section 3.6, Public Services and Facilities, will revise the DEIS with a figure depicting the general locations of police facilities, fire facilities, emergency services, recreation facilities and schools. The map will be referenced in the FEIS, as Figure 21, Public Facilities.	Figure 21, Public Facilities, Page 3-57.
Y. The Draft EIS notes on the bottom of page 3-52 that Waikoloa is underserved by parks. The proposed subdivision will worsen this situation. This could be mitigated by building a small neighborhood park in the open areas planned for the subdivision. This would enhance the attrativeness of the subdivision to potential buyers.		The developer is required to contribute approximately $1.9 million to the County of Hawai'i for the purposes of developing recreation facilities.	Section 2.2.6, Development Costs, Page 2-7.
Note: For further detail see Appendix N, Comments and Responses-Draft EIS, of this FEIS document.			

1 INTRODUCTION

1.1 PROJECT SUMMARY INFORMATION

Project Name	Waikoloa Highlands
Petitioner/Applicant	Waikoloa Mauka, LLC Kevin C. Kellow, Manager ~~120 Aspen Oak Lane~~ 431 N. Brand Boulevard Suite 201 Glendale, CA ~~91207~~ 91203
EIS Preparer	R.M. Towill Corporation Chester T. Koga, Project Manager 420 Waiakamilo Road, Suite 411 Honolulu, Hawai‘i 96817-4950
Request to State Land Use Commission	Petition for Land Use District Boundary Amendment from the Agricultural District to the Rural District of 731.581 acres
EIS Accepting Authority	State of Hawai‘i Land Use Commission
Tax Map Key	TMK (3) 6-8-002:016 (por.)
Size of Project Area	~~744.40 acres (~~Petition area = 731.581 acres~~)~~
Project Location	South Kohala District, Island of Hawai‘i
Landowner	Waikoloa Mauka, LLC
Project Description	Infrastructure improvements and subdivision of property into 398 low-density, rural residential lots. Each lot will be a minimum of one-acre in size.
Existing Uses	Undeveloped
Zoning Designation	Residential-Agriculture (RA-1a); Open (O)
Special Management Area/Shoreline Setback Area	No
Flood Zone	Zone X, areas outside of 500-year flood plain

1.2 PURPOSE OF THIS ~~DRAFT~~ FINAL ENVIRONMENTAL IMPACT STATEMENT

This ~~Draft~~ Final Environmental Impact Statement ("~~D~~FEIS") has been prepared in support of the Land Use District Boundary Amendment petition ("Petition") submitted by the Waikoloa Mauka, LLC ("Petitioner") to the State Land Use Commission ("SLUC").

The State of Hawai'i environmental review procedures and requirements are delineated in Chapter 343, Hawai'i Revised Statutes ("HRS"), Act 241, Session Laws of Hawai'i ("SLH") 1992, and Chapter 200 of Title 11, Department of Health ("DOH") Hawai'i Administrative Rules ("HAR"), "Environmental Impact Statement Rules."

~~The D~~ This FEIS has been prepared pursuant to Chapter 343-5(a)(1), HRS, as the project may involve the use of State or County lands, which include, but is not limited to connection of planned roadways to existing (County/State) roads. These locations include: (1) the intersection of Waikoloa Road and Paniolo Drive where traffic signals will be installed and the intersection will be re-striped; (2) a new intersection proposed along Pua Melia Road; and (3) a new intersection proposed where turn-lanes will be installed on Waikoloa Road, east of Paniolo Avenue. State or county funds will not be required to complete the roadway improvements.

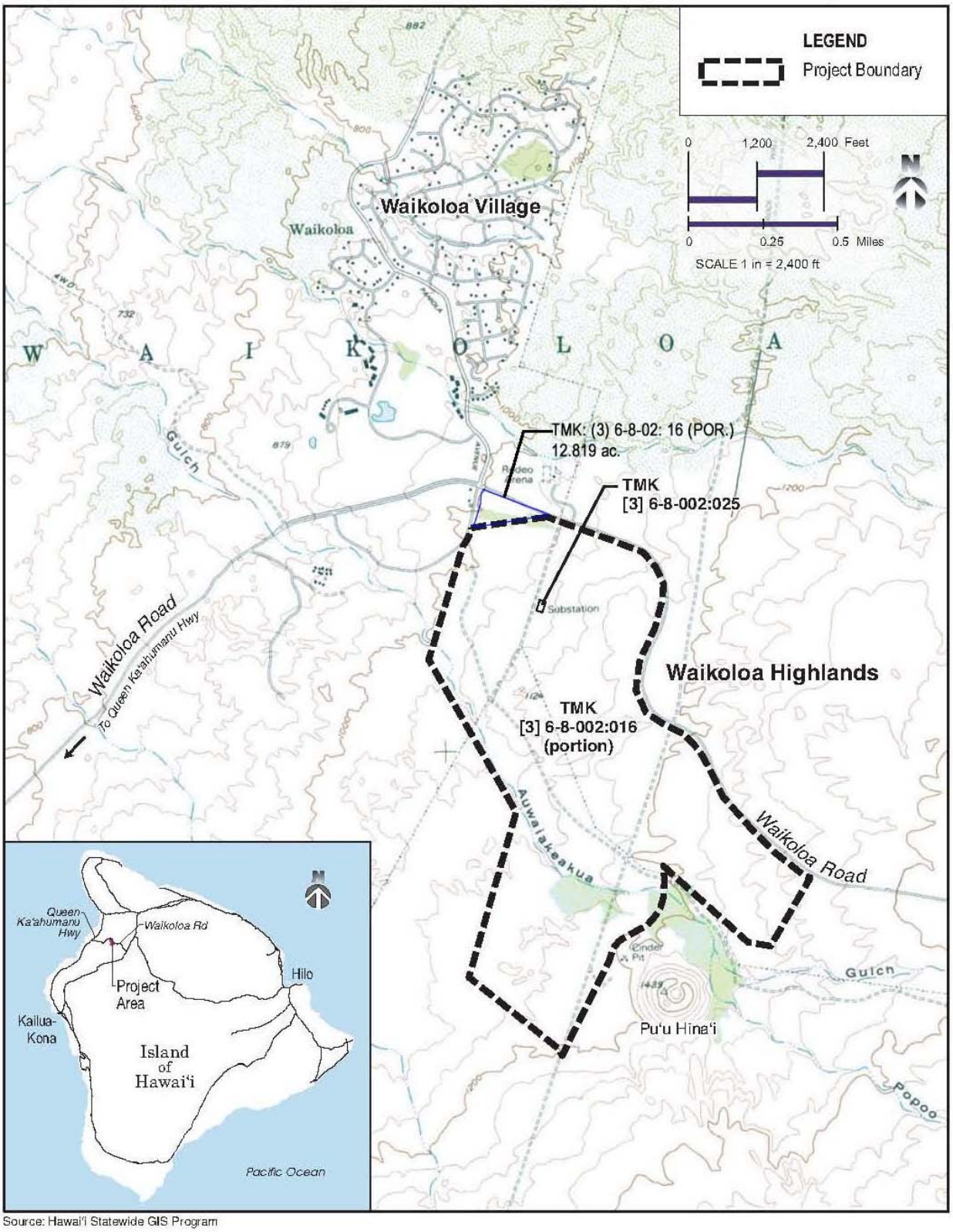
Although the proposed subdivision would be rural in character, there is the potential for significant environmental impacts because of the number of residential lots envisioned.

An Environmental Impact Statement Preparation Notice ("EISPN") was prepared and filed with the Hawai'i State Office of Environmental Quality Control ("OEQC") in July 2006. All stakeholders and interested parties were requested to come forth with ideas for purpose and need, alternatives, alternative selection criteria, environmental concerns, suggestions for outreach, and other information relevant to the planning process. Comments received are included in ~~Chapter 5~~ Appendix M, and h~~ave been~~ are addressed in this ~~DEIS~~ document.

~~Upon completion of this DEIS, a~~ A Notice of Availability ("NOA") ~~will be~~ was published in the *Environmental Notice* on October 23, 2006 and a 45-day public review period ~~will commence.~~ followed. ~~In addition, I~~ Individuals, agencies, and organizations ~~that~~ indicating their desire to be consulted ~~will be~~ were provided with a copy of the DEIS. Written review comments ~~will be solicited and~~ received were incorporated into ~~a~~ the Final Environmental Impact Statement ("FEIS") in Appendix N. Upon completion of a FEIS and review by the SLUC, a NOA of the FEIS will be published in the OEQC *Environmental Notice*. ~~, initiating a 60-day public review period~~. The FEIS will be submitted to the SLUC as part of the project's Petition.

1.3 PROPOSED ACTION AND LOCATION

The Petitioner proposes to subdivide and construct infrastructure improvements for a ~~744.40~~ 731.581-acre property south east of Waikoloa Village in the South Kohala District, Island of Hawai'i (Figure 1, Location Map).



Source: Hawai'i Statewide GIS Program

Figure **1**
PROJECT LOCATION

A 12.819 acre portion of the project site, previously identified in the DEIS, has been removed from further consideration. The location of this area is adjacent to the intersection of Waikoloa Road and Pua Melia Road (see Figure 2, Site Plan). This area was previously intended to be used for drainage improvements to handle the additional stormwater that would be generated from the proposed project. However, after further examination of infrastructure requirements it was determined that sufficient drainage improvements could be handled within the larger 731.581 acre property.

The result is that stormwater under existing conditions will continue to flow into the 12.819 acre site through existing drainageways; no additional flows generated from the proposed 731.581 acre development will flow into the 12.819 acre parcel; and, any additional flows generated by the proposed development will be directed to drywells located in the roadway system and into other drainageways that are a part of this project.

The proposed action will create 398 rural residential lots, a minimum one-acre in size. A total of 731.581 acres is proposed to be redesignated from the ~~Agriculture~~ State Agricultural to Rural ~~district~~ District. Project roadways will be constructed and utility connections to the lots will be provided (Figure 2, Site Plan). The property is identified as TMK (3) 6-8-002:016 (por.) (Figure 3, Tax Map Key). The proposed action is described in more detail in Chapter 2.

1.4 PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to create a low-density, rural subdivision in the Waikoloa Village area of South Kohala. The proposed residential development is compatible with, and a logical extension of the nearby residential and commercial uses at Waikoloa Village.

In order to create this rural subdivision, the landowner is seeking a State Land Use District Boundary Amendment, from the Agricultural District to the Rural District. According to the SLUC Rules, the Agricultural District designation is intended for lands "with a high capacity for agricultural production" with "significant potential for grazing" or "surrounded by or contiguous to agricultural lands" (HAR §15-15-19). By comparison, standards for the Rural District include "areas consisting of small farms," "activities or uses as characterized by low-density residential lots…and where small farms are intermixed with the low-density residential lots" (HAR §15-15-21).

The subject property is not considered high-capacity agricultural land typical of the Agricultural District. Surrounding land uses are those of Waikoloa Village and are commercial and residential in nature, rather than active agricultural areas. As such, a Rural District designation would be more appropriate for the proposed low-density subdivision, and would be compatible with existing uses in the Waikoloa area.

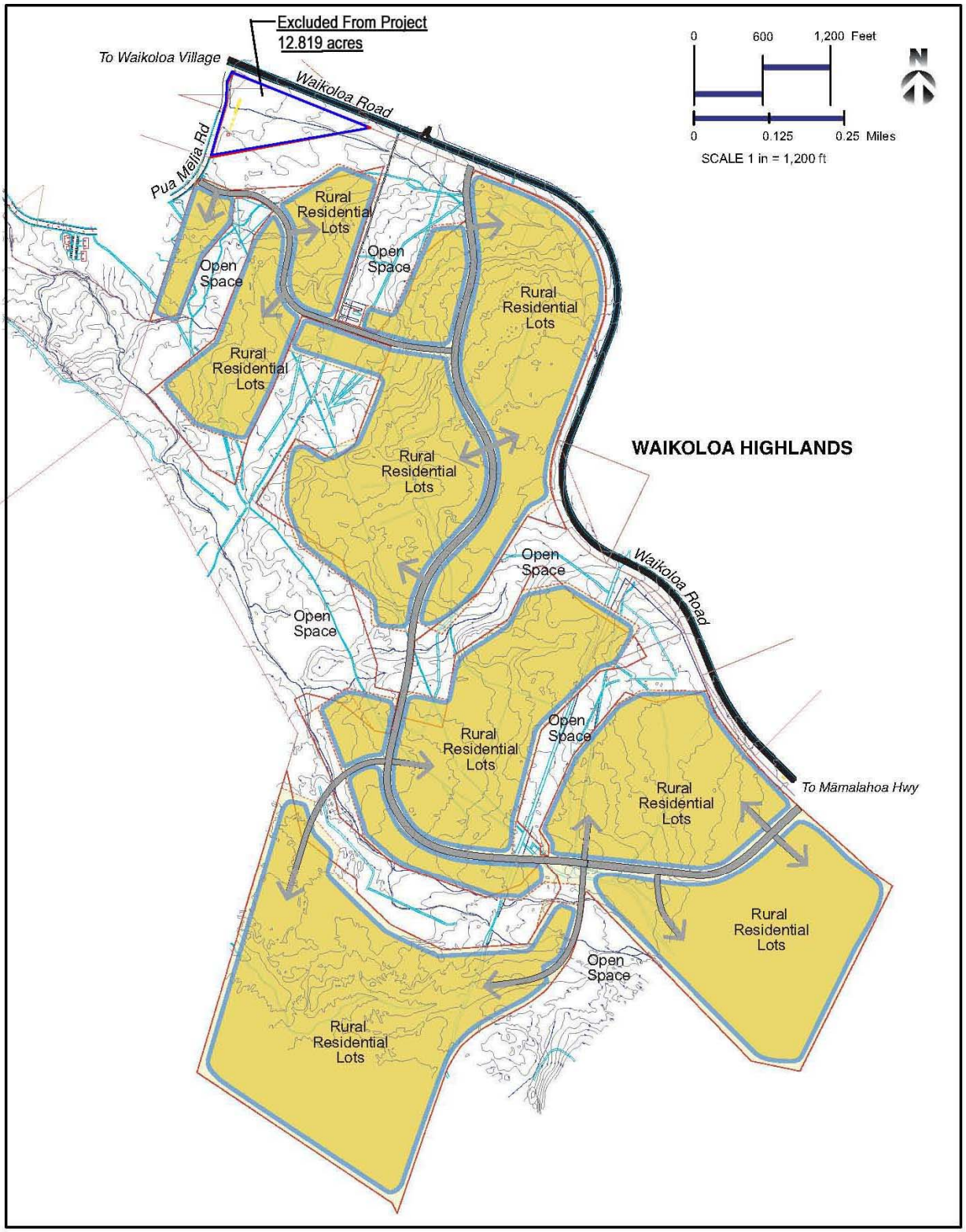


Figure **2**
SITE PLAN

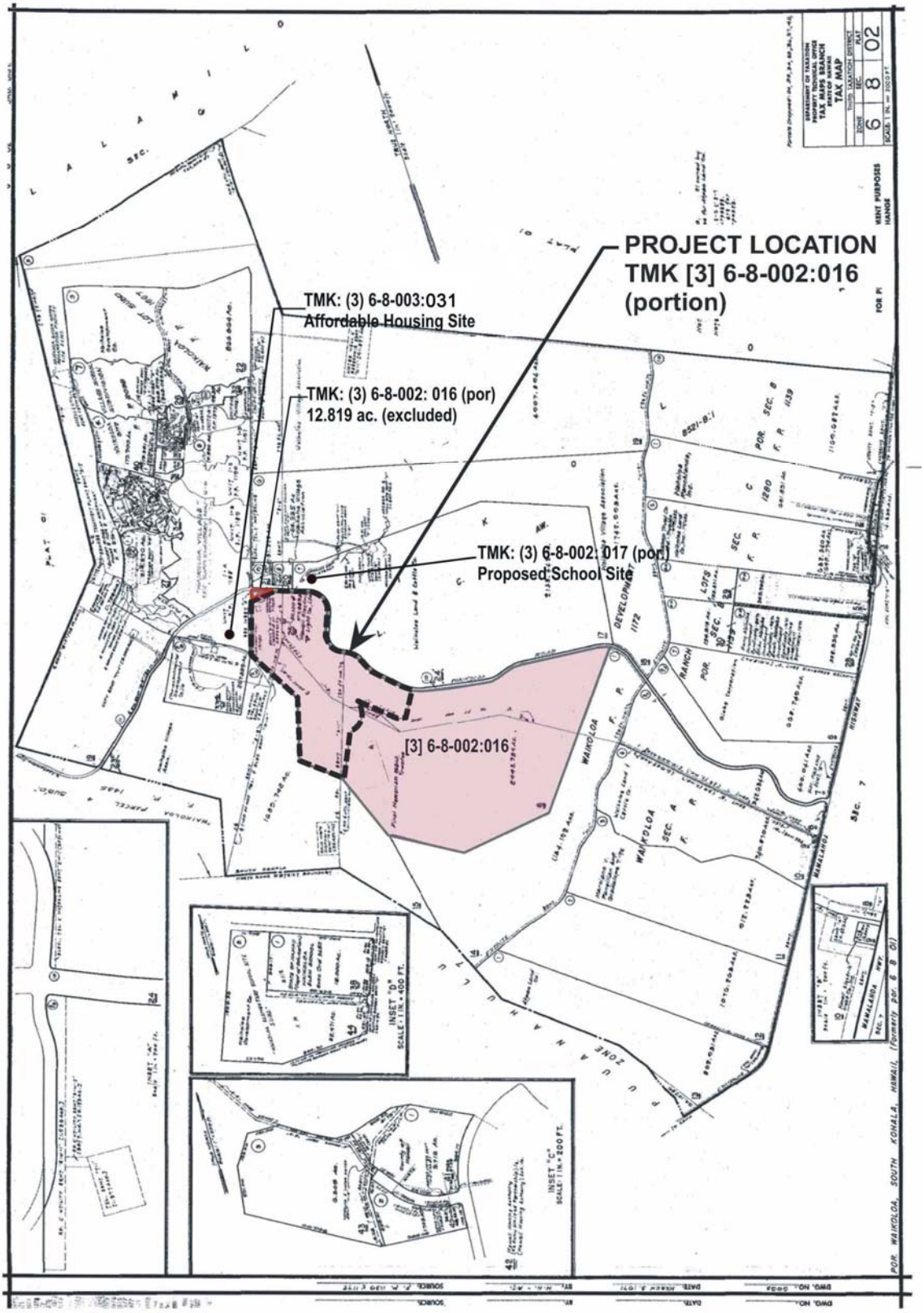


Figure **3**
TAX MAP

1.4.1 Project Objectives

The objectives of this project are:

- Develop a low-density residential subdivision with lots having a minimum of one acre,
- Develop required infrastructure for the project site,
- Provide land for the development of affordable housing,
- Provide land and fee for the support of public facilities in the area, and
- Market the subdivision lots at prices that provide a reasonable rate of return on investment.

1.5 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

The following is a summary of environmental approvals and consultations that may be required for the proposed action. Chapter 4, Relation of the Project to Land Use Plans, Policies and Controls, includes a more detailed discussion of the project's consistency with federal, State and local land use plans, policies and controls.

State of Hawai'i

- Land Use District Boundary Amendment
- Chapter 343 HRS, environmental review process
- Department of Health
  - Noise permit during construction
  - National Pollutant Discharge Elimination System ("NPDES") Permit
  - Underground Injection Control ("UIC") Permit
  - Section 401 Water Quality Certification (WQC) Permit
- Chapter 6E, HRS consultation, State Historic Preservation Division
- Act 50, Session Laws of Hawaii, (April 26, 2000), Cultural Impact Assessment
- Stream Channel Alteration Permit
- Coastal Zone Management Federal Consistency Determination (CZM FEDCON)

County of Hawai'i

- Subdivision Approvals
- Grading Permits
- Building Permits

Federal

- Department of the Army (Corps of Engineers) Permit for Work in the Stream, Section 404, Clean Water Act.
-

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2 ALTERNATIVES CONSIDERED, INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

The alternatives considered, including the proposed action, include:

1. Proposed Action: Low-Density Residential Lots
2. No Action
3. Low Density Residential Lots (alternative layouts)
4. Golf Course with Residential Estate Lots
5. Redesignation to State Urban District

2.2 PROPOSED ACTION: LOW-DENSITY RESIDENTIAL LOTS

The proposed action is to subdivide and construct infrastructure improvements for a new 398-lot subdivision. The project will also construct roadways within the subdivision and provide water and electrical service to the property. Existing water courses through the subdivision will generally remain unchanged. Increases in surface runoff due to increased impervious areas will be addressed on-site through detention basins and dry wells.

Access to the subdivision will be from two points along Waikoloa Road and along Pua Melia Street. An internal spine road will connect the two access points, and connect to smaller collector roads and cul-de-sacs within the subdivision. All roads will be designed to applicable County standards (see Section 2.2.2, Phasing Plan). The proposed residential lots are oriented in relation to site topography, the open space element and views to the mountains and shoreline.

2.2.1 Subdivision Plan

Figure 4, Subdivision Plan, illustrates the proposed subdivision plan, which includes 398 low-density, rural residential lots, each a minimum of one-acre in size. One single-family home will be permitted in the development for each lot of record in accordance with Ordinance 05-157. Restrictions on additional units will be stated in the Covenants, Conditions and Restrictions (CC&Rs) for the project. The project will be developed in two phases and will include construction of collector backbone roadways within the subdivision and provide water and electrical service to the individual lots. Existing drainage water courses through the subdivision will generally remain unchanged, except for where the roadway crosses the drainageways and culverts are installed. Increases in surface runoff due to increased impervious areas will be addressed on-site through dry-wells and detention basins. The approximate land allocation for the 731.581 acres of the project is as follows:

Roads = 51.54 acres
Residential lots = 484.73 acres
Open space/drainageways = ~~208.13~~ 195.311 acres

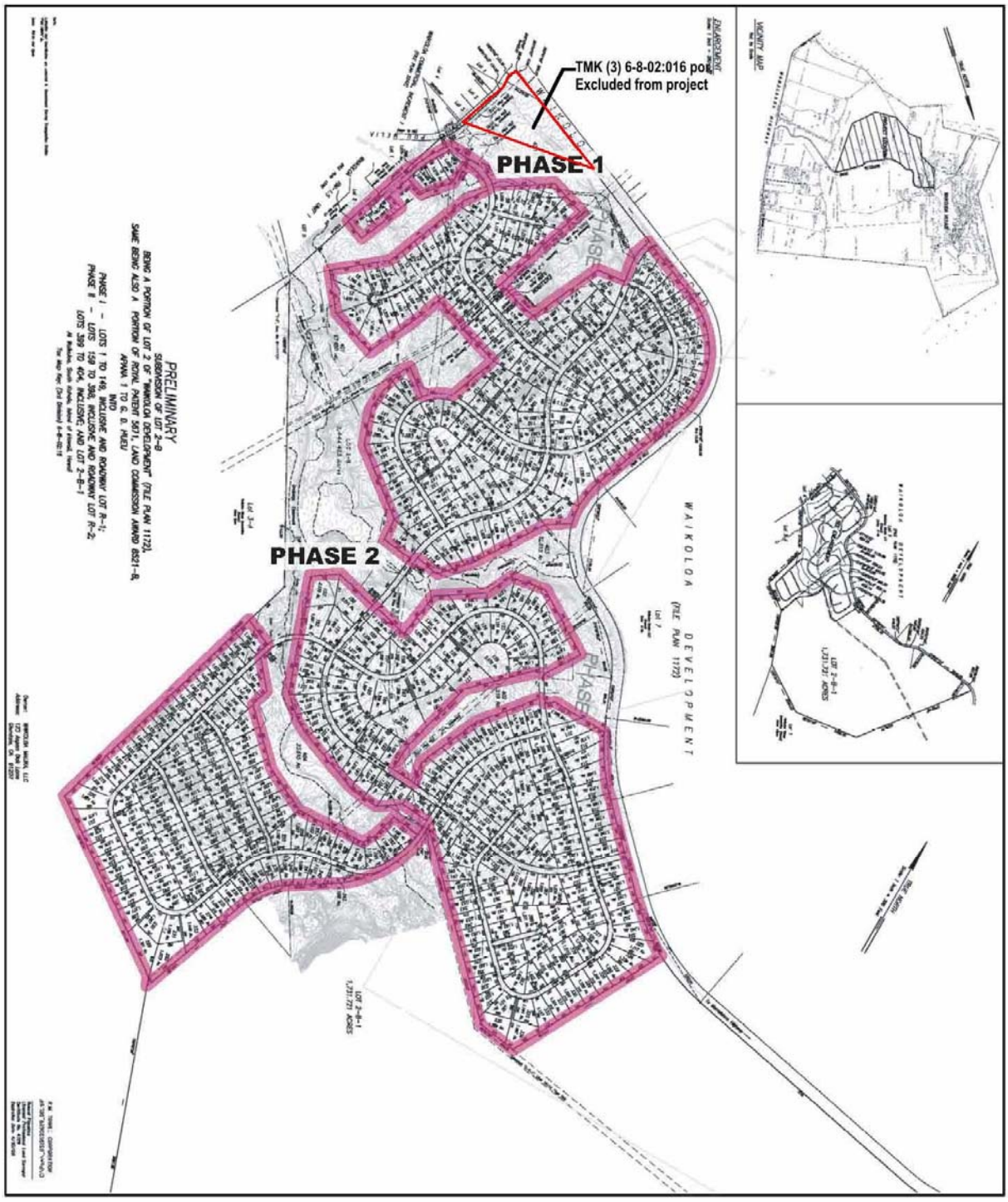


Figure **4**
SUBDIVISION PLAN

2.2.2 Phasing Plan

The proposed subdivision will be developed in two phases as shown in Figure 4, Subdivision Plan. Phase 1 will include 149 lots, and Phase 2 will have 249 lots for a total of 398 lots.

~~Infrastructure will also be developed in phases. Total land area in Phase 1 is approximately 31.9 acres, and 412.5 acres in Phase 2. Implementation of the Phase 1 infrastructure improvements are scheduled to begin immediately after receipt of approvals and permits in Fall 2007 with completion in Fall 2008. Phase 2 infrastructure improvements will commence upon the completion of the Phase 1 improvements.~~

The infrastructure improvements planned for Phase 1 will take approximately 8-10 months from the receipt of development permits from the County of Hawai‘i which include: subdivision approval and plan approval for infrastructure improvements (grading, roadway and water line installation). The subdivision application has been filed with the County of Hawai‘i and is currently pending. Infrastructure plans and roadway improvement plans are currently under preparation and will be submitted to the County of Hawai‘i for review by Summer 2007. Completion of the Phase 1 improvements will involve 319.081 acres and is anticipated to be completed by Fall 2008, assuming a fall 2007 construction start.

Phase 2 improvements will involve 412.5 acres. Phase 2 plan preparation will commence in Spring 2007 and will be submitted to the County of Hawai‘i following approval of the Phase 1 plans in Fall 2007. It is anticipated that the Phase 2 improvements will also take 8 to 10 months, with completion anticipated by Fall 2009 or early 2010.

2.2.3 Access and Circulation

Access to the subject subdivision will be from three locations: 1) Pua Melia Street, 2) Waikoloa Road (makai), and 3) Waikoloa Road (mauka) (see Figures 2, Site Plan, and 4, Subdivision Plan).

Subdivision Roadways

Access to the subdivision will be from two locations along Waikoloa Road and from Pua Melia Street. An internal collector road will connect the two access points along Waikoloa Road. Local collector roads will be developed within the subdivision. All roads will be designed to applicable County standards. The main collector road will be developed in two phases as described above. The utilization of the mauka access point is still pending approval from the County of Hawai‘i for a zoning amendment. The development of the second access is seen as an important circulation element of the plan and provides a means of exiting the project should the primary access on Waikoloa Road be blocked.

Road Standards

The road rights-of-way for the various road types in the subdivision are ~~as follows:~~ shown in Table 2-1, Roadway Standards, below.

Table 2-1. Roadway Standards

Road Classification	Right-of-Way	Pavement Width	Shoulders & Swales
Collector	60 ft.	24 ft.	36 ft.
Minor Collector	50 ft.	20 ft.	30 ft.
Cul-De-Sac	50 ft.	20 ft.	30 ft.

Typical cross-sections for the three types of roadways are illustrated below~~:~~ in Figure 5, Roadway Cross Sections:

Figure 5. Roadway Cross Sections

Collector Street
60-Foot Right-of-Way

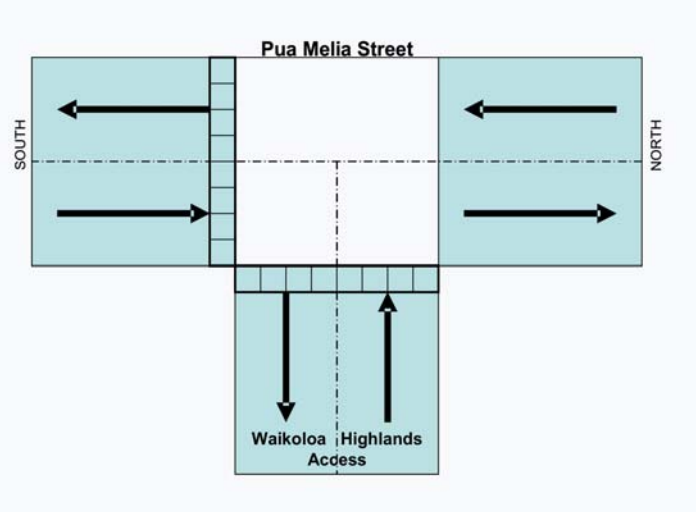
Minor Streets and Cul-De-Sac
50-Foot Right-of-Way

Intersection Improvements

Pua Melia Street and Waikoloa Highlands Access Intersection

The intersection at Pua Melia Street and the Waikoloa Highlands access will be a controlled 'T' intersection with stop bars on the access road (see Figure 6, Intersection Improvements at Pua Melia). Traffic will be allowed to flow in a north-south direction. Turn movements will be allowed as traffic dictate.

