

**2004-02-23 FONSI  
WAIMEA TRAILS AND GREENWAYS**

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FINAL ENVIRONMENTAL ASSESSMENT

***WAIMEA TRAILS AND GREENWAYS***

Waimea, South Kohala District, Hawaii

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Prepared for

**Department of Parks and Recreation**  
County of Hawaii  
101 Pauahi Street, Suite 6  
Hilo, Hawaii 96720

February 2004

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Prepared in Fulfillment of the Requirements  
of Chapter 343, Hawaii Revised Statutes and  
Hawaii Administrative Rules, Title 11, Chapter 200  
Department of Health, State of Hawaii

Prepared for

**Department of Parks and Recreation**  
County of Hawaii  
101 Pauahi Street, Suite 6  
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February 2004

## SUMMARY INFORMATION

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NAME OF PROJECT: Waimea Trails and Greenways

PROPOSING AGENCY: Department of Parks and Recreation  
County of Hawaii

DETERMINING AGENCY: Department of Parks and Recreation

LOCATION: Waimea, Hawaii

TAX MAP KEY: (See Appendix A)

LAND AREA: Not Available

STATE LAND USE DISTRICT: Agricultural, Urban

GENERAL PLAN: Medium Density  
Alternate Urban Expansion

ZONING: Agriculture, Residential, Village Commercial, Open

EXISTING USE: Commercial, agriculture, open space

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**Note:** Revisions to the text of the Draft Environmental Assessment are shown in **bold italic** type. Deleted text is [bracketed].

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The Department of Parks and Recreation, County of Hawaii, in collaboration with the Waimea Preservation Association (formerly known as Waimea Main Street), a community-focused revitalization organization, proposes to construct a multi-use trail through the town of Waimea, District of South Kohala, Hawaii. A Location Map with the trail alignment is shown in Figure 1. As proposed, the Waimea Trails and Greenways is an approximately 4.5-mile long alternative transportation corridor for bicycle and pedestrian use.

#### **A. Purposes of the Project**

The purpose of the proposed project is articulated in a vision statement crafted by the Waimea Preservation Association. The vision statement reads in part:

"Waimea Trails and Greenways is a vision for a non-vehicular transportation link between Waimea's residential, recreational and community services."

In this vision commuters have the opportunity to escape on foot, bicycle, or horse to work, schools, and shopping and recreation areas along a series of safe and scenic trails. Between the Waimea Civic Center on the east to Kohala View Estates on the west and every place in between—imagine having a choice to walk, ride a bicycle or a horse away from the highway. The Waikoloa Stream affords a natural course for one portion of the trail running through the center of Waimea to neighboring subdivisions. On the quiet stream banks, it is difficult to believe you are only steps from the bustle of central Waimea's schools, and shopping areas, yet this stream can form a natural and vital link to these services.

Eventually the Waimea Trail and Greenway system could link ancient Hawaiian pathways to scenic hiking and riding areas such as the Waipio overlook, or the North Kohala coast via the Kohala Mountain. Users would experience majestic views dotted with historic views and *auwai* systems.

#### **B. Technical Characteristics**

##### **1. Trail Alignment for the First Planning Phase**

The proposed Waimea Trails and Greenways, a multi-use trail, will begin at a trail head at a vacant County of Hawaii park ("formerly the Clark Property") opposite the South Kohala View Estates residential subdivision on the west side of Waimea Town and proceed to Church Row in Waimea Town on the east. The approximately 4.5 miles long trail generally follows the meandering course of Waikoloa Stream through urban and agricultural lands.

##### **2. Right-of-Way/Tread Width**

The right-of-way for the trail varies in width depending where the trail is located. The wider the right-of-way, the more treads that can be accommodated; conversely, the narrower the right-of-way, the less treads to be accommodated. For the first planning phase, a typical trail section consists of a single, 10-foot wide tread, 2 to 5-foot shoulders, and additional area for landscaping (See Figure 2). In constricted areas, the tread is reduced to a 5-foot

width. A 10-foot width can accommodate 2-way traffic while a 5-foot width requires slower speeds, caution, and courtesy.

Where the right-of-way is wider, separate treads for wheeled vehicles, pedestrians, and joggers can be accommodated. Ample right-of-way is anticipated to be available for the trail segment between the County of Hawaii Refuse Transfer Station and the County Park.

### 3. Construction Material

Poured in place concrete is the recommended surface for the trail. Concrete will withstand mild to severe temperature changes during day and night hours and provide a safe and stable surface for pedestrians, joggers, the disabled, and bicyclists. Concrete will also require the least amount of long-term maintenance.

Alternative materials may be used to help reduce trail construction costs. For example, where multiple treads can be accommodated, the pedestrian/jogging tread could be compacted earth, grass, gravel, or a similar material. The selection of construction material will be made during the design of each trail increment.

### 4. Stream Crossings

Six stream crossings are proposed. Each crossing will be made via a single span bridge to avoid construction within the streambed. The type of bridge material (for example prestressed concrete or wooden bridge) will be determined during the design stage of the project.

### 5. Access and Accessibility

The trail would be accessible from identifiable entries established at the County owned park, near the County of Hawaii Refuse Transfer Station, Sandalwood Subdivision, Opelo Road, the Nature Park, Carter Center, Lindsey Road, and Church Row.

Although it is intended that the trail be accessible from areas along its length (e.g. from houselots adjoining the trail), there is a need to fence the right-of-way to separate uses (say cattle grazing) from trail users. The location of fencing (on one or two sides of Waikoloa Stream) and the selection of fencing material will be determined during the design stage of each construction increment.

The first construction increment of the trail between the Sandalwood Subdivision and Lindsey Road will adhere to the Americans with Disabilities Act Accessibility Guidelines and the Accessibility Guidelines for Outdoor Areas (or current guidelines in place at the time trail increments are constructed). This section of the trail will be designed to hold to a slope not exceeding 5%. Ground conditions in some areas, however, exceed this slope. In these areas the trail will be graded to not exceed an 8% slope per 30 feet of run. This standard should allow the disabled to negotiate steeper areas.

### 6. Parking

Off-road paved parking is proposed on the Clark Property at the western end of the trail. No other designated off-road parking area is planned. Trail users arriving by car would have to



park their vehicles on road shoulders where available and access the trail on foot. Most trail users are anticipated to be Waimea residents who will not have any parking needs.

**7. Rest Stops/Viewing Locations**

Resting and viewing areas will be constructed. The rest areas will be designed as a widened section of the trail rather than a designated area adjacent to the trail or off the trail. Benches and tables will not be provided at these rest stops.

**C. Economic Characteristics**

The cost of the project is estimated at \$2.3 million for construction for the 4.5-mile long trail. The first construction increment between the eastern end of the Sandalwood Subdivision and Lindsey Road is estimated at \$650,000.

Funding for the project is being provided by the County of Hawaii through its capital improvements project budget and by the Transportation Enhancement (TE) program of the U.S. Department of Transportation and administered by the Department of Transportation, State of Hawaii.

Because of funding constraints, this first planning phase will need to be constructed in three increments. Thus far, funding has only been allocated for Phase I planning and design of construction Increment 1. Funding for the construction of Increment I as well as design and construction of subsequent increments will need to be pursued. The timetable for completing the entire Phase I trail will depend largely on how successful Hawaii County will be in competing for limited federal highway enhancement funds allocated to the State of Hawaii through the TE 21 Program.

<u>Increment</u>	<u>Section</u>	<u>Distance (Miles)</u>
1	Lindsey Road to Sandalwood Subdivision	1.25
2	Sandalwood Subdivision to County of Hawaii Park	2.75
3	Lindsey Road to Church Row	0.5

The trail crosses public and privately owned land. The County of Hawaii has received (and continues to seek) access easements from landowners on whose property the trail crosses. In turn, landowners have either granted easements over their property or set aside land for the trail in favor of the County of Hawaii at no cost to the County. In one instance, Mr. Henry Clark donated an 8.01 acre parcel at the western end of the trail to the County of Hawaii for use as a park specifically for the Waimea Trails and Greenways project.

**D. Social Characteristics**

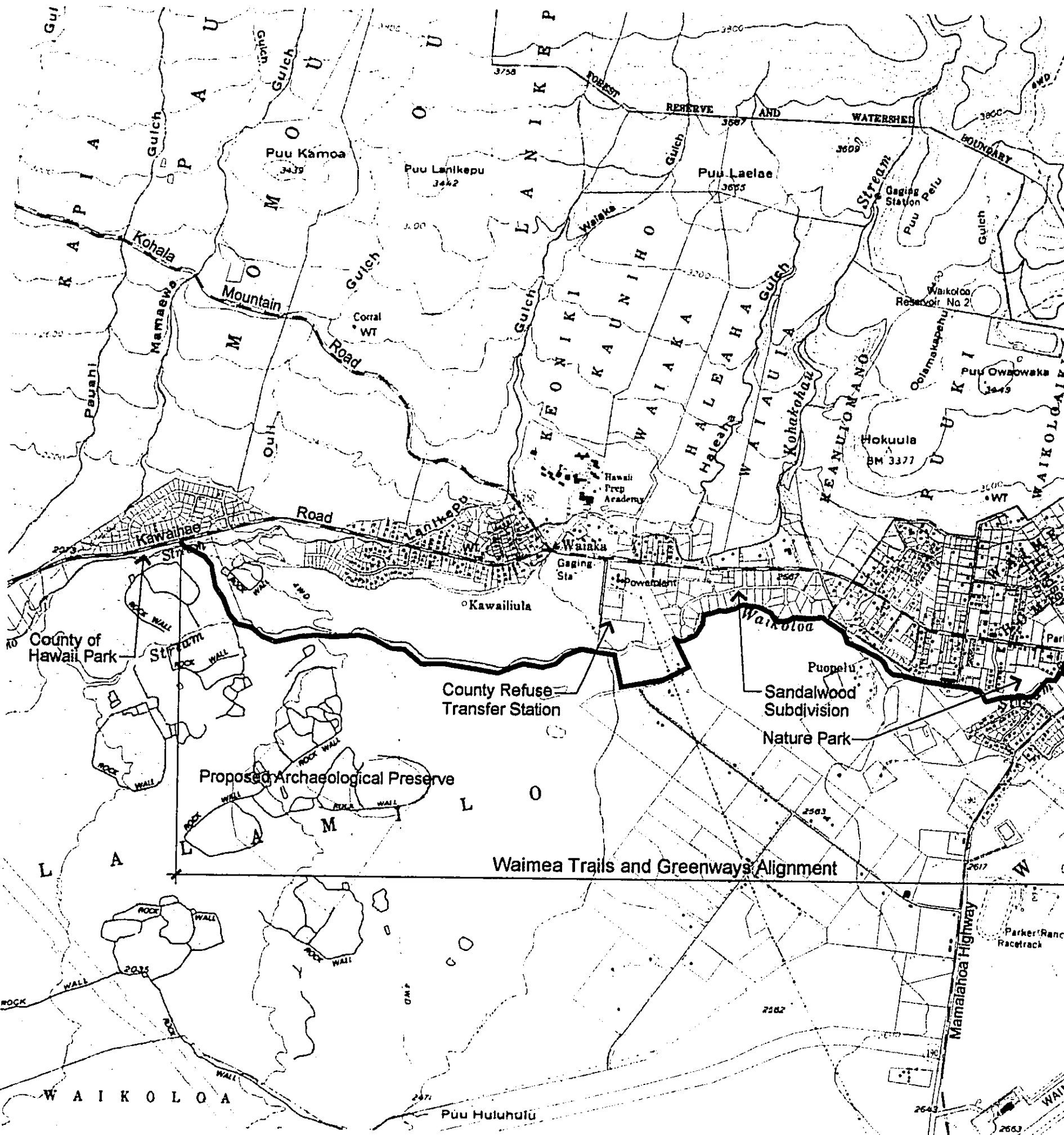
No residential or commercial activity will be displaced or forced to relocate as a result of the project.