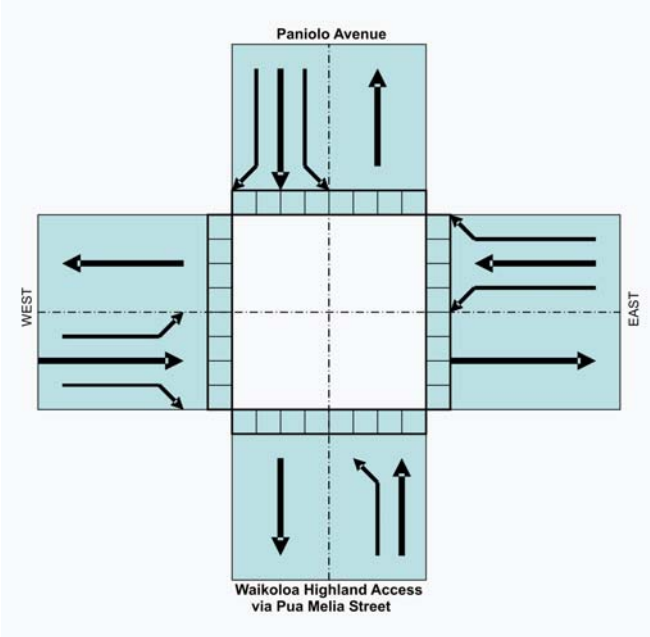
Figure 6. Intersection Improvements at Pua Melia



Waikoloa Road, Pua Melia Street and Paniolo Avenue

The intersection at Waikoloa Road, Pua Melia Street and Paniolo Avenue (see Figure 7, Intersection Improvements at Paniolo Avenue and Waikoloa Road) will be fully controlled with signalization that will control traffic movement through the intersection.

Figure 7. Intersection Improvements at Paniolo Avenue and Waikoloa Road

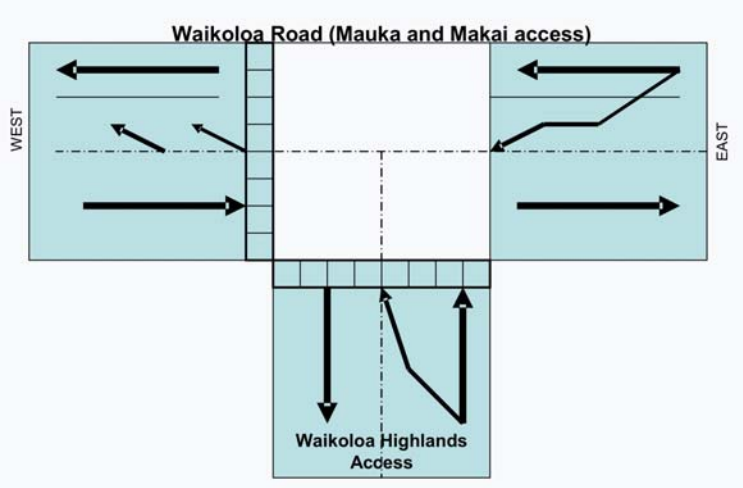


Both the east and west approaches to the intersection on Waikoloa Road will have lanes that divide to three lanes--one through lane, and one lane each for right and left turns. The approach on Paniolo Avenue is similar to the approach on Waikoloa Road. The approach from the Waikoloa Highlands subdivision will include a dedicated left-turn lane. The cost of the improvements will be included in this project.

Waikoloa Road (Mauka and Makai Access) and Waikoloa Highlands Intersection

The makai (west) and mauka (east) entries into the Waikoloa Highlands project will be new intersections created approximately 2,000 feet east and 6,400 feet east of the Waikoloa Road-Paniolo Avenue intersection (see Figure 8, Intersection Improvements at Waikoloa Road). These intersections will not be signalized. Dedicated left-turn "pockets" will be provided, however, to facilitate turn movements as well as to facilitate through traffic. The west intersection will be developed in the first increment. The second access will be constructed as part of the second phase of the proposed development. This second access will require a zoning amendment.

Figure 8. Intersection Improvements at Waikoloa Road



2.2.4 Open Space and Recreation

Approximately ~~28~~ 27 percent (~~208.13~~ 195.311 acres) of the total land area within the project site will be dedicated to an open space preserve. This area will be left in its natural state and no structures are planned, except for a pedestrian-bike path. The pedestrian path will be approximately 10 feet wide, and will meander through the open space preserve. In accordance with Ordinance 05-157, the developer will be required to pay fees to the County of Hawai'i to mitigate impacts to recreation services in the area.

2.2.5 Utility Improvements

Utility improvements for the Waikoloa Highlands project are limited to the water system and the electrical system. Both water and electrical lines will be placed underground and brought to the lot boundary. The proposed utility improvements are described in more detail in Chapter 3, Existing Environment, Impacts and Mitigation.

2.2.6 Development Costs

~~Estimated cost of improvements is $44.8 million (2006 dollars) and is summarized below. Soft costs (impact fees and fair-share contributions) are yet to be determined.~~

Project development costs involve site and infrastructure improvements (approximately $44.8 million) as well as assessment fees (approximately $4.0 million), also known as "soft costs" that include impact fees and fair-share contributions. These costs are detailed in Table 2-2, Estimated Development Costs and Table 2-3, Additional Costs, below.

Table 2-2. Estimated Development Costs

	Cost ($ mil)
Roads (1)	23.8
Water	
a. On-Site	5.3
b. Off-Site	2.6
Electrical	
a. Utility Relocation	1.8
b. On-Site	10.7
c. Traffic Signals (2)	0.6
TOTAL	$ 44.8

Notes:
(1) Drainage improvements included in road costs, e.g. culverts and drywells
(2) Improvements at Waikoloa Road, Pua Melia Street and Paniolo Avenue

Table 2-3. Additional Costs*

Recreation Fee ($4,817.93 per lot)	$1,917,536
Affordable Housing (20% of total = 80)	TBD
Police Impact Fee ($232.42 per lot)	$92,503
Solid Waste Fee ($200.98 per lot)	$79,990
Water Development Fee	TBD
Road Fees and Traffic Fee ($4,280.82 per lot)	$1,703,766
School Impact Fee	TBD
Fire Impact Fee ($459.06 per lot)	$182,705
TOTAL ESTIMATED	$3,976,500

* Fees estimated based on Ordinance 05-157. Fees may be adjusted by providing land or facilities and the final payment amount will be adjusted by the Honolulu Consumer Price Index at the time of Final Subdivision approval.
TBD = to be determined

2.3 NO ACTION

The No Action alternative would retain the property in its current undeveloped state. It would not meet the project objective to develop a high quality, low-density, rural residential subdivision in the Waikoloa area.

2.4 LOW DENSITY RESIDENTIAL LOTS (ALTERNATIVE LAYOUTS)

Alternative~~s~~ layouts for a similar rural residential subdivision were considered during the planning process, including options with smaller (half-acre) and larger minimum lot sizes. The process of reviewing the smaller and larger lot sizes helped to establish the approximately 1 acre lot size as optimal for the proposed project.

Examination of these alternatives centered on maximizing the number of lots on the project site to achieve the "the right mix" of lots. The marketplace dictated the type of product to be developed. The analysis examined the type of products currently available in Waikoloa Village as well as what was being planned and developed. The findings suggested that what was available and being planned focused on expanding the housing stock with products currently available. Further, increased density would require additional site work (more grading) and more infrastructure (expansion of water distribution and storage requirements).

Developing half-acre lots was not seriously considered because it would require the re-zoning of the project site. Because some of the larger lots in the Village are 15,000 square feet in size, the appeal of a 20,000 square foot lot at a higher unit cost did not seem particularly marketable.

Development of larger lots (greater than 1-acre) was not seriously considered because less lots would equate to a higher per unit cost for infrastructure for each lot~~s~~.

Several alternative layouts were considered but mostly centered on two considerations: 1) accommodating the drainageways in the plan, and 2) the "aesthetic" or layout of the plan. Of the two, accommodating the drainage system in the plan was paramount, because of potential flooding risks and the need to provide a unified circulation network in the subdivision. Adherence to County of Hawai'i Subdivision Standards also dictated the design of the subdivision.

2.5 GOLF COURSE WITH RESIDENTIAL ESTATE LOTS

Another alternative would be to include a golf course with residential lots, which is allowed under the current RA-1a zoning. A golf course and residential lot~~s~~ concept was proposed for the site by the previous owner over ten years ago. At that time, the objective was to develop a high quality, low density lot development combined with a world-class championship golf course and golf club facility. The proposal included approximately 286 one to two-acre lots integrated with an open space element of an 18-hole golf course. Clubhouse facilities included a pro shop, restaurant, and snack bar.

Although a golf course is not currently proposed for the Waikoloa Highlands project, this is an alternative consistent with land use designations that ~~was~~ were considered for the property.

The development of the residential and golf course project would require the development of a non-potable water system for irrigation of the golf course. Further, because the golf course would be developed within the drainageways, a significant amount of earthwork would be required to shape and form the golf course. Where the drainageways crossed the subdivision roads, special crossings would be required to transport golfers from one part of the course to another.

Another variation of the residential golf course alternative was to develop additional lots, averaging one acre in size, similar to the proposed action. This alternative was rejected because of the additional infrastructure development required for the project and the uncertain market for another golf course in the region.

2.6 REDESIGNATION TO STATE URBAN DISTRICT

Re-designating the project area from the State Agricultural to the Urban District is an alternative that is available, but was not seriously considered. This is because the project area is outside the Waikoloa Village core area, which is the center of urban development. This area is also designated Rural by the County of Hawai'i General Plan. Rather, the project area is considered a transition area between the Waikoloa Village urban areas and the agricultural areas. Finally, as a condition of zoning, this area was stipulated to be redesignated Rural.

3 EXISTING ENVIRONMENT, IMPACTS AND MITIGATION

3.1 INTRODUCTION

This chapter describes the existing environment, potential project impacts and proposed mitigation. This chapter is organized by resource area, and is divided into: 1) physical environment, 2) biological resources, 3) social and built environment, 4) transportation and utilities, and 5) public facilities and services.

The discussion of environmental impacts includes both direct and indirect impacts. Direct impacts are those caused by the action and occur at the same place and time. Indirect effects may occur later in time or farther in distance, but are still reasonably foreseeable. The analysis in this chapter also identifies possible cumulative environmental impacts. Cumulative impacts are defined as the results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Location

The Waikoloa Highlands site is located adjacent and mauka of Waikoloa Village, in the ahupua‘a of Waikoloa, District of South Kohala, on the west coast of the Island of Hawai‘i. The project site is located between Mamalahoa Highway and Queen Ka‘ahumanu Highway, approximately 36 miles north of Kailua-Kona, 22 miles from the Kona International Airport, and 18 miles south of Kawaihae. (See Figure 1, Project Location).

The project site is located mauka and southeast of Waikoloa Village. The site is bordered by Waikoloa Road on the east, by Pua Melia Street to the north, Auwaiakeakua Gulch on the west, and undeveloped lands to the southeast.

3.2.2 Land Ownership History

The project site is 731.581 acres in size, and designated as TMK 6-8-02:016 (por.). It is a portion of a 2,443.734-acre parcel designated as TMK 6-8-02:016, which is owned in fee by Waikoloa Mauka, LLC.

A previous Archaeological Inventory Survey (Jensen 1990) provided historical documentary research for the project area, summarizing its ownership history. The research shows that Waikoloa Mauka was traditionally sparsely inhabited due to its harsh terrain. It notes that use of the area was probably mostly limited to transportation route, with most habitation temporary. The Waikoloa area was granted by King Kamehameha I to either John Young or Isaac Davis, and it was listed as one of John Young’s lands at the time of the Mahele in 1848. During this period, cattle roamed free in this area of west Hawai‘i, and by 1846, the majority of the Waimea area had been converted to pasture for herds of cattle, sheep and horses. The property was eventually acquired in the early 1900’s by John Parker, founder of Parker Ranch in Waimea. According to Real Property Tax Office records, ~~Richard Smart, present owner of~~ Parker Ranch,

sold the project area to Boise Cascade in 1968 as part of parcel TMK 6-8-1-4. Boise Cascade sold this parcel to Waikoloa Land & Cattle Company, which in turn sold it to Atpac Land Company. (Jensen 1990).

Much of the land surrounding the subject property was owned by the Waikoloa Land/Development Company, the original master developers of the 30,000-acre Waikoloa plan. During the intervening years, a significant portion of this land was transferred to the Waikoloa Village Association. The Association's holdings surround most of the Village and the project area. Most of the remaining Waikoloa Land and Development Company lands were sold in 2005.

3.2.3 Topography

Existing Conditions

The site is currently vacant and undeveloped. The site terrain is characterized by rolling, grass-covered hills cut by several dry stream beds with rock outcrops. The project site slopes upland from north to south, with slopes ranging from 5 to 15 percent, with the exception of the steeper slopes of the drainage gulches. Elevations range from 900 feet above mean sea level near the northwestern boundary to 1,300 feet near the south boundary. The Auwaiakeakua Gulch transects the site, generally northeast to southwest along the eastern edge of the property.

The most prominent geographic feature located immediately adjacent to the project area and one of the most visible landmarks within the ahupuaʻa is Puʻu Hīnaʻi, a cinder cone located near the center of Waikoloa. The puʻu is located outside and southeast of the project area. ~~There was a large active cinder quarry at the base of Puʻu Hīnaʻi until recently. The quarry lease was granted by the previous landowner, but was terminated by the current landowner.~~ The Draft EIS reported incorrectly that the quarry operations were terminated. The quarry is currently permitted by Special Use Permit No. SP70-85, and is operated by Deluz Trucking and Gravel, LLC. An amendment to this permit was approved by the SLUC on January 9, 2006 which extended the life of the permit from December 11, 2005 to December 11, 2010.

According to the SLUC order:

> "Having duly considered the complete record of the Amendment and the oral arguments presented by the parties in the proceeding, and a motion having been made at a meeting conducted on December 1, 2005, in Kahului, Maui, and the motion having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion the LUC hereby GRANTS the Amendment in the name of Waikoloa Development Company, subject to the following conditions to supersede all previous conditions imposed in this docket:
>
> 1. The Applicant, its successors or assigns shall be responsible for complying with all stated conditions of approval.
> 2. Quarrying operations at Site 1 (Pu'u Hinai Quarry) shall be terminated by December 11, 2010, or prior to final subdivision approval of the increment of adjacent RA zoned lands which abut the quarry boundaries, or prior abandonment, whichever occurs first.

3. Upon termination of operations or abandonment of any portion of Site 1 (Pu'u Hinai Quarry), the land shall be graded to blend with the surrounding areas and re-vegetated. Further, the site shall be left in a non-hazardous condition. Appropriate documentation which demonstrates compliance with this condition shall be submitted to the Hawai'i County Planning Director for review and approval within ninety (90) days from the termination or abandonment date.

4. All other applicable laws, requirements, rules and regulations, including those of the Department of Health, shall be complied with.

5. An annual monitoring report shall be submitted to the Hawai'i County Planning Director and the State Land Use Commission prior to the anniversary date of the approval of this amendment. The report shall include, but not be limited to, the amount of material quarried or removed, a detailed listing of public complaints or problems, and their disposition. Should conflict arise, which cannot be mitigated or mediated, the quarry operations shall cease upon appropriate findings by the County of Hawai'i Planning Commission that the quarry use will have an adverse impact on surrounding properties.

6. Should any of the conditions not be met or substantially complied with in a timely fashion, the Hawai'i County Planning Director shall initiate procedures to revoke the permit.

7. Within thirty (30) days of the effective date of the Commission's approval of the Amendment, the Applicant shall issue public notice of the action taken by the Commission approving the Amendment in the name of Waikoloa Development Company to invite public comment on the Amendment. The Applicant shall inform the Commission of responses (or lack thereof) to the public notice and forward all public comments to the LUC. (SP70-85)."

Project Impacts and Mitigation

The project will not adversely impact ~~site~~ the topography of the site. ~~Some minor g~~Grading will be required to construct the project roadways and infrastructure. All earthwork and grading will conform to Chapter 10, Erosion and Sediment Control of the Hawai'i County Code. ~~The project will not impact Pu'u Hīna'i. No mitigation is required.~~

The proposed project will not result in potential for adverse impacts to Pu'u Hīna'i based on its location outside of the Waikoloa Highlands project boundary. No further mitigation is therefore proposed.

3.2.4 Soils and Geology

Existing Conditions

Geology

The land in the Waikoloa area is composed of a mix of a'a and pahoehoe lava flows, the bulk of which were disgorged from Mauna Kea between 65,000 and 250,000 years ago during the

Pleistocene Age. This, in turn, is overlain on the southern portion below Auwaiakeakua Gulch with newer flows deposited between 14,000 and 65,000 years ago.

At least ten major lava flows emanating from Mauna Loa have subdivided Waikoloa into areas of rough and broken pahoehoe, areas of a ‘a flow, and areas within which recent flows have been covered with eroded sediments.

Soils

U.S. Soil Conservation Service

According to the Department of Agriculture, Soil Conservation Service (now Natural Resource Conservation Service), the primary soils type within the project area is Kawaihae extremely stony, very fine sandy loam ~~(KNC)~~, 6 to 12~~%~~ percent slopes (KNC). There is an area of Kamakoa very fine sandy loam, 0 to 10 percent slopes (KGC), at the southern portion of the property adjacent to Pu‘u Hīna‘i, which is outside the project area. The pu‘u is considered Cinder land (rCL) and gulch areas are classified as Very stony land (rVS).

The major soil types are described below and are shown in Figure ~~5~~ 9, Soils Map.

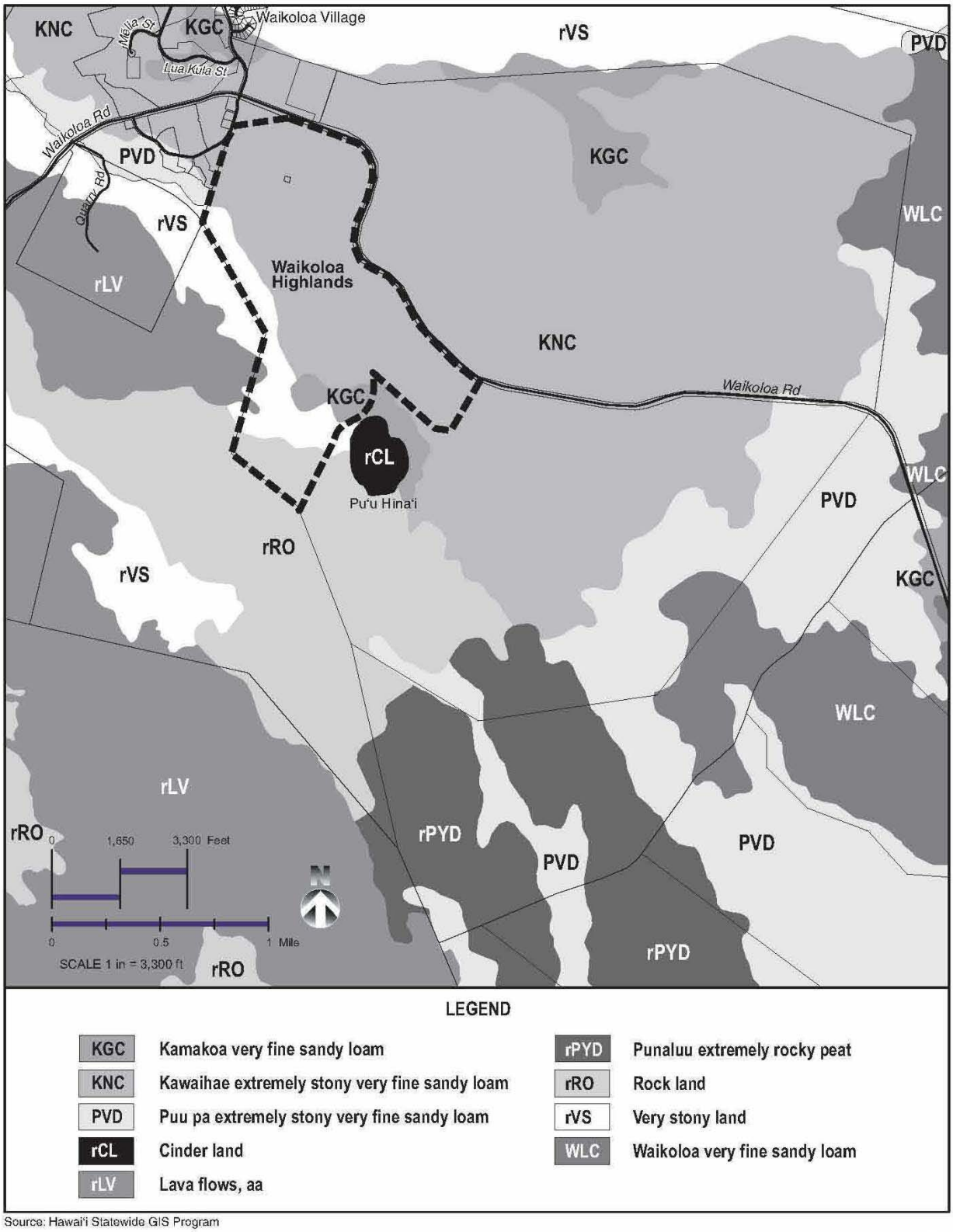
Kawaihae extremely stony very fine sandy loam, 6 to 12 percent slopes (KNC). The Kawaihae soil series consists of somewhat excessively drained extremely stony soils that formed in volcanic ash. These soils have a very thin surface layer of fine sandy loam over silt loam and loam.

~~Kawaihae extremely stony very find sandy loam~~ KNC is found on the leeward coastal plains of Mauna Kea, at elevations ranging from near sea level to 1,500 feet.

Permeability is moderate, runoff is medium, and the erosion hazard is moderate. This soil is used mostly for pasture, wildlife habitat, and recreation areas.

Kamakoa very fine sandy loam, 0 to 10 percent slopes (KGC). The Kamakoa series consists of somewhat excessively drained very fine sandy loams that formed in recent alluvium. These soils are nearly level to gently sloping. They are on the flood plains of Mauna Kea at an elevation ranging from 1,000 to 4,000 feet.

~~Kamakoa very fine sandy loam (KGC)~~ KGC soils occur as long, narrow areas along shallow, intermittent streams. The slope is dominantly 3 percent. Permeability is rapid, runoff is slow, and the erosion hazard is slight. This soil is high in fertility and is well supplied with bases. It is used for pasture.



Source: Hawai'i Statewide GIS Program

Figure 5 9
SOILS

Very stony land (rVS) is a miscellaneous land type consisting of very shallow soil material and a high proportion of A‘a lava outcrops. The dominant slope is between 10 and 15 percent. Between the lava outcrops and in the cracks of the lava, the soil material extends to a depth of 5 to 20 inches. The vegetation ranges from a sparse cover in dry areas to dense stands of ohia and tree fern in areas of high rainfall. The erosion hazard is slight. This land is used for pasture and watershed and for wildlife habitat.

Cinder land (rCl). This is a miscellaneous land type consisting of bedded cinders, pumice, and ash. The particles have jagged edges and a glassy appearance and show little or no evidence of soil development. Cinder land commonly supports some grass, but it is not good pastureland because of its loose consistency and poor trafficability. This land is a source of material for surfacing roads. Pu‘u Hīna‘i, located outside the project area, is classified as Cinder land.

U.H. Land Study Bureau Detailed Land Classification
The University of Hawai‘i Land Study Bureau (LSB) Detailed Land Classification classifies soils by land type in which classifications are provided for an overall crop productivity rating, with and without irrigation, and for selected crop productivity ratings for seven crops. The LSB overall ratings range from A to E, with A being the best. The ~~Land Study Bureau~~ LSB has classified the area as “E” lands, meaning it is only marginally suitable for agricultural use. The surrounding land uses are primarily low-scale residential and commercial areas, and not in active agricultural production.

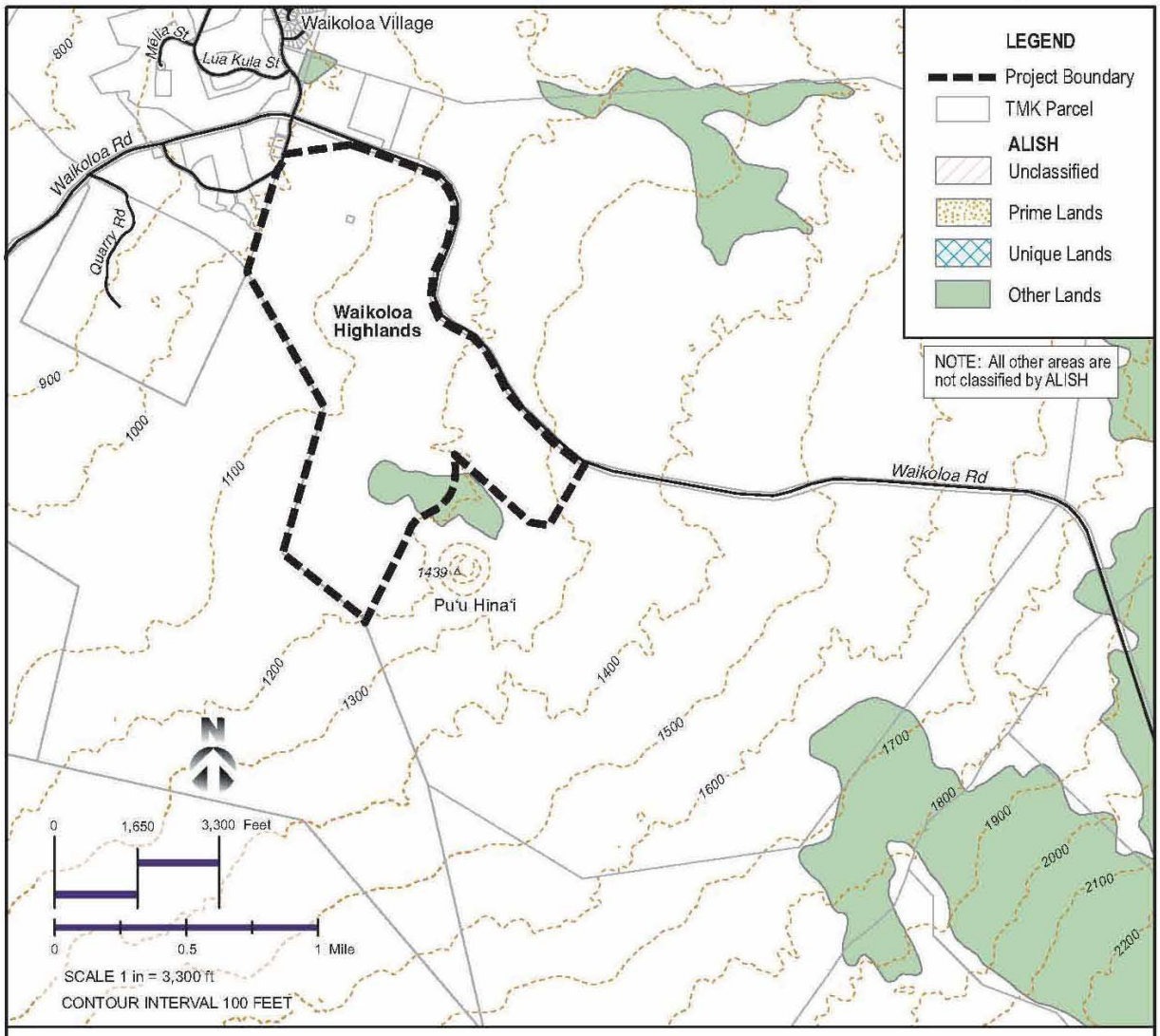
Agricultural Lands of Importance to the State of Hawai‘i (ALISH)
The Agricultural Lands of Importance to the State of Hawai‘i (ALISH) land classification system was developed by the State Department of Agriculture (1977). The ALISH system identifies three broad classes of lands, including “Prime Agricultural Land,” “Unique Agricultural Land,” and “Other Important Agricultural Land.” As shown in Figure ~~6~~ 10, ALISH Map, the majority of the project area is unclassified, or not rated according to the ALISH land categories.

3.2.5 Climate and Air Quality

Existing Conditions

Nearly the entire ahupua‘a of Waikoloa is located within the rain shadow of Mauna Kea, making this region one of the drier areas in West Hawai‘i. The area has generally low annual rainfall, ranging between 10 and ~~20~~15 inches. Daily highs generally range from 77 to 85 degrees and daily lows from 65 to 70 degrees Fahrenheit. Average annual rainfall is approximately 10 to 15 inches, with the majority of rain falling during the winter months.

National Ambient Air Quality Standards (NAAQS) have been established for seven major air pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), particulate matter smaller than 10 microns (PM_{10}), particulate matter smaller than 2.5 microns ($PM_{2.5}$), sulfur oxides (SO_x), and lead (Pb). Air pollutant levels are monitored by the State Department of Health (DOH) at a network of sampling stations statewide. The State monitors PM_{10}, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and ozone (O_3).



OTHER IMPORTANT AGRICULTURAL LAND

OTHER IMPORTANT AGRICULTURAL LAND is land other than PRIME or UNIQUE AGRICULTURAL LAND that is of state-wide or local importance for the production of food, feed, fiber and forage crops. The lands in this classification are important to agriculture in Hawaii yet they exhibit properties, such as seasonal wetness, erodibility, limited rooting zone, slope, flooding, or droughtiness, that exclude them from the PRIME or UNIQUE AGRICULTURAL LAND classifications. Two examples are lands which do not have an adequate moisture supply to qualify as PRIME AGRICULTURAL LAND and lands which have similar characterisitics and properties as UNIQUE AGRICULTURAL LAND except that the land is not currently in use for the production of a "unique" crop. These lands can be farmed satisfactorily by applying greater inputs of fertilizer and other soil amendments, drainage improvement, erosion control practices, flood protection and produce fair to good crop yields when managed properly.

Other criteria which may qualify lands as OTHER IMPORTANT AGRICULTURAL LAND are:

1. The land has slopes less than 20%, is presently in crop or has cropping potential, and is not classified as PRIME or UNIQUE AGRICULTURAL LAND. The soils have a moisture supply which is adequate for the commonly grown crop.
2. The land has slopes less than 35%, is presently used for grazing or has grazing potential, and is not classified as PRIME or UNIQUE AGRICULTURAL LAND. The soils have:
   a. An aquic, udic, xeric, or ustic moisture regime in which the available water capacity is sufficient to produce fair to good yields of adapted forage.
   b. Less than 10% rock outcrops and coarse fragments coarser than 3 inches (7.6 cm) in the surface layer.
3. The soils are thin organic soils underlain by aa lava (typic tropofolists) having aquic, udic, xeric, or ustic moisture regimes and isohyperthemic (greater than 72 degrees F) or isothermic (59 - 72 degrees F) soil temperature regimes.