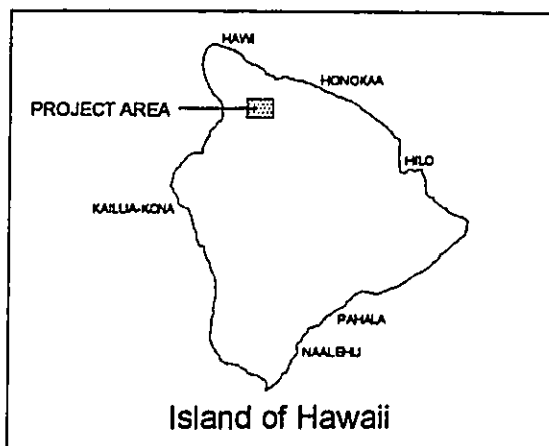
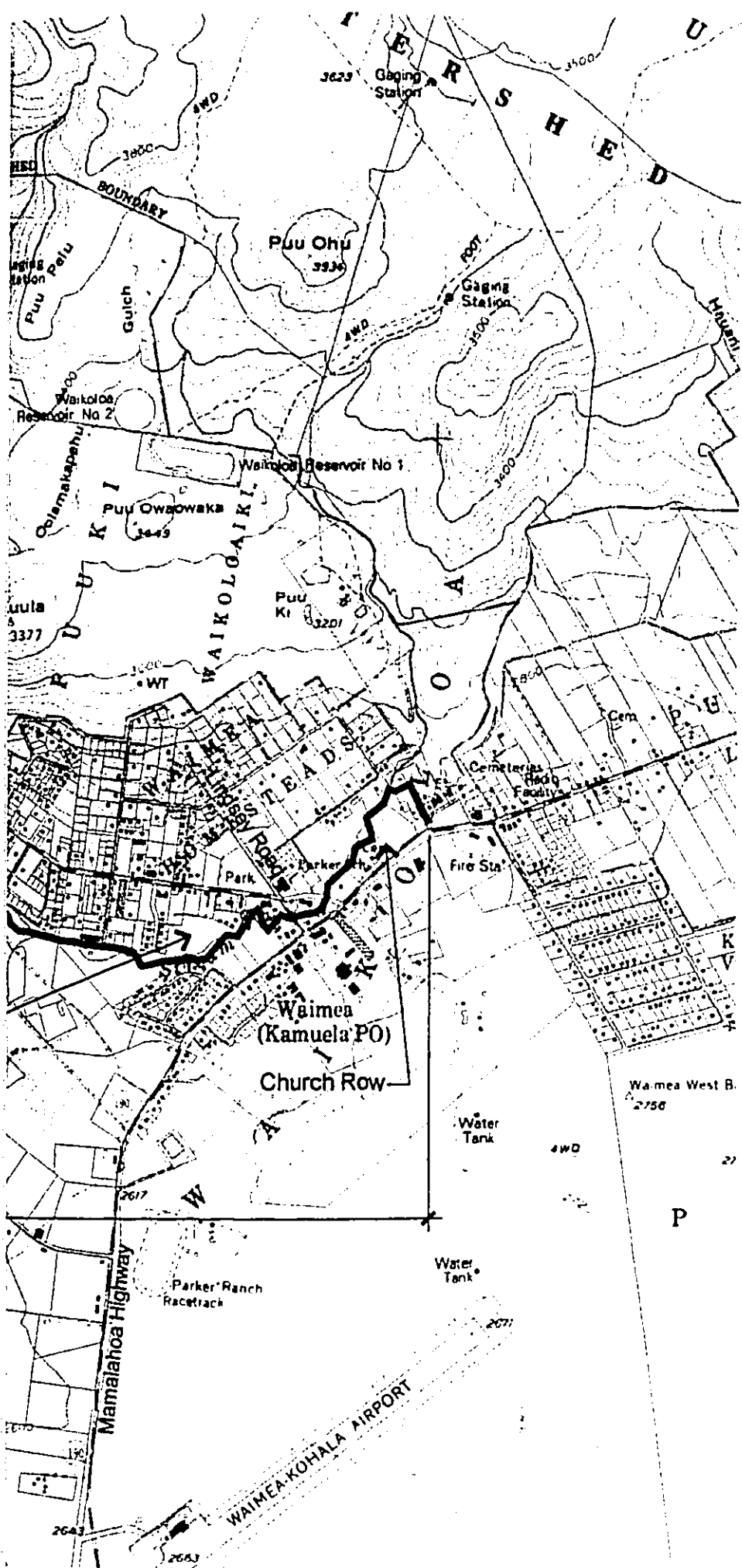
The trail is proposed through a section of the Kamuela Experiment Station (TMK: 6-6-003: 006), which is operated by the University of Hawaii. The parcel is also currently used as a temporary site for a charter school. The alignment through the Experiment Station is the

least disruptive to agricultural operations and the agricultural staff supports the selected trail alignment.

The trail also passes through a parcel (TMK: 6-6-001: 010) leased by the State of Hawaii to Roy Mattos Sr. The lessee uses the parcel for pasturing horses. That portion of the parcel adjacent to the Waimea-Kawaihae Road is overgrown and does not appear to be used. The Waimea Trails and Greenways Master Plan proposes to use this portion of the property for a trailhead. The County of Hawaii has requested the State of Hawaii to convey a portion of this property by easement or have the area set aside by executive order to the County of Hawaii.

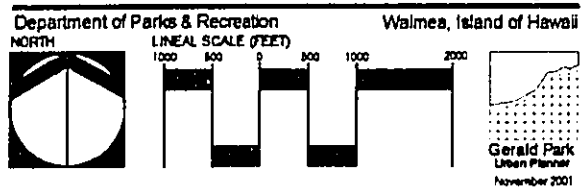
Planning for the Waimea Trail and Greenway initially included accommodating equestrian users. Because of the narrow trail width in some areas and potential conflict between man and animal, an alternative trail exclusively for equestrian users is being sought.





Source: USGS, Kamuela Quadrangle

Figure 1  
Location Map  
**Waimea Trails & Greenways**



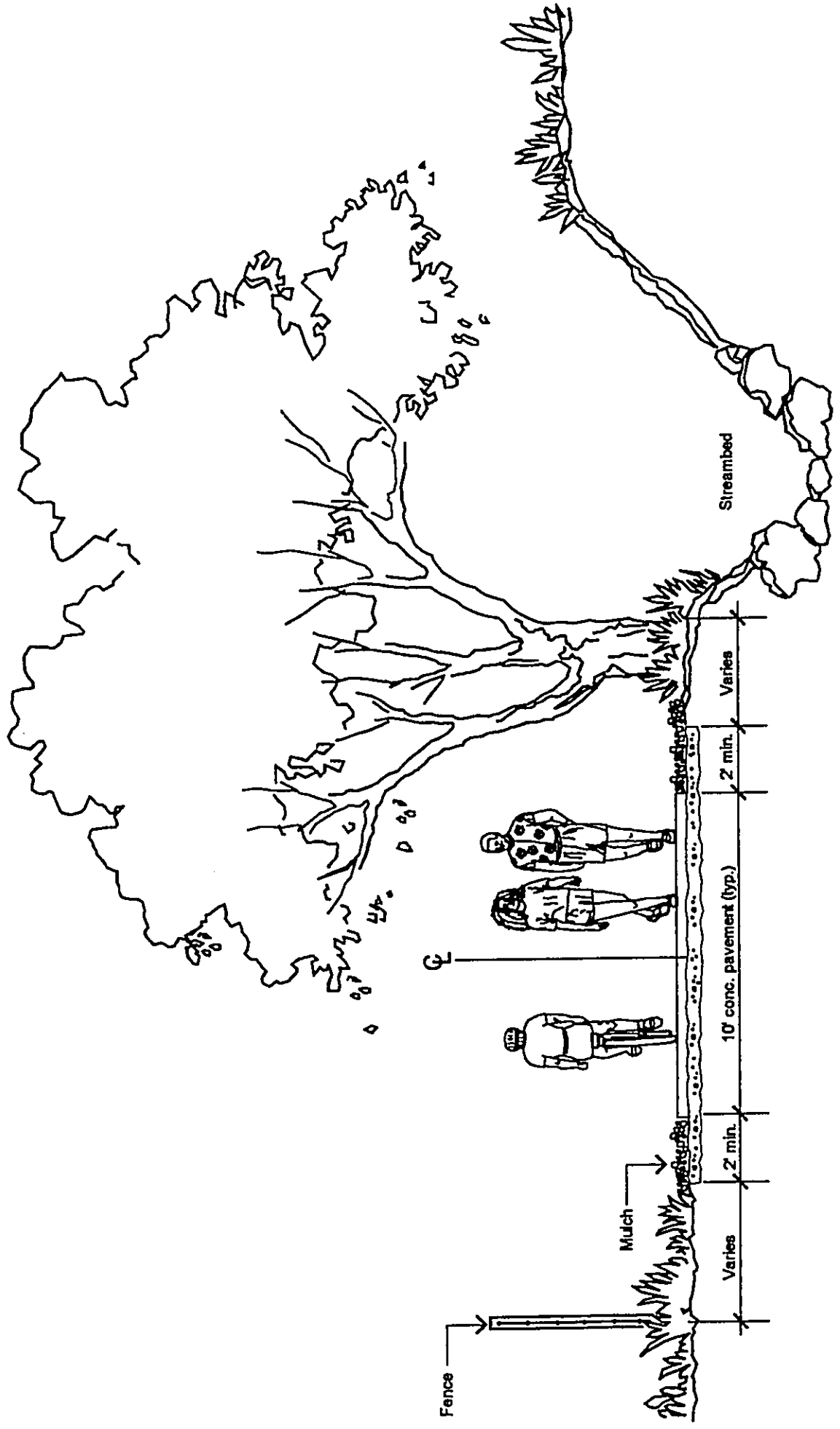
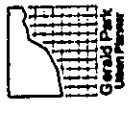


Figure 2  
 Typical Trail Cross Section  
**Waimea Trails & Greenways**  
 Department of Parks & Recreation  
 Waimea, Island of Hawaii



NOT TO SCALE

### A. Introduction

The proposed Waimea Trails and Greenway passes through developed and undeveloped areas on the Waimea plain. The eastern end of the trail originates at Church Road near the center of Waimea town and the western end originates on County owned vacant land donated by Henry Clark opposite the South Kohala Estates Subdivision. For most of its 4.5-mile length, the trail follows Waikoloa Stream.

Located at the 2,600-foot elevation at the western edge of the saddle formed by Mauna Kea and Kohala Mountain, the town of Waimea (or Kamuela as it is frequently called) spreads out in a linear pattern on both sides of Mamalahoa Highway and Kawaihae Road, the two main roads leading to and through the town. Home of the world renown Parker Ranch, the town has evolved from an agrarian community with ranching as the principal activity to a growing, urban town supporting urban services, astronomy, cattle ranching, and diversified agriculture.

Waimea is the largest urban center in the district of South Kohala, crossroads for the North Kohala, Hamakua, North Kona, and Hilo districts. In 1980 the town supported a population of 1,179 residents (General Plan, 1989) that grew to 5,972 residents in 1990 and 7,028 in 2000 (Census, 2000).

For ease in describing environmental conditions along the trail corridor, the trail is separated into five segments and identified by a "descriptor" term or phrase. Information is presented for four sections with the section labeled "Refuse Site" generally excluded. The information presented may be redundant because of similar and recurring features within each section. Information on features such as flood hazards, circulation, and land use is provided for the entire trail rather than individual sections. The sections are:

<u>Trail Segment</u>	<u>Location</u>	<u>Descriptor</u>
1	South Kohala View Estates to Waimea Refuse Transfer Station	Dryland
2	Waimea Refuse Transfer Station	Refuse Site
3	Waimea Refuse Transfer Station to Sandalwood Subdivision	Pasture
4	Sandalwood Subdivision to Lindsey Road	Res/Comm
5	Lindsey Road to Church Row	Comm/Comm

### B. Climate

Rainfall averages about 75 inches per year with the eastern side of town receiving more rain than the western side. The prevailing wind is from the north-northeast and east-northeast quadrant. Although the trade winds approach the island of Hawaii at a fairly constant speed, the uniform flow is distorted as the tradewinds traverse the island and combine with local winds on the mountain slopes to form complex wind patterns (DLNR, 1970). The average wind speed is 8-19 mph about 25 percent of the time. Annual temperatures range from 62°F during the coolest months to 68°F during the warmest months (Environmental Communications, 1976). Owing to its high elevation, the town is naturally cooled and fog frequently descends the slopes of Mauna Kea in the late afternoon and early evenings.

### C. Soils

Soil Conservation Service (1972) soil map unit identifies two soil types along the length of the trail. The soil types and locations are:

<u>Dryland</u>	<u>Refuse Site</u>	<u>Pasture</u>	<u>Res/Comm</u>	<u>Comm/Comm</u>
WMC	WMC	WMC	WMC	WMC Kfa

Waimea very fine sandy loam 6 to 12 percent slopes (WMC) is a well-drained, very fine sandy loam that formed in volcanic ash. This soil is moderately to rapid permeable, runoff is slow, and the erosion hazard is slight. In places, the surface is extremely stony with basalt lava found at a depth of 42 inches.

A small area of Kikoni very fine sandy load (Kfa) is found in the vicinity of Church Row and the small community park at the eastern end of the trail. Kikoni soil is a well-drained, very fine sandy loam that formed in volcanic ash. The soil is moderately permeable, runoff is slow, and the erosion hazard is slight to moderate.

The Detailed Land Classification Report for the Island of Hawaii (1972) uses a five-class system for rating agricultural productivity of land. The system uses the letters A, B, C, D, and E with "A" representing the most suitable land type and "E" the least suitable land type. Most of the agricultural designated lands within the project area is rated "C" or fairly suitable and "E" poorly suited for agriculture. Land adjoining the County of Hawaii Refuse Transfer Station (makai of Waikoloa Stream) and extending into the Lalamilo Farm Lots is rated "B" or suitable for agriculture.

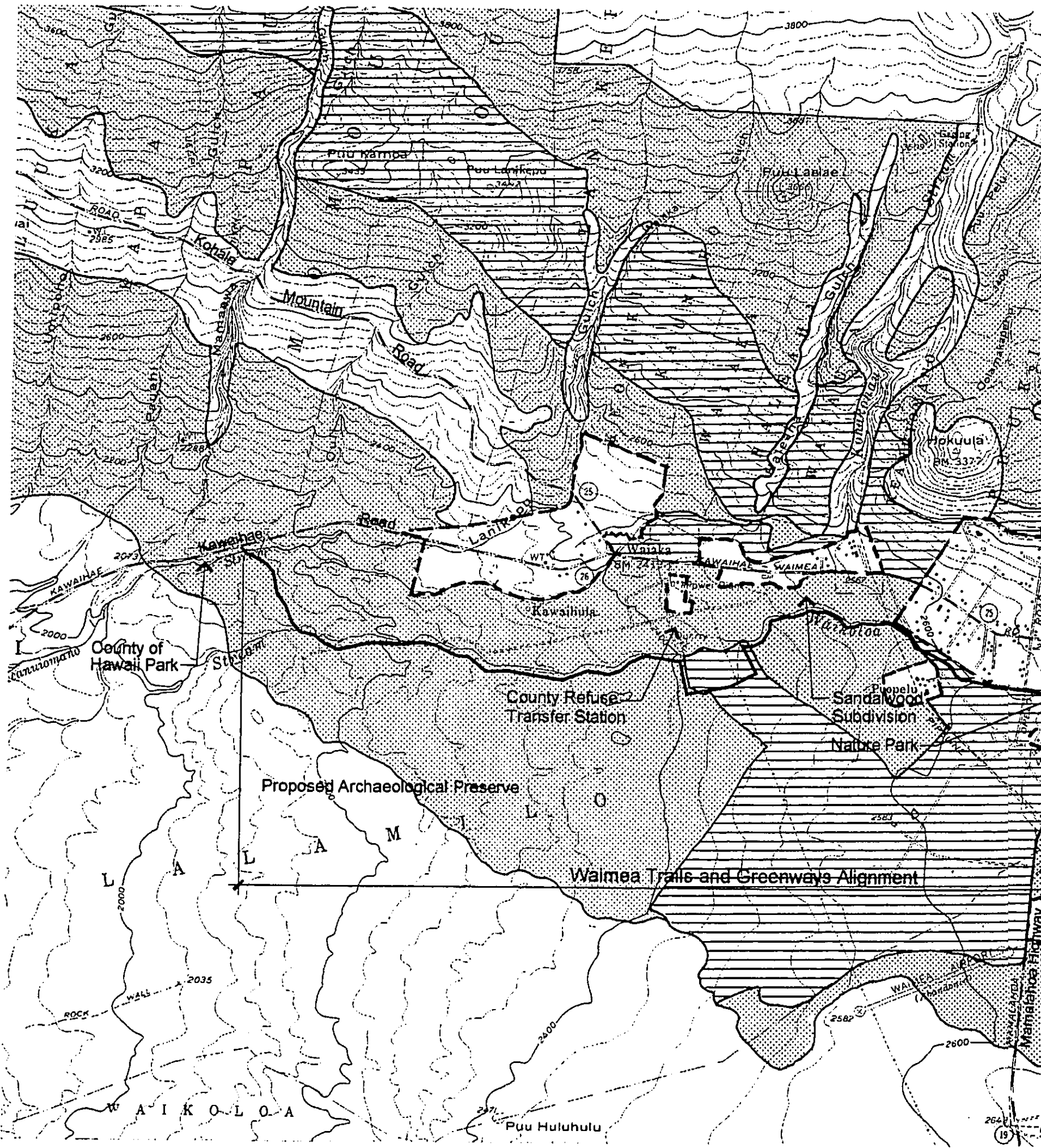
The Agricultural Lands of Importance to the State of Hawaii ("ALISH") map rates land along the trail Prime Agricultural Land and Other Important Agricultural Land. The Prime designation applies to land comprising the UH Agricultural Experiment Station and the Lalamilo Farm Lots (See Figure 3).

### D. Flood Hazard

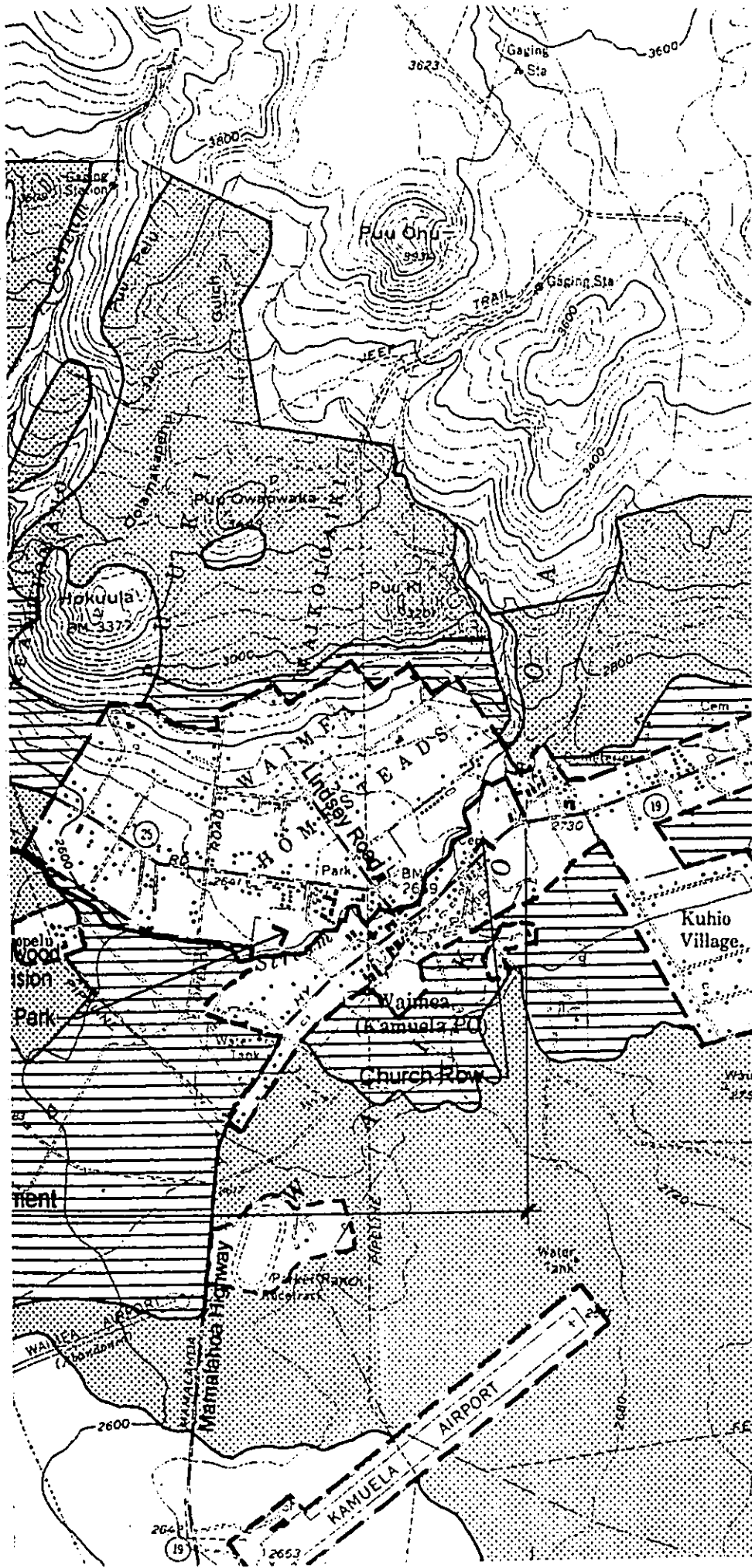
Flood Insurance Rate Maps ("FIRM") for Waimea indicate that flooding is a potential hazard caused by overtopping of Waikoloa Stream. The study limits for flooding includes most land on both sides of Waikoloa Stream between the County of Hawaii Refuse Transfer Station on the west and Church Row on the east. The FIRM (1988) identifies flood areas along the stream as "special flood hazard areas inundated by 100-year flood." As shown in Figure 4, the FIRM designates these flood areas Flood Zone "A" which is defined as "no base flood elevations determined." *The Department of Public Works commented that portions of the trail will be constructed within Flood Zone AE.*

### E. Volcanic Hazard




Volcanic hazard areas on the island of Hawaii are designated by the location and frequency of past eruptions. Hazard areas are designated by letters from A through F with A being areas of least risk and F areas of highest risk (U.S. Department of the Interior/Geological








**Legend**

-  Prime Agricultural Land
-  Unique Agricultural Land
-  Other Important Agricultural Land


Source: Department of Agriculture, State of Hawaii, 1977.

**Figure 3**  
**ALISH**  
**Waimea Trails & Greenways**

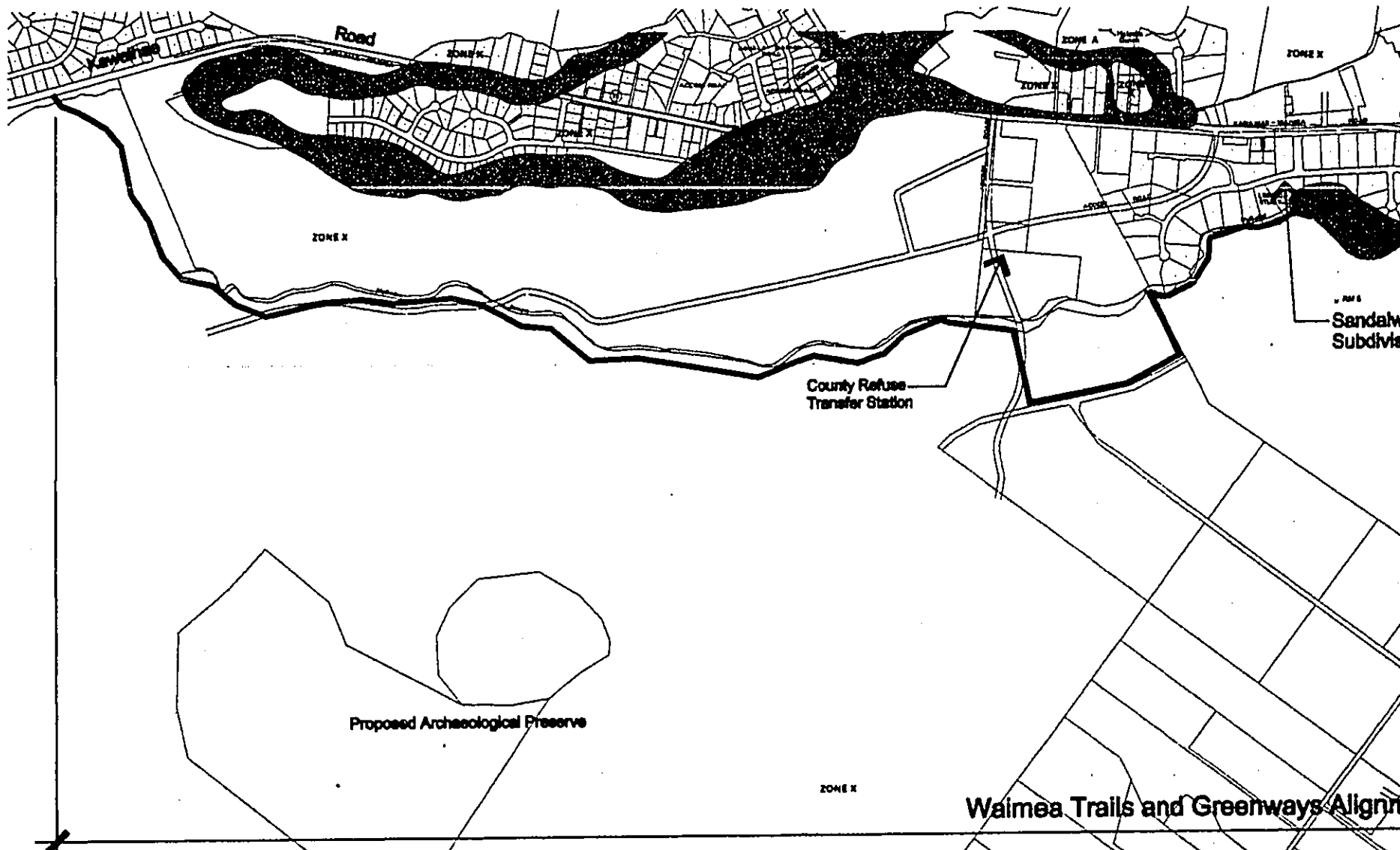
Department of Parks & Recreation  
 NORTH  
 LINEAL SCALE (FEET)  
 1000 800 600 400 2000



Waiamea, Island of Hawaii



Gerald Park  
 Urban Planner  
 November 2001



**LEGEND**

**SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD**

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AD** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined. For areas of elevated flooding, velocities also determined.

**ZONE ABB** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.

**ZONE V** Coastal flood with velocity hazard (from waves); no base flood elevations determined.

**ZONE VE** Coastal flood with velocity hazard (from waves); base flood elevations determined.

**FLOODWAY AREAS IN ZONE AE**

**OTHER FLOOD AREAS**

**ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

**OTHER AREAS**

**ZONE X** Areas determined to be outside 500-year flood plain.

**ZONE D** Areas in which flood hazards are undetermined.

— Flood Boundary

— Floodway Boundary

— Zone D Boundary

— Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Overlays Within Special Flood Hazard Zones.