Source: Hawai'i Statewide GIS Program

Figure 6-10
AGRICULTURAL LANDS of IMPORTANCE to the STATE OF HAWAI'I (ALISH)

Based on ambient air monitoring data, the U.S. Environmental Protection Agency has classified the Island of Hawai‘i and the entire state as being in attainment of the federal standards. The DOH Clean Air Branch indicates that both national and State standards have been met in the region.

The closest DOH air quality monitoring station is in Captain Cook, south of Kailua-Kona. This station measures sulfur dioxide (SO_2) only. Volcanic eruptions are the most significant factor affecting air quality on the island. In addition to particulates, volcanic emissions contain substantial amounts of mercury and sulfur dioxide. In addition, volcanic haze and gas can accumulate on the leeward side of Mauna Kea when winds are light and variable.

Project Impacts and Mitigation

The development of an approximately 400-lot subdivision in the Waikoloa area has the potential for localized air quality impacts during construction due to grading and earth moving activity, and long-term impacts due to vehicle emissions.

The project is considered an “indirect source” of air pollution as defined in the federal Clean Air Act, since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. The project will generate additional traffic in the project area, which would have a resultant impact on air quality.

Short-Term Impacts

During construction of the subdivision roads and infrastructure, air pollutant emissions will be generated both on-site and off-site by vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities.

The principal source of short-term air quality impact will be construction-related activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining streets as well as on the project site itself. Site preparation and earth moving will create particulate matter (“PM”) emissions. Construction vehicle movement on unpaved areas will also generate PM emissions.

Given the area’s arid climate, there will be an increased potential for fugitive dust. During construction, dust control measures such as frequent watering of unpaved roadways and areas of exposed soil will be employed. The soonest possible paving of roadways and landscaping of bare areas will also reduce dust emission. Transported or stored soils will be covered.

There are no immediately adjacent residential uses, and the distance from residences on Pua Melia Street and Waikoloa Village should minimize construction related impacts on surrounding residents. Construction activities will employ fugitive dust emission control measures in compliance with provisions of Chapter 43-10 (HRS) and Chapter 11-60.1, (HAR) “Air Pollution Control,” Section 11-60.1-33 (HAR) on “Fugitive Dust.”

There will also be some offsite impacts attributable to construction activity due to the operation of concrete and asphalt batching plants. These plants routinely emit particulate matter, though the impact of this project is expected to be minimal.

Long-Term Impacts

Long-term impacts on air quality are directly related to the increase in traffic volumes and in particular, increased delays and congestion which result in idling automobiles. The traffic analysis impact report prepared by Julian Ng, Inc. has estimated that for future Year 2025, the project will increase AM and PM peak hour traffic volumes on Waikoloa Road between 8 and 12 percent, when compared to 2025 conditions without the project. However, these impacts will not be significant enough to change the traffic level of service. At the signalized intersection of Waikoloa Road, Pua Melia Street and Paniolo Avenue, the proposed installation of a traffic signal is expected to mitigate increased traffic volumes.

Overall, any increase in carbon monoxide ("CO") levels due to increased traffic volumes are expected to be minimal. Even under the worst case conditions of meteorology and traffic, both the federal and State 1-hour and 8-hour CO standards are expected to be met. Other than the proposed traffic improvements, no special mitigation is required for air quality impacts.

3.2.6 Natural Hazards

Existing Conditions

Natural hazards that could occur in the project area include volcanic eruptions, earthquakes, hurricanes and floods.

The U.S. Geological Survey ("USGS") has prepared volcanic hazard maps that divide the island into zones that are ranked from 1 through 9 based on the probability of coverage by lava flows. Zone 1 is the area of greatest hazard, and Zone 9 the area of least hazard. The project site is located in Lava Hazard Zone 3. The volcanic hazard map does not account for other direct hazards from eruptions, such as tephra[1] fallout and ground cracking and settling, but these hazards also tend to be greatest in the areas of highest hazard from lava flows.

According to the USGS, defining hazard zones for the effects of earthquakes is more difficult than for eruptions and has not been attempted for the Island of Hawai'i. The island experiences thousands of earthquakes each year; most so small that they are only detectable by instruments. Most of Hawai'i's earthquakes are directly related to volcanic activity and are caused by magma moving beneath the earth's surface. These earthquakes tend to be concentrated beneath Kilauea and Mauna Loa, the island's active volcanoes, particularly their south flanks and in the region between them. In order to facilitate evacuation from the Waikoloa Village area, the County of Hawai'i developed in 2006 a secondary evacuation route to the northwest of Waikoloa Village.

[1] Tephra: The general term used by volcanologists for fragments of volcanic rock and lava of any size expelled from a volcano. National Oceanographic and Atmospheric Administration (NOAA), www.ngdc.noaa.gov/seg/hazard/stratoguide/glossary.html.

The Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") currently designates the site Zone X, which are areas outside of the 500-year flood plain (Panel 1551661NDOA, April 2004) (Figure ~~7~~11, FIRM Map).

Project Impacts and Mitigation

The project will have no effect on the occurrence of natural hazards or the level of public risk. No mitigation is required.

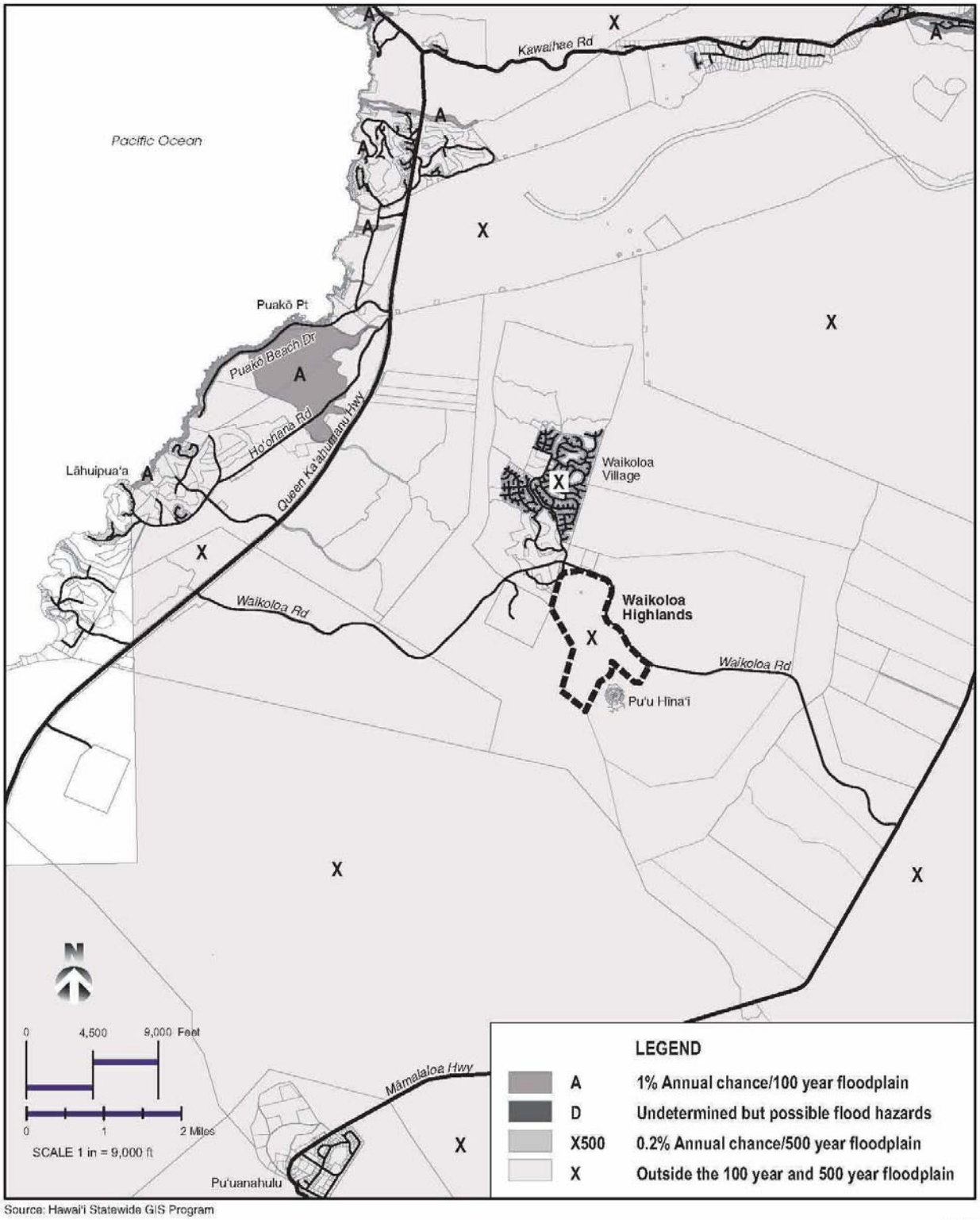
3.2.7 Man Made Hazards

The project site is within a former U.S. military training camp and artillery range in West Hawai'i that is known to have remaining unexploded ordnance ("UXO"). During and after World War II, the U.S. Marine Corps utilized approximately 123,000 acres in and around Waikoloa, Waimea/Kawaihae, and the Kohala Coast as a training camp and live-fire range. The Waikoloa Maneuver Area was the largest Marine Corps live fire training area, where grenades, bazooka rounds, artillery and mortar rounds, land mines and hedgehog missiles were used. The area today remains littered with related debris including UXO.

In 2002, the U.S. Army's Honolulu Engineer District ("HED") conducted a study that estimated the total clean-up cost for the Waikoloa Formerly Used Defense Site (FUDS) at $640 million. The areas of highest potential risk were identified as those immediately adjacent to Waikoloa and parts of Waimea on down to Kawaihae. The Army's clean up effort was initiated in 2004, and is funded at $10 million a year for the period of 2002 to 2007. According to the Army, over 473 acres around the perimeter of Waikoloa Village have been cleared to date, at a cost of approximately $29.6 million. At Waikoloa, 1,100 rounds of ordnance have been removed since 2004.

As part of their effort, the HED runs a Restoration Advisory Board comprised of local residents and representatives from the police and fire departments. The HED has also initiated a program to inform the public about the health and safety risks of UXO.

There is a potential that UXO and other military debris could be found on the Waikoloa Highlands property during on-site work. Construction personnel will be trained to recognize and immediately report to the Army any suspected munitions encountered. Further, as part of the lot sales program, the finding of the HED will be disclosed to lot buyers.



Source: Hawai'i Statewide GIS Program

Figure 7-11
FLOOD INSURANCE RATE MAP

3.2.8 Hydrology

Existing Conditions

A Waikoloa Water Master Plan was completed by Tom Nance Water Resource Engineering in 1991. The document is included as Appendix A, and includes a source development plan and distribution plans for the projected build out of the Waikoloa Village and resort areas. ~~The following information on groundwater resources is from the source development plan in the Waikoloa Water Master Plan~~.

In 2007, an update to the 1991 Tom Nance Water Resources Engineering study was commissioned by the project owners to Waimea Water Services, Inc. (WWSI). This update is included as Appendix L. The 2007 study examined the 1991 water development plan as well as the current development plans of the West Hawai‘i Utility Company (WHUC), a water utility company serving the Waikoloa region and regulated by the State Public Utilities Commission.

The Waikoloa Highlands property is located at the boundary of the Waimea, Kiholo and Anaehoomalu aquifers in South Kohala. The State of Hawai‘i, in its 1990 Water Resources Protection Plan, delineated the aquifer boundaries and proposed maximum groundwater use rates, or sustainable yields, throughout the State. The State-identified sustainable yield for the Waimea aquifer is 24 million gallons per day (mgd) and 30 mgd for the Anaehoomalu Aquifer (Water Resources Engineering 1991 and WWSI 2007). The Kiholo Aquifer, with a sustainable yield of 18 mgd is not considered a source for the proposed project area[2].

At the time the Waikoloa Water Master Plan was completed in 1991, there were ten potable water wells and five brackish irrigation wells ~~in the aquifer,~~ which were drawing a total of 7.0 mgd from the Waimea Aquifer. This represented 29 percent of the regulatory sustainable yield. The sustainable yield for the Anaehoomalu Aquifer was identified as 30 mgd~~. At the time the Waikoloa Water Master Plan was done,~~ and existing wells were drawing 7.0 mgd, or 23 percent of its regulatory limit. The existing wells were limited to brackish irrigation wells serving Waikoloa Village, the Waikoloa Resort, and Mauna Lani Resort. (Water Resources Engineering 1991).

The future water demand for the Waikoloa area, including the Waikoloa Highlands project, is estimated at 16.34 mgd. Combined with the Waimea, Lalamilo, and Puako areas, water demand from the Waimea Aquifer is projected to be 33 mgd, which would require transporting water from the Anaehoomalu Aquifer to support the Waimea Aquifer. This would result in a projected demand for the Anaehoomalu Aquifer of 15-16 mgd, which is well below the sustainable yield of 30 mgd from this aquifer.

According to the WWSI update, there is sufficient water resource capacity to meet the project demand of approximately 1,000 gallons per day (gpd) per lot, or approximately 400,000 gpd for the project (1,000 gpd x approximately 400 lots). (WWSI 2007).

[2] Phone teleconference with Waimea Water Services, Inc., April 10, 2007.

The developer is currently in negotiation with the WHUC to determine the water allocation, and the facilities development charge for the source well(s), storage, and transmission facilities.

In addition to the facilities development charge, a water distribution network will be required to distribute water within the project. Three service zones have been recommended at the 1,210-foot elevation; 1,370-foot elevation; and at the 1,590-foot elevation.

> The 1,210-foot elevation service zone would tap off of an existing 20-inch transmission main in Waikoloa Road.
>
> The 1,370-foot elevation service zone would be supplied from the subdivision's 1,210-foot elevation service zone and be supported with a booster pump station and reservoir within the property. In lieu of the booster pump station, an on-site 1,000 gal/day source well could be developed at the 1,370-foot elevation service zone.
>
> The 1,590-foot elevation service zone would be supplied by an upper 1,800-foot elevation reservoir, which will require a new 1,000 gal/day source well.

The cost of the distribution network will be paid for by the developer and will include the installation of storage facilities (water reservoirs or tanks), water lines, and appurtenances providing water to each of the 398 metered lots. (See also Section 3.5.3, Drinking Water, for further description of the water distribution network).

~~*Projected Impacts and Mitigation*~~

~~The Waikoloa Water Master Plan projected expected future use of these aquifers, based on anticipated future development. In 1991, the Waikoloa requirement was estimated at approximately three (3) mgd, but was projected to be more than 11 mgd by 2005, assuming completion of (then) planned development projects, which included the subject Waikoloa Highlands property. A total draft rate of 33 mgd was projected for the Waimea aquifer, which exceeds the 24 mgd regulatory sustainable yield. The plan noted that if supply for Waikoloa's Unplanned Reserve (between the Village and Resort) was also included, the potential overdraft could be five to six mgd higher.~~

~~The potential draft from the Anaehoomalu aquifer was estimated at 15 to 16 mgd, which is below its 30 mgd sustainable yield.~~

~~The Waikoloa Water Master Plan noted that according to the State Water Code, when withdrawal from the Waimea aquifer reaches 90 percent of its regulatory limit (21.6) mgd, it will be designated by the State as a Groundwater Management Area (GMA), which would bring stricter control of well development and use. The GMA designation could also occur sooner at a lower level of pumping if water quality problems arise or if disputes among water users occur.~~

~~The Water Master Plan noted that the water resource limitation is a regional problem, which will require a cooperative regional solution among the State, County, Waikoloa, and other major property owners in the area.~~

~~The study also noted that the State's aquifer boundary delineations and sustainable yield limits do not actually reflect the best information and analysis available. It recommended that Waikoloa participate in a cooperative effort among users to relocate the designated aquifer boundaries to more accurately reflect actual hydrologic boundaries. Sustainable yields should then be recomputed for the redefined boundaries.~~

~~For future development of the subject Waikoloa Highlands site, the Waikoloa Water Master Plan recommended development of new potable wells at an upper elevation. These well sites are near to the presently designated Waimea-Anaehoomalu aquifer boundary. However, the Master Plan noted that the well sites would likely be in the Anaehoomalu aquifer, if the boundaries are reconfigured on a more appropriate hydrologic basis.~~

~~The plan recommended that sewage treatment effluent be reused for irrigation wherever possible, to reduce groundwater pumping, reduce pumping costs, and to demonstrate an effort to conserve water to the State Water Commission.~~

Project Impacts and Mitigation

Potential for adverse impacts to the water resources of the area are not anticipated based on the availability of developable water for the project subject. The potential for long-term cumulative impacts to regional water resources, however, would involve the depletion of the resource if it is not properly managed. The Commission on Water Resource Management (CWRM) has established that once an aquifer reaches 90% of its sustainable yield, 21.6 mgd for the Waimea Aquifer, action must be taken such as water reclamation, development of conservation practices, development of new sources, use of brackish water for irrigation, increasing storage, etc.

The developer proposes to encourage conservation practices to preserve and prolong the long-term capacity of the Waimea and Anaehoomalu Aquifers with the following:

> Each of the proposed lots will have one lateral water line with two meters, one to monitor domestic use and the other to monitor irrigation use. The individual homeowners will be assessed differently for domestic water and irrigation water.
>
> Water uses for the project will be limited to 1,000 gpd per lot. If the water use is above the 1,000 gpd limit, restrictions may be imposed such as a special water use assessment to reduce demand and waste. This proposal would conserve water, reduce wasteful practices, and encourage the use and planting of drought-tolerant vegetation.

Note: A discussion of the use of individual wastewater systems in relation to the potential for impacts to water systems is provided in Section 3.5.5, Wastewater.

3.2.9 Noise

Noise Standards

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and noise limits as a function of land use. The State of Hawai‘i Community Noise Control Rule, enforced by the State DOH, identifies three classes of zoning districts and corresponding maximum permissible noise levels due to *stationary* noise sources. The Community Noise Control Rule does not specifically address *moving* sources, such as vehicular traffic noise or air traffic noise.

The Federal Highway Administration ("FHWA") defines four land use categories and assigns corresponding maximum hourly equivalent sound levels, Leq(h), for traffic noise exposure. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries and hospitals, has a corresponding maximum exterior Leq of 67 dBA[3]. These limits are viewed as design goals, and projects meeting these limits are deemed in conformance with FHWA noise standards.

The State of Hawai‘i Department of Transportation ("HDOT") has adopted the FHWA's design goals for traffic noise exposure. A traffic noise impact occurs when predicted traffic noise levels "approach" or exceed FHWA's design goals, or when the predicted traffic noise levels "substantially exceed the existing noise levels." "Approach" means at least 1 dB less than FHWA's design goals, and "substantially exceed the existing noise levels" means an increase of at least 15 dB.

The U.S. Environmental Protection Agency has established a goal to reduce exterior environmental noise to a day-night equivalent sound level (Ldn) not exceeding 65 dBA, and a future goal to further reduce it to no more than 55 dBA. These goals are not intended as regulations, but rather as levels below which the general population will not be at risk from any of the identified effects of noise.

Existing Conditions

The project site is currently exposed to low levels of ambient noise. Noise sources in the area include traffic on Waikoloa Road, occasional aircraft traveling to and from the Kona International Airport, and noise from nearby cinder quarry operations at Pu‘u Hīna‘i, birds and wind.

[3] "dBA" represents: "A-weighted sound level." The A-weighted sound level is a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear. Different sounds with the same A-weighted sound level are perceived as being equally loud. A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations.

Project Impacts and Mitigation

Short-Term Construction Impacts

During construction, the dominant noise sources will probably be earth moving equipment such as bulldozers, pavers, and diesel powered trucks. Although these activities will generate noise, there are no noise sensitive developments adjacent to the construction area that would be impacted. The Waikoloa Village residential and commercial areas are located upwind of the project site, and would not be adversely affected by construction noise.

All project activities will comply with the DOH Administrative Rules Chapter 11-46, "Community Noise Control." Where construction noise exceeds or is expected to exceed the State's "maximum permissible" property line noise levels, a permit must be obtained from the DOH to allow the operation of vehicles, construction equipment, power tools, etc. which emit noise levels in excess of the "maximum permissible" levels.

In order to obtain a construction noise permit, the contractor must submit a noise permit application to the DOH describing construction activities for the project. The State may, in turn, require the contractor to incorporate noise mitigation into the construction plan, conduct noise monitoring, or hold community meetings. The construction contractor will use reasonable and standard practices to mitigate noise, such as muffled equipment. In addition, the DOH, at its discretion, may require additional mitigation such as temporary noise barriers or time of day usage limits for certain kinds of construction activities.

Project-Generated Traffic Noise

The project will not have a significant noise impact on the surrounding community. Although noise levels along Waikoloa Road and at the intersection with Pua Melia Street and Paniolo Avenue will increase due to project-generated traffic, traffic noise levels are expected to be less than the federal 67 dBA limit. The incremental increase in traffic noise over existing conditions is not expected to be significant. Overall, no significant noise impact on the surrounding community due to project generated traffic noise is anticipated. No mitigation for vehicular traffic noise is required.

3.3 BIOLOGICAL ENVIRONMENT

A survey of botanical, avian and terrestrial mammalian species for the project site was conducted by Rana Productions, Inc. (Appendix **B**). The primary purpose of the survey was to determine if there were any botanical, avian or mammalian species currently listed as endangered, threatened or proposed for listing under either the federal of State of Hawai'i's endangered species programs on or within the immediate vicinity.

Overall, the modification of the site and the construction of the planned roadway extension will not have a negative impact on any endangered, threatened, proposed or candidate botanical, avian or mammalian species. The findings are discussed below.

3.3.1 Botanical Resources

Existing Conditions

The flora of the project area is comprised mostly of lichens on exposed rock surfaces and flowering plants. Alien plant species predominate over most of the area.

The project site is nearly completely covered with grassland, primarily kāwelu grass (*Eragrostis variabilis*), buffelgrass (*Cenchrus ciliaris*), and fountain grass (*Pennisetum setaceum*). The latter two are non-native species that are extremely abundant on undeveloped lowlands of West Hawai‘i. The terrain becomes increasingly stony to the south of Auwaiakeakua Gulch. In the riparian zone along Auwaiakeakua Stream beside Pu‘u Hīna‘i, kiawe trees form an open forest with grassland understory. In the deeper soils along the gulch bottom, several different grasses predominate in large patches, with buffelgrass and yellow foxtail (*Setaria gracilis*) most conspicuous.

Shrub species common to abundant on the property include fuzzy rattlepod (*Crotalaria incana*), indigo (*Indigofera suffruticosa*), and koa haole (*Leucaena leucocephala*). A small cluster of approximately three dozen native ‘akia (*Wikstroemia pulcherrima*) occurs east of the quarry entrance road not far from Waikoloa Road. ‘Uhaloa (*Waltheria indica*) is ubiquitous over the area, and tree tobacco (*Nicotiana glauca*) is more common over the pahoehoe flow on the south. ‘Aheahea (*Chenopodium oahuense*), another native shrub, is limited in its distribution to the northwest corner near Waikoloa Village.

The kiawe is the most abundant tree species on the property, but is sparse outside of the riparian zone in the vicinity of Pu‘u Hīna‘i. A very few and widely scattered native wiliwili (*Erythrina sandwicensis*) trees are present within the site.

These findings were consistent with a previous botanical survey of the project area conducted by Char and Associates in 1988. The botanical study found that none of the plant species noted in the general area is listed as endangered or threatened, on or proposed for endangered status. Vegetation varies from rolling grasslands with widely scattered trees to savannah scrubland. Nearly 90 percent of 46 species of vascular plants found growing in the area were exotic or non-native weeds.

Project Impacts and Mitigation

There are no plant species on the site currently listed as endangered, threatened, or proposed for listing. The project will not have an adverse impact on these species. There will be adverse impacts to native plant assemblages present within the site. However, the 12.819 acre area which has been excluded from the project will not be affected (see Section 1.3, Proposed Action and Location).

The Rana Productions, Ltd. study encouraged the use of indigenous plants for landscaping public areas. It noted that the ‘akia found on the site (*Wikstroemia pulcherrima*) is an especially attractive plant that has potential to be a signature plant for the development. Wiliwili trees, increasingly rare in the Waikoloa area, may also be considered for wider planting in the area.

Native plantings would also require less irrigation than typical landscape schemes, once the plants have become established.

3.3.2 Avian Resources

Existing Conditions

A total of 115 individual birds of nine different species, representing seven separate families were recorded during the survey. All nine species detected are alien to the Hawaiian Islands.

Avian diversity and densities were extremely low. Three species, Black Francolin (*Francolinus francolinus*), Sky Lark (*Alauda arvensis*) and African Silverbill (*Lonchura cantans*) accounted for more than 90 percent of the total birds recorded.

Between late July and the end of April, it is likely that one indigenous migratory species, Pacific Golden-Plover (*Pluvialis fulva*) use resources within the project site. The endemic Hawaiian sub-species of the Short-eared Owl (*Asio flammeus sandwichensis*) or Pueo, has also been regularly documented within the South Kohala grasslands.


Pacific Golden-Plover


Pueo (Hawaiian owl)

Although not detected during the survey conducted by Rana Productions, it is possible that small numbers of the endangered endemic Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened Newell's Shearwater (*Puffinus auricularis newelli*) overfly the project area between the months of May and November.

Hawaiian Petrels, a pelagic seabird, were formerly common on the Island of Hawai‘i. In recent times, breeding colonies have been reduced to high elevations on Mauna Loa and possibly, Mount Hualalai. Petrels were listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) in 1967 and by the State of Hawai‘i in 1973.

Newell's Shearwaters were formerly common on the Island of Hawai‘i, but populations have dropped precipitously since the 1880s. It was listed as a threatened species by the USFWS in 1975 and the State of Hawai‘i in 1973.

The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is the second most significant cause of mortality. There is no suitable nesting habitat within or close to the project area for either of these pelagic seabird species.


Hawaiian Petrel


Newell's Shearwater

Project Impacts and Mitigation

The primary potential impact of the project to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by street lights associates with the new development.

If street lights are installed in conjunction with the proposed roads for the Waikoloa Highlands subdivision, it is recommended that lights be shielded to reduce the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures. This mitigation would also comply with Hawai'i County Code which requires the shielding of exterior light to lower ambient glare for the astronomical observatories located on Mauna Kea.

3.3.3 Terrestrial Mammals

Existing Conditions

The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks and other animal signs. A total of eight mammalian species were detected during the course of the survey. These included a lone European house mouse (*Mus domesticus*), several dogs (*Canis f. familiaris*), Indian mongoose (*Herpestes a. auropunctatus*), cats (*Felis catus*), and several herds of goats (*Capra h. hircus*). Additionally, scat, tracks and sign of dog, cat, horse (*Equus c. caballus*), pig (*Sus s. scrofa*), goat and sheep (*Ovis aries*) were encountered at numerous locations within the study site. All mammals recorded are considered to be alien to the Hawaiian Islands.

Although only one rodent was recorded during the survey, it is likely that the other three naturalized rodents present in Hawai'i, the roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), and possibly Polynesian rats (*Rattus exulans Hawaiiensis*) utilize resources within the project site.

Although not detected during the survey, it is likely that the endemic and endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) over-flies the site occasionally.

Project Impacts and Mitigation

Although Hawaiian hoary bat fly-overs are likely, the Rana Productions, Ltd. study noted that there is no suitable vegetation on the site for bat roosting. Therefore, it is unlikely that clearing of current vegetation and the development of a subdivision on the property will result in deleterious impacts to this species. The planting of trees and ornamental vegetation after development may increase the presence of prey items, and thus may enhance foraging resources for the Hawaiian hoary bat.

3.4 SOCIAL AND BUILT ENVIRONMENT

3.4.1 Adjacent and Surrounding Land Uses

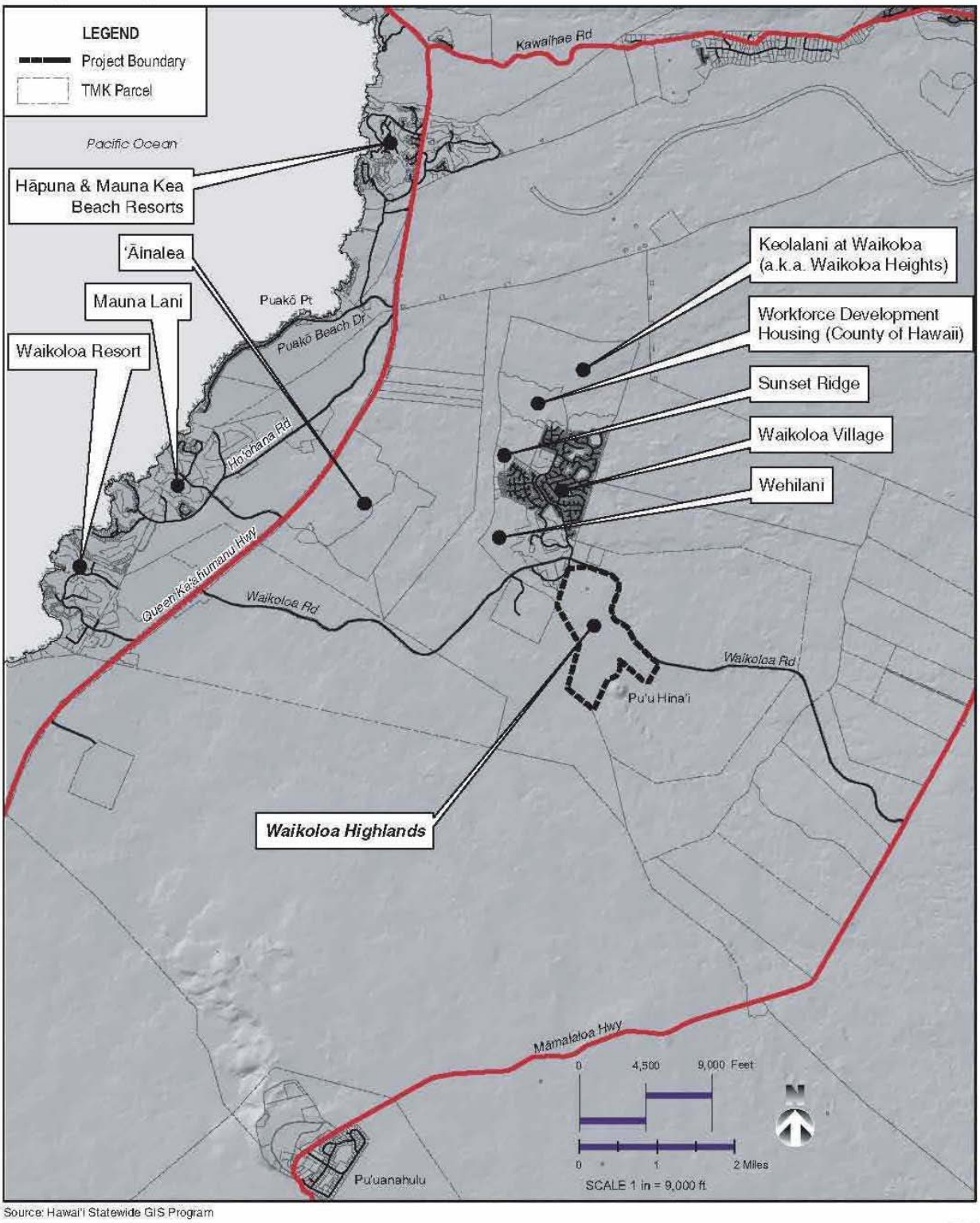
The project site is located upslope from the existing Waikoloa Village, a primary residential community in South Kohala situated upland approximately seven miles inland from Queen Ka'ahumanu Highway and eight miles from the coastline. Figure ~~8~~ 12, Surrounding Land Uses, shows existing and proposed land uses in the vicinity of the project site.