— E12 — Base Flood Elevation Line; Elevation in Feet\*

○ — Cross Section Line

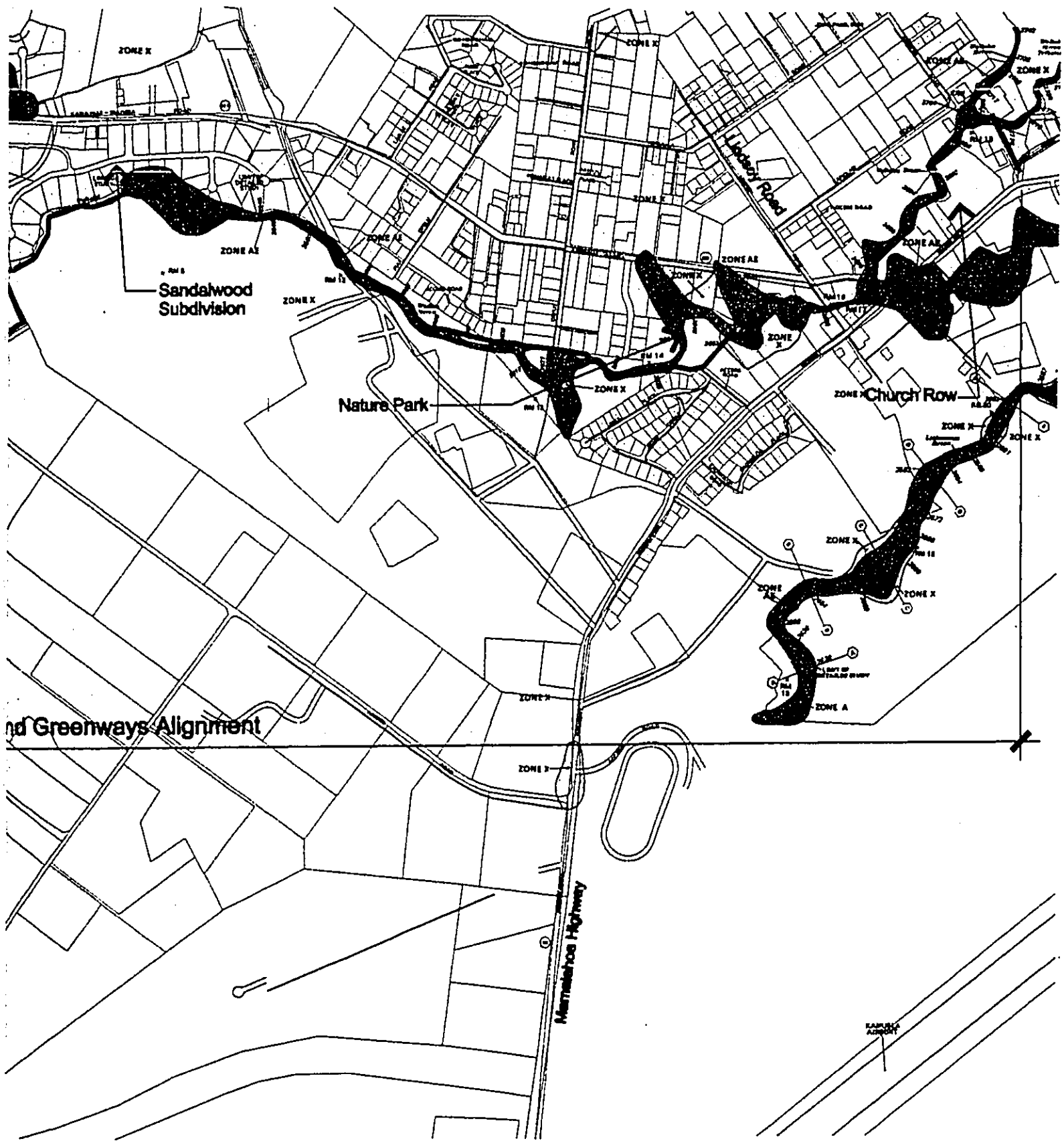


Figure 4  
 FIRM  
 Waimea Trails & Greenways

Department of Parks & Recreation      Waimea, Island of Hawaii

NORTH

LINEAL SCALE (FEET)

0 200 400 600 800 1000

Gerald Park Urban Plan  
 November 2001

Survey, 1976). Waimea is located between Areas A and B. Area A is Kohala Volcano where no volcanic activity has occurred in this area for about 60,000 years. Area B consists of the lower flanks of Mauna Kea. No eruptions have occurred in this area during the last 10,000 years

#### F. Water Resources

Although Waikoloa is listed as a perennial stream (Hawaii Cooperative Park Service Unit, 1990) its flow characteristics are complex. Within the project area, the stream is interrupted, consisting of isolated pools that link together during rainy periods to form a more continuous aquatic feature. There are ample outcrops of bedrock that accumulate pooled water, and some large pools may be seep or spring fed. Even during periods when water is flowing within the stream bed in the project area, it is not often that this flow continues as surface flow all the way to the ocean. Freshet flows of such a magnitude occur very infrequently. Further complicating the situation, at least as observed during our surveys, is a leaking pipe located near Puu Opele Road. This pipe appears to be used for moving irrigation water from storage reservoirs upslope on Kohala Mountain to Parker Ranch lands southeast of the stream, and is used for intermittent periods each day. Water leaking from this pipe is sufficient to establish flow much of the way to the lower end of the proposed Trails and Greenways corridor near South Kohala Estates subdivision.

Water within Waikoloa Stream at the time of our field surveys consisted of either standing, isolated pools or flowing water clearly arising from a leak in a transmission pipe across the stream—the origin of this water was not investigated. [Note: Parker Ranch was notified of the leak]. Consequently water samples representing the stream in the project area were collected from Keanuimano Stream under the Route 19 highway bridge on two separate occasions as indicated in Table 1. The location is upstream of the lower end of the proposed Trails and Greenways corridor.

**Table 1**  
**Basic Water Quality Characteristics of Keanuimano Stream**  
**Island of Hawaii, (2000)**

	Time Sampled	Location	pH (pH Units)	Cond (µmhos/cm)	Turb (ntu)	TSS (mg/l)
Sta.1						
5-23-00	14:30	Rte. 19	—	32.4	—	1.2
6-6-00	13:45	Rte. 19	7.36	35.6	2.46	1.4
	Time Sampled	Location	Nitrate + Nitrite (µg N/l)	Ammonia (µg N/l)	Total N (µg N/l)	Total P (µg P/l)
Station 1						
5-23-00	14:30	Rte. 19	—	—	199	17
6-06-00	13:45	Rte. 19	4	2	191	24

Source: AECOS, 2000.

The water quality results show stream water of exceptional quality. All of the values are close to within the normal range from streams with minimal anthropogenic influences. Turbidity is very slightly elevated, as is the total nitrogen (TN). Hawaii Administrative Rules (HAR) 11-54-5.2 (State water quality regulations) establish that a dry season turbidity mean value should be under 2.0 and TN mean should be under 200 ugN/l for compliance. Note that these are average values (geometric means, actually) and therefore the fact that our values are close to these "limits," only suggest that the stream water quality may be just over or just under these specific standards if additional samples were collected over time. All other values measured are below the respective standards. Turbidity and total N standards are least often met by streams in the State of Hawaii.

Considering the elevation (over 700 m or 2300 ft) of the project area compared with most stream systems in the Hawaiian Islands, it was thought stream temperature recordings would be of some interest. Because small, natural streams typically reflect local air temperature with moderation of daytime extremes, the cooler climate of the Waimea area should result in cooler water temperatures, even during the "summer" months. Recording temperature probes were placed in Waikoloa Stream in a deep, isolated pool near the upper end of the project area and in flowing water under the highway bridge on Keaunuiomano Stream. Results are summarized in Table 2.

**Table 2**  
**Summary of Temperature (°C) Recording Probe Setup in**  
**Waikoloa and Keaunuiomano Streams, June 2000**

RECORDING PROBE	MEAN ± STD. DEV.	MIN	MAX	N - (DAYS)
Waikoloa Stream May 22-23, 2	16.2 ± 0.14	16.0	16.3	96 (2)
Keaunuiomano Stream May 22-23, 2000 June 5-6, 200	18.8 ± 2.22 19.0 ± 3.58	16.6 17.1	24.4 36.5	84 (2) 110 (2)

Source: AECOS, 2000.

The difference in temperature between the recording made in Waikoloa Stream (815 m) and that in Keaunuiomano Stream (735 m) partly reflects the differences in elevation of the two sites and the minimal solar input at the Waikoloa site. The Waikoloa Stream site is a moderately deep, shaded pool that barely changed temperature over 24-hours whereas the probe in flowing Keaunuiomano Stream, demonstrates a typical diurnal cycle of daytime warming of some 80C on May 22-23.

The temperature recorded on June 2-6, 2000 at the Keaunuiomano Stream location provided a curious mix, with June 5 showing minimal diurnal variation and June 6 temperature rising steeply through the day, even more steeply than was the case on May 23. Although variation in solar input (cloudy vs. cloudless day) might explain the difference, a more likely cause is variation in stream flow related to stream withdrawals or inputs further up slope.

### G. Aquatic Biota

Although flowing water of good volume was present in Waikoloa Stream at times during the field survey, flow was limited to the stream segment below a water transmission pipe and a point not far downstream from the County transfer station (at least 2 km or 1.2 mi along the stream bed). Most of the stream bed of Waikoloa Stream, however, is cutting downward through highly resistant basalt, and basins and potholes are plentiful, capturing the intermittent flow and/or water from rains in pools of various sizes and permanence all along the reach within the project area. Below the County transfer station, Waikoloa Stream becomes increasingly dry during all but major storm flows (freshets). That the stream loses considerable erosive power downstream is very evident by the stream bed becoming clogged with sediment and vegetation before it joins Keanuiomano Stream (See AECOS Consultants, 2000).

Given the intermittent nature of the flowing water, the aquatic macrofauna of this stream system within the project area is rather sparse. Clearly, aquatic insects with the adult stage capable of long-distance dispersion have the best opportunity to colonize the isolated bodies of water encountered, and a significant portion of the fauna identified is aquatic insects. Adult dragonflies, both green damer (*Anax Junius*) and globe skimmer (*Pantala flavescens*), were regularly encountered flying along the stream bed. Much less often seen, perhaps because of strong winds during the field visits, were blue damselflies (*Enallagma civile*). A native Megalagrion (*M. blackburni*) damselfly was encountered along Waikoloa Stream at elevations near 760 m (2500 ft) within the project area. This species is a relatively strong flier, and adults are often observed far from breeding streams. Immatures of this species prefer swift stream waters (Polhemus and Asaquith, 1996), and most of the population lives further upslope from the project area.

Aquatic snails, flatworms, and leeches are present in the stream in the project area, indicating some constancy of aquatic habitat, even if only as small, standing pools. The alga, *Spyrogyra* sp., is also prominent in some pools. No fishes of any kind were observed in the project area.

### H. Terrestrial Flora

The vascular flora within the project limits comprises a mix of native and introduced species of trees, shrubs, grasses, and forbs consisting of 153 taxa in 59 families. Twelve of the 153 taxa (7.9%) are considered native (4 endemic, 8 indigenous), but are common, widely distributed species. The remaining 141 taxa (92.1%) are naturalized, non-native species, including three that probably were brought to the islands by the early Polynesian emigrants and have since become naturalized.

The 4 endemics include ho'i'o, wiliwili, pua kala, and 'akia. Pala'a, *Cyperus polystachyos* Rottb., 'aka'akai, koali, false mallow, 'ilima, popolo (?), and 'uhaloa are the 8 indigenous species observed. The three species thought to have been brought to the islands by the early Polynesians include sugar cane, primrose willow, and yellow wood sorrel.

### I. Terrestrial Mammals

Six mammalian species were detected within the survey corridor. Domestic dogs (*Canis f. familiaris*) were heard or seen at every avian count station sampled. The near ubiquitous,

small Indian mongoose (*Herpestes a. auropunctatus*) and cat (*Felis catus*) were seen within Waimea town but were not seen within the pasture areas south of Puu Opelu Road. Numerous domestic cattle (*Bos Taurus*) were encountered within the pasture areas along the corridor. Two groups of three goats (*Capra H. hircus*) were seen staked beside the upper corridor in separate locations.

Scats of domestic dog, small Indian mongoose, cat, domestic cattle and horse (*Equus c. caballus*) were encountered along the bulk of the proposed main corridor. Additionally, several skeletal remains of dog, domestic cattle and European house mouse (*Mus domesticus*) east of the Kamuela refuse transfer station were observed. Although only skeletal remains of several predated European house mice were encountered during the course of the survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) as well as mice utilize resources found within the proposed corridor.

Hawaii's sole endemic terrestrial mammalian species, the endangered Hawaiian hoary bat, or 'ope'ape'a, was not detected during the course of the survey.

#### **J. Birds**

A total of 400 individual birds of 18 species, representing 11 separate families were detected during the survey. An additional three species Wild Turkey (*Melagris gallopavo*), Barn Owl (*Tyto alba pratincola*) and Northern Mockingbird (*Mimus polyglottos*) were recorded as incidental observations while transiting between count stations. All birds detected are alien to the Hawaiian Islands.

House Finch (*Carpodacus mexicanus frontalis*) was the most common species detected accounting for 24% of the total individual birds recorded. Two species, House Finch and Sky Lark (*Alauda a. arvensis*), represented slightly more than 50% of the total birds detected during the course of this survey.

#### **K. Archaeology**

An archaeological survey was performed for the entire 4.5 mile long trail by Cultural Surveys Hawaii. Excerpts from their survey report are presented below.

Trail Segment 1 is, within what has been referred to as the Lalamio Field Complex, a subset of the Waimea agricultural system (Clark, 1987). Additionally, Segment 1 is at least in part, within the "Lalamilo Kuleana and Ranch District;" State Site 50-10-05-2292 (Barrera and Kelly, 1974). Section 1 was not staked during the field inspection so no specific site or features designations were accomplished in relation to intersects with the proposed trail alignment. The field inspection did indicate that certain 'auwai sections, a wall segment, and a number of fields are in the vicinity of the trail corridor. No house sites appear to be within the trail corridor.

A portion of Trail Segment 2 that is State land, just east of the existing transfer station, has been altered extensively by bulldozing and old landfill activities. The trail corridor follows a bulldozed path between Waikoloa Stream and the 'mountain of trash' of the old landfill. No historic properties were observed in Section 2.

No archaeological features were observed in Trail Segment 3.

Remnant structures related to a pipeline crossing, and possibly a concrete ford were observed in Trail Segment 4. The large concrete slab remnant had an imprinted date of "194\_" suggesting a World War II association. The pipe crossing remnant structures are short, faced, ramp like structures with the faced vertical side facing the stream. Construction type is similar to a crossing observed in Segment 5, consisting of basalt boulders and concrete.

Two historic structures were observed within Trail Segment 5: a stacked stone wall behind the KECK offices and a remnant of a basalt boulder and concrete stream crossing. The boulder wall is typical of the many dry masonry stone walls in the Waimea area and presently serves as the stream side property boundary for the KECK office complex. The remnant boulder and concrete stream crossing appears to be for an old narrow roadway and/or for an old pipeline. The old stream crossing is situated behind a row of stores some 200 feet east of the Lindsey Road Bridge.

Additionally, Imi'ola Church and cemetery are in close proximity to the eastern terminus of the trail. The church is on the State and National Registers of Historic Places and has been allotted State Site #50-10-06-7151.

#### **L. Land Use Controls**

The County of Hawaii General Plan Land Use Pattern Allocation Guide ("LUPAG") map designates land within the project limits Medium Density and Urban Expansion. The former designation applies to Waimea Town and areas immediately surrounding the town. The Urban Expansion designation applies to land west of town

Over its 4.5-mile meandering corridor, the trail passes along and through land zoned residential, commercial, agriculture, and open. The trail is considered a public use and structure and thus is an allowable use in the respective zoning districts.

#### **M. Land Tenure**

The trail crosses public and private land. Property owners along the trail corridor have either donated land for the trail to the County of Hawaii or granted easements for the trail in favor of the County of Hawaii. A list of properties and the respective owners is presented in Appendix A.

#### **N. Circulation**

Mamalahoa Highway and Kawaihae Road, two of the major roads in the South Kohala District, connect at Lindsey Road, a local collector road in Waimea. At the intersection of Lindsey Road and Mamalahoa Highway, traffic movement is controlled by a signalized intersection.

Kohala Mountain Road intersects Kawaihae Road at the western edge of the town. The latter provides a transportation link between Waimea and communities in the North Kohala District, ranches, and low-density development along the road.



#### **O. Infrastructure**

Major public infrastructure to include water lines, drainage facilities, and power and communication lines are found principally along the streets or within street rights-of-way and not within the trail corridor.

#### **P. Schools**

Two private educational facilities and one public school are located in Waimea. The upper (or main) campus of Hawaii Preparatory Academy (K-12) is located on the western end of town mauka of Kawaihae Road at its intersection with Kohala Mountain Road. The school's lower and middle campus is located on Kawaihae Road towards the center of town. Parker School, also a private school, fronts on Lindsey Road. This school is smaller in physical area and enrollment compared to Hawaii Preparatory Academy.

Waimea Elementary and Intermediate School (Grades K-8), a public school, is located along Mamalahoa Highway near its intersection with Lindsey Road. During the year 2000-2001, the school had an enrollment of 1,154 students.

#### **Q. Parks and Recreation Facilities**

Public parks in Waimea include Waimea Park along Lindsey Road and Waimea Church Row. Thelma Parker Gym is located on Mamalahoa Highway adjacent to Waimea Elementary and Intermediate School

The Waimea Outdoor Circle is proposing to construct a nature park (Waimea Nature Park) to the west of Lindsey Road. The proposed trail crosses the eastern/western edge of the proposed Nature Park. The Park will provide another access point for trail users.

#### **R. Protective Services**

Police and fire protection services originate from the Waimea Civic Center located on Kamamalu Street to the south of Church Row. Seventeen police officers are assigned to the station. Fifteen fire fighters are posted at the Waimea Fire Station and five are on watch at all times.

#### **S. Cultural Resources**

***The Office of Environmental Quality Control and the Office of Hawaiian Affairs commented that a cultural impact assessment should be included as part of the environmental assessment. A cultural impact assessment was subsequently prepared and is incorporated in its entirety into this document as Appendix B.***

***Concurrent with the planning for the Waimea Trails and Greenways, the Department of Hawaiian Home Lands ("DHHL") was also planning to construct a residential subdivision project on 266 acres of land at Lalamilo, South Kohala. A cultural impact assessment (Haun & Associates, 2002) was prepared as part of the Environmental Impact Statement for the DHHL project (PBR Hawaii, 2002). The Haun assessment applied to nine parcels owned by DHHL. With regards to cultural practices, the assessment concluded:***

***"This cultural impact assessment did not identify any present-day cultural practices nor did it identify anyone who currently uses the project area for cultural practices of any kind. Past cultural practices identified were related to agricultural practices and the utilization of the ancient 'auwai or ditch system which traversed much of the Lālāmilo area. The project area is part of the larger Lālāmilo field system evidenced by remnant 'auwai and dryland terraces. Hawaiian burial practices (pre-contact and historic) were conducted in the project area as evidenced by the presence of burials and grave sites."***

***The subdivision fronts almost the entire western end of the proposed Waimea Trails and Greenways Project (except that portion along the County of Hawaii Refuse Transfer Station). Because the trail adjoins both DHHL properties, the findings of the Haun assessment are considered applicable to the western end of the trail.***

***The cultural impact assessment prepared for this project thus focused on the eastern end of the trail from Church Row to the Sandalwood Subdivision. Excerpts from the assessment are presented below.***

***In preparing this cultural impact assessment, materials were drawn from the archaeological assessment (Cultural Surveys Hawaii, 2002), a review of the literature, and interviews with kama'āina knowledgeable of the Waimea area. Four of the interviewees Mr. Melvin Hewett, Mr. Hisao Kimura, Mr. Alan Lindsey, and Ms. Lynn Taylor participated in formal interview sessions that were taped and transcribed..***

***No specific documentation was found in regards to gathering of plants along Waikoloa Stream. However, Mr. Lindsey mentioned that there was a lot of plants near the stream--'ilima, 'olena, and poha. Others remembered the banks of the stream as just low pasture grasses and that the vegetation adjacent to the stream now is relatively recent (Post 1960). During this assessment, there were no current cultural practices related to traditional gathering rights identified.***

***No specific documentation was found in regards to subsistence gathering from the stream. From the kama'āina interviewees, Alan Lindsey indicated 'ōpae inhabited the stream and recalls catching them when he was younger. Other interviewees mentioned the absence of people fishing and gathering from the stream. Based on informant information, there was limited varieties of plants and fish in the stream and that the precious resource was water.***

***Imi'ola Church at the eastern end of the trail is listed on the State and National Registers of Historic Places. No other listed sites were observed during the archaeological assessment prepared for the project.***

***The area to the west of the County of Hawaii Refuse Transfer Station includes agricultural features such as 'auwai and field walls. Other features include house sites, burials, mounds, terraces, and field boundaries.***

***No specific documentation was found regarding 'Iwi in the project area. However, there are church (e.g. Imi'ola) and family cemeteries (i.e. Spencer family) with Waimea Town. When asked about burials along the stream, Mr. Lindsey mentioned "No not in***

***"This cultural impact assessment did not identify any present-day cultural practices nor did it identify anyone who currently uses the project area for cultural practices of any kind. Past cultural practices identified were related to agricultural practices and the utilization of the ancient 'auwai or ditch system which traversed much of the Lālāmilo area. The project area is part of the larger Lālāmilo field system evidenced by remnant 'auwai and dryland terraces. Hawaiian burial practices (pre-contact and historic) were conducted in the project area as evidenced by the presence of burials and grave sites."***

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***No specific documentation was found in regards to gathering of plants along Waikoloa Stream. However, Mr. Lindsey mentioned that there was a lot of plants near the stream--'ilima, 'olena, and poha. Others remembered the banks of the stream as just low pasture grasses and that the vegetation adjacent to the stream now is relatively recent (Post 1960). During this assessment, there were no current cultural practices related to traditional gathering rights identified.***

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*that area because all what is up on the ranch Mānā all the burials are in their own cemetery, Parker Ranch got their own cemetery, they have their own family there". Previously undocumented burials and possible burial sites were documented makai (west) of the County Transfer Station (Haun et.al. 2002) in areas where the trail is planned.*

*Based on late 19th and 20th century maps the primary transportation routes mauka/makai correlate closely to the existing major roadways. The primary transportation route the Waimea-Kawaihae Road is north of the proposed trail. The Hawi Mountain Road intersects the Waimea-Kawaihae Road at Wai'aka near HPA also north of the proposed trail corridor. Mamalahoa Highway (and its predecessor) enters Waimea Town south of the proposed trail corridor. None of the interviewees mentioned any historic trails that could be affected by the proposed trail.*

*Concern was expressed that occasionally Waikoloa Stream ran dry and that it doesn't rain as much as it once did. Cattle ranching has played a large part in deforestation which has resulted in less rainfall. Complicating the situation is the tapping and redirecting of streams which has reduced the water flow in a number of streams. All of the informants mentioned water resources, or the lack there of, as one of Waimea's primary concerns. None of those interviewed, however, felt that the proposed trail would adversely affect stream resources.*

## SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

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3

### A. Assessment Process

The scope of the project was discussed with staff of the Department of Parks and Recreation, the consultant team, and representatives of the Waimea Preservation Association. Federal, State, and County agencies were contacted for information relative to their areas of expertise. Time was spent in the field noting conditions along the trail alignment and in the vicinity of Waikoloa Stream. Public meetings were held in Waimea to solicit ideas and to hear concerns about the trail and its location from residents and community groups. The trail corridor that could be affected by the proposed use was investigated for cultural and natural resource values. The sum total of consultations, community meetings, and field investigations helped to identify existing conditions and features that could affect or be affected by the project. These features are:

- Waikoloa Stream is an intermittent stream;
- Waikoloa Stream does not provide habitat to rare, threatened, or endangered aquatic species;
- No wetlands were encountered in the project area;
- Sections of Waikoloa Stream are identified as a flood hazard area (Flood Zone A);
- No rare, threatened, or endangered terrestrial flora are found within the trail corridor;
- No rare, threatened, or endangered avian species are found within the trail corridor;
- No rare, threatened, or endangered vertebrates are found within the trail corridor;
- The trail passes through the Lalamilo Field Complex (an archaeological field system);
- The trail corridor and adjoining lands have been improved for agricultural and urban activities to include cattle grazing, residential uses, truck farming, commercial activities, office buildings, and public facilities.

It is anticipated that construction of the trail will be accomplished using standard construction methods or variations thereof. In its simplest application, an area slightly wider than the trail itself will be grubbed of vegetation and graded to rough elevation. Construction forms will then be set into place and the building material for the trail applied within the forms. After the material has cured, the forms will be removed and the area adjoining the trail restored to pre-construction condition or better.

Prior to construction, the trail corridor will be staked and significant trees and plant material to be left in place flagged. The site contractor will put erosion control measures into place prior to grubbing and grading. It is anticipated that site work will be limited to 300 lineal feet in advance of actual construction. Because the trail is route specific (versus site specific) construction will progress from one location to another along the staked corridor. Construction impacts, thus, will be temporary at any one location but repetitive over the length of the trail,

### B. Short-term Impacts

Site work is probably the most disruptive construction activity on the environment. This activity entails clearing and grubbing vegetation, grading the trail to rough elevation,

stockpiling excavated material, and hauling debris to approved disposal sites. All are prerequisites for building the temporary and permanent improvements to follow.

Site work is a persistent source of **fugitive dust**. Site contractors are aware that dust is a nuisance to people living and working near construction sites and it is imperative for them to maintain stringent dust controls. Frequent water sprinkling is probably the most effective dust control measure given the type and scale of proposed improvements. Limiting the amount of land exposed at any time will also help to control dust and runoff during construction. The General Contractor, however, may choose to implement other measures based on their experience with similar projects and the constraint of having to work within a narrow, confined corridor particularly between Church Row and the UH Agricultural Experiment Station.