Waikoloa Village

The residential and resort community of Waikoloa Village was first conceived and developed by Boise Cascade, at that time the major landowner in the area. Residential development commenced with the 1972 opening of the Waikoloa Village Golf Course. The community has developed incrementally over the past 30 plus years, and encompasses approximately 2,795 acres.

In addition to the Robert Trent Jones 18-hole golf course with club house and swimming pool, Waikoloa Village includes tennis courts, riding stables, community park, and shopping center. Of the 2,400 total existing residential units in Waikoloa, approximately 1,360 (57%) are single-family or detached homes, and 1,040 (43%) are condominiums (some of which are detached).

Existing zoning is in place for thousands of home site and multi-family units, commercial center, schools, parks and recreational amenities. About one-third of the residential development identified in the Waikoloa Master Plan has been constructed to date (The Hallstrom Group, Inc. 2006).



Source: Hawai'i Statewide GIS Program

Figure ~~8~~12
SURROUNDING LAND USES

Proposed Residential Development

In addition to Waikoloa Highlands, there are five major residential projects in various stages of development in the Waikoloa area. A sixth holding of some 600 acres with long-term residential potential is still held by the master developer, Waikoloa Development, but there have been no announced development plans.

Wehilani at Waikoloa

This project is being developed by Castle and Cooke and will include 756 residential units, approximately 473 single-family and 283 multi-family units. Single-family lots range from 10,000 to 14,000 square feet in size. Finished home prices will range from $515,000 to $619,000.

Sunset Ridge

Phase I of this single-family residential project, being developed by Towne Development Group, commenced in 1989. At present, 81 homes are in place, with potential build out of 120 homes. Lots range in size from 10,000 SF to 30,000 SF in size, with finished homes selling between $525,000 to $760,000.

Kilohana Kai

This project is being developed by a joint venture of realtors and builders and construction began in the 2003 to 2004 time frame. The project consists of 230 vacant single-family lots ranging in size from 10,000 to 50,000 SF. The first phase of development consisted of 80 lots. Lots are being marketed and sold for $265,000 to $335,000. House and lots were being sold for $592,000 to $655,000. The second and final development phase of this 230 lot/homes project began in 2004, with full sell out expected by the end of 2006.

17th Fairway Villas

The 17th Fairway Villas is a 27-unit gated development along the Waikoloa Golf Course. Unit sizes averages 1,200+ square feet. All of the homes were sold for between $409,800 and $449,800.

State of Hawai‘i/Hawai‘i County

This affordable housing project is being developed by Hawai‘i County. The project has been “on hold” for 15 years due to Waikoloa Village Covenants, Conditions, and Restrictions (“CC&R”) and other issues, but have restarted in 2006. Of the 1,000 units planned, 206 single-family units are planned for the first increment scheduled for construction in 2007 according to Unidev Hawai‘i, project developer. Selling prices are between $250,000 and $350,000.

3.4.2 Agriculture

The primary economic activities in the South Kohala District of the Big Island are cattle ranching, diversified agriculture, and the rapidly expanding tourism industry. Cattle pastures utilize a majority of the district's acreage, with pastures located along the upper slopes of Mauna Kea stretching makai. The largest holding in the area is Parker Ranch, with approximately 230,000 acres of grazing land supporting roughly 45 to 50,000 head of cattle (The Hallstrom Group, Inc. 2006).

Additional farming is centered in Waimea, located ten miles northeast of the project area. Waimea is considered one of the Big Island's most productive areas, with crops including cabbage, celery, lettuce, and other vegetables, as well as melons and floral products. Experimentation using other diversified crops is widespread. The State maintains an agricultural research facility in the Lalamilo Agricultural Subdivision near the Waimea Airport. Although the agricultural industry is viewed as a potential economic growth sector for the mauka or upcountry areas of the district, competition for resources and land, brought about by tourism and residential development, the inconsistency of historic supply and demand levels for agricultural products in the state, and the lack of sufficient inexpensive water supply hampers the general large-scale expansion of farming.

The proposed project will result in the removal of approximately 731 acres from the State Agricultural District. As noted in Section 3.2.4, Soils and Geology, the soils profile in the project area does not lend itself to intensive agricultural uses because of shallow and rocky soil conditions. The Land Study Bureau (LSB) has further classified crop productivity ratings according to soils on a scale of A to E, with the A rating the highest. The LSB has rated the subject project area "E", comprising land that is only marginally suitable for agricultural use.

The Agricultural Lands of Importance to the State of Hawaii (ALISH) land classification system similarly categorizes land according to "Prime Agricultural", "Unique Agricultural", and "Other Important Agricultural" land classes. The subject project area is unclassified and is not rated according to the ALISH system.

The removal of this land from the State Agricultural District is not anticipated to result in an adverse impact to agricultural activities based on the above findings. Surrounding land uses are primarily residential and commercial, with little to no active land in agricultural production.

3.4.3 Socio-Economic Environment

The discussion in this section is based on two studies--a Social and Economic Impact Analysis for the proposed project completed by SMS Research (2006) and a Market Study, Economic Impact Analysis and Public Costs/Benefits Assessment completed by The Hallstrom Group, Inc. (2006). The studies are included as Appendices C and D respectively.

Although there was some overlap in the scope of these studies, each had a different primary focus. The SMS Research study focused on assessing the project's social and economic impact. It provides a demographic and housing profile of the project region, and evaluates the impact of

the proposed subdivision on housing demand, short and long-term employment, County and State tax revenues, and social conditions in the community. The SMS Research scope of work included interviews with community residents to identify and understand local sensitivities, expectations, hopes and fears associated with residential development in Kohala.

The Hallstrom Group effort was primarily a market study, and their main tasks included quantifying demand for single-family residential inventory, evaluating existing inventory, and assessing the appropriateness of the proposed subdivision. Their effort focused on providing an opinion on the project's anticipated level of market success. As part of their evaluation of overall market success, The Hallstrom Group considered the project's expected contribution to the larger community, including job creation and public revenues. In these last two areas (employment and public revenues), there was some overlap with the SMS scope of work. However, because the studies were prepared independently, there is some inconsistency in their quantitative estimates.

The discussion below summarizes the results of the SMS and Hallstrom reports. For overlapping subject areas such as employment and public revenues, both the SMS and Hallstrom findings are presented.

Existing Conditions

Demographic Characteristics

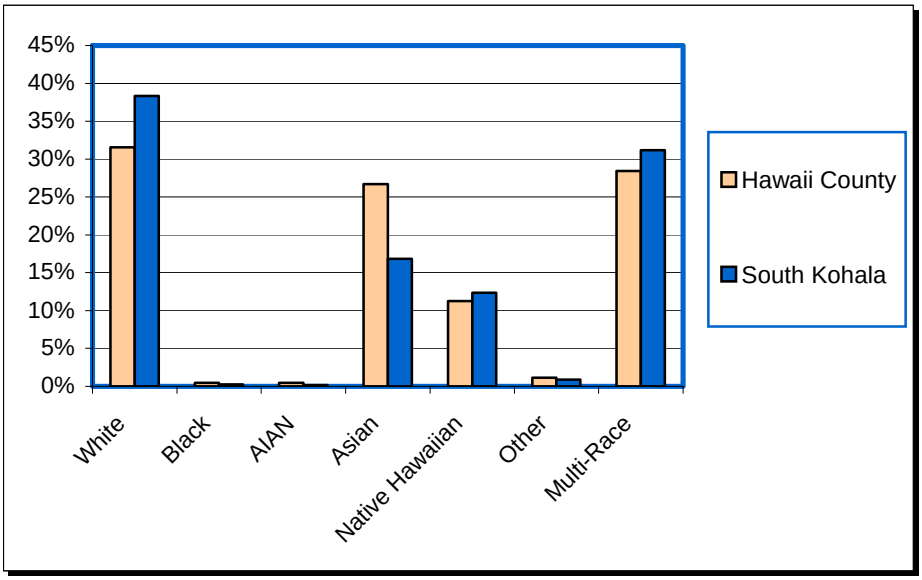
The Island of Hawai'i is the largest of the Hawaiian Islands in terms of land area, encompassing approximately 4,028 square miles. Despite its size it is only the second most populous county with a population of over 164,400 residents, 13.3% of the state population. During the last five years, Hawai'i County population has increased markedly by 12.7 percent, the largest growth rate of all the counties during this period. In addition, Hawai'i County is the only county projected to have consistent appreciable growth beyond 2003 (SMS Research, 2006).

South Kohala is one of the nine districts that make up Hawai'i County. The major areas in South Kohala include Waimea, Puako, and Waikoloa. Census figures show South Kohala with a total resident population in 2000 of 13,079 in 4,648 households.

South Kohala is the fourth most populous district accounting for approximately 9 percent of the County population. South Kohala has experienced the greatest wide-scale growth since 1980, as the population has increased by more than 140 percent over that period of time. The median age for South Kohala residents is 36.2, and Waikoloa Village residents have a median age of 34.6 years. Both are lower than the County median of 38.6 years.

In terms of racial make-up, nearly one third of County residents and 28 percent of South Kohala residents classify themselves as mixed or multi-raced. South Kohala has a slightly higher concentration of Caucasians than the County with 38 percent compared to 32 percent respectively and fewer Asians (17 percent compared to 27 percent) (Figure 13, Racial Distribution).

Figure 13
Racial Distribution, Hawai'i County and South Kohala



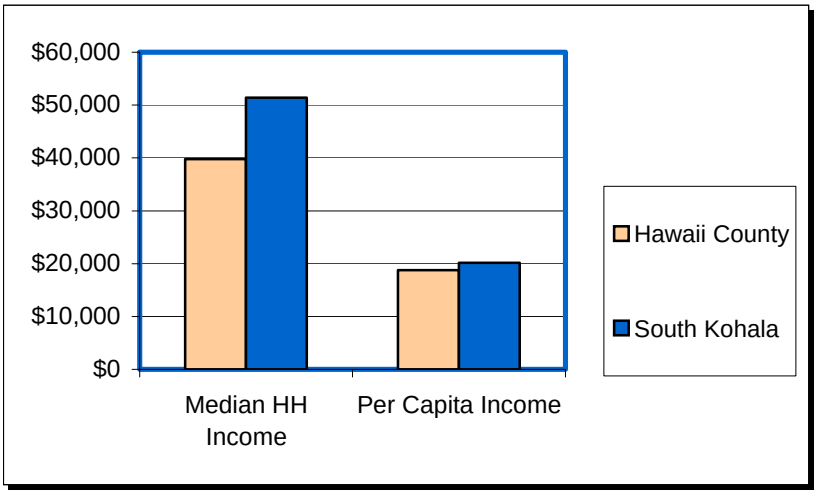
Source: U.S. Census Bureau, County of Hawai'i Data Book, 2004 and SMS Research, 2006

Income and Employment

From an economic perspective South Kohala is one of the strongest districts in the County. Census 2000 showed that South Kohala has the highest proportion of employed adults in the County at 70.7 percent and the lowest unemployment rate of 2.3 percent.

Among all the districts in Hawai'i County, South Kohala residents have the highest median income at $51,379 and the per capita income of $23,194 second only to the North Kona District (Figure 14, Household and Per Capita Income).

Figure 14
Household and Per Capita Income, Hawai'i County and South Kohala



Source: U.S. Census Bureau, County of Hawai'i Data Book, 2004 and SMS Research 2006

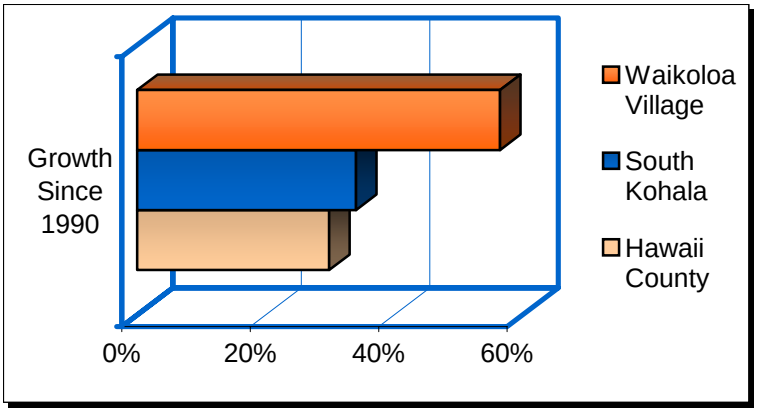
Waikoloa Village residents have a relatively high median household income, which in 2000 was at $50,040 more than 25 percent higher than the County median. Very few Waikoloa families, 8.6 percent, were living below the poverty level in 2000.

More than 75 percent of the eligible Waikoloa workforce is currently employed. This employment ~~is~~ rate is the highest of all Big Island neighborhoods. Similarly, Waikoloa Village boasts an extremely low unemployment rate, charted at 2.5 percent in 2000.

Housing

As of 2000 there were 5,348 residential units in South Kohala (US Census, 2000), a 34 percent increase in housing units since 1990. This growth is larger than that of the County as a whole (30 percent), and given the economic health of the region, it is expected to continue (SMS Research, 2006). (Figure 15, Number of Housing Units by Area).

Figure 15
Number of Housing Units by Area, 1990 to 2000



Source: US Census 2000, County of Hawai‘i Data Book 2004

Several new developments are planned in the district that will add to the growing community. Communications with officials at the County of Hawai‘i Department of Housing and Community Development and developers indicate that approximately 2,000 to 4,000 units (excluding the subject Waikoloa Highlands project) are planned in South Kohala between present and 2010. It is impossible to estimate how many of these units will actually be built, and it is quite possible that a great deal less of these planned units will actually come online by 2010. However, it is clear that the South Kohala district will continue to experience future residential growth (ibid).

Project Impacts and Mitigation

Social Impacts

South Kohala

The Social and Economic Impact Analysis (SMS Research, 2006) examined the social impacts of the proposed Waikoloa Highlands project. The average de facto population at build out of the

project is projected to be 1,068 persons, including 907 full time residents. Although the project will have minimal regional impact, it is of large enough scale that its impacts will be felt in the village of Waikoloa.

Waikoloa was originally intended to be a town of much larger size, designed as a complete community. After a relatively slow growth period in its first 30 years, current proposals may push the Village to its original intentions.

If only half of the proposed plans were to become reality, Waikoloa would more than double in size. As a community significantly off the coastline, it is unlikely that Waikoloa would develop into a community dominated by tourism investment. Rather it will, in all likelihood, develop into a diverse community whose members work throughout the region, from Kamuela to the Kailua-Kona, both in and out of the visitor industry. As a mid-point between the established community of Kamuela and the bustling coastline, Waikoloa will probably continue in its suburban character, perhaps with a more defined town center offering a wider array of commercial and public services.

The lots of Waikoloa Highlands are not a unique product to the region. Similar lots have been and are available in various parts of Kamuela and along the coast. This project will not change the regional pattern of growth or significantly affect the character of the region.

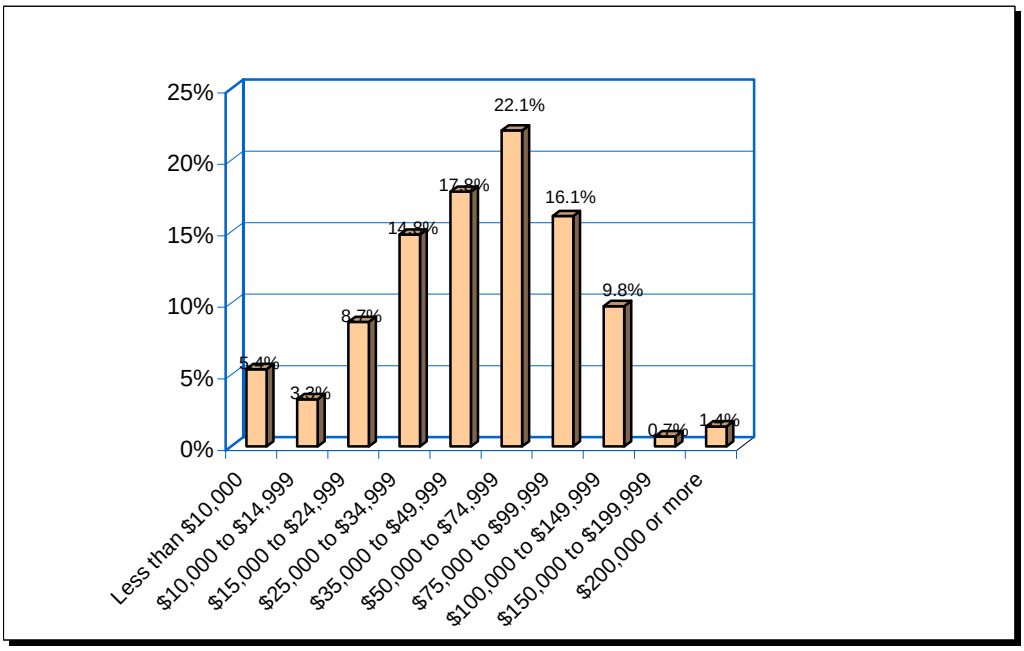
Waikoloa Village

Waikoloa Highlands will, however, significantly impact the existing community fabric of Waikoloa Village. If homes were built and occupied on every lot in Waikoloa Highlands, this project alone would increase the current size of the village by 23 percent. However, in the context of development of the other projects identified earlier, the impact of the Highlands project would only be 9% (398 units divided by 4,533 units). While on the one hand, this will result in increased pressure on traffic and public services, but on the other hand, as some Waikoloa residents noted in interviews, the Highlands development would help support the current resident pleas for additional service.

Community Balance

The Social and Economic Impact Analysis examined the impact of the project on "community balance." The study noted that while median incomes in Waikoloa Village are higher than those of the County as a whole, the median incomes in Waikoloa Village are highly concentrated around the mean. Only eight percent of the households have incomes below the poverty line, but only 2.1 percent have incomes in the higher incomes of the County, $150,000 and over. (Figure 16, Waikoloa Village 2000 Income).

Figure 16
Waikoloa Village 2000 Income



Source: US Census 2000, County of Hawai'i Data Book 2004 and SMS Research 2006

The lots at Waikoloa Highlands will likely sell for $768,600 to $1,058,400. At that level and assuming a 2,100 square foot home constructed at $366 to $504 per square foot, families will need incomes in the range of $192,000 to $264,000. This project will bring to Waikoloa Village a segment of the population that is not highly represented there today.

The SMS study noted that this will create a more "balanced" community with not just a wider range of incomes, but a wider range of interests, a wider range of experiences, a wider range of contributions to the community's fabric.

In addition, as one public official noted, "this creates a more balanced community. Families in these income brackets demand and often get more public services. That's not a judgment of government or of families in differing income brackets. It's just how things happen all over this country."

Overall Economic Impact

The Market Study, Economic Impact and Public Costs/Benefits Assessment (The Hallstrom Group, Inc. 2006) (Appendix D) evaluated the economic impact of the proposed Waikoloa Highlands Development. The study concluded that development of the subdivision will generate significant efforts and expenditure that will have positive direct and indirect impacts on the Big Island economy. The project will increase the level of capital investment, capital growth and capital flow in the region.

The estimated resident population of the Waikoloa Highlands project at build-out is estimated to be 1,068 persons. Total annual discretionary expenditures (by owners and guests) are estimated

at $39.0 million. Total resident household income is forecast (in 2006 dollars) at a stabilized $47.8 million annually.

The study concluded that numerous local businesses will enjoy significant profit opportunities arising for contracting companies constructing the improvement, and for local businesses which would supply a substantial portion of the building materials needed.

The general island economy will also benefit from the development, and resulting wage earners will spend large amounts of their income in regional shops, restaurants, and service establishments throughout the Big Island. The project is estimated to infuse $340.3 million in development and construction capital and $7.2 million in annual business operations into the West Hawai‘i economy over its ten year build out period.

Indirectly, as these construction wages, profits, and resident expenditures move through the West Hawai‘i economy, multiplier effects will increase the amount of capital flowing to the entire island community.

Income and Employment

Both the Social and Economic Impact Analysis (SMS Research, 2006) and the Market Study, Economic Impact Analysis and Public Costs/Benefits Assessment (The Hallstrom Group, 2006) projected the Waikoloa Highlands impact on income and employment.

The studies addressed the impacts of the actual construction, as well as the long-term operation of the project. It also examined the effects of project-related spending throughout the local economy. Estimates of employment included 1) *Direct jobs*, immediately involved with construction of a project or with its operations; 2) *Indirect jobs*, associated with the project's purchase of goods and services in the local economy; and 3) *Induced jobs*, created as workers spend their income for goods and services.

Although there were differences in the quantitative findings of the SMS and The Hallstrom Group studies, both studies concurred in their conclusion that the project would have a positive impact on employment and income. The findings from both studies are summarized below. The full reports can be found in the Appendices C and D.

SMS Research Study Conclusions

The SMS study estimates were made on a 10-year full build-out schedule. This assumes that the construction period for the infrastructure is approximately 30 months, with home construction beginning in the second year. Full build out of 398 homes is assumed to take nine years. Other assumptions are discussed in the SMS study in Appendix C.

Total construction for this project is estimated at $340.3 million. This construction spending will have a positive impact on economy by creating jobs and spending in related industries. ~~The table~~ Table 3:1, Construction Employment, below, shows that the direct workforce as a result of this

project will include some 2,011 person-years of employment[4]. Direct jobs are not necessarily located on-site. As a rule of thumb, about 20% of direct construction jobs are off-site (in base yards, offices, and the like).

Indirect and induced jobs are also created throughout the state. These are likely to be concentrated in commercial and/or industrial centers, rather than near a job site. In addition this project will support some 3,280 indirect and induced person-years of employment. In total approximately 5,291 person-years of employment will be created through the infrastructure and single-family home construction.

Not all of these indirect and induced jobs will be created on the Big Island. Many industries that support Hawaii-based construction efforts are not located in the Islands or on the Big Island. The SMS Research study estimated that approximately 4,470 person-years will be located on the Big Island[5].

Table 3-1. Construction Employment
(Social and Economic Impact Analysis, SMS Research 2006)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
Infrastructure											
Construction spending [1]	19.7	25.1	14.9	-	-	-	-	-	-	-	59.7
Direct workforce [2]	194	247	147								589
Indirect workforce	86	162	18								265
Induced workforce	188	239	142								568
SF Home											
Construction spending	-	24.7	28.2	35.3	35.3	35.3	35.3	35.3	28.2	23.3	280.6
Direct workforce		125	143	179	179	179	179	179	143	118	1,422
Indirect workforce		98	129	193	193	193	193	193	129	85	1,406
Induced workforce		92	105	131	131	131	131	131	105	86	1,041
Total (infrastructure and SF)	**468**	**962**	**684**	**502**	**502**	**502**	**502**	**502**	**377**	**289**	**5,291**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
Construction Earnings [1]											
Direct earnings	13.7	22.5	16.2	7.3	7.3	7.3	7.3	7.3	5.8	4.8	99.2
Indirect earnings	3.3	7.5	6.3	4.7	4.7	4.7	4.7	4.7	3.8	3.1	47.5
Induced earnings	5.9	10.2	7.6	3.9	3.9	3.9	3.9	3.9	3.1	2.6	48.8
Total	**22.9**	**40.2**	**30.0**	**15.9**	**15.9**	**15.9**	**15.9**	**15.9**	**12.7**	**10.5**	**195.5**

[1] in millions of 2006 constant $
Source: DBEDT, State Input - Output Study, 2002 and SMS Research 2006

These earnings will boost the local economy, as many of these dollars will be used to purchase goods and services from other industries.

[4] Person years of employment is the number of full time equivalent positions required to complete the work defined by the estimated cost of construction during the specific period of time.
[5] all direct construction work, and 75 percent of indirect and induced work.

The Hallstrom Group Study Conclusions

The Hallstrom Group study also concurred that during the project's estimated ten-year build-out, a number of construction, equipment operator, and specialty trade jobs will be created, both on and off-site. The Hallstrom Group estimated that construction of the subdivision and its ongoing use and maintenance will create between 92 and 265 positions annually, totaling some 2,296 "worker/years" of employment on the Big Island during the first decade. Of this, 1,445 worker/years (average of 145 positions) would be direct construction oriented jobs, 195 would be ongoing maintenance/operating positions, and 656 would be off-site worker requirements. Associated wages during this ten-year build out period are estimated at $113.1 million.

After completion of the homes, there will be significant additional employment positions created. These include landscape, service, maintenance and renovation service jobs. The Hallstrom Group estimated that home and unit maintenance will support about 40 full-time equivalent on-site jobs and contribute to another 16 jobs offsite, with total wages of $1.6 million annually.

Public Fiscal Impacts

The project's public fiscal impacts were also examined by both SMS Research and The Hallstrom Group. Although projections of public revenues differed, both concluded that the project would result in positive fiscal benefits to the State and County governments.

State of Hawai'i

The Social and Economic Impact Analysis (SMS Research, 2006) projected new State and County tax revenues. The study noted that no major new commitment of County or State funds is needed to support this project. Construction spending of $340.3 million was estimated to result in $12.8 million in direct State tax revenues. Over a ten year period, SMS estimated that the project will generate $33.4 million in State tax revenues, as shown in ~~the table~~ Table 3-2, Anticipated State Tax Revenues, below.

Table 3-2. Anticipated State Tax Revenues
(Social and Economic Impact Analysis, SMS Research 2006)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
State Taxes [1]											
Direct	0.73	1.85	1.61	1.33	1.33	1.33	1.33	1.33	1.06	0.88	12.77
Indirect	0.54	1.51	1.35	1.18	1.18	1.18	1.18	1.18	0.95	0.78	11.03
Induced	1.12	1.98	1.48	0.78	0.78	0.78	0.78	0.78	0.63	0.52	9.62
Total	**2.39**	**5.34**	**4.44**	**3.29**	**3.29**	**3.29**	**3.29**	**3.29**	**2.63**	**2.17**	**33.42**

[1] in millions of 2006 constant $

Source: DBEDT, State Input – Output Study, 2002

By comparison, The Hallstrom Group had a more optimistic estimate of State tax revenues. This study projected that the State will receive $41.5 million in primary tax receipts during the first ten years of development and operation, and a stabilized amount of $4.4 million annually.

County of Hawai'i

The new units developed in the Waikoloa Highlands will result in County tax revenues via property taxes. Some of these property taxes will come from new residents of Hawai'i County and result from in-migration while other tax revenues will come from residents relocating from other Big Island areas. For this reason, it should not be assumed that 100 percent of these property taxes represent new tax revenues.

The Social and Economic Impact Analysis (SMS Research, 2006) estimated that the 398 new homes could result in approximately $600,000 to $750,000 in property tax revenues annually. These estimates are based on the value per square foot of neighboring Waikoloa Village homes applied to 398 2,100 square-foot units. This amount of property taxes would represent approximately one percent of the total property taxes collected. Other tax revenues will also be generated via taxes on utilities and other taxable services provided to local residents by the local government.

By comparison, The Hallstrom Group had a more optimistic estimate of County revenues. The Hallstrom Group estimated that the County of Hawai'i will receive $24.4 million in tax revenues during the first ten years of the project, and $3.5 million thereafter.

Public Cost vs. Benefits Assessment

The Hallstrom Group, Inc. study included a public cost/benefits assessment, which compared the costs of providing expanded services to the project versus public benefits through an increase in local and State taxes.

Public costs considered included police and fire protection, infrastructure services, recreation demands, education, and other public services. The costs were then compared to the public benefits derived from real property taxes, gross excise tax receipts, and State income tax (discussed above).

Methodology

A concern in the analysis was the integration of the project into the overall State and County governmental services plan on both an *actual* and *pro rata* perspective. The study notes that from an *actual cost* perspective, the project represents only a fraction of the County and State residential inventory, and it is unlikely that the Waikoloa Highlands residents will themselves create the need for expansion of public services. That is, no new schools, parks, highways, recreational facilities, service agencies, or other public services will be required specifically because of the Waikoloa Highlands development.

Because the need for additional services is a cumulative effect, public costs can also be projected on a *per capita* allocation. This approach is generally appropriate for residential subdivisions, as the substantial portion, but not all public costs and services, accrue to where a person lives. In order to meaningfully quantify the public costs of the project, The Hallstrom Group study looked at public costs from both an *actual cost* and *per capita* allocation basis.

Costs
Per capita costs are based on per capita expenditures incurred by the government in accordance with the de facto population. On a per capita allowance basis, State and County expenditures associated with the project were estimated to range from $934,636 in year 3 of the project, to a stabilized maximum of $4,959,801 at build out and beyond, in constant 2006 dollars. On an *actual* cost basis (which was acknowledged to be an atypical perspective), the total government costs at build out would be $2,906,100 annually.

Costs vs. Benefits
The estimated public costs were then compared to the estimated public revenues. Even using the highest cost estimate of $4.9 million annually (based on per capita costs), public benefits clearly exceed public costs. In no year does the State or County suffer a revenue shortfall (costs exceeding receipts) relative to the project.

The SMS study did not estimate public costs, and its projections of public revenues were generally more conservative (i.e., lower) than The Hallstrom Group's. However, even the lower SMS revenue projections exceed anticipated public costs.

Overall, despite the differences in their revenue estimates, both the SMS and Hallstrom studies show that the project will have a positive fiscal impact on both the State and Hawai'i County.