The General Contractor also will be responsible for general **housekeeping** of the trail corridor and for keeping adjacent streets and properties free of mud, sediment, and construction litter and debris. Pollution control measures will comply with Chapter 60.1, Air Pollution Control regulations of the State Department of Health.

Construction **noise**, like fugitive dust, cannot be avoided. Noise sensitive properties--such as residential areas--adjoin the trail corridor. Some of these properties already are exposed to noise emanating from large trucks, tour buses, and automobiles traveling on adjacent roads. Construction noise will be audible at all locations along the trail but exposure to noise is expected to vary in volume, frequency, and duration as work proceeds from one location to another. Noise will vary also by construction phase, the duration of each phase, and the type of equipment used during the different phases.

Community Noise Control regulations establish maximum permissible sound levels for construction activities occurring within "acoustical" zoning districts. Based on residential uses in the area (the most restrictive use), the project is considered to be located in the Class A zoning district for noise control purposes. The maximum permissible daytime sound level in the district is 55 dBA between the hours of 7:00 AM to 10:00 PM and 45 dBA between 10:00 PM and 7:00 AM (Chapter 46, Community Noise Control, 1996).

In general, construction activities cannot exceed the permissible noise levels for more than ten percent of the time within any twenty-minute period except by permit or variance. Any noise source that emits noise levels in excess of the maximum permissible sound levels cannot be operated without first obtaining a noise permit from the State Department of Health. Although the permit does not attenuate noise per se it regulates the hours during which excessive noise is allowed.

The General Contractor will be responsible for obtaining and complying with conditions attached to the permit. Work will be scheduled for normal working hours (7:00 AM to 3:30 PM) Mondays through Fridays. Near residential and commercial areas, work may start at 8:00 a.m. The General Contractor also will ensure that equipment with motors is properly equipped with mufflers in good operating condition.

Site work will expose soil thus creating opportunities for **runoff and erosion**. All grading will be done in accordance with [erosion control ordinances of the County of Hawaii] Chapter 10 Erosion and Sedimentation Control, Hawaii County Code and approved grading plans (*Department of Public Works Comment*). Best Management Practices (BMPs) for erosion

and drainage control during construction will be prepared for review and approval by the Department of Public Works. Examples of BMPs include installing silt curtains along work sites to retain runoff on-site and placing silt curtains parallel with Waikoloa Stream to minimize water quality degradation. Limiting the land area exposed at any time will also help to minimize runoff and erosion.

Construction work [~~will not exceed five (5) acres~~] **may exceed one (1) acre** at a time [thus] **and** a NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity will [not] be required from the State Department of Health.

An archaeologist will flag and clearly identify **archaeological features** that are near the trail corridor prior to construction. If necessary, temporary fencing will be erected around the site or feature. Should excavation unearth subsurface archaeological or cultural features or burials, work in the immediate area will cease and the proper authorities notified immediately for disposition of the finds.

During the field survey, no **plants** which are candidate, proposed, or listed threatened or endangered species as set forth in the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543), were seen, and none have been documented historically from the project area (although listed species are reported from this general part of the island). The vegetation is neither pristine nor unique and is not considered worthy of preservation.

While much of the stream on May 22-23, 2000 was dry, pools of water were present in moderate abundance, ranging from water-filled potholes to large ponds approaching (or in at least one case) apparently exceeding 2m (6 ft) in depth. A 2 km long segment between Puu Opelu Road and a point downslope of the County landfill on the other hand, had a very normal, perennial stream appearance, with a depauperate fauna (no fishes), reflecting the fact that water flow, is, in fact intermittent on a daily basis. Stream conditions continue to get drier downslope (AECOS Consultants, 2000), but presumably are wetter upslope of the project area. Presumably some portions of the tributary streams to Waiulaula Gulch are perennially flowing.

The proposed project to construct a trail system with scattered stream crossings should have no impact on this **fauna**, since opportunities for migrations up or down Waiulaula Gulch and Waikoloa Stream would be limited to times and conditions when runoff derived flows would be substantial and small bridge or culvert structures insignificant if properly designed. The project would include one crossing of Keaunuiomano Stream. Presumably this would require construction of a bridge or a substantial culvert. In all cases, bridges with minimal support within the stream bed would be the environmentally preferred. However, culverts that have either unlined bottom surfaces (i.e. the natural bed left exposed) or a surface that is not elevated above the natural stream bed should also avoid adverse impacts on stream fauna.

No **aquatic species** listed as endangered, threatened, proposed or candidate species by the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543), or the State of Hawaii under HRS §13-124 (3a) was detected in the stream system within or adjacent to the proposed Waimea Trails and Greenways Project. The native damselfly (*M. balckburni*), while rare in the project area, is one of the more commonly encountered native species of *Megalagrion*. This is somewhat of a relative

statement, however. Alien or introduced damselflies are far more common in developed areas and lowlands of the Hawaiian Islands than any of the native species.

A one-time survey cannot provide a total picture of the **wildlife** utilizing any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns throughout a year or, in fact over a number of years. Drought conditions in the project area over the past 3 years may have reduced opportunities for observing wildlife. The habitat currently available to terrestrial vertebrate species within the project site is extremely dry. The low diversity and densities encountered is in no small part due to the lack of utilizable resources currently available on site for either bird or mammal species. Given the conditions present, the findings of the mammalian survey are consistent with other surveys conducted within the low and mid elevations of South Kohala with the recent past (David, 1996b, 1999, 2000).

It is likely that Hawaiian hoary bats overfly the project site upon occasion, as they have been seen in numerous low and mid-elevation areas in South Kohala, usually between the month of March and November (R. David unpublished field notes 1975-2000; Jacobs 1994).

The alien species dominated habitats currently found in the project area and the low and mid-elevation areas in South Kohala does not provide the resources necessary for the sustenance or nesting of listed endemic avian species. In a wetter year, it is to be expected that additional resident alien avian species utilize the existing habitat within the proposed project corridors. During this survey migratory shorebirds were not detected. It is probable that a number of the more than 80 species of migratory and extralimital avian species which have historically been recorded in Hawaii will utilize habitat within the project area between the months of September and the beginning of May each year (Pyle et.al., 1988; David, 1991; Pyle, 1992, 1997). The most common of these are Pacific Golden Plover (*Pluvialis fulva*), Ruddy Turnstone (*Arenaria interpres*), and Wandering Tattler (*Heteroscelos incanus*).

Although no seabirds were detected during the course of this survey it is possible that one endangered species; Dark-rumped Petrel (*Pterodroma phaeopygia sandwichensis*), overflies the project corridor in small numbers between the months of May and October (Banko, 1980; Harrison, 1990; Cooper and David, 1995; DLBNR, 1986); Federal Register, 1999). At least one wrecked individual of this species has been recovered close to Kawaihae in the past five years (R. David, Unpublished Field Notes 1986-2000).

The development of the proposed trail corridors will not significantly impact any federally or State of Hawaii endangered, threatened, proposed or rare **avian or mammalian species**. No avian species listed as endangered, threatened, proposed or as a candidate species by the U.S. Fish and Wild life Service under the Endangered Species Act of 1973, as amended, or by the State of Hawaii under it's endangered species program (DLNR 1986, Federal Register 1999a, 1999b) were detected during the course of this survey.

Construction work will result in a short-term infusion of **capital** into the local economy. Funding for the project will purchase labor and materials from local suppliers. Revenues in the form of excise taxes and income taxes will accrue to the State of Hawaii over the construction period.

Trail construction is proposed well away from major streets and roadways, thus, there should be no direct and prolonged impact on **traffic circulation** on the major roads. Construction



traffic, however, may affect driveways and smaller roads branching off Kawaihae Road and Mamalahoa Highway. Kawaihae Road and Mamalahoa Highway are the major access routes to and through Waimea and would be used by vehicles hauling materials to temporary staging areas or storage areas along the trail. Some of the smaller roads and driveways (such as Opelu and Opelo Roads) would be used to deliver material close to work sites

Material deliveries will be scheduled during non-peak traffic hours to minimize traffic impacts. Areas along the trail will be set aside for temporary use as a staging area and storage yard. Most if not all materials to be used in constructing the trail will be stored at the storage yard or delivered to the work site as needed. In some instances, materials may be stored along the trail corridor. After construction has been completed in an area the storage area will be removed and the ground restored to pre-construction condition or better.

### **C. Long-term Impacts**

Assessment of **natural resources** occurring within and along Waikoloa Stream and lands adjoining the stream concluded that the proposed improvements would not adversely affect these resources in the short and in the long-term. Flora and fauna found within the project limits are common to the island and State of Hawaii and none are considered rare, threatened, or endangered.

The Hawaiian hoary bat and Dark-rumped petrel (an endangered specie) are thought to overfly the area as they have been observed in the South Kohala area at certain times of the year. Habitat for either species was not seen and is not believed to be within the project limits.

Because significant natural resources are absent within the project limits generally and Waikoloa Stream specifically, adverse long-term impacts are not anticipated on natural resources. It is anticipated that the more pronounced impacts will occur between users on the trail and having a trail passing through residential, commercial, and agricultural areas.

The trail passes through a section of the Lalamilo Field Complex to the west of the County of Hawaii Refuse Transfer Station. Trail improvements will be coordinated with the State Historic Preservation Division to define a corridor that would not directly impact valuable **archaeological sites**. The complex can be embellished with branch trails, signage, and interpretive displays for educational purposes. This form of eco-tourism could attract residents and visitors for first-hand, up-close viewing and greater awareness of Hawaiian settlement patterns. *The State Historic Preservation Division concurred with the consultant recommendation that an archaeological inventory survey should be performed (State Historic Preservation Division Comment). An inventory survey appears to be appropriate for the trail segment traversing the Lalamilo Field Complex but archaeological monitoring during construction may be sufficient for other trail segments. The details for further archaeological surveys will be discussed with the State Historic Preservation Division.*

*Based on the findings of the cultural impact assessment, no further formal cultural impact mitigation measures are warranted. However, informants wanted the consultation process to continue through the build-out phase of the project.*

***It should be noted, however, that historic properties associated with former traditional Hawaiian activities in the project area, such as artifacts, cultural layers, and burials may be present despite the decades of cattle ranching and associated activities in the area west (makai) of the County transfer station.***

The principal benefit and the purpose for building the trail will be to provide residents and visitors an **alternative** means for gaining access to and from Waimea town without having to drive a motor vehicle. It is intended to **link residential activities** on the outskirts of Waimea with education, recreation, commercial, and community services in town. The trail will accommodate various alternative transportation modes except for motor and motorized vehicles (excepting Cushman type vehicles used in maintenance activities) and horses. Its alignment away from Kawaihae Road eliminates the interface between vehicle traffic and pedestrians (including joggers and bicyclists). For pedestrians (and joggers) and cyclists, an off-road path provides a **safer walking and biking alternative** than having to share the road (and road shoulder) with the automobile.

Population is anticipated to increase within the project limits, especially on the west side of town that is designated for Urban Expansion on the County of Hawaii General Plan LUPAG map. For example, the Department of Hawaiian Home Lands proposes to develop its "Lalamilo" residential and commercial mixed-use project between the existing Lalamilo Houselots Subdivision and Waikoloa Stream. Four hundred dwelling units are planned on 265 acres (PBR Hawaii, 2001). The subdivision abuts Waikoloa Stream but the trail is aligned near but not through the housing project. In considering the existing volume of traffic on Kawaihae Road (which frequently backs up from Lindsey Road during morning and afternoon hours) and the traffic to be generated from this and other housing developments, the Waimea Trails and Greenways presents a real alternative to the automobile in gaining Waimea Town.

Although the trail initially will serve primarily the western half of Waimea, plans to **extend the trail further east beyond Church Row** will be pursued in a concerted effort to link both sides of town.

The trail would be open for walking, jogging, and bicycling as a form of **exercise, recreation, and transportation**. Its alignment along Waikoloa Stream takes advantage of the **visual qualities and natural features** of this resource. By creating a linear park along the stream and thus making the stream more accessible, the intrinsic natural value of the stream would benefit a **wider public**.

Some ranchers and farmers users have expressed concerns over the trail passing close by their respective properties. They cite the **intrusion of people into previously inaccessible areas and the mixing of man and animals** (assumed to be grazing livestock) as being potentially disruptive to their agricultural activities and livelihood. Farmers have also expressed their concerns over potential liability issues if trail users are accidentally exposed to overspray of pesticides and herbicides.

Concerns also have been raised about increased noise, littering, and having strangers passing close to and being able to see into their property. ***The Department of Hawaiian Home Lands reiterated these concerns with respect to its proposed Lalamilo Subdivision (DHHL Comment).*** Although noise cannot be avoided, common courtesy suggests the need for trail users to restrict excessive noise near residential areas. Providing

trash receptacles along the trail and at trailhead should help to reduce litter along the trail. To supplement trail maintenance by County of Hawaii Parks personnel, an adopt-a-park program can be implemented. Under this program, a community group would help to maintain and repair the trail as needed.

Sections of the trail will be fenced to separate the trail from adjoining uses **and for privacy and security**. Landscape plantings also can be installed adjoining residential areas to help reduce noise and undesirable visual intrusions.

The trail segment between the Sandalwood Subdivision and Lindsey Road will be **ADA accessible**. Subsequent sections of the trail may be designed for the disabled depending on route constraints posed by topographical conditions.

As with any facility open for public use, **public safety** is of paramount importance. This is no different for the proposed Waimea Trails and Greenway. Unsafe situations or conditions caused by trail users can keep users from enjoying the trail. Some of these are design related such as poor trail design and construction and others user related such as collisions and near misses between users, reckless behavior, and crime. In the case of the former, it is believed that the trail designer, the consulting engineer, and members of the Waimea Trails and Greenways Committee have carefully worked out the trail alignment and corridor. The design of the trail accounts for changes in terrain, adjoining uses, flood zones, and the need to construct an ADA accessible trail between Lindsey Road and the Sandalwood Subdivision.

**Conflicts** on the trail cannot be avoided. Reckless behavior can cause collisions or near misses on the trail and excessive speed (by wheeled vehicles) is also cause for accidents. While measures can be implemented to help maintain vehicle safety, common sense actions such as courtesy, caution, and slower speeds would be more appropriate under field conditions.

***The County of Hawaii Police Department expressed concern over the lack of sufficient designated areas for vehicle parking and that vehicles parking on road shoulders are not acceptable. The Police also cautioned that unattended vehicles would be subject to break-ins, etc. Areas set aside for trail user parking will be provided at selected locations along the trail. For example, an off-street parking area is proposed at the western terminus of the trail at a to be built County of Hawaii park.***

***Other areas where off-street parking would be provided include the Carter Center near Lindsey Road and the Nature Park off Kawaihae Road. Other parking areas will be designated, as they are made available. Signs will be posted in parking areas warning motorists to not leave valuables in their vehicles and to lock their vehicles before entering the trail.***

Sections of the trail will be constructed within the **flood limits** of Waikoloa Stream. Because the trail is a non-structural outdoor recreation facility, it is anticipated that it will not increase the base flood elevation and is thus a permitted use in the flood zone. Signs and other forms of information will be used to alert users to not use the trail before and following heavy rainfall. Waikoloa Stream has flooded in the past and can flood again.

The trail passes through property zoned for agriculture, residential, and commercial uses. In setting aside land for the trail, the respective landowners have foregone private development potential and agricultural benefits running with the land in favor of a public use benefiting a wider community. Public uses and structures are a permitted use in the affected zoning districts thus the project does not conflict with county land use controls.

*The Paniolo Preservation Society (Bergin Comment) questioned the purpose of a multi-use trail that restricts users to bicycle and pedestrian use only and excludes equestrian use. The Waimea Preservation Association provided the following response:*

*"From the inception of the Waimea Trails and Greenways, equestrian use was planned and considered an important part of the trail. During negotiations with Parker Ranch, the Parker Ranch Trustees were adamant that the equestrian use be taken out of the mix of trail users, citing safety reasons. Their participation in granting easements across their land was contingent upon equestrian use being deleted from the easement where bicycles and pedestrians were to be present citing that it is just a matter of time when an accident will happen that could prove fatal. The Outdoor Circle echoed their statement and said they would not allow horses in the Nature Park.*

*We looked at alternatives and decided the only way we could preserve equestrian use was to have a separate trail dedicated to equestrians only--they responded that this was preferable. We were able to get the Department of Hawaiian Home Lands to forego their request of a 16 acre piece of State land adjacent to the County Transfer Station that would be used as a trail head that would be large enough to accommodate horse trailer parking. From this point, equestrian trails could go to the west on State land where the easement would be wide enough (200 feet +) so the trail uses could be separated safely.*

*This equestrian trail could link up with the Parker Ranch trail system that would start at Paniolo Park. At this time there is no land committed to an equestrian trail between the County Transfer Station and Paniolo Park. We welcome the participation of the equestrian community to help create trail easements for equestrian use, either shared with other uses or exclusive to horses.*

**A. No Action**

A No Action alternative would preclude construction of a multi-use trail and the occurrence of environmental impacts—short and long-term, beneficial and adverse—disclosed in this Assessment. This alternative would maintain existing environmental conditions of the area delineated for the trail and will not achieve the objectives of the project. The automobile (or other type of privately operated vehicle) will continue to be the principle means of traveling within Waimea town for education, shopping, and recreational purposes.

In consideration of community expectations for the trail, the resources expended to date by members of the Waimea Preservation Association, the County of Hawaii, the consultant team, affected landowners, and Waimea residents interested in planning and implementing a trail system for Waimea, a No Action alternative is not a desirable alternative.

**B. Alternative Trail Alignments**

The trail alignment depicted in this environmental assessment is the result of an initial trail alignment proposed by the Waimea Preservation Association. This alignment was presented to land owners along the trail who, upon embracing the idea of this transportation alternative, set aside easements over their property or set aside a portion of their property for the trail in favor of the County of Hawaii.

**C. Alternate Users**

The proposed Waimea Trails and Greenway is a multi-use trail. The trail will accommodate pedestrians, joggers, bicyclists, skaters and skateboarders, and the disabled in wheel chairs. Motorized vehicles (except Cushman type vehicles used in maintenance activities) will not be permitted on the trail.

Horses will not be permitted on the trail. A separate trail is being sought for equestrian use. The equestrian alignment is as yet undetermined.

## LIST OF PERMITS AND APPROVALS

5

Land and water use permits and approvals for the proposed project are listed below. Permits related to construction will be secured prior to construction.

<u>Permit</u>	<u>Authority</u>
<b>County of Hawaii</b>	
Use Permit	Planning Commission
Plan Approval	Planning Department
Grubbing, Grading, Stockpiling Permit	Department of Public Works
Building, Electrical and Plumbing Permits	Department of Public Works
Best Management Practices	Department of Public Works
<i>Excavation of Public Highways</i>	<i>Department of Public Works</i>
<b>State of Hawaii</b>	
Historic Site Review	State Historic Preservation Division, DLNR
Variance from Pollution Controls	Department of Health, State of Hawaii
<i>NPDES Permits (Construction)</i>	<i>Department of Health, State of Hawaii</i>
<b>US Government</b>	
*Department of the Army Permit	US Army Corps of Engineers
Bridge and Causeway Permit	US Coast Guard

**\*Note: Based on the information presented in the Draft Environmental Assessment, a tentative determination has been issued that a Department of the Army permit is not required. A final determination will be provided when project plans are further developed (Department of the Army Comment Letter).**

AGENCIES AND ORGANIZATIONS CONSULTED  
IN THE ENVIRONMENTAL ASSESSMENT PROCESS

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*The Draft Environmental Assessment for the Waimea Trails and Greenways was published in the Office of Environmental Quality Control Environmental Notice of November 23, 2002 and December 8, 2002. Publication initiated a 30-day public review period ending on December 23, 2002. Copies of the Draft Environmental Assessment were mailed to the agencies and organizations identified below. An asterisk \* identifies agencies and organizations that submitted letters or written comments during the review period. All comment letters and responses are found in Appendix C.*

County of Hawaii

- Planning Department
- Department of Parks and Recreation
- \*Department of Public Works
- \*Mayor's Advisory Committee on Bicycle and Pedestrian Safety
- \*Police Department
- Fire Department

Federal

- US Department of Agriculture
  - Natural Resources Conservation Service
- \*US Army Corps of Engineers
- US Department of the Interior
  - Fish and Wildlife Service
- US Department of Transportation
  - \*Federal Highways Administration

State of Hawaii

- Department of Agriculture
- \*Department of Hawaiian Home Lands
- \*Department of Health
  - \*Environmental Planning Office*
  - \*Office of Environmental Quality Control*
- Department of Land and Natural Resources
  - Land Management Division
  - \*Historic Preservation Division
- Department of Transportation
- \*Office of Hawaiian Affairs
- UH Agricultural Experiment Station

Others

- Lalamilo Farm Lots Association
- \*Parker Ranch
- Thelma Parker Library (Placement)
- Waimea Preservation Association
- Waimea Equestrian Trail Association

Waimea Outdoor Circle  
Waimea Community Association  
*\*Paniolo Preservation Society*



Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the Department of Health, State of Hawaii establishes criteria for determining whether an action may have significant effects on the environment (§11-200-12). The relationship of the proposed project to these criteria is discussed below.

- 1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Field research did not discover any significant natural resources within the project limits.

The trail passes through a section of the Lalamilo Field Complex. The trail will be aligned through this archaeological complex to avoid disturbing significant archaeological features. It is anticipated that the trail would invite the public to explore and experience the archaeological complex and to learn about Hawaiian settlement patterns in general and Waimea in particular. Trail improvements, to include interpretive signage, would be developed in coordination with the State Historic Preservation Division, Department of Land and Natural Resources.

***Cultural impact assessments prepared for this project (Cultural Surveys Hawaii, 2003) and for a Department of Hawaiian Home Lands residential project at Lalamilo (Haun & Associates, 2002) evaluated traditional cultural practices that may have occurred in the general area to be traversed by the multi-use trail. Both assessments concluded that there are no present-day cultural practices associated with most of their respective project areas. Past cultural practices, however, may be related to agricultural features and uses found in the Lalamilo field complex.***

***This segment of the trail has not been thoroughly surveyed because a trail alignment through the Lalamilo field complex has not been determined. An archaeological inventory survey shall be performed for this trail segment prior to construction. The results of any survey, if performed prior to the fixing of a trail alignment, can help to create an alignment with less impact to archaeological resources.***

- 2) Curtails the range of beneficial uses of the environment;

The trail would open up resources (both tangible and intangible) heretofore generally inaccessible to the public. Public exposure to Waikoloa Stream (both the stream and aquatic biota), the Lalamilo Field Complex, scenic views of the Waimea Plain, natural vegetation along the trail, and diverse environmental conditions for exploration, education, and enjoyment would expand the beneficial uses of the environment.

- 3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;

The project does not conflict with state's long-term environmental policies.

- 4) Substantially affects the economic or social welfare of the community or State;

The proposed project will not adversely affect the economic or social welfare of the community or State.

- 5) Substantially affects public health;

Public health will not be adversely affected by the proposed project. It is anticipated that the trail would help promote the health benefits of exercise (walking or jogging) and provide a suitable environment in which these activities can occur.

- 6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Substantial effects on public facilities are not anticipated.

- 7) Involves a substantial degradation of environmental quality;

Environmental quality will not be degraded as a result of this project.

- 8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed action should not result in significant adverse effects on the environment. In the future, however, it is anticipated that the Waimea community will seek to extend the trail east of Church Row to provide a continuous pedestrian link between the eastern and western parts of town.

- 9) Substantially affects a rare, threatened or endangered species, or its habitat;

Rare, threatened, and endangered terrestrial and aquatic flora and fauna (or their habitat) were neither observed within Waikoloa Stream nor the project limits.

- 10) Detrimentially affects air or water quality or ambient noise levels; or

Air and water quality should not be adversely affected by the project. Short-term impacts such as fugitive dust can be mitigated by measures described in this assessment and measures to be made part of the construction notes for the grading plan. Best Management Practices will be implemented during construction to minimize construction runoff into Waikoloa Stream.

- 11) Affects an environmentally sensitive area such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The trail is proposed in flood hazard sections of Waikoloa Stream. The low-profile concrete walkway is not anticipated to contribute to an increase in the flood height.

- 12) Substantially affects scenic vistas and view planes identified in county or state plans or studies, or

The trail will not affect scenic vistas and viewplanes. Trail users will experience scenic views of the Waimea saddle, agriculture fields, Mauna Kea, and Kohala Mountain generally unobstructed by utility poles and buildings.

13) Requires substantial energy consumption.

The trail will not be lighted for night use thus there should be no energy consumption.

## REFERENCES

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- Cultural Surveys Hawaii. 2002. *An Archaeological Assessment of Proposed Waimea Trails and Greenways project within the Lālāmilo and Waikōloa Ahupua'a, South Kohala District, Island of Hawai'i (TMK 6-2, 6-5, 6-6)*. Prepared for Gerald Park Urban Planner.
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- Federal Emergency Management Agency. 1988. *Flood Insurance Rate Map, Hawaii County Hawaii*. Community Panel Nos. 155166 0164C and 1551166 0168C.
- Haun & Associates. 2002. Cultural Impact Assessment DHHL Residential Development at Lālāmilo South Kohala District, Island of Hawai'i (TMK: 6-6-01: 10, 54, & 77, and TMK: 6-6-04: 12-17).**
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- Park, Gerald Urban Planner. 1997, 1998, 1999, 2000. *Field Observation*.
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- Phillips Brandt Reddick. 1984. *Waimea Design Plan*. Prepared for the County of Hawaii.
- Planning Department, County of Hawaii. 1989. *The General Plan Hawaii County*. Ordinance No. 89-142.
- U.S. Department of Agriculture, Soil Conservation Service. 1972. *Soil Survey of Island of Hawaii*. In Cooperation with The University of Agricultural Experiment Station. U.S. Government Printing Office, Washington D.C.
- Waimea Main Street. *Base Maps*.