3.4.4 Marketing Plan

The following discussion summarizes the Market Study conducted by The Hallstrom Group (Appendix D). The subdivided lots in the project will be marketed in two phases--149 lots in Phase 1 and 249 lots in Phase 2.

Existing Supply

The Hallstrom Group reported noted "based on extrapolation of 2000 census data and county planning figures, we estimate the total number of habitable housing units in the Waikoloa Village study area as of spring 2006 was approximately 2,400 units." The majority of the units were constructed since the late 1980s.

Proposed Supply

There are five major projects in-development, approved or proposed in the Waikoloa Village area. These projects are: Wehilani (~~473~~ 756 units), 17th Fairway (27 units), Sunset Ridge (~~201~~ 120 units), and Kilohana Kai (230 units). These project have the potential of providing a maximum of ~~3,456~~ 1,133 units (combined single-family and multi-family units) to the housing inventory of the area. The County of Hawai'i is also planning a housing project with ~~225~~ 1,000 units in the area. Combined, there are approximately ~~4,079~~ 2,133 units proposed for a total of 4,533 units (existing [2,400] and proposed [2,133]).

Housing Demand

The Waikoloa Village residential real estate market, like most sectors throughout the state, is current in the midst of a major up-cycle. Demand for new housing opportunities in the Waikoloa Village study area was estimated by the Hallstrom study to be 4,188 to 7,038 units in the next 20 years. Mid-point demand was estimated at 5,613 units. It was concluded that "approved supply will fall short of projected demand by at least 507 (minimum) to 3,357 (maximum) housing units during the next two decades without Waikoloa Highlands." The mid-point shortfall of supply relative to demand in the study area is forecast at 1,932 total new residential units.

Market Evaluation

Based on the availability of current and project units, the Hallstrom report concluded that the Highlands project presented the following attributes:

- The necessary physical traits (size, shape, topography) to support large-scale competitive residential development;
- Direct access onto the main arterial in the region;
- Proximity of the Waikoloa Village community core;
- Access to existing utility systems;
- An expanding regional resident population nearby;
- Consistent with community plans for large-lot residential use, as indicated by the land use classification for portions of the holding and post announcement regarding the development of the site;
- It is nearby the primary retail/restaurant/service development in the community (Waikoloa Village Center) and major regional recreational amenity (Waikoloa Village ~~Goff~~ Golf Course and Club); and
- It will have extensive greenbelts, open spaces and view corridors within the subdivision; traits lacking in the existing village developments.

Conclusions

Based on their investigation and analysis, the Hallstrom report concluded:

- The residential housing market continues in a demand cycle throughout the state and in the Waikoloa Village and West Hawai'i study areas, despite a recent drop from the record activity achieved in 2005. Absorption remains high, product is still relatively scarce, and prices are near all-time levels.
- An estimated 5,600 dwelling units (mid-point) will be required in Waikoloa Village during the next two decades. Fewer than 3,700 units are currently proposed apart from Waikoloa Highlands; less than two-thirds the total necessary to adequately service the sector.

- The property is well-suited for the proposed subdivision and will achieve market acceptance by providing larger lots in a less intense, high quality, well-located, rural residential subdivision; providing currently unavailable purchase opportunities for residents and second-home buyers in the village. The subject product-type, while not offered in the existing community core, has been long-envisioned for the Waikoloa area.
- Complete market absorption of the 398 rural house lots will require an estimated four to six years from the commencement of presale offerings.
- The construction of Waikoloa Highlands and its on-going use and maintenance will create some 2,296 on- and off-site, direct "worker years" of employment on the Big Island during the first decade of its construction and use, with wages of circa $113.1 million. On a stabilized basis, home and unit maintenance will support about 40 full-time equivalent on-site jobs and contribute to another 16 off-site, with total wages of $1.6 million annually.
- The average daily de facto population at build-out of the project is projected at 1,068 persons, including 907 full-time residents, with total annual discretionary expenditures by owners and guests of $39.0 million per year. Total resident household income is forecast (in 2006 dollars) at a stabilized $47.8 million annually. Public school enrollment is calculated at a maximum of 233 students[6]. The project will infuse $340.3 million in development and construction capital and $7.2 million in annual business operations into the West Hawai'i economy.
- The State of Hawai'i will receive $41.5 million in primary tax receipts during the first decade of subject development and operation, and a stabilized amount of $4.4 million annually. The county of Hawai'i will receive $24.4 million during the first ten years of the project, and $3.5 million per year thereafter. In no year does the state or county suffer a revenue shortfall (costs exceeding receipts) relative to the project.

3.4.5 Archaeological, Historic, and Cultural Resources

Archaeology

Background

There have been three archaeological study efforts for the Waikoloa Highlands project area. The first was an Archaeological Survey of Portions of Waikoloa done by Robert F. Bevacqua in 1972. That study was conducted for Boise Cascade Properties, Inc., and was intended to guide future development and use of their Waikoloa holdings. The study included a number of study areas A through G, and the Waikoloa Highlands site was roughly within study area G.

The second study was an Archeological Inventory Survey for Waikoloa Mauka lands conducted by Peter Jensen of Paul H. Rosendahl, Ph.D., Inc. in 1990. The 1990 Jensen study involved a low level aerial reconnaissance of the entire project area and pedestrian survey involving 20 percent

[6] The anticipated public school enrollment was revised by the Department of Education since completion of the Hallstrom Report. The proposed project will generate approximately 40 students, see Section 3.6.4, Schools.

of the project area. The pedestrian survey was focused on two areas of potential archaeological sensitivity; an area adjacent to the north side of Puʻu Hīnaʻi, and an area within the southwestern portion of the project area.

Most recently, an Evaluation of Archaeological Potential was conducted in April 2006 (Cultural Surveys Hawaiʻi, Appendix E). Because the 1990 Jensen study encompassed the entire Waikoloa Highlands project site, the 2006 Cultural Surveys Hawaiʻi effort was limited to a summary report documenting previous work, and an update on the status of coordination with the regulatory State Historic Preservation Division.

The Cultural Surveys Hawaiʻi noted that although the stated estimate of the acreage studied by Jensen was "c. 600 acres," an overlay of the Jensen project map with the present project area map "finds that it is actually a little larger" than the present project area.

A letter from Mr. Don Hibbard of the State Historic Preservation Division ("SHPD") dated April 17, 1990 stated that the Jensen (1990) study "adequately documents the survey findings." Cultural Surveys Hawaiʻi recently followed up with Ms. Mary Anne Maigret, Hawaiʻi Island archaeologist with the SHPD, who confirmed that additional work was not necessary, and that the SHPD could maintain its earlier acceptance of the Jensen report. At the request of the State Land Use Commission, a request has been forwarded to the SHPD to provide a letter of clarification to specifically state that the project would not have any effect to historic properties. The response to this request is pending.

Existing Conditions

Within Bevacqua's "Survey Area G" (which roughly corresponds to the current project area), one site was identified, and designated as Site 22. This site was described as a complex of walls, portions of which protrude above the flood plain.

The Jensen study identified one archaeological feature, a wall segment identified as Site T-1, situated 300 meters north of Puʻu Hīnaʻi, on the grassy slopes above and overlooking a series of drainages which converge in this area. Site T-1 was described as a single low wall of poorly stacked, rough pahoehoe cobble sand boulders, 2.5 meters long with a maximum height of 1.21 meters. The function of the wall is unknown. Site T-1 was so modest that no State Inventory of Historic Places number was given, and "no further treatment of any kind" was recommended.

Although the Jensen field crew looked for Bevacqua's Site 22, even examining lands 250 meters beyond the perimeter of the project area, it could not be located. Other than Site T-1, no other evidence of pre or post-contact use was found within the project area. Jensen concluded that Bevacqua's Site 22 was probably destroyed sometime during the preceding 5 to 10 years or is located outside of the project area in another location.

However, Cultural Surveys Hawaiʻi, in their 2006 review, noted that *"It seems odd that a site nearly 150 feet long that presumably had been around for many decades could disappear in the course of 18 years. It also, however, seems unlikely the Jensen crew would have missed Site 22. Perhaps, it lies farther afield."*

In November 2006, Cultural Surveys Hawai‘i undertook another survey of the project area to determine if Site 22 could be located. As a result of both a pedestrian survey and aerial survey, Site 22 was not located and was presumed be destroyed or is located outside of the project area.

Project Impacts and Mitigation

The project will have no effect on archaeological resources. The previous Archaeological Inventory Survey (Jensen 1990) of the project site was accepted by the SHPD in 1990, and the SHPD has ~~recently reconfirmed~~ preliminarily indicated that no further work in the project area is required. As noted above, written confirmation that no further work is required concerning this site has been requested and is pending from the SHPD.

Although a few sites might have been missed during the previous studies, because only one site was observed during the Jensen helicopter reconnaissance, no substantial structures are expected. No further archaeological study is warranted at this time. ~~In the event that human remains or any other significant finds are encountered during development, all work in the area will cease and the SHPD will be promptly notified.~~ However, because of potential concern for the inadvertent discovery of Site 22 during construction activities the developer will promote the use of a an on-call archaeological monitor in the event of a field discovery. The monitor will coordinate archaeological reporting responsibilities for the project and notify the SHPD immediately of any inadvertent discoveries of significant artifacts or human remains. Upon the discovery of a significant site or human remains work will cease until the SHPD has been notified and appropriate action is taken.

Cultural Resources

Cultural Surveys Hawai‘i recently completed a cultural impact assessment to gather information about cultural practices and features that may be impacted by the project (Appendix F). The assessment was prepared in compliance with Act 50, which requires that environmental impact statements include the effects of a proposed action on the cultural practices of the community and the State. The cultural impact assessment meets the requirements outlined by the State Office of Environmental Quality Control (OEQC). The following tasks were conducted:

- Background research with the goal of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
- Review of existing archaeological information pertaining to the sites in the study area as they may allow one to reconstruct traditional land use activities and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses, if appropriate.
- Oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region.

Background

Historic accounts of human settlement in the Waikoloa area is sparse as noted by the number of studies conducted and reported by Rosendahl (1990). Smith (1990) noted that "Waikoloa Mauka has been traditionally sparsely inhabited owing to its harsh terrain, and it thus was little visited by foreigners." In contrast, the coastal areas supported permanent villages such as found in Anaehoomalu and in the "verdant forest zone of which Waimea is a part was cultivated extensively and goods were exchanged with the coastal inhabitants (Smith, 1990)."

These findings were supported by Bevacqua (1972) in his study of 'Area G' (current project site) where he noted that "Waikoloa is composed of rough and broken pahoehoe which resulted from ten different lava flows originated from Mauna Loa."

It was suggested by Rosendahl (1990) that the "use of this zone was probably for the most part limited to transportation routes, with most habitation being temporary."

According to Barrere (1983), "Kamehameha I figures in the early history of Waikoloa because of reports that he gave Waikoloa Nui to John Young or Isaac Davis." An 1867 account stated "The land was granted by King Kamehameha I to his faithful friend and follower, Isaac Davis, the father of the appellant (George Hueu Davis), about the beginning of the present century. We consider it clear that in making the grant the King intended to give, and did give to Isaac Davis, a tract of land of a very great extent, although not of proportionate value. There were no cattle or sheep in this country when the grant was made, and the land given to Isaac Davis only yielded what revenue could be derived from wild birds and pili grass."

Cattle were introduced on the west coast of Hawai'i island by Vancouver in 1794 and were allowed to roam free by Kamehameha I's decree so that they might multiply (Rosendahl, 1990). By 1922 during William Ellis's tour around the island there were "immense herds of them, they do not attempt to tame any; and the only advantage they derive is by employing persons, principally foreigners, to shoot them, salt the meat in the mountains, and bring it down to the shore for the purpose of provisioning the native vessels (Ellis 1963)."

The lands where the cattle were located were eventually acquired by John Parker. Richard Smart, then owner of the Parker Ranch, sold the Waikoloa lands to Boise Cascade in 1968. Boise Cascade eventually sold their holdings to Waikoloa Land and Cattle Company, who proceeded to sell the land to Atpac Land Company. Land holdings in the Waikoloa area eventually were divided to individual developers and the Waikoloa Village Association. The majority of the remaining holdings of Waikoloa Development Company were sold in 2005.

Project Impacts and Mitigation

Historical evidence suggests that the land in Waikoloa was not intensively used, and if used, was a corridor between the mauka lands of Waimea and the coastal areas during historic times and for cattle in latter periods. The vegetation in the project area has changed over the years to a point were there are <u>very few</u> ~~no~~ native plants due in part to cattle grazing and wildland fires.

Through contact with cultural informants the following was concluded:

- No on-going fishing activities are associated with the Waikoloa ahupua‘a.
- Resource gather along the coastal area of Anaeho‘omalu is limited.
- No ongoing stream activities were identified in the project area.
- No ongoing gathering of plant resources were identified in the project area.
- One of the persons interviewed noted that “attention should be made to the cultural landscape in its entirety. . . it is about a sense of place and a sense of space.”

To ensure that opportunities to protect cultural resources and to ensure continued access to native practitioners, the following will be implemented prior to the start of infrastructure development:

- Advise site contractors of the potential for finding cultural features;
- Re-survey sites previously identified by other reports; and
- If historic or cultural features are found during construction, the SHPD will be consulted.

3.4.6 Visual and Scenic Resources

Existing Conditions

The project site is currently open and undeveloped, and completely covered with grasses, shrubs and kiawe trees (see Figure 17, Site Photos). The site is very visible from Waikoloa Road and the main access intersection (Paniolo Avenue) into Waikoloa Village. The Pu‘u Hīna‘i cinder cone, which is located south of and outside the project site, is the most dominant visual landmark in the area.

Project Impact and Mitigation

The creation of a rural residential subdivision will alter the visual environment, and views from Waikoloa Road towards Pu‘u Hīna‘i. The existing undeveloped and open appearance will diminish, and the area will be transformed to a rural residential subdivision, and an extension of the developed areas of Waikoloa Village.

The design ~~and landscaping~~ of the proposed subdivision will minimize adverse visual impacts. Setbacks ~~and landscaping~~ will be provided along Waikoloa Road and the project roadways via development covenants beyond the setback requirement of the County of Hawai‘i. Setbacks will range between 10 and 25 feet for homes along Waikoloa Road, and the height of homes will be limited to 35 feet as provided by zoning. The subdivision will include ample open space fronting Waikoloa Road as well as throughout the property. Because of the one ~~to two~~-acre lot size, development density will be low, and individual owners will be required to comply with Waikoloa Village Association design guidelines. The development will not obstruct any specific view~~s~~ of Pu‘u Hīna‘i, although the public view toward the pu‘u from Waikoloa Road and Waikoloa Village will be permanently altered due to the subdivision in the foreground. The large lots will allow for homes to be spaced far enough apart that views will be available between the homes. The project will not obstruct or alter views toward Mauna Kea or the ocean. Landscaping involving the use of tall trees along Waikoloa Road that would block northern views to the ocean, south toward the mountain, and west to Pu‘u Hīna‘i, will be prohibited.

Figure 17
Site Photos

Puʻu Hīnaʼi - View South from Waikoloa Road

Puʻu Hīnaʼi - View North from Waikoloa Road

3.5 TRANSPORTATION, TRAFFIC AND UTILITIES

3.5.1 Transportation and Traffic

A traffic impact analysis report (TIAR) for the project was prepared by Julian Ng, Inc. (July 2006, revised January 2007) (Appendix G).

Existing Conditions

Access to the Waikoloa Highlands project site is from the two-lane Waikoloa Road, the only access into the Waikoloa Village community. Waikoloa Road extends some 13 miles from Queen Ka'ahumanu Highway near the coastline to the Mamalahoa (Hawai'i Belt) Highway at the 2,000 foot elevation. Secondary access to the project site is available from Pua Melia Street, which extends south from Waikoloa Road at the main Waikoloa Village intersection. At this intersection, Paniolo Avenue, the main road into Waikoloa Village, also meets Waikoloa Road.

Existing (2005) Traffic

The project area is located southeast of the intersection of Waikoloa Road, Pua Melia Street and Paniolo Avenue. Manual traffic counts were taken in October 2005 of AM and PM peak hour traffic volumes at the Waikoloa Road intersection with Pua Melia Street and Paniolo Avenue. Stop signs control traffic on the Paniolo Avenue southbound approach and Pua Melia Street northbound approach to Waikoloa Road. Through traffic on Waikoloa Road has the right-of-way at this unsignalized intersection.

There is sufficient capacity at this intersection to serve even peak hour traffic, although left turns experience some long delays. Traffic counts and level of service are summarized in Table 3-3 below (~~see~~ TIAR, in Appendix G). Table 3-3 shows that the Level of Service (LOS) at the intersection of Waikoloa Road and Paniolo Avenue there is sufficient capacity currently to handle the traffic volume. On Pua Melia, however, there is a capacity issue where the left turn lane in the northbound direction is at capacity. This is due in part with the amount of "green" time that is made available to this movement. Through traffic on Pua Melia, however, operates at LOS B.

Future Baseline Traffic Conditions (without Waikoloa Highlands)

Traffic on all roadways in the area will increase as development continues with several projects. The TIAR included estimated traffic generated by these projects, expected to be completed by 2010:

- Kilohana Kai (currently under construction): Assumes completion and full occupancy of 200 single-family detached dwelling units
- Wehilani at Waikoloa (referred to in the traffic impact analysis as "Sunset Ridge"): Assumes project completion and a new bridge over Auwaiakeakua Gulch and linking roadways west of the existing Waikoloa Village which will provide an alternative route for traffic from existing Waikoloa Village via Hulu Street.

~~Table 1~~ Table 3-3. Existing Traffic Conditions,
Unsignalized Intersection of Waikoloa Road, Pua Melia and Paniolo Avenue

	AM Peak Hour			PM Peak Hour		
	v/c	AD	LOS	v/c	AD	LOS
Left turns from Waikoloa Road (yields)						
Westbound	.01	7.4	A	.02	7.7	A
Eastbound	.08	8.0	A	.24	8.5	A
Stopped southbound approach (Paniolo Avenue)						
Left turn lane	.35	15.6	C	.86	106.7	F
Thought lane	.18	13.	B	.22	24.0	C
Right turn lane	.53	13.9	B	.20	10.0	B
Approach (average)		14.2	B		44.7	E
Stopped northbound approach (Pua Melia Street)						
Left turn lane	.41	55.0	F	.08	29.0	D
Through/right turn lane	.13	12.7	B	.41	26.8	D
Approach (average		29.9	D		27.0	D

v/c = volume / capacity ratio
AD = average delay (seconds)
LOS = Level of Service

Source: Julian Ng, Inc., July 2006, see Appendix G.

- Partial completion and occupancy of two projects located beyond the existing north end of Paniolo Avenue—County of Hawai‘i workforce housing project and Waikoloa Heights, 480 dwelling units.

The TIAR noted that other projects, including infill of existing undeveloped property, are not expected to generate significant traffic volumes. The new bridge over Auwaiakeakua Gulch is part of the ongoing Wehilani development that has access directly to Waikoloa Road, but will also relieve traffic on Paniolo Avenue. Future (2010) peak hour conditions at the study intersection were projected. Even with the creation of dedicated right turn lanes, the change in traffic volumes will result in over-capacity conditions at the intersection of Waikoloa Road, Pua Melia Street and Paniolo Avenue. Traffic signals would be warranted for four hours of an average day, using projections based on the peak hour traffic assignments and the hourly distribution from the traffic counts. The traffic signals will distribute the delays to all movements, mitigating the over-capacity condition.

Further development of the County workforce housing project and Waikoloa Heights is expected beyond 2010, and other projects may also be proposed and developed. Therefore, the traffic assignments for 2010 were increased at an average rate of 2.5 percent per year to account for expected continued growth.

Public Transportation

Waikoloa Village is currently served by the North Kohala/Kailua-Kona bus. The bus operates in the morning and afternoon on Tuesdays, Thursdays, and Saturdays. The bus stop is located at the Waikoloa Post Office.

Project Impacts and Mitigation

The proposed Waikoloa Highlands subdivision will include an internal spine road providing access to the residential parcels. The spine road will have two access points off Waikoloa Road, which is accessible from both Mamalahoa Highway and Queen Ka'ahumanu Highway. One access point will be onto Pua Melia Street, which in turns meets Waikoloa Road.

The TIAR estimated future (2025) traffic conditions with the project. Project traffic was distributed to local destinations within Waikoloa Village and onto Waikoloa Road in proportion to existing turning movements at the study intersection. The analysis found that while overall intersection Level of Service (LOS) can be maintained within acceptable range, the high volume left turn movement (westbound and southbound) will experience very long delays and LOS E conditions (see Table 3-4, Waikoloa Road Traffic Increases, below). The projected volumes and predicted LOS can be found in the TIAR (see Table 3-5, Waikoloa Road Levels of Service, below).

~~Table 6~~ Table 3-4. Waikoloa Road Traffic Increases

	West of Waikoloa Village				East of Waikoloa Village			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	EB	WB	EB	WB	EB	WB	EB	WB
Existing	140	505	475	225	200	190	250	180
2025 without project	300	800	900	450	415	345	470	370
Project impact	30	110	85	45	50	30	30	30
2025 with project	330	910	985	495	465	675	500	400
% increase in volume	10%	14%	9%	10%	12%	9%	6%	8%

Source: Julian Ng, Inc., July 2006

~~Table 7~~ Table 3-5. Waikoloa Road Levels of Service

	AM Peak Hour				PM Peak Hour			
	Eastbound		Westbound		Eastbound		Westbound	
	v/c	LOS	v/c	LOS	v/c	LOS	v/c	LOS
West of Waikoloa Village								
Existing (2005 counts)	.14	D	.36	E	.34	F	.16	D
2025 without project	.13	D	.39	F	.42	F	.20	D
2025 with project	.16	D	.47	F	.48	F	.23	D
East of Waikoloa Village								
Existing (2005 counts)	.15	D	.15	D	.18	D	.17	D
2025 without project	.32	E	.26	D	.34	E	.27	D
2025 with project	.33	E	.29	D	.34	E	.29	D

Source: Julian Ng, Inc., July 2006

On the Waikoloa Road approach to the intersection with Pua Melia Street and Paniolo Avenue, the left turn lane is separated from the through lane by a paved area that is striped as a traffic island. Conversion of this striped area on the eastbound approach to a second left turn lane into Paniolo Avenue, along with retiming of the traffic signal, would mitigate the unacceptable LOS E conditions in the 2025 PM peak hour.

The internal project roadways will meet the surrounding streets at three new intersections. Two will connect the internal roads to Waikoloa Road, with traffic on this approach controlled by a stop sign. The approach is assumed to be wide enough to accommodate separate lanes for left and right turns. On Waikoloa Road, a separate median left turn lane would be provided and extend to the west to serve as a median shelter lane for drivers making the left turn onto Waikoloa Road. The internal road system will also connect to Pua Melia Street, which in turn connects to Waikoloa Road.

Overall, while the proposed project will increase traffic volumes, the impact to conditions on Waikoloa Road will not be significant enough to change the levels of service. In the short term, the developer installation of traffic signals at the intersection of Waikoloa Road, Pua Melia Street and Paniolo Avenue will mitigate poor levels of service during the peak hours for left turns onto Waikoloa Road (see Table 3-6, 2025 Traffic With Waikoloa Highlands). With traffic signals and separate right-turn lanes, the intersection will have adequate capacity to serve peak hour volumes at project build out. As traffic volumes increase due to other developments in the Waikoloa area, peak hour conditions will worsen. A second eastbound left-turn lane at the intersection is a mitigation that will improve conditions to acceptable levels for the peak hour volumes projected to year 2025.

The project road connections to Waikoloa Road and to Pua Melia Street will adequately serve peak hour volume. Stop signs on the project road approaches will control turning movements at these "T"-intersections. At the Waikoloa Road intersections, acceptable conditions will result from the provision of separate left turn lanes with median shelter lanes.

~~Table 9~~ Table 3-6. 2025 Traffic With Waikoloa Highlands (mitigated) Signalized Intersection

	AM Peak Hour			PM Peak Hour		
	v/c	AD	LOS	v/c	AD	LOS
Southbound approach (Paniolo Avenue)						
Left turn lane	.82	45.3	D	.63	47.0	D
Through lane	.35	27.9	C	.19	36.4	D
Right turn lane	.63	21.1	C	.29	13.6	B
Westbound approach (Waikoloa Road)						
Left turn lane	.18	38.4	D	.16	46.6	D
Thought lane	.77	51.2	D	.51	54.6	D
Right turn lane	.42	16.9	B	.41	31.3	C
Eastbound approach (Waikoloa Road)						
Left turn lane	.30	38.9	D	.52	38.8	D
Through lane	.29	34.4	C	.58	42.3	D
Right turn lane	.13	32.1	C	.18	33.4	C
Northbound approach (Pua Melia Street)						
Left turn lane	.29	31.9	C	.08	42.7	D
Through/right turn lane	.29	31.9	C	.59	54.6	D

v/c = volume / capacity ratio
AD = average delay (seconds)
LOS = Level of Service

Source: Julian Ng, Inc., July 2006

The Department of Transportation's comment letter of December 5, 2006 suggested there may be impacts to two State facilities, Queen Ka'ahumanu Highway, and Mamalahoa Highway. Based on projected traffic generation (Table 3-4, Waikoloa Road Traffic Increases) within the timeframe of this project, we estimate that this project will add an additional 5 percent to the east bound traffic and 10 percent to the westbound traffic volume (Table 3-4, and Table 6 in Appendix G). We note the Waikoloa Road and Mamalahoa Highway intersection is currently operating under capacity. The intersection at Queen Ka'ahumanu and Waikoloa Road will require improvements in the future because of development along both highway corridors. The current improvement proposed is a double left turn from Waikoloa Road to Queen Kaahumanu in the southbound direction. The Petitioner indicated that they were prepared to work with the Department of Transportation along with the other developers along both highway corridors to find reasonable solutions to mitigate traffic delays at this important intersection.

Round-about at Waikoloa Road and Paniolo Avenue. On January 9, 2007, Mr. Ron Thiel, Chief of Traffic Division, Department of Public Works, communicated that the County of Hawai'i is interested in pursuing the development of a round-about at the intersection of Waikoloa Road and Paniolo Avenue and Pua Melia Road instead of the planned signalized intersection. Mr. Thiel reported that he is in conversation with the Traffic Safety Committee of South Kohala and they have endorsed the project. Further, Mr. Thiel noted that Council Chair Hoffman is also favorable to the development of a round-about at that intersection. Mr. Thiel provided drawings of the proposed round-about and noted that there appears to be sufficient space to accommodate the round-about. His drawings are included in Appendix N.

Mr. Julian Ng performed an analysis of a round-about at the subject intersection. Based on the analysis, the intersection would operate at LOS C for both the AM and PM peaks. Comparing the operational requirements of both a round-about and signalized intersection, each was found to have advantages, but not significant changes in LOS (see Table 3-7, 2025 Traffic LOS With Roundabout). As an example, the through lane on Paniolo shows a change from LOS C to D in the AM, and changes from LOS D to B during the PM.

Table 3-7. 2025 Traffic LOS With Roundabout

	AM Peak Hour		PM Peak Hour	
	LOS -Signal	LOS Roundabout	LOS Signal	LOS Roundabout
Southbound Approach Paniolo				
Left turn lane	D		D	
Through lane	C	D	D	B
Right turn lane	C		B	
Westbound Approach (Waikoloa Road)				
Left turn lane	D		D	
Thought lane	D	C	D	D
Right turn lane	B		C	
Eastbound Approach (Waikoloa Road)				
Left turn lane	D		D	
Through lane	C	B	D	D
Right turn lane	C		C	
Northbound Approach (Pua Melia Road)				
Left turn lane	C		D	
Through/right turn lane	C	B	D	B

Source: Julian Ng, Inc., July 2006

On February 7, 2007, the County of Hawai‘i accepted a Zone Change application to amend Ordinance 05-157 to permit the development of a round-about at the Waikoloa Road, Paniolo Avenue, Pua Melia Road intersection. This matter is pending action by the Planning Department (see Appendix O). If adopted by the County Council, the applicant will proceed with development of the round-about. In the interim, however, if the subdivision approval is granted before action is taken on the proposed amendment, the applicant will post the required bond for the proposed signalization improvements at the subject intersection.

3.5.2 Drainage

Existing Conditions

The Auwaiakeakua Gulch is a major drainage way that originates off-site and passes through the project site. The Auwaiakeakua Gulch transports storm runoff from the area above the project site to the Puakō flats downstream. The Auwaiakeakua Gulch has a drainage basin of approximately 32,217.0 acres (≈50 square miles) and a corresponding 100-yr flow of about 8,396.0 cubic feet per second (cfs). Details of a flood study conducted for this project are detailed in Appendix H, Floodplain Limits and Flood Control Plan. (Note: The 12.819 acre parcel that was removed following completion of the study does not substantively affect the findings. The site is located at the downstream end of the property and is not a contributing factor to drainage from the larger project site. See Section 1.3, Proposed Action and Location.)

There are other natural drainage ways on the project site, which connect with Auwaiakeakua Gulch. Two other drainage basins cross Waikoloa Road either by road culverts or sheet flow and continue in a western direction through the subdivision. Their drainage areas are approximately 888.0 acres and 64.4 acres with associated 100-yr flows of 529.0 cfs and 125.0 cfs, respectively (See Figure ~~10~~ 18, Flood Boundaries).

Although the annual rainfall at the project site is relatively low, 10 to 15 inches, the 100-year flood flows for the drainage gulches are significant because of their large tributary areas (See Figure 5 in Appendix H).

Project Impacts and Mitigation

According to the Floodplain Limits and Flood Control Plan, a combination of ditches and culverts are identified for drainage improvement to protect the site from flooding and flood associated impacts that include loss or destruction of property or life, and erosion of soils and sediments discharging downstream to state waters. These improvements include the following (see Figure 18, Flood Boundaries):

Ditch 1: A ditch is proposed to route flood flows from along Waikoloa Road. The proposed ditch will have an approx. 15 foot wide bottom with a 2:1 side slope. The design capacity will be 567 cubic feet per second (cfs) and will meet the requirements of the Hawai'i County Drainage Std.

Culvert A: This culvert will be comprised of two 84-inch diameter corrugated metal pipes (CMP) that will be designed to handle 567 cfs.

Culvert F: This culvert will be a 60-inch diameter CMP pipe designed to handle 125 cfs.

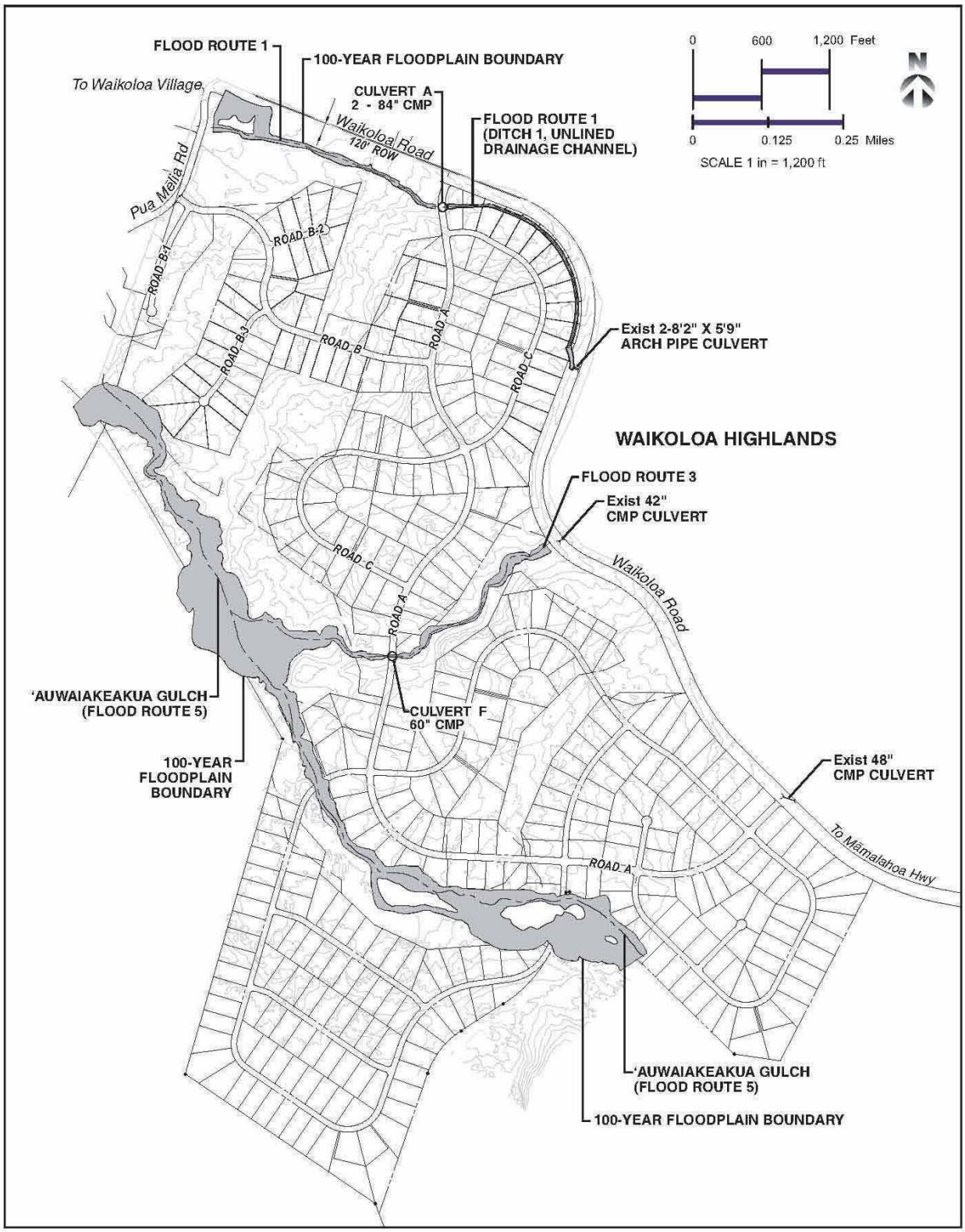


Figure ~~9~~18
FLOOD BOUNDARIES

The controls that will integrate drainage into the flood control system have been completed for Phase 1 of the project, and are included in Appendix I, Drainage Report, Waikoloa Highlands Subdivision, Phase 1. On-site drainage improvements will consist of thirty-five drywells, which will be used to dispose of any increase in roadways surface flows (see Appendix I). The calculated flow increase is approximately 71.0 cfs. Detention basins will be installed in open areas to reduce offsite runoff. Flows not disposed of using drywells or detention basins will be directed through the subdivision using roadway culverts. The subdivision roadways will span Auwaiakeakua Gulch with either bridges or culverts. For the other two drainage basins, excavated rock channels will be constructed and water will be diverted through culverts at Waikoloa Road. The project will not increase off-site flows or have an adverse drainage impact off-site. Similar controls will be used for Phase 2 and a separate Drainage Report is currently under preparation.

Both Phase 1 and Phase 2 drainage controls will meet the Hawai'i County Drainage Standard that requires no increase in runoff leaving the project site from the 10 and 50-year design storm.

The major concern involving the controls described above are anticipated to be during construction. The following practices will be adopted to minimize erosion and prevent sediments from leaving the project site and will be used to help address the stormwater runoff control requirements of Chapter 11-55, Water Pollution Control, HAR:

1. Clearing shall be held to the minimum necessary for equipment operation.
2. Construction shall be sequenced to minimize the exposure time of cleared surface areas.
3. Stabilization shall be accomplished by protecting areas of disturbed soils from rainfall and runoff by use of structural controls such as PVC sheets, geotextile filter fabric, berms or sediment basins, or vegetative controls such as grass seedling or hydromulch.
4. All slopes and exposed areas shall be grassed as soon as final grades have been established. Grading to final grade shall be continuous, and any area in which work has been interrupted, delayed or exposed for more than 15 days shall be grassed in order to prevent dust, erosion and silt runoff. Areas with imported soils shall be grassed not more than 5 working days after final grades have been established. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.
5. All control measures shall be checked and repaired as necessary, e.g., weekly, in dry periods and within 24 hours after any rainfall event of 0.5 inches or greater within a 24-hour period. During prolonged rainfall, daily inspection will be required. The permittee shall maintain records of checks and repairs to structural and vegetative controls.
6. Stabilized construction entrances shall be provided to reduce vehicle tracking of sediments.
7. Paved roadways adjacent to the project site entrances shall be cleaned daily or as needed to remove excess mud, cold planed material or rock tracked from the site.
8. Dump trucks hauling material from the project site shall be covered with tarpaulin.
9. Fugitive dust shall be minimized by the use of dust fences and frequent dampening of exposed areas.

3.5.3 Drinking Water

Existing Conditions

The Waikoloa Village and Waikoloa Beach Resort areas are served by a private water system originally developed by the Waikoloa Development Company. The drinking water system is owned and operated by the West Hawai‘i Utility Company (WHUC), ~~doing business as Waikoloa Water Company, Inc. Waikoloa Water Company is~~ which is regulated by the Public Utilities Commission. The County Department of Water Supply does not have any existing or proposed programs for water development in the area.

Project Impacts and Mitigation

WHUC will provide drinking water to the Waikoloa Highlands project. The Petitioner is currently negotiating the cost for the water service and the cost sharing of the off-site transmission and storage. In accordance with deed restrictions, the developer is prohibited from developing his own water source and is required to obtain water from WHUC. The proposed project will receive water from the existing transmission main in Waikoloa Road.

Water service for the Waikoloa Highlands subdivision will be developed in stages. The requirements for the water system are documented in the Waikoloa Water Master Plans – Source Development Plan, Village Distribution System Plan, Beach Resort Distribution System Plan, (Tom Nance Water Resources Engineering, 1991), which is included as Appendix A[7].

WHUC is responsible for the development of off-site improvements and the specific locations of well(s) and reservoirs. Although the specific locations are not known by the project developer, information that is known includes the approximate elevation of the reservoirs so that sufficient pressure can be provided to meet water system requirements. The Final EIS, Appendix A, Waikoloa Water Master Plan, 1991, identifies these water storage elevations at 1,300 feet and 1,800 feet relative to mean sea level (msl). The developer has offered the locations for a 1,370 feet and 1,590 feet reservoir to service the project area. The reservoirs or tanks will be fed by wells at the 1,300 feet and 1,800 feet elevations.

Basic design assumptions used by R.M. Towill Corporation ~~of~~ for the Waikoloa Highlands drinking water system are as follows (see Appendix J, Waikoloa Highlands Water Distribution System):

1. Average daily allocation is estimated at 1,000 gallons/day/lot.
2. Three services zones are recommended for the subdivision: 1,210-foot elevation, 1,370-foot elevation, and 1,590-foot elevation.
3. The 1,210-foot service zone would tap off of an existing 20-inch transmission main in Waikoloa Road.

[7] The Waikoloa Water Master Plan (Tom Nance Water Resources Engineering, 1991) was prepared for a previously proposed project on the Waikoloa Highlands site called Waikoloa Highlands Estates and Golf Course, which included a golf course. The current project does not include a golf course.

4. The 1,370-foot service zone would be supplied from the subdivision's 1,210-foot service zone and be supported with a booster pump station and reservoir within the property. In lieu of the booster pump station, an on-site 1,000 gal/day source well could be developed at the 1,370-foot reservoir.
5. The 1,590-foot reservoir would be supplied by an upper 1,800-foot reservoir, which will require a new 1,000 gal/day source well.

Within the proposed subdivision, water distribution mains will be placed underground along the roadways, with connection points located at the center of each lot. The water distribution system is shown in Figure ~~11~~19, Water Distribution Plan. The existing 1,210 feet storage tank will be used to supply a portion of the lots in Phase 1, while a new storage tank at elevation 1,370 feet will be used for the remainder of the Phase 1 lots and a portion of the Phase 2 lots. A new storage tank at elevation 1,590 feet will service the remainder of the Phase 2 lots. The individual homeowner will be required to make the necessary connections from the water meter. As described in Appendix J, the existing 1,210 feet reservoir is serviced by the 1,060 feet reservoir which in-turn will service the 1,590-feet reservoir. Each reservoir will serve a specific area of the project via a gravity distribution system that will meet drinking water and fire flow requirements. As noted in Appendix L, the water source will be the WHUC well field number 2 and 3 which will provide the 400,000 gallons per day (gpd)(1,000 gpd/lot x 400) for the project for both domestic use and fire protection.

Pursuant to the Hawai‘i County Code regulating subdivisions, the drinking water system will be designed to deliver water at adequate pressure and volume under peak-flow and fire-flow conditions in accordance with the Water System Standards, State of Hawai‘i, and the Rules and Regulations of the Department of Water Supply. The water system will include, but not be limited to, the installation of the necessary distribution pipelines, fire hydrants in accordance with Fire Codes, and service laterals. Construction plans will be reviewed and approved by the County Department of Water Supply. Coordination with the Department of Water Supply will include payment of a fee of four-tenths of one percent of the estimated costs for the construction of the water system, but not less than $50 to cover the costs of plan review, testing, and inspection.

Each lot will have one lateral with two meters, one to monitor domestic use and the other to monitor irrigation use. The individual homeowner will be assessed differently for domestic water and irrigation water. However, if the irrigation water used is above 1,000 gallons of water per day, restrictions may be imposed. This latter proposal is being considered by the developer as a water conservation measure and to encourage the use and planting of drought-tolerant plants.

Water conservation will be implemented through use of xeriscape plantings in common areas, and by encouraging residents to do the same. Use of drip irrigation systems will also be encouraged to reduce the water demand (see Appendix K).

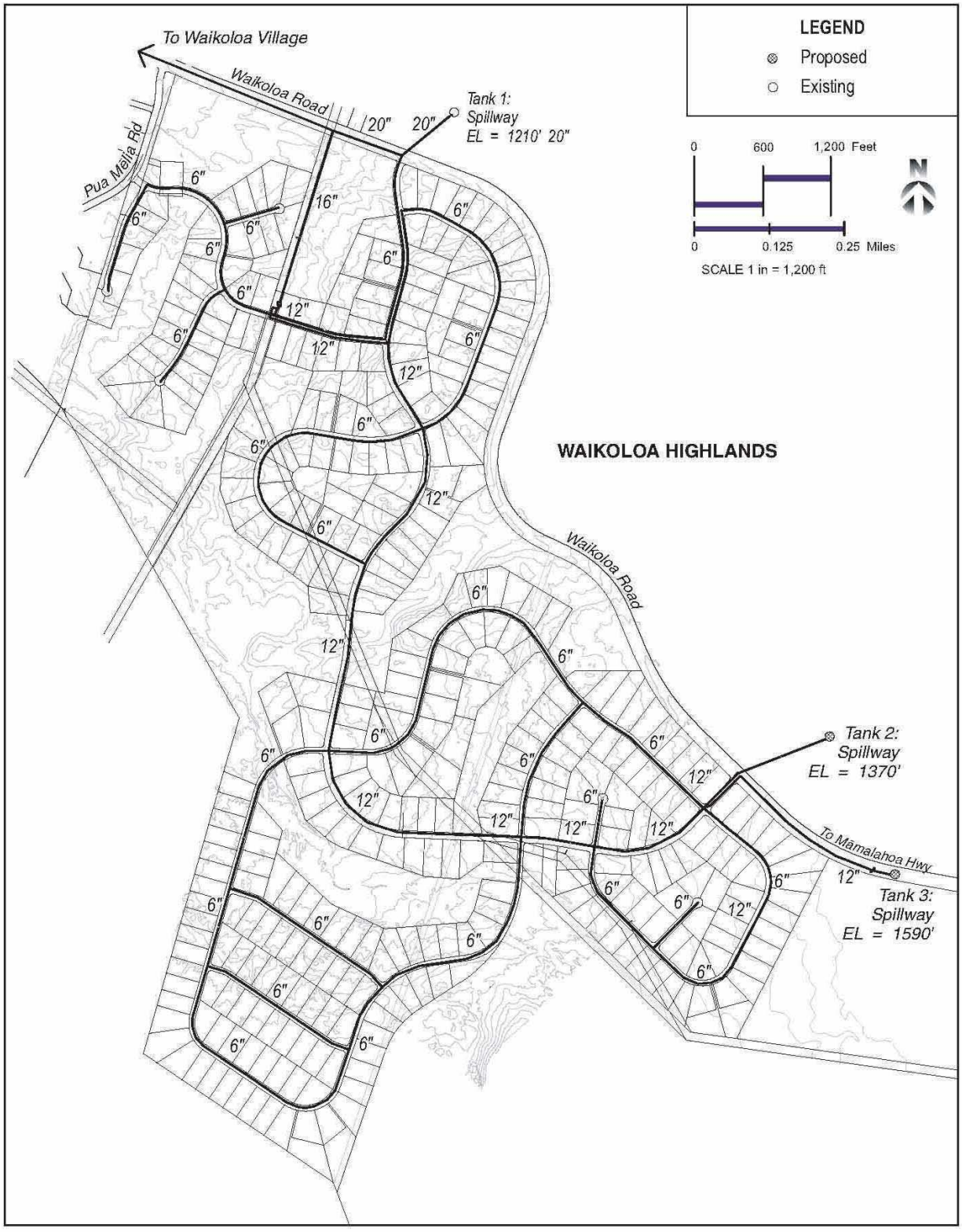


Figure ~~10~~ 19
WATER DISTRIBUTION PLAN

Each of the new reservoirs will be developed by West Hawaii Utilities and will be covered to reduce water loss due to evaporation. The developer will be assessed a water facilities charge for the off-site improvements by WHUC.

3.5.4 Electrical and Telecommunications

Existing Conditions

Electrical power to the area is provided by Hawai'i Electric ~~and~~ Light Company (HELCO), which supplies electricity for Hawai'i County. Generation facilities are dispersed throughout the island, and the main generating plants servicing the Waikoloa area are the Ke'āhole and Waimea power plants. HELCO also purchases power from three privately owned companies-- Hilo Coast Power Company, Hamakua Energy Partners, and Puna Geothermal Venture.

Existing nearby and on-site facilities include HELCO's switching station at top of Waikoloa Drive and Mamalahoa Highway, an on-site substation near Pua Melia Street, a substation for the Waikoloa water wells mauka of the Waikoloa Stables, and a substation mauka of Queen Ka'ahumanu Highway to service the Waikoloa Resorts. Transmission lines rated at 69,000 volts interconnect the substation into HELCO's island wide grid.

Telephone service for the entire Island of Hawai'i is provided by Hawaiian ~~TelCom, Inc.~~ Telecom. Existing nearby facilities include a central office adjacent to Waikoloa Road that serves the entire Waikoloa area.

Cable television service for the area is provided by Oceanic Time Warner Cable Company.

Project Impacts and Mitigation

The projected electrical load for the nearly 400 residential units is estimated at 1.2 megawatts. The existing 10 megawatt transformer at the on-site substation is expected to be adequate for the project loads. Another 10 megawatt transformer is also planned by HELCO to service other growth in the Waikoloa Village area.

Electrical distribution for the project will be via step-down transformers for the project from HELCO's 69 KV transmission lines. Distribution lines within the subdivision will be provided and placed underground. The roadway lighting system will comply with the requirements of the Department of Public Works, County of Hawai'i.

The project site is currently traversed by three HELCO 69KV transmission lines. The transmission line that traverses the project site in the east-west direction will be relocated to the edge of the property. Discussions are currently being conducted between the landowner and HELCO to determine if the relocation will be along Waikoloa Road, or along the southern boundary of the property. The cost of relocation will be paid by the landowner. The planning, design and relocation of the existing transmission lines is anticipated to take two years according to HELCO. Appropriate studies will be prepared during the planning and design process to review the specific project requirements. This is not anticipated to impact the planned construction of the project infrastructure.

No significant off-site improvements are required for the Hawaiian ~~Telcom, Inc.~~ Telecom central office in Waikoloa. The telephone company may request a 20 by 30-foot easement site be reserved for a future remote switching equipment. Oceanic Time Warner Cable is expected to request an on-site area approximately 20 feet by 30 feet to place distribution equipment for the entire Waikoloa Village area. These requests will be complied with.

Overall, no significant impacts to the electrical or telecommunication systems are anticipated, and no other mitigation is required. The project will comply with current rules and regulations of each utility company to insure compatibility between the project and the existing utilities.

3.5.5 Wastewater

Existing Conditions

In Hawai‘i County, municipal wastewater service is limited to Hilo, Papaikou, Kapehu, Pepeekeo and Kealakehe. The remaining communities, including the Waikoloa area, are served by private wastewater treatment facilities or individual facilities such as cesspools or septic tanks. Most of the residential areas surrounding the project site are on Individual Wastewater Systems (IWS), primarily septic tanks.

Project Impacts and Mitigation

The State of Hawai‘i Department of Health (DOH), in an August 21, 2006 EISPN comment letter, noted that the project is located in the County’s Critical Wastewater Disposal Area (CWDA) and the use of new cesspools is not allowed. This area is defined by the Underground Injection Control line (see Figure ~~12~~ 20, Underground Injection Control Line).

The UIC line indicates the limits on where wastewater can be injected into the ground. Being within the UIC limits mean that underground injection is normally not allowed. However, exceptions are made for areas that are not within a groundwater recharge area (the project site is not in a groundwater recharge area), site not adjacent to a drinking water well (the project site is below water sources), project is contain large lots, more than one acre. Besides wastewater disposal, the project also includes drywells for the disposal of stormwater. Title 11, Chapter 23 (HAR) further states:

> “This chapter covers any injection well as herein defined in this chapter. Excluded from this chapter are:
> a. Individual wastewater systems (IWS) serving single-family residential households which generate a volume of domestic sewage less than one thousand gallons per day (gpd);
> b. Non-residential waste disposal systems which receive solely sanitary wastes from buildings that generate less than one thousand gpd of wastewater;
> c. Test borings used for geotechnical and/or hydrologic investigations, provided that those borings are plugged with impermeable material upon completion of the investigation; and
> d. Wells which are used for ground stabilization by the injection of a grout or by vertical relief of excess soil pore pressures.”

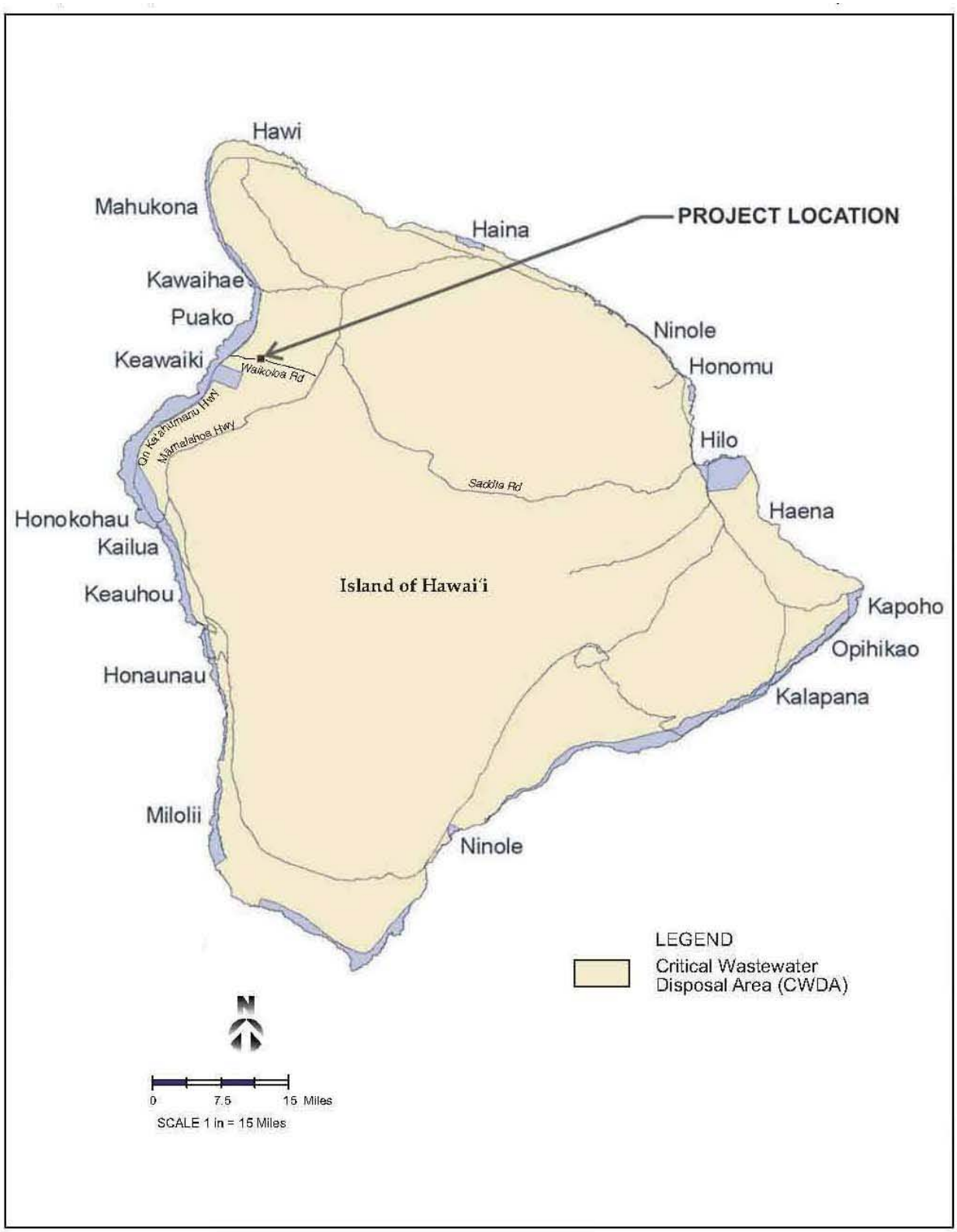


Figure 20
UNDERGROUND INJECTION CONTROL LINE

Individual Wastewater Systems, which may include septic tanks, are proposed for the individual residential lots, in accordance with Hawai‘i Administrative Rules (HAR), Chapter 11-62, Subchapter 3. The IWS will be constructed by each homeowner, and will be reviewed and approved by the DOH and the County of Hawai‘i. The use of a centralized wastewater treatment system was considered as an alternative but was rejected in favor of individual wastewater systems (IWS). There were several reasons for this choice: 1) the IWS systems are allowed by the Department of Health on large lots greater than 10,000 square feet, 2) operations of the treatment plant as a private facility would be the responsibility of the homeowners' association; 3) site topography required the utilization of lift stations for several lots and the gulches required tunneling under the stream; and 4) the lots will be developed over time and would mean that the treatment plant would be operating at a less than optimum level.

~~No adverse impacts on groundwater or surface water are anticipated.~~

Based on the project's compliance with the rules and regulations of the DOH allowing the use of IWS systems, the potential for adverse impacts to groundwater or surface water resources are not anticipated.

3.5.6 Solid Waste

Existing Conditions

The Hawai‘i County government does not provide waste collection services. Private companies haul approximately 50 percent of the waste generated in Big Island's residential areas to County landfills. The remaining 50 percent is self-hauled, and taken to County transfer stations. The county has two landfills, one serving east Hawai‘i and the other serving west Hawai‘i. The Pu‘uanahulu Landfill serves west Hawai‘i, including Waikoloa. This landfill has more than 12,000,000 cubic yards of permitted air space, which is adequate to support the proposed Waikoloa Highlands and other proposed residential projects.

Project Impacts and Mitigation

The proposed Waikoloa Highlands subdivision is estimated to have an average population at build out of 1,068 persons (The Hallstrom Group, 2006). Using the federal Environmental Protection Agency's per capita estimate of 4.5 pounds of municipal solid waste (MSW) generated per day, the subdivision residents will generate approximately 4,806 pounds of MSW per day. The projected solid waste volume per year is approximately 2,192 cubic yards (1068 persons x 4.5 pounds per person per day = 877.09 tons per year x 1.25 cover factors x 2 cubic conversion = 2,192 cubic yards per year. Encouragement of recycling will be via homeowner covenants. A solid waste management plan will be prepared in consultation with the County of Hawai‘i and will contain provisions for recycling. This Plan will be submitted for review prior to final subdivision approval.

In the West Hawai‘i area, a private hauler, PFI Rubbish Service, offers curbside residential trash removal. Pick up in Waikoloa is on Mondays & Thursdays, starting at 7:00 AM. Commercial

trash and construction waste disposal is provided by other contractors. The residential trash service would be available to Waikoloa Highlands residents.

Given the current and projected capacity of the County landfill, the project is not expected to have an adverse impact on landfill. However, the project developers will encourage practices such as recycling and composting to reduce and divert materials from the waste stream.

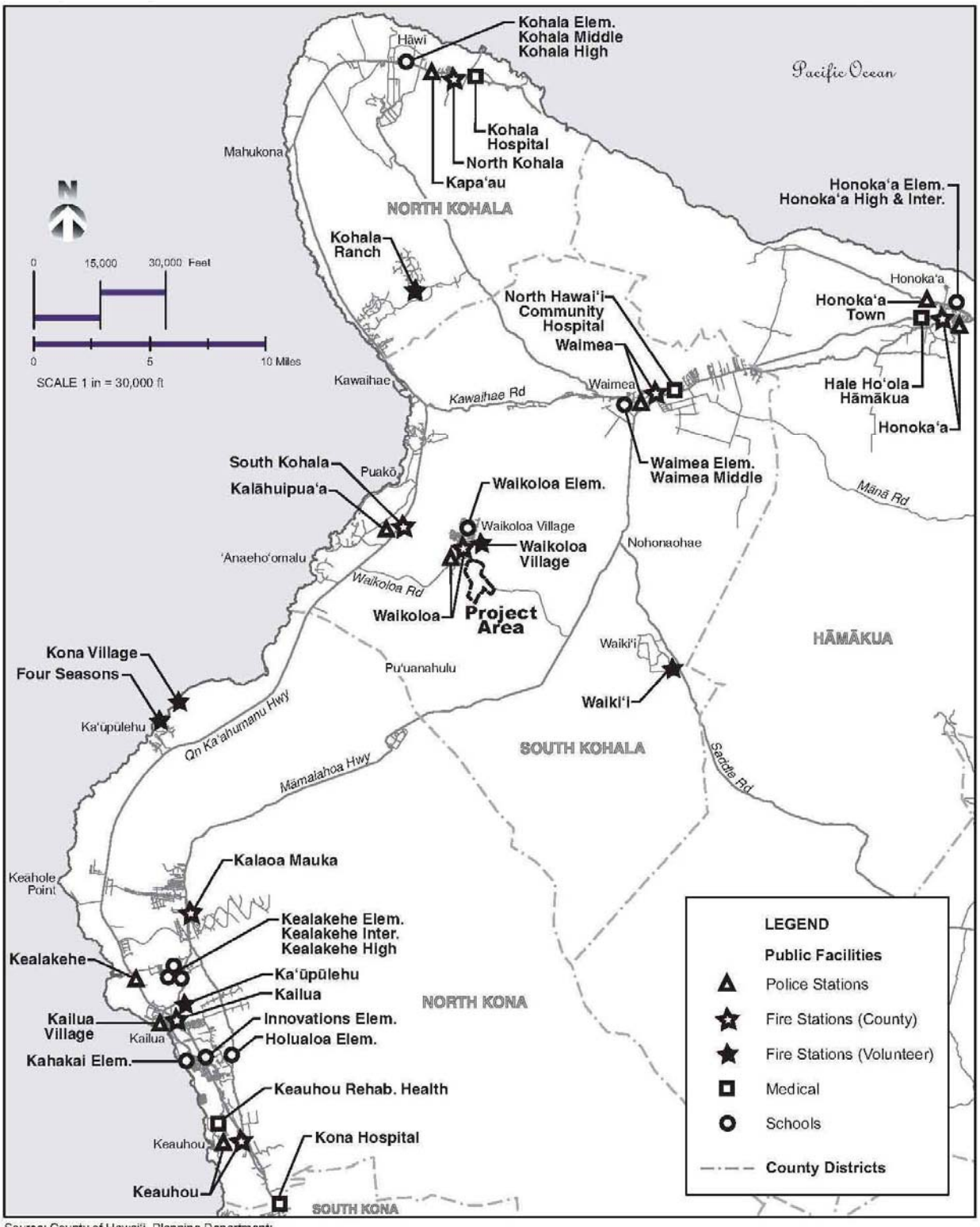
The County Department of Environmental Management, in an EISPN comment letter dated July 31, 2006, recommended that the Waikoloa Highlands subdivision develop some type of mandatory curbside pick-up with a high level of recycling available. They note that expecting 400 individual families to transport their garbage to a transfer station or the landfill is impractical. A Solid Waste Management Plan, as described in the November 27, 2006 letter from DEM, will be prepared in consultation with DEM for their approval.

Construction debris – aggregate and rock – will not be disposed in the County's landfill and will be used for on-site fill or removed by the construction contractor for use on another project.

3.6 PUBLIC SERVICES AND FACILITIES

Due to its large geographic size, Big Island communities are often very difficult to service with adequate public infrastructure. The problem is not one of providing the basic services, but of accessibility, due to widely dispersed communities. This problem situation affects health care, police, emergency medical facilities, and other public services (SMS Research, 2006). Figure 21 is a generalized map showing the general locations of police service, fire service, emergency services, and school district.

As a relatively new community, Waikoloa Village is adequately serviced. However, like other Hawai‘i Island communities, its relative isolation has raised issues about future services.



Source: County of Hawai'i, Planning Department;
State of Hawai'i, Department of Education

Figure 21
PUBLIC FACILITIES

3.6.1 Police

Existing Conditions

Police service to the Waikoloa Village area is provided by the South Kohala Police Station in Waimea. The station has a staff of 32 officers who cover an area of 688 square miles, an area larger than the Island of O'ahu. The Waimea Station is also authorized for an additional 5 officers, but the positions are currently vacant. A minimum of four officers are on duty at all times, with one of the four responsible for covering the Waikoloa Village area. Two of the officers cover Waimea, and one officer covers Kawaihae and the coastal areas. The Police Department has a small substation in Waikoloa located near the golf course. The substation is a small unmanned office generally used to complete paperwork. The Waikoloa substation is not currently tied into the Department's computer system, so the Waikoloa officer goes to the Mauna Lani Resort substation to enter reports into the Police Department computer system.

Project Impacts and Mitigation

According to an EISPN response letter from the County Police Department (letter dated August 16, 2006, see Chapter 5), the proposed development and associated population will significantly increase the demand for police services in the Waikoloa area. The Police Department has indicated that the project will impact the need for additional police personnel and police facilities to service the Waikoloa area. In consultation with the Police Department for the socio-economic study (SMS Research, 2006), the department noted that with a full staff (note that there are vacancies currently), Waikoloa Highlands will be adequately served.

Waikoloa residents have also expressed hope that the new Waikoloa Highlands subdivision will lead to the current Waikoloa police substation being manned on a more frequent basis (ibid).

In accordance with Ordinance 05-157, the applicant is required to pay fees to the County of Hawai'i for each lot to mitigate impacts to Police service. In the interim until the vacant positions can be filled, the applicant will taken action to a) encourage a neighborhood watch program, b) utilize private security personnel to perform random drive-through inspections, and/or c) provide a gate at the entry to the development until such time as more than 50 percent of the lots have been developed so that there is greater community and neighborhood presence in the development.

3.6.2 Fire and Emergency Medical Services

Existing Conditions

The Hawai'i County Fire Department has 20 full-time fire/medic stations, and twenty volunteer stations. The island is divided into two battalion areas, East and West. Waikoloa Village, in the West Battalion area, is served by a fire station located on Waikoloa Road, near the entrance to Waikoloa Village. The Waikoloa Fire Station currently has a total of five personnel per shift, including a hazardous materials unit, engine company unit, and medic. Secondary response and back up is provided by the South Kohala Fire Station at Mauna Lani. The South Kohala station

also has a medevac helicopter (personal communication with Battalion Chief Ruben Chun, September 19, 2006).

The major medical facility serving the South Kohala area is the North Hawai‘i Community Hospital (NHCH), located in Waimea. This full service, acute care hospital opened in 1996, and serves the northern region of the Big Island.

Project Impacts and Mitigation

The proposed residential subdivision and resulting increase in population may increase the need for fire protection services in the Waikoloa area. At present, there appears to be adequate fire protection service for the existing community and the 398 new homes at Waikoloa Highlands (SMS Research, 2006). The developer will continue to keep the Fire Department informed of its plans.

In an August 14, 2006 comment letter (see Chapter 5), the Fire Department requested that the project's fire apparatus access roads be provided and maintained in accordance with County regulations and standards. Fire access roads and water supply will meet County standards to ensure adequate fire protection.

The County Fire Department also noted that *"given the historical record of wildland fires in the proposed area, as well as with respect to the vicinity climate, wildland urban interface, and organic fuel loading, the establishment of sustainable defensible space would be greatly appreciated and provide for emergency wildfire mitigation."* The project engineers will continue to work with the Fire Department to provide adequate fire buffers to address this concern. Ordinance 05-157 required the developer to pay a fee in the amount of $459.06 per lot.

3.6.3 Parks and Recreation

Existing Conditions

Kohala and North Kona region recreational facilities include golf courses, tennis courts, beaches, riding stables, historic sites, small boat harbors, and other facilities.

The Pu‘ukohola Heiau National Historic Site is located just north of the Queen Ka‘ahumanu Highway intersection with Highway 19, Kawaihae Road. This site, built in the late 1700's by Kamehameha I, includes several heiau and the remains of the John Young homestead.

The Hapuna Beach State Park is a popular white sand beach about three miles south of Kawaihae that includes swimming, picnicking, and camping facilities. ‘Anaeho‘omalu Beach fronts the Royal Waikoloan Hotel, and is popular for swimming and snorkeling. There is also an ancient Hawaiian fishpond nearby. Kauna‘oa (Mauna Kea) Beach fronts the Mauna Kea Beach Hotel and has limited available public access. This beach provides areas for swimming, snorkeling and surfing. The County's Samuel M. Spencer Beach Park just south of Kawaihae is popular with locals, and provides calm waters that are excellent swimming and snorkeling.

Other State-owned recreation facilities in the region include the Kawaihae boat harbor, and Puakō boat ramp. A number of public recreational facilities are located in Waimea, including the State's Thelma Parker Gym, Waimea Elementary/Intermediate School playground, and the County's Waimea District Park and Waimea Playground.

The region has a number of golf courses that are open to the public. The Waikoloa Village Golf Course, located near the project site, is a public 18-hole course designed by Robert Trent Jones. Along the cost, the Waikoloa Beach Resort has two 18-hole courses, the 18-hole Beach Course and the King's Course, a championship course with Scottish-links layout. Other golf courses along the South Kohala coast include the Mauna Kea Beach Hotel, Mauna Kea Resort-Hapuna, and the Mauna Lani Resort's North and South Courses. Waikoloa Village also has riding stables.

County recreational facilities in the region include the Samuel Spencer Beach Park just south of Kawaihae, the Waimea District Park and Waimea playground.

In Waikoloa Village, there is one County-maintained park, with a second park location undeveloped. The current park is two to three acres in size, and used primarily for baseball and soccer, with a small jungle gym for younger children. Given the County of Hawai'i standards of five acres of park per 1,000 residents, Waikoloa is currently under served in park space (SMS Research, 2006).

Project Impacts and Mitigation

The Waikoloa Highlands project is estimated to generate 398 families with 233 school-aged children. The existing park areas in Waikoloa Village are already inadequate to serve current residents, and the Waikoloa Highlands will add to this shortage (ibid).

The proposed Waikoloa Highlands project will include approximately 208 acres of open space on-site, which will include bicycle and pedestrian paths, and will be available to project residents. In addition, the developer will contribute land or fees (to be determined) to fulfill their obligation as part of the zoning ordinance.

3.6.4 Schools

Existing Conditions

Public schools in the area include Waikoloa Elementary School, Waimea Middle Public Charter School, and Kealakehe High School. The table below (Table 3-8, Waikoloa School Enrollment) shows actual school enrollment between 2003 and 2006, and projected enrollment through 2012, without the proposed project.

Table ~~3-7~~ 3-8. Waikoloa School Enrollment

	Actual Enrollment (# students)			Capacity (# students)	Projected Enrollment (# students)		
	2003-2004	2004-2005	2005-2006		2006-2007	2007-2008	2008-2009
Waikoloa Elementary School	593	586	566	601	544	620	738
Waimea Middle Public Charter School	537	497	516	516	534	550	565
Kealakehe High School	1,440	1,450	1,530	1,480	1,543	1,531	1,395

Source: State of Hawai'i Department of Education, 2006

The actual enrollment data is compared to the 2005-2006 facility capacity. Last school year, the actual enrollment exceeded facility capacity at Kealakehe High School. Enrollment at Waimea Middle public Charter School was at capacity, and there was some excess capacity at Waikoloa Elementary School. ~~However, the State Department of Education (DOE) expects that during the current (2006-2007) or following year, student enrollment at all three schools will exceed facility capacity.~~

Until 2006, the Department of Education utilized a formula based on residential unit counts to estimate the number of pubic school students that a project would generate. The results of this formula, which were previously provided in the DEIS (and Appendix C, Social Impact Assessment, SMS Research, September 2006), have since been revised by the DOE. The current DOE practice involves analyzing the impacts of development projects based on a wider variety of factors to obtain a better estimate of the number of public school students generated and the resultant impact on school facilities. Based on the number of units planned, DOE reports that the proposed Waikoloa Highlands project will contribute 24 additional elementary school students, 9 middle school students, and 7 high school students. The DOE has determined that due to the small number of additional students, that no additional schools will be needed.

In addition to enrollment capacity, the SMS study notes that schools are a typical example of accessibility issues. The study indicates that students in grades 6 through 8 must travel 20 miles to Waimea Middle School, while high school students travel nearly 40 miles to Kealakehe High School.

Project Impacts and Mitigation

~~The DOE has indicated that the Waikoloa Highlands project will have an impact on public school enrollment in the Waikoloa area. Discussions with the DOE are continuing to estimate the number of students that will be generated by the project. The Petitioner is continuing to work with the DOE to mitigate the project's impact on school facilities and study its fair share requirements.~~

The proposed Waikoloa Highlands project will result in the generation of approximately 40 new public school students. However, no additional schools will be needed by the DOE as a result.

According to discussions with Heidi Meeker, DOE, the DOE will request that the Land Use Commission impose a school fair-share condition similar to such conditions that the Land Use Commission has imposed on other recent developments. The petitioner is continuing to discuss their fair-share requirement with the DOE and as required, will contribute their fair-share to mitigate the potential for adverse impacts on the provision of public educational services.

3.7 SUMMARY OF UNRESOLVED ISSUES

The following issues remain unresolved, primarily due to ongoing negotiations between the Petitioner and various public and private regulatory agencies. All of the issues are expected to be resolved prior to commencement of construction.

3.7.1 Drinking Water

Discussions with West Hawai'i Utility Company ~~(Waikoloa Water Company)~~ (WHUC) are ongoing to negotiate the cost of the project's water service, and the cost sharing of the off-site transmission and storage. ~~Also under discussion is the provision and location of a new upper elevation well to support the project.~~

3.7.2 Schools

~~Discussions with the Hawai'i State Department of Education (DOE) are ongoing regarding project impact on area schools and appropriate mitigation. The approximately 1,000 residents of the Waikoloa Highlands subdivision will impact enrollment at Waikoloa Elementary, Waimea Middle Public Charter, and Kealakehe High School. The DOE has noted that the size and actual costs of the lots, as well as whether accessory residential units will be allowed, will have a bearing on the number of public school students projected. This data will be provided to the DOE to enable it to make more specific enrollment estimates. To date, mitigation discussed includes provision of developable land, or in lieu fees calculated on a per-student basis. The DOE has preliminarily estimated that 3.1 acres of land would be needed, plus $1.6 million in fees. The land and fee amount is not specific to a particular school type, e.g. elementary, middle or high school. The Petitioner has proposed the dedication of land across the proposed project on Waikoloa Road on the Waikoloa Village side for use by the DOE. Discussions are continuing to determine an appropriate resolution.~~

The petitioner is continuing to discuss their fair-share requirement with the DOE and as required, will contribute their fair-share to mitigate the potential for adverse impacts on the provision of public educational services.

3.7.3 Affordable Housing

Discussions are ongoing with the County regarding compliance with Article 1, Chapter 11, Hawai'i County Code (HCC, 1983 amended) and Ordinance ~~95-157~~ 05-157, which requires that the Petitioner must earn affordable housing credits equal to 20 percent of the number of units or lots. As discussed in Chapter 4 ~~of this DEIS~~, the Petitioner may satisfy the affordable housing requirements in a number of ways, including constructing affordable for-sale units on-site,

constructing rental units off-site, paying in-lieu fees to the County Housing Agency, or providing developable land or infrastructure (Section 11-4) (see additional discussion in Section 4, Relationship of the Project to Land Use Plans, Policies and Controls).

The Petitioner is committed to meeting its affordable housing requirement per Ordinance 05-157 ~~, but the method is yet undetermined.~~ and Chapter 11, HCC, through the provision of land adjacent to the project site. To date, discussions with the County have centered on providing the housing off-site and within the 15-mile radius required in Section 11-4 (HCC). The land that is being proposed meets the affordable housing requirement and is located to the west of the subject project within the 15-mile radius in an area ~~designated~~ zoned for multi-family residential units and is owned by Petitioner (Tax Map Key: (3) 6-8-003, Portion of Parcel 31) (see Figure 3, Tax Map).

The selection of the affordable housing site was based on the underlying 1-acre zoning of the planned Waikoloa Highlands project, and the developer's ownership of other nearby property that possessed the necessary zoning for affordable housing uses.

The Waikoloa Highlands project site is zoned RA-1a (Residential and Agricultural, Minimum 1-acre) and O (Open). In order to be used for affordable housing a rezoning of the site to a higher density would be required. The proposed affordable housing site is owned by the developer, is in close proximity to Waikoloa Highlands of less than half a mile, and is already zoned RM-1.5 (Multi-Family Residential, 1,500 square foot land/unit), which supports the development of affordable units without need for further rezoning.

Although the developer owns other property within a 15 mile radius that could be used to meet the affordable housing requirements of the HCC, the proposed site possesses zoning that is more consistent with surrounding land uses that also include multifamily, single-family, and village commercial land uses. In contrast, land uses surrounding Waikoloa Highlands are a combination of Open and A-5a (Agricultural, 5 acre minimum), that would make it less consistent with the underlying and surrounding zoning.

3.7.4 Relocation of Transmission Line

The Petitioner has proposed to the Hawai‘i Electric ~~and~~ Light Company (HELCO) the relocation of the existing 69 KV transmission lines that traverse the project area in an east-west direction. The Petitioner has proposed that the transmission lines be located at the edge of the project area. HELCO has agreed in principle, but has requested that additional studies be conducted. Discussions are ongoing with HELCO to determine an appropriate course of action.

4 RELATIONSHIP OF THE PROJECT TO LAND USE PLANS, POLICIES AND CONTROLS

4.1 STATE OF HAWAI'I

Various State plans, policies, and land use controls provide guidelines for development within the State of Hawai'i, including the Hawai'i State Plan, State Functional Plans, and the State Land Use Plan.

4.1.1 Hawai'i State Plan and Functional Plans

The 1996 Hawai'i State Plan (Chapter 226, HRS, as amended) is the umbrella document in the statewide planning system. It serves as a written guide for the long-range development of the State by describing a desired future for the residents of Hawai'i and providing a set of goals, objectives, and policies that are intended to shape the general direction of public and private development.

State plan objectives for "socio-cultural advancement-housing" include "the orderly development of residential areas sensitive to community needs and other land uses."

Applicable policies to achieve the plan's housing objectives are to:

- Effectively accommodate the housing needs of Hawai'i's people
- Increase homeownership and rental opportunities and choices in terms of quality, location, cost densities, style and size of housing
- Promote design and location for housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas
- Facilitate the use of available vacant, developable, and underutilized urban lands for housing

We have examined the objectives of the State Plan (Chapter 226-19, HRS) and summarize in Table 4-1, Summary of Compliance with the Hawai'i State Plan, the relationship of the proposed action to the State Plan objectives.

Table 4-1. Summary of Compliance with the Hawai'i State Plan

Objective:	**Supportive**	**Non-Supportive**	**Not Applicable**
(1) Greater opportunities for Hawaii'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 Hawaii's population.	**X**		
(2) The orderly development of residential areas sensitive to community needs and other land uses.	**X**		

(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.			**X**
(b) To achieve the housing objectives, it shall be the policy of this State to:			
(1) Effectively accommodate the housing needs of Hawaii's people.	**X**		
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	**X**		
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	**X**		
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			**X**
(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.			**X**
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	**X**		
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.	**X**		
(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.			**X**

Priority guidelines for affordable housing (Chapter 226-106, HRS) and their applicability to the project are summarized in Table 4-2, Compliance with Affordable Housing Objectives:

Table 4-2. Compliance with Affordable Housing Objectives

Objective:	**Supportive**	**Non-Supportive**	**Not Applicable**
(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.	**X**		
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			**X**
(3) Improve information and analysis relative to land availability and suitability for housing.	**X**		
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low- and moderate-income households, gap-group households, and residents with special needs.			**X**
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawaii's people for the purchase of initial owner- occupied housing.			**X**
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.	**X**		
(7) Encourage improved coordination between various agencies and levels of government to deal with housing			**X**

policies and regulations.			
(8) Give higher priority to the provision of quality housing that is affordable for Hawaii's residents and less priority to development of housing intended primarily for individuals outside of Hawaii.	**X**		

The Hawai‘i State Plan directs the appropriate State agencies to prepare functional plans for their respective program areas, including agriculture, transportation, conservation lands, housing, tourism, historic preservation, energy, recreation, education, higher education and health. The State Functional Plans serve as the primary implementing vehicle for the goals, objectives and policies of the Hawai‘i State Plan.

The State Functional Plans have been adopted by the Hawai‘i State Legislature. The State Plan mandates that these plans "…shall be taken into consideration in amending the county general plans" (Section 226-19, HRS). The project generally supports the objectives and policies of the State Plan and the State Housing Functional Plan as shown in Table 4-3, Compliance with State Housing Functional Plan, below:

Table 4-3. Compliance with State Housing Functional Plan

	Supportive	**Non-Supportive**	**Not Applicable**
(1) Greater opportunities for Hawaii'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 Hawaii's population.	**X**		
(2) The orderly development of residential areas sensitive to community needs and other land uses.	**X**		
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.	**X**		
(b) To achieve the housing objectives, it shall be the policy of this State to:			
(1) Effectively accommodate the housing needs of Hawaii's people.	**X**		
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	**X**		
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	**X**		
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.	**X**		
(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.	X		

(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	X		
(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.	X		
(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.	X		
Discussion: The Waikoloa Highlands project supports the objectives of the State Plan relating to housing.			

Objectives of the State Housing Functional Plan and the compliance of the Project to its objectives are shown in Table 4-4, Compliance with Objectives of State Housing Functional Plan, below:

Table 4-4. Compliance with Objectives of State Housing Functional Plan

Issue Area: Homeownership	**Supportive**	**Non-Supportive**	**Not Applicable**
Policy A (2): *Encourage increased private sector participation in the development of affordable for-sale housing units.*	**X**		
Policy A (3): *Ensure that (1) housing projects and (2) projects which impact housing provide a fair share/adequate amount of affordable homeownership opportunities.*	**X**		
Discussion: The Waikoloa Highlands project will comply with the County's affordable housing requirements of Chapter 11, Hawai'i County Code, which requires that the Petitioner "must earn affordable housing credits equal to 20 percent of the number of units or lots. See Section 4.2.5 below.			

4.1.2 State Land Use Classification

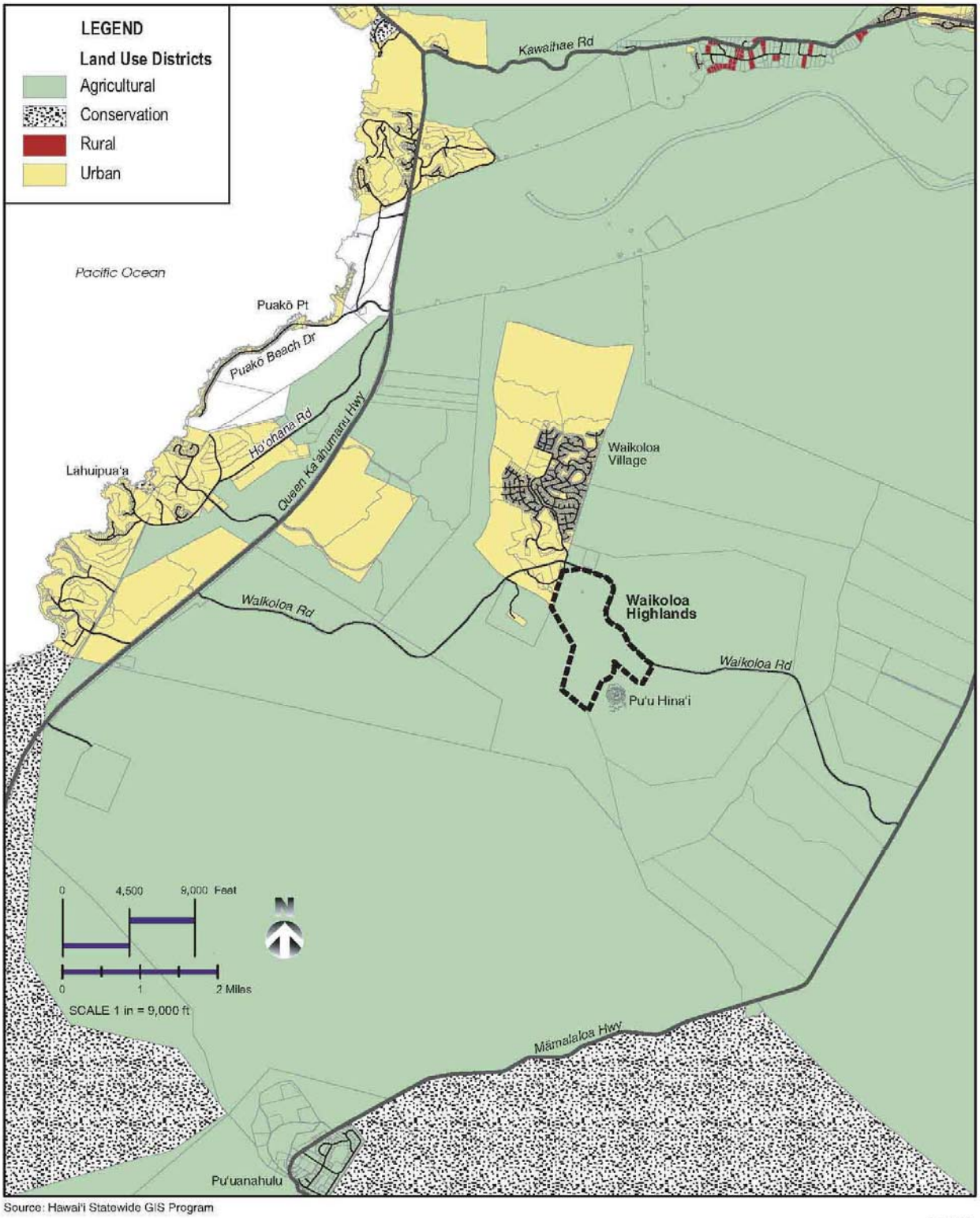
The Commission, pursuant to Chapter 205 and 205A, HRS, and Chapter 15-15, HAR, is empowered to classify all lands in the State into one of four land use districts: Urban, Rural, Agricultural, and Conservation. The project area is currently in the Agricultural District (Figure 22~~14~~, State Land Use Map).

A petition for a LUDBA for the property has been filed with the SLUC. The petition will request a redesignation from the Agricultural District to the Rural District.

The SLUC's rules define standards for determining an Agricultural District in HAR § 15-15-19:

1. It shall include lands with a high capacity for agricultural production;
2. It may include lands with significant potential for grazing or other agricultural uses; and
3. It may include lands surrounded by or contiguous to agricultural lands or which are not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics.

Although the property is currently in the Agricultural District, it is not highly productive agricultural land as defined in the standards. The Land Study Bureau has classified the area as "E" lands, meaning it is only marginally suitable for agricultural use.



Source: Hawai'i Statewide GIS Program

Figure ~~11~~ 22
STATE LAND USE DISTRICTS

The surrounding land uses are primarily low-scale residential and commercial areas, and not in active agricultural production. On the other hand, the SLUC's standards for determining a Rural District (HAR §15-15-21) are summarized in Table 4-5, Applicability of Project to Rural District Standards:

Table 4-5. Applicability of Project to Rural District Standards

	Supportive	**Non-Supportive**	**Not Applicable**
1. Areas consisting of small farms; provided that the areas need not be included in this district if inclusion will alter the general characteristics of the areas;	**X**		
2. Activities or uses as characterized by low-density residential lots of not less than one-half acre and a density of not more than one single-family dwelling per one-half acre in areas where "city-like" concentration of people, structures, streets and urban level of services are absent, and where small farms are intermixed with the low-density residential lots; and	**X**		
3. It may also include parcels of land which are surrounded by, or contiguous to this district, and are not suited to low-density residential uses for small farm or agricultural uses.	**X**		
Discussion: Overall, the standards for a Rural District are more appropriate for the proposed use, and compatible with the surrounding Waikoloa area. There are three significant differences between the Rural District and the existing Agricultural District designation: 1. Homes can be single-family dwellings 2. Minimum lot size is one-half acre 3. Golf courses are permitted in the Rural District, but not in the Agricultural District (per a recent 2005 law change) 4. Agricultural activities are optional in the Rural District, not mandated.			

~~Overall, the standards for a Rural District are more appropriate for the proposed use, and compatible with the surrounding Waikoloa area.~~

~~There are three significant differences between the Rural District and the existing Agricultural District designation:~~

1. ~~Homes can be single-family dwellings~~
2. ~~Minimum lot size is one-half acre~~
3. ~~Golf courses are permitted in the Rural District, but not in the Agricultural District (per a recent 2005 law change)~~
4. ~~Agricultural activities are optional in the Rural District, not mandated.~~

The Waikoloa Highlands residential lots will typically be one acre in size, larger than the half-acre allowed in the Rural District, but consistent with the existing County zoning (RA-1a). ~~A golf course may be proposed in appropriately-zoned areas of the property.~~ A golf course is not being considered by the project developers (see discussion Section 2.5.).

Final disposition of Petitioner's request for redesignation is still pending SLUC action.

4.2 COUNTY OF HAWAI'I

4.2.1 County General Plan

The County General Plan is a policy document which provides direction for the future growth of the County. The General Plan is an ordinance enacted in February 2005 by the County Council. The General Plan consists of a written portion, which has a set of goals, policies, standards, and courses of action, and maps. The text also includes a list of the urban, industrial, and resort areas. The maps include the "Land Use Pattern Allocation Guide Map" or "LUPAG" map, which gives the general location of land uses in the county.

Figure ~~15~~ 23 shows the General Plan LUPAG map designations. The project area is identified as "Rural" and "Open" on the current LUPAG map. The proposed low-density residential development is consistent with this designation.

4.2.2 Community Development Plans

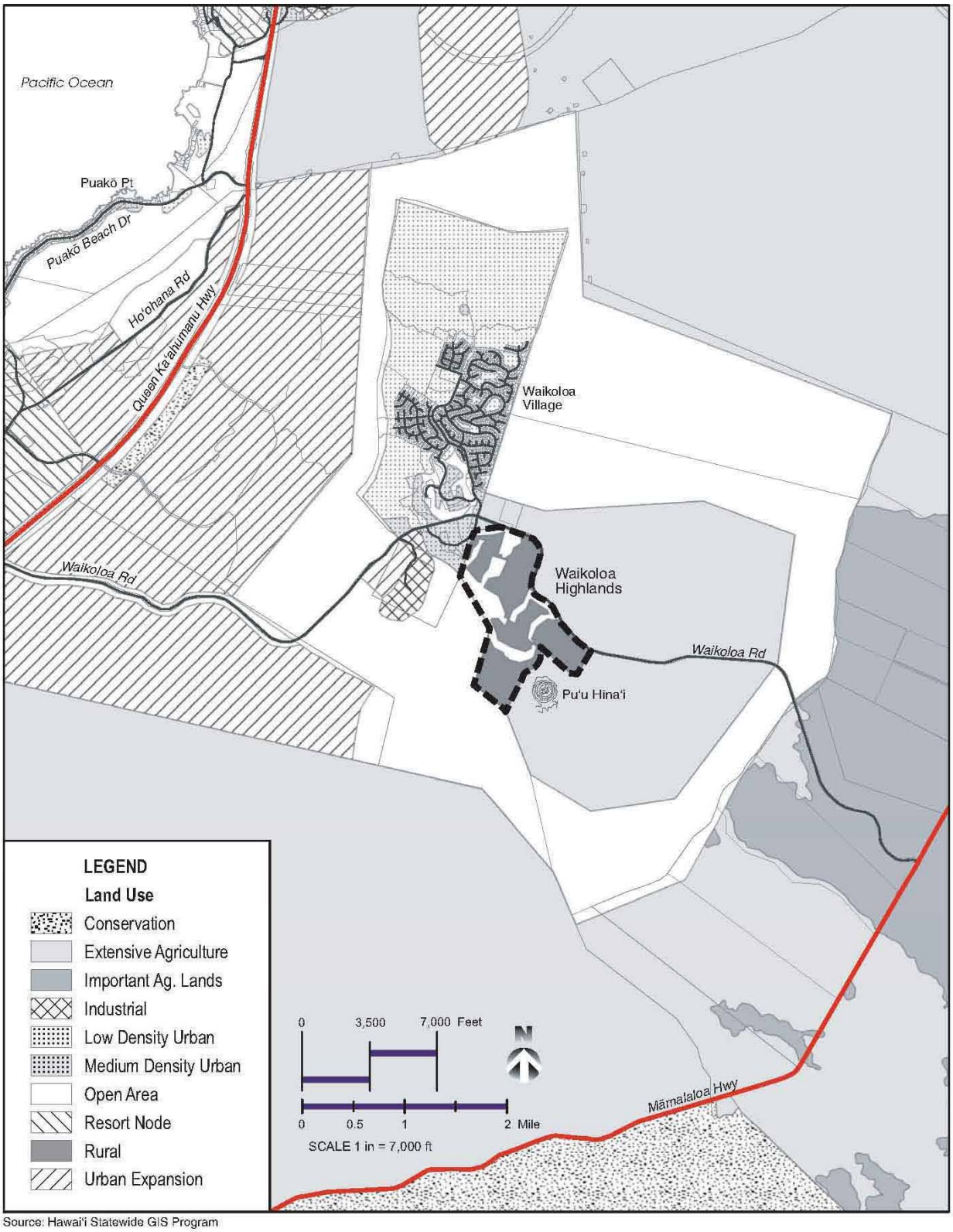
According to the General Plan, a Community Development Plan is intended to "translate the broad General Plan statements to specific actions" as they apply to a region. The Plan "may contain detailed land use and zoning guide maps, plans for roadways, drainage, parks, and other infrastructure and public facilities, architectural design guidelines, planning for watersheds and other natural features, and any other matters relating to the planning area."

Although the General Plan has called for community development plans since 1971, these plans have not been prepared for all areas or updated regularly over the years. In 1992, a draft report for a Northwest Hawai'i Open Space and Community Development Plan (which included the Waikoloa area) was released to the public. The plan included the following recommendation for future residential development:

> *The plan identifies a "Mauka Development Zone" (MDZ)—a zone of land mauka of the coastal highways that would be the most suitable area for future large-scale residential development…By providing for large-scale residential development opportunities in mauka areas, the concept seeks to reduce development pressures on the visually and ecologically sensitive coastal zone, as well as on the views from the major roadways (Northwest Hawai'i Open Space and Community Development Plan, Public Draft Report, November 1992).*

However, the Northwest Hawai'i Open Space and Community Development Plan was never finalized or adopted.

The 2005 General Plan has called for a revival of the community development plan process, and includes a mandate that the plans be adopted by ordinance. The General Plan outlines a process for updating community development plans, which includes the formation of a steering committee to work with the County Planning Department in developing the plan, review of the plan by the Planning Commission, and enactment by ordinance by the County Council. The process of development Community Development Plans are still in the early stages of selecting a steering committee.



Source: Hawai'i Statewide GIS Program

Figure ~~12~~ 23
COUNTY GENERAL PLAN
LUPAG

4.2.3 County Zoning

In the early 1990's the project area received its first zone change for residential development. In 1995, the project area was further rezoned from the Unplanned (U) and Multi-Family residential (RM-1.5) zoning districts to Open (O) and Residential-Agricultural (RA-1a) (County of Hawai'i, Ordinance No. 95-51). The current zoning is shown in Figure ~~16~~ 24, Zoning Map.

At that time, the former property owners had envisioned development of residential use surrounding a proposed golf course. The current Waikoloa Highlands subdivision plan is consistent with the approved RA-1a zoning. The areas zoned Open (O) will remain undeveloped as open space and drainage. No golf course will be included.

Ordinance No. 95-51 included a condition that the RA zoned area be subdivided in three increments.

> *The first and second increment shall consist of a maximum of 175 one-acre lots each and the third increment, the remaining area. Subdivision plans shall be submitted for successive increments only after development has occurred in the preceding increment as determined by the Planning Director…(Ordinance No. 95-51, Condition B)*

The proposed subdivision plan will be phased in accordance with this condition. The ordinance also included the following condition:

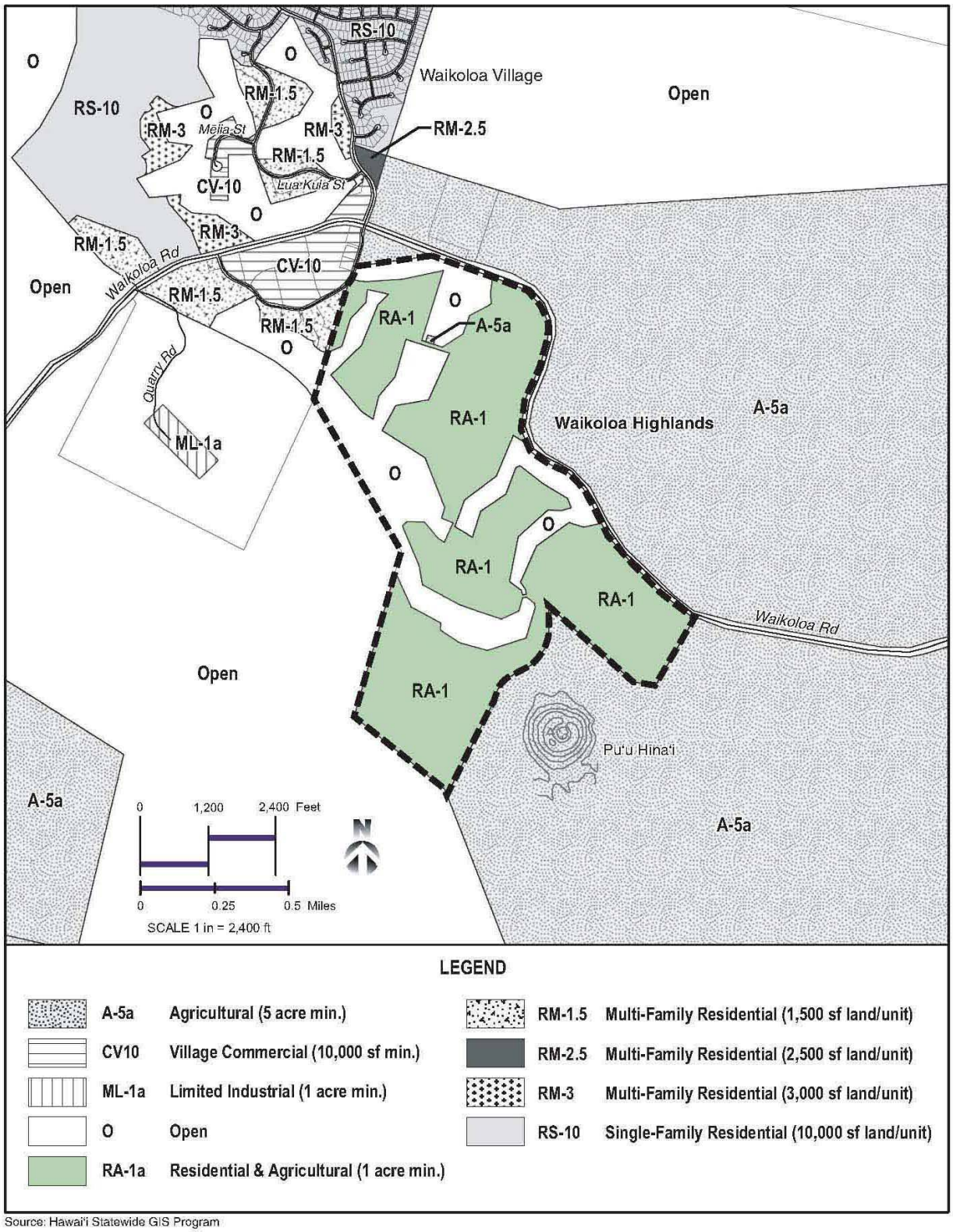
> *Access shall meet with the requirements of the Department of Public Works. Direct access to Waikoloa Road shall be limited to one roadway from the project site. Waikoloa Road-Pua Melia Street-Paniolo Avenue intersection shall be channelized and signalized meeting with the requirements of the Department of Public Works…(ibid., Condition C)*

The developer will be proposing an~~d~~ amendment to this condition of a single entry to facility internal circulation and to provide an alternative for safety purposes.

Ordinance No. 05-157 further amended Ordinance No. 95-51 by requiring:

1. *Compliance with Chapter 11, Article 1, Hawai'i County Code relating to Affordable Housing,*
2. *State Land Use Boundary Amendment from Agriculture to Rural; and*
3. *Make fair share contribution to mitigate potential regional impacts of the property with respect to parks and recreation, fire, police, solid waste disposal, and roads.*

The Waikoloa Highlands project will meet all the above conditions.



Source: Hawai'i Statewide GIS Program

Figure ~~13~~24
COUNTY ZONING

4.2.4 Coastal Zone Management/Special Management Area

Coastal Zone Management objectives and policies (Section 205A-2, HRS) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. The project site lies within the State's Coastal Zone Management Area, which includes all lands within the State with the exception of forest reserves. Potential impacts to the coastal zone relate to storm drainage and wastewater disposal. Impacts resulting from project storm drainage will be mitigated by compliance with National Pollutant Discharge Elimination System (NPDES) permit conditions. Wastewater will be disposed using Individual Wastewater Systems, which will be reviewed and approved by the County and State Department of Health.

Applicability of the project to the objectives of Section 205A-2 (HRS) are summarized in Table 4-6, Compliance with Section 205A:

Table 4-6. Compliance with Section 205A

Objectives:	Supportive	Not Supportive	Not Applicable
(1) Recreational resources;			
(A) Provide coastal recreational opportunities accessible to the public.			X
Discussion: Not applicable to project because the project is not located along the ocean.			
(2) Historic resources;			
(A) 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.	X		
Discussion: As indicated in Section 3.4.5 action will be taken to protect and preserve identified archaeological sites.			
(3) Scenic and open space resources;			
(A) Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.			X
Discussion: Not applicable to the project because no scenic views will be impacted. Existing undeveloped areas will be converted to residential development, however at a low density.			
(4) Coastal ecosystems;			
(A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.			X
Discussion: Not applicable to the project because the project is not located along the ocean.			
(5) Economic uses;			
(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.	X		
Discussion: The project will develop 398 low-density residential lots and thereby add to the housing inventory of the area.			
(6) Coastal hazards;			
(A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.	X		
Discussion: Coastal hazards will not impact the proposed project, however, mitigating actions are being taken to minimize flood risks and water pollution.			

(7) Managing development;			
(A) Improve the development review process, communication, and public participation in the management of coastal resources and hazards.	X		
Discussion: The proposed project will undergo public review through information disclosed in this EIS and through review during the land use entitlement processes. The project will not impact coastal resources nor will the project be impacted by coastal hazards.			
(8) Public participation;			
(A) Stimulate public awareness, education, and participation in coastal management.	X		
Discussion: As stated in this document, the project will be subject to public review.			
(9) Beach protection;			
(A) Protect beaches for public use and recreation.			X
Discussion: Not applicable to the project because the project is not located along the ocean.			
(10) Marine resources;			
(A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.			X
Discussion: Not applicable to the project because the project is not located along the ocean.			

The County is given the authority to establish Special Management Areas ("SMAs") and place controls on development occurring within these areas. SMAs encompass critical coastal lands immediately adjacent to the shoreline requiring special management attention because of its unique coastal values or characteristics. The project site is not within the County's SMA, which generally encompasses the area makai of Queen Ka'ahumanu Highway. A Special Management Area use permit is not required. The project site is located six miles from the coastline, and is not expected to have a direct or indirect impact on the coastal zone.

4.2.5 County Affordable Housing (Hawai'i County Code, Chapter 11, Article 1)

As discussed in Section 4.2.3, County Zoning, above, Ordinance No. 05-157 amended Ordinance No. 95-51 to redesignate the Waikoloa Highlands project site to the Open (O) and Residential Agricultural (RA-1a) zones. Ordinance ~~95-157~~ 05-157 states that "To ensure that the goals and policies of the Housing Element of the General Plan are implemented, the Petitioner shall comply with the requirements of Chapter 11, Article 1, Hawai'i County Code (HCC) relating to Affordable Housing Policy. This requirement shall be approved by the County Housing Agency prior to final subdivision approval."

HCC Section 11-4 requires that for five or more residential units or lots, "the Petitioner must earn affordable housing credits equal to twenty percent of the number of units or lots (rounded to the nearest 0.5)." For the proposed 398 lots, the Waikoloa Highlands affordable housing requirement would be 80 units.

Section 11-5 states that the developer may satisfy the affordable housing requirement by doing any of the following:

- Construct affordable for-sale units on-site
- Construct affordable finished lots on-site, but only if the entire project consists of finished lots
- Construct affordable for-sale units off-site, but within a 15-mile radius of the project site
- Construct affordable rental units on-site, or off-site, within a 15-mile radius of the project site
- Pay in-lieu fees to the [County Housing] Agency
- Provide developable land, within a 15-mile radius of the project site, with a value determined by appraisal, that shall be credited against the in-lieu fee
- Provide infrastructure, within a 15-mile radius of the project site, with a value determined by appraisal, that shall be credited against the in-lieu fee;
- With the approval of the [County Housing Agency] Administrator, construct housing on-site or off-site that addresses a critical regional housing need…
- Obtain excess credits from another developer pursuant to Sec. 11-15

Chapter 11, Hawai‘i County Code (Table 4-7, Compliance with Hawai'i County Code) requires as follows:

Table 4-7. Compliance with Hawai‘i County Code – Affordable Housing Requirements

(a)	The affordable housing requirements shall apply to:	Supportive	Non-Supportive	Not Applicable
(1)	All new rezonings that may create additional residential uses, including rezonings, to RS, RD, RM, RCX, RA and FA districts, and APD rezonings where lot sizes are less than five acres, and CG, CV, CN and PD districts when residential uses are established in those districts;	X		
(2)	All new rezonings to resort, including hotels established in V. CV, CG, CDH or PD districts;			X
(3)	All new rezonings to ML, MG, and MCX districts;			X
(4)	All prior rezoning actions which contain affordable housing conditions that have not been satisfied as of the effective date of this ordinance, or to which the County has not agreed previously as to the specific means of satisfying the requirements.			X
(b)	Requirements for residential uses.			
(1)	Four or fewer residential units or lots: no requirement;			X
(2)	Five or more residential units or lots: the applicant must earn affordable housing credits equal to twenty percent of the number of units or lots (rounded to the nearest .5);	X		
(3)	Time share units shall be considered as residential units."			X
Discussion: The existing site is primarily zoned RA-1a, Residential and Agricultural, 1-acre. As a condition of Ordinance 05-157, allowing this zoning, the applicant must comply with the affordable housing requirement. The developer must earn affordable housing credits equal to 80, representing 20 percent of the 398 units that are planned. The applicant intends to comply with this requirement.				

Chapter 11, (Table 4-8, Affordable Housing Provision Methodology) further provides that "(a) The developer may satisfy the affordable housing requirements by doing any of the following:

Table 4-8. Affordable Housing Provision Methodology

	Supportive	Non-Supportive	Not Applicable
(1) Construct affordable for sale units on site;		X	
(2) Construct affordable finished lots on site, but only if the entire project consists of finished lots;		X	
(3) Construct affordable for sale units off site, but within a fifteen mile radius of the project site;			X
(4) Construct affordable rental units on site, or off site, within a fifteen mile radius of the project site;			X
(5) Pay in lieu fees to the Agency;			X
(6) Provide developable land, within a fifteen mile radius of the project site, with a value determined by appraisal, that shall be credited against the in lieu fee;	X		
(7) Provide infrastructure, within a fifteen mile radius of the project site, that shall be credited against the in lieu fee. Any infrastructure provided must be directly related to the future provision of affordable housing;			X
(8) With the approval of the administrator, construct housing on site or off site, that addresses a critical regional housing need, at least equivalent to satisfying the requirements of any sub sections (1) (4) above, provided that the project must be located within the allowable areas for in lieu fees under sec. 11-12			X
(9) Obtain excess credits from another developer pursuant to sec. 11 15.			X
Discussion: The owner has elected to provide land (Item 3) to meet the affordable housing requirement on land that is within 15 miles of the project site, is owned by the applicant, and is fully entitled for multifamily housing. The land proposed is identified by Tax Map Key 6-8-003: Parcel 031. See also Section 3.7.3. Affordable Housing, for further explanation concerning the selection of this location. The proposed project will not involve finished lots.			

Chapter 11 further provides "The developer shall earn affordable housing credits as shown in Table 4-9, Affordable Housing Credits:

Table 4-9. Affordable Housing Credits

		Supportive	Non-Supportive	Not Applicable
(1)	Sale of completed dwelling units affordable for qualified households earning 120-140% of median: 0.5 credit per unit;			X
(2)	Sale of completed dwelling units affordable for qualified households earning 100-120% of median: 1.0 credit per unit;			X
(3)	Sale of completed dwelling units affordable for qualified households earning 80-100% of median: 1.5 credits per unit;			X
(4)	Sale of completed dwelling units affordable for qualified households earning less than 80% of median: 2.0 credits per			X

	unit;			
(5)	Construction of rental units affordable to qualified households earning 100-120% of median: 0.5 credit per unit;			X
(6)	Construction of rental units affordable to qualified households earning 80-100% of median: 1.0 credit per unit;			X
(7)	Construction of rental units affordable for qualified households earning 60-80% of median: 1.5 credits per unit;			X
(8)	Construction of rental units affordable for qualified households earning less than 60% of median: 2.0 credits per unit;			X
(9)	Sale of finished lots affordable for qualified households earning no more than 100% of median: 0.5 credit per lot;			X
(10)	Sale of finished lots affordable for qualified households earning no more than 80% of median: 1.0 credit per lot;			X
(11)	Donation of land to a nonprofit corporation or governmental agency for construction of for-sale housing units affordable for qualified households earning no more than 80% of the median, or construction of for-rent housing units affordable for qualified households earning no more than 60% of the median, subject to the approval of the administrator of the feasibility, location, and type of project. After the approval of the administrator, the credits are earned upon the donation of the land: 1.0 credit per unit.	X		
Discussion: The landowner has elected to contribute land in lieu of development of housing to meet his affordable housing credit.				

Section 11-6 of Chapter 11 provides for the calculation of in-lieu fees as shown in Table 4-10, Affordable Housing Fee Calculation:

Table 4-10. Affordable Housing Fee Calculation

	Supportive	Non-Supportive	Not Applicable
(a) The in lieu fee for a completed dwelling unit shall be twenty five percent of: the actual sales price of the unit minus the affordable price for households earning one hundred twenty percent of the median.			X
(b) The in lieu fee for a finished lot shall be twenty five percent of: the actual sales price of the lot minus the affordable price for households earning one hundred percent of the median.			X
(c) The in lieu fee for each required affordable dwelling unit for resort, hotel, and industrial uses shall be twenty five percent of: the median sales price for a single-family home in the tax map zone containing the project, in the previous calendar year, minus the affordable price for households earning one hundred twenty percent of the median.			X
(d) The in lieu fee for each completed dwelling unit not offered for sale (such as units offered for rent) shall be twenty five percent of: the median sales price for a single-family home in the tax map zone containing the project in the previous calendar year, minus the affordable price for households earning one hundred twenty percent of			X

the median.			
Discussion: The landowner has elected to contribute land in lieu of development of housing to meet his affordable housing credit.			

The Petitioner is currently negotiating with the County to agree on the most appropriate method of meeting the County's affordable housing needs per Ordinance 05-157. To date, discussions have centered on providing housing off-site within a 15-mile radius on lands owned by the developer that is entitled for multi-family dwelling units. The land that is being proposed the meet the affordable housing requirement is located to the west of the subject project within the 15-mile radius in an area designated for multi-family residential units on Tax Map Key (3) 6-8-003, parcel 31.

4.3 OTHER PLANS AND REGULATORY REQUIREMENTS

4.3.1 Unavoidable Adverse Effects

All potential environmental impacts discussed in Chapter 3 could either be avoided or mitigated to an extent that they would not be significant.

4.3.2 Relationship of Short-Term uses and Long-Term Productivity

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17(j)) requires a brief discussion of the "extent to which the proposed action involves tradeoffs between short term losses and long-term losses, or vice versa, and a discussion of the extent to which the proposed action forecloses future options, narrows the range of beneficial uses of the environment, or poses long-term risks to health or safety…"

Short-term tradeoffs are associated with the proposed rural subdivision on a currently vacant, open property. The project site currently provides open space and the potential for alternative future uses. However, given the site's existing Open (O) and Residential-Agricultural (RA-1a) zoning designations, the range of alternative uses is limited to low ~~scale~~ density residential and golf course use. As noted earlier, the developer will not be constructing a golf course.

Long-term impacts associated with the project are expected to be favorable, given that the project is consistent with the County General Plan and zoning designations, and thereby represents an approved expansion of the existing Waikoloa Village community. Any short-term construction related impacts will be mitigated by the enhancement of long-term productivity of the site.

4.3.3 Irretrievable and Irreversible Resource Commitments

Chapter 200 of Title 11, Environmental Impact Statement Rules (11-200-17(k)) requires the "identification of unavoidable impacts and the extent to which the action makes use of non-renewable resources during phases of the action, or irreversibly curtails the range of potential uses of the environment…" Resources that are committed irreversibly or irretrievably are those that cannot be recovered if the project is implemented.

The proposed project will involve two types of resources: 1) general industrial resources including capital, labor, fuels and construction equipment; and 2) project-specific resources such as natural resources and land at the affected site. General industrial resources will be spent during the construction of the subdivision's roads and infrastructure. Creation of a residential subdivision will preclude use of the property for other uses, and permanently alter the site from undeveloped open space to an urbanized infill development.

The commitment of these resources, however, should be evaluated in light of expected benefits to the community accruing from the project. The housing opportunities provided by the project, the associated employment created, and public tax revenues generated appear to justify the transformation of the site to a residential subdivision.

The development of nearly 400 residential lots will increase demand on potable water source and contribute to regional demands on public services, including schools, police and fire protection.

The project will not require any new commitment of publicly supported services and facilities that will not be compensated by increases in tax revenues.

4.4 POSSIBLE ENVIRONMENTAL PERMITS AND APPROVALS

The following is a summary of environmental approvals and consultations that may be required for the proposed action. The project's consistency with federal, State and local land use plans, policies and controls are also summarized.

4.4.1 State of Hawai'i

A. Land Use District Boundary Amendment. In accordance with the provision of Ordinance ~~95-157~~ 05-157 the Petitioner is seeking the redesignation of the project area from the ~~Agriculture~~ Agricultural District to the Rural District.

B. Chapter 343, HRS, environmental review process, the subject of this ~~Draft~~ EIS.

C. Department of Health

- Chapter 46, HAR. As required, a noise permit will be secured by the construction contactor to address noise levels above those allowed by Chapter 46 during construction.
- Chapter 11-55, HAR. A National Pollutant Discharge Elimination System ("NPDES") Permit will be required for Construction Stormwater Discharges ~~in accordance with Chapter 11-55, HAR~~.
- Chapter 11-23, HAR. A Underground Injection Control (UIC) permit application will be required for the use of drainage injection wells to handle discharges of storm water runoff.
- Chapter 11-54, HAR. A Section 401 Water Quality Certification (WQC) may be required based on the filing of the Department of the Army Permit application and the

specific type of improvements that are proposed that involve discharges to "state waters".

D. Chapter 6E, HRS, State Historic Preservation Division. Consultation to ensure the protection of historic properties.

E. Act 50, Session Laws of Hawaii, (April 26, 2000), Cultural Impact Assessment consultation to ensure that traditional cultural practices that may be impacted by the proposed action be analyzed.

F. Stream Channel Alteration Permit will be sought for proposed improvements to Auwaiakeakua Stream that includes the building of culverts with supports in the stream.

G. Coastal Zone Management Federal Consistency Determination (CZM FEDCON). This permit application administered by the State Planning Office may be required based on the filing of the Department of the Army permit.

4.4.2 County of Hawai‘i

A. Subdivision approvals will be sought in accordance with Chapter 23, Hawai‘i County Code to amend the Tentative Approval for the proposed subdivision.

B. Grading Permits will be sought from the County of Hawai‘i for earthwork activities associated with the infrastructure improvements.

C. Building Permits will be sought from the County of Hawai‘i for infrastructure improvements proposed for the project.

4.4.3 Federal Permits

A. A Department of the Army Permit may be required for proposed improvements of Auwaiakeakua Stream that includes the construction of bridges or the installation of culverts in the stream in accordance with Section 404 of the Clean Water Act. The Department of the Army permit is administered by the Army Corps of Engineers and may also require the concurrent filing and processing of the: (1) Section 401 WQC, as administered by the State DOH; and (2) CZM FEDCON, as administered by the State Planning Office, see above.

5. COMMENTS AND COORDINATION

The ~~Applicant~~ Petitioner determined that the proposed project may have a significant effect on the environment in accordance with HAR § 11-200-12. As such, this ~~DEIS~~ FEIS has been prepared in accordance with Chapter 343, HRS, EIS content requirements.

An EIS Preparation Notice was prepared and notice published in the July 23, 2006 edition of the Office of Environmental Quality Control's (OEQC) The Environmental Notice, with the public comment deadline of August 22, 2006. The EISPN was distributed to the individuals and organizations listed below, with a request for comments on project purpose and need, alternatives, and the proposed scope of the analysis.

Those providing written comments to the EIS Preparation Notice are noted in **bold** type below. Copies of the letters are included in Appendix ~~L~~ M.

A DEIS was prepared and notice of availability published in the October 23, 2006 edition of the OEQC's Environmental Notice, with the public comment deadline of December 8, 2006.

Individuals, organizations, and agencies providing comments to the Draft EIS are identified with an asterisk "*" below. A summary of written comments received from the DEIS, the responses prepared, and the FEIS page numbers referencing the responses, are provided in Table ES-1, Summary of Draft EIS Comments and Responses. Copies of the letters received and response to the letters are included in Appendix N.

Federal Agencies
Army Corps of Engineers, Honolulu Engineer District*
Environmental Protection Agency
Federal Highway Administration
Natural Resources Conservation Service
Fish and Wildlife Service
U.S. Geological Survey*

State Agencies
Department of Agriculture
Department of Accounting and General Services*
Department of Business, Economic Development & Tourism~~, Office of Planning~~
Resources and Technology Division~~*~~
Office of Planning*
Hawaii Housing Finance Development Corporation*
State Land Use Commission*
Department of Education*
Department of Hawaiian Home Lands
Department of Land and Natural Resources
State Historic Preservation Division
Department of Health*
Environmental Planning Office*

Office of Environmental Quality Control (4 copies)*
Department of Public Safety
Department of Transportation*
Office of Hawaiian Affairs*
University of Hawai‘i, Environmental Center*
University of Hawai‘i, Marine Programs
University of Hawai‘i, Water Resources Research Center

County of Hawai‘i
Department of Environmental Management*
Fire Department*
Department of Parks and Recreation
Planning Department*
Police Department*
Department of Public Works*
Department of Water Supply*

Elected Officials, Community Organizations, and Other Organizations
Elected Officials
County Councilmember Pete Hoffman, County Council District 9
Representative Cindy Evans, State House District 7
Senator Paul Whalen Senate, State Senate District 3

Utility Companies
Hawai‘i Electric Light Company, Inc.
Hawaiian Telcom, Inc.
Oceanic Time Warner Cable
Waikoloa Water Company

Libraries
Hawai‘i Documents Center, Hawai‘i State Library
Bond Memorial Public Library
Thelma Parker Memorial Library
Kailua-Kona Public Library

Newspapers
Hawai‘i Tribune Herald
West Hawai‘i Today

Other
Waimea Community Development Plan Committee
Waikoloa Village Association
Waikoloa Outdoor Circle
Waikoloa Community Development Corporation
Hawai‘i Leeward Planning Council
West Hawai‘i Economic Development Council
Chamber of Commerce
Mauna Kea Soil and Water Conservation District*

6. REFERENCES

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_____. *Drainage Report for the Waikoloa Highlands Subdivision, Phase 1*. September 2006.

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The Hallstrom Group, Inc. *Market Study, Economic Impact Analysis, and Public Costs/Benefits Assessment of the Proposed Waikoloa Highlands to be located at Waikoloa Village, South Kohala, Hawai‘i.* May 2006.

Waimea Water Services, Inc. *Water Supply for the Highlands Estates at Waikoloa, Hawai‘i.* November 2006.

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“*Waikoloa project ahead of schedule*”. Joe Bonfiglio, U.S. Department of the Army Honolulu Engineer Division. Engineer Update, October 2004

“Hawai‘i Still at risk from old munitions”. William Cole, Honolulu Advertiser, August 13, 2006

Internet References

Hawai‘i Statewide GIS Program, http://www.Hawai‘i.gov/dbedt/gis/

U.S. Census Bureau, 2000 Census Data. http://factfinder.census.gov. Census 2000 Summary File 1 (SF1) 100 Percent Data, and Summary File 3 (SF)-Sample Data.

7. PREPARERS OF THE DRAFT AND FINAL EIS

The Waikoloa Highlands Draft and Final Environmental Impact Statement was prepared for the Petitioner, Waikoloa Mauka LLC, by R.M. Towill Corporation. The following list identifies individuals and organizations involved in the preparation of ~~this report~~ these documents and their respective contributions.

Waikoloa Mauka, LLC
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Sidney Fuke, Planning Consulting
Sidney Fuke, Project Coordinator

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Chester T. Koga, AICP (Project Manager and Primary Author)
Brian Takeda (Project Coordinator, EIS Preparation)
Kevin Polloi (Planner, EIS Graphics)
Harold Takemoto, P.E. (Civil Engineering)

Technical Consultants

Consultant	Technical Area
AECOS, Inc.	Biological Resources
Cultural Surveys, Hawai‘i	Archaeology, Cultural Impact Assessment
Julian Ng, Inc.	Traffic Impact Assessment
R.M. Towill Corporation	Civil Engineering
Rana Productions, Inc.	Biological Resources
SMS Research	Socio-Economic/Fiscal Assessment
The Hallstrom Group, Inc.	Market Study/Economic Impact Analysis/Public Cost-Benefit Assessment
Hawai‘i Design Associates, Inc.	Landscape Architecture
Kimura International, Inc.	EIS Preparation
Steven Bowles	Water Resource

Legal Consultant
Imanaka, Kudo, and Fujimoto

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APPENDICES

A. Waikoloa Water Master Plan, Tom Nance Water Resources Engineering, 1991.
B. A Survey of Botanical, Avian and Terrestrial Mammalian Species for the Waikoloa Highlands Subdivision, Rana Productions, Ltd. and AECOS Consultants, May 2006.
C. Social Impact Assessment, SMS Research, September 2006.
D. Market Study, Economic Impact Analysis and Public Cost/Benefits Assessment, The Hallstrom Group, Inc., May 2006.
E. Evaluation of Archaeological Potential at a 702.28-acre Parcel at Waikoloa, South Kohala District, Hawai‘i Island, Cultural Surveys Hawai‘i, April 2006
F. Cultural Impact Assessment, Cultural Surveys Hawai‘i, September 2006.
G. Traffic Impact Analysis Report, Julian Ng, Incorporated, July 2005.
H. Flood Plain Limits and Flood Control Plan for the Waikoloa Highlands Subdivision, R.M. Towill Corporation, September 2006.
I. Drainage Report for the Waikoloa Highlands Subdivision, Phase 1, R.M. Towill Corporation, September 2006.
J. Waikoloa Highlands Water Distribution System, Waikoloa Highlands Subdivision, R.M. Towill Corporation, September 2006.
K. Highlands Golf Estate Landscape Irrigation Water Study, Hawai‘i Design Associates, Inc., August 2005
L. Water Supply for the Highlands Estates at Waikoloa, Hawai‘i, November 2006.
M. Comments and Responses – EIS Preparation Notice
N. Comments and Responses – Draft EIS
O. Correspondence from County of Hawai‘i, Planning Department, February 8, 2007, relating to Amendment to Change of Zone Ordinance 05-157.

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