APPENDIX A

LIST OF TAX MAP KEYS AND PROPERTY OWNERS

TMK	OWNER	TAXACRES	LANDVALUE	LANDEXEMPT	BLDGVALUE	BLDGEXEMPT	PITTCODE
362007001	County of Hawaii	8.100	182300.0000	0.0000	0.0000	0.0000	500
365003004	Magoon, George A II	5.068	910100.0000	0.0000	0.0000	0.0000	300
365003005	Richard Smart Trust	1.218	100.0000	0.0000	0.0000	0.0000	300
365003044	Roman Catholic Church	1.040	181200.0000	181200.0000	1300.0000	0.0000	300
365004010	Alnamalu Properties Inc/Etal	1.978	784100.0000	784100.0000	45200.0000	0.0000	800
365004014	Island Community Lending	0.000	544200.0000	88096.0000	3667000.0000	710793.0000	300
365004063	Calif Institute Of Technlgy	1.339	204100.0000	0.0000	4000.0000	0.0000	999
365005001	Parker School Trust	6.801	2653300.0000	2653300.0000	2772100.0000	2772100.0000	300
365005002	Puna Plantation Hawaii Ltd	1.492	300.0000	0.0000	0.0000	0.0000	300
365005003	Johnson, Alan S Tr /Etal	1.275	544100.0000	0.0000	0.0000	0.0000	800
365005007	Puna Plantation Hawaii Ltd	1.434	655900.0000	0.0000	354300.0000	0.0000	300
365005009	Richard Smart Trust	2.680	1225800.0000	0.0000	4728700.0000	0.0000	300
365005018	Bank of Hawaii Trustees	0.256	78200.0000	0.0000	0.0000	0.0000	300
365005020	Parker School Trust	1.759	580800.0000	0.0000	507100.0000	0.0000	300
365005021	Yim, Rowell A Tr /Etal	1.181	133100.0000	133100.0000	0.0000	0.0000	300
366001002	Bank of Hawaii Trustees	0.891	489200.0000	0.0000	137800.0000	0.0000	300
366001010	State of Hawaii	0.322	196700.0000	0.0000	150000.0000	0.0000	300
366001038	State of Hawaii	8573.733	75500.0000	0.0000	0.0000	0.0000	300
366003006	Richard Smart Trust	17.600	1100.0000	1100.0000	0.0000	0.0000	999
366003007	State of Hawaii	215.380	7600.0000	0.0000	16300.0000	0.0000	500
366003013	State of Hawaii	15.855	477100.0000	477100.0000	52800.0000	0.0000	500
366005027	Richard Smart Trust	10.561	36500.0000	36500.0000	0.0000	0.0000	500
	Hori, Roy S Tr /Etal	15.405	924.0000	0.0000	0.0000	0.0000	300
		21.214	27700.0000	0.0000	147700.0000	0.0000	500

*APPENDIX B*  
**CULTURAL IMPACT ASSESSMENT**

**CULTURAL IMPACT ASSESSMENT FOR THE  
PROPOSED WAIMEA TRAILS AND GREENWAY PROJECT,  
WAIMEA, SOUTH KOHALA DISTRICT  
ISLAND OF HAWAII**

Portions of TMK 6-2, 6-5, 6-6

by  
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Scott T. Kikiloi, B.A.,  
and  
Hallett H. Hammatt, PhD

Prepared for  
Gerald Park, Urban Planner

by  
Cultural Surveys Hawai'i, Inc.  
December 2003

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## I. INTRODUCTION

### A. Project Background

At the request of Gerald Park, Urban Planner, Cultural Surveys Hawai'i, Inc. (CSH) conducted a Cultural Impact Assessment for a roughly 6 mi. (10 km) section of a proposed 12 mi. (19 km) Waimea Trails and Greenway project. The proposed route is characterized as a "multi-use pedestrian bikeway". The Waimea Trails and Greenway Project is designed to provide a green belt through Waimea Town for non-motorized, pedestrian-friendly community access along a stretch of Waikōloa Stream. The primary function of the proposed trail is to provide an alternative transportation route for non-motorized vehicles in the Waimea area. The project corridor passes through several well-known areas of Waimea, Pu'uopelu, and Wai'aka and three *ahupua'a* including Lalāmilo, Waikōloa, and 'Ouli, on the island of Hawai'i (portions of TMK 6-2, 6-5, and 6-6) (Figures 1-2).

### B. Project Area Description

The project area is located in the Waimea area of South Kohala Hawai'i Island and includes a corridor running generally west-east from the South Kohala View Estates in the west to "Church Row" in Waimea Town in the east (Figures 1-2). The corridor runs along Waikōloa and Keanu'imanō Streams, with several north-south access routes projecting off from the main trail. In its entirety, the trails and greenway may extend approximately 12 miles. The corridor researched for the present study is between the South Kohala View Estates on the west and Church Row on the east.

The project area is situated in the Waimea Saddle region, between the Kohala Mountains and Mauna Kea Volcano, at an approximate elevation of 2,000-3,000 ft. (600-1,200 m) A.M.S.L. The climate is generally cool, moist, and windy. Temperatures normally range between 60-70° F. with mean maximums between 70-80° F. and mean minimums in the upper 40° F. The average annual rainfall ranges from 75-100 in. (190-250 cm), with heavy rainfall between the months of January and April (Giambelluca et al. 1986). Winds are dominated by consistent northeasterly trades. The soils within the project area are of a Waimea Series that consists of well drained, very fine sandy loam that formed in volcanic ash. These inceptical soils are usually in areas that are gently sloping to moderately steep (Foote et al. 1972). There are three major streams flowing off the Kohala slopes and onto the plains of Waimea, including Lanikepu, Waikōloa, and Kohākōhau (also known as Keanu'i'omānō) Streams.

From west to east, the project area includes varying climates, terrains, and degrees of urbanization. For the purpose of this cultural impact evaluation, the corridor was divided into five sections, based mainly on degree of urbanization (Figures 1-2):

- Section 1: South Kohala View Estates to Hawai'i County Refuse Transfer Station
- Section 2: West end of Refuse Transfer Station to east end of Sandalwood Subdivision
- Section 3: East end of Sandalwood Subdivision to Waiki'i Rd.
- Section 4: Waiki'i Rd. to Lindsey Road Bridge (Eucalyptus forest)
- Section 5: Lindsey Road Bridge to Imi'ola Catholic Church

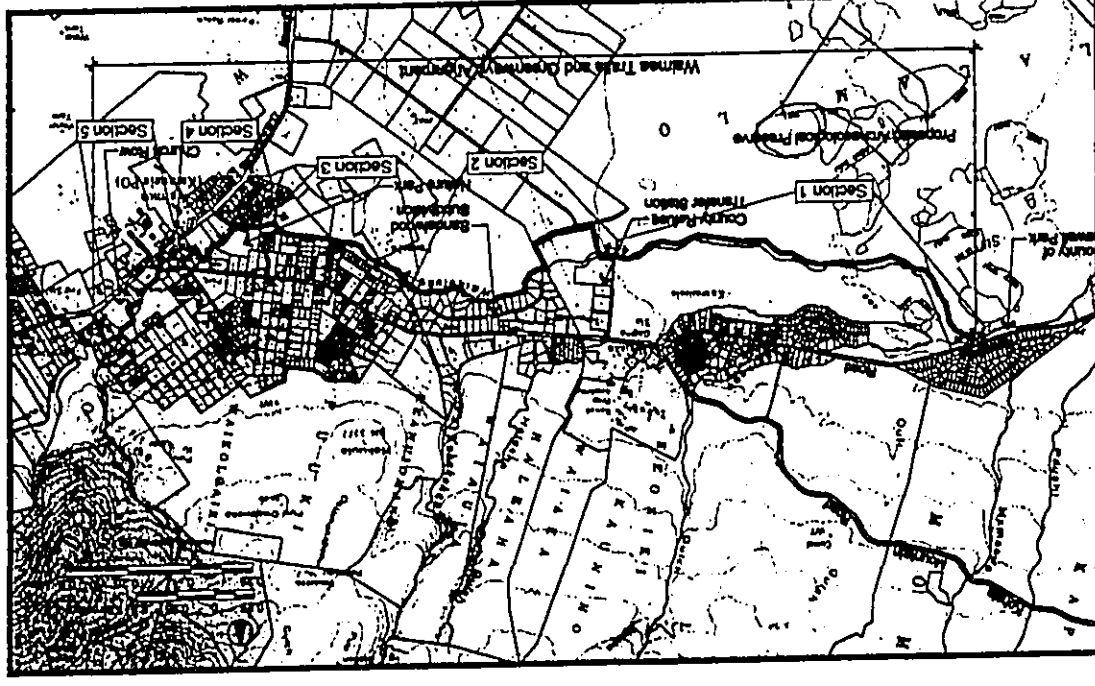


Figure 1 USGS Topographic Map, Kamuela Quadrangle, showing the location of the project area.

C. Scope of Work

The agreed upon scope of work of this Cultural Impact Assessment is summarized as follows:

1. Examination of historical documents, Land Commission Awards, and historic maps, with the specific purpose of identifying traditional Hawaiian activities, including gathering of plants, animals, and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices, and beliefs associated with the parcel, and identify present uses, if appropriate.
3. Conduct community consultations with persons knowledgeable about the historic and traditional practices in the project area and region.
4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report assessed the impact of the proposed action on the cultural practices and features identified.

D. Methods

Historical documents, maps, and photographs were researched at: the Hawai'i State Archives; the Survey Office of the Department of Accounting and General Services; the Hawai'i State Library; the Bernice Pauahi Bishop Museum archives and library; Hamilton Library at the University of Hawai'i at Mānoa; the Mission Houses Museum Library; the State Historic Preservation Division (SHPD) library; and the library of Cultural Surveys Hawai'i.

Hawaiian organizations, government agencies, community members and cultural and lineal descendants with ties to Waimea were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential impacts within the project area.

E. The Interview Process

Once potential participants were identified, they were contacted by telephone or in person. If the individual expressed a willingness to participate, an appointment was scheduled at a location of the individual's choosing. Following the interview's completion, it was transcribed. The interviewees were given the opportunity to review a draft typed transcript for corrections, editing and additions. Excerpts from the interviews were then incorporated into the text where appropriate.

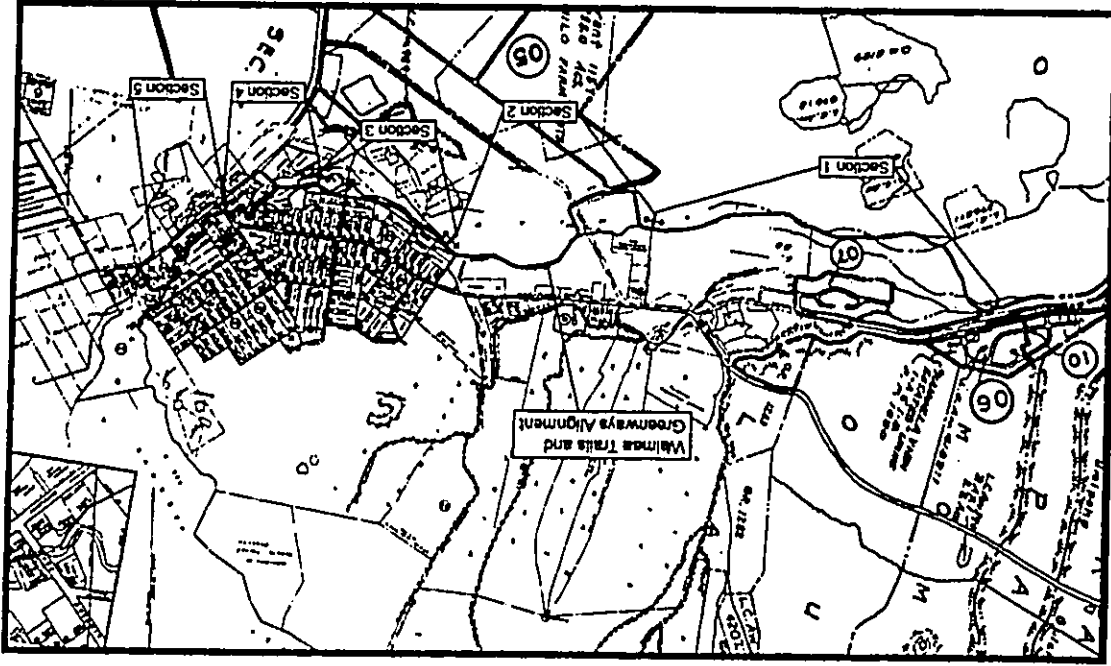


Figure 2 Portions of TMK 6-2, 6-5, and 6-6, showing the location of the project area.

## II. CULTURAL BACKGROUND

The history of the Waimea region of Hawai'i island has been documented in a number of studies and publications including, but not limited to the Foran Collection of Hawaiian Folklore (Foran 1916-1919), Ruling Chiefs of Hawai'i (Kamakau 1961), Place Names of Hawai'i (Puku'i et al. 1974), 'Ōlelo No'ēau (Puku'i 1983), Hōkū o Hawai'i Newspaper (Franklin et al. 1994) and missionary accounts (Baldwin and Lyons 1837; Doyle 1904, 1945, 1953; Bishop 1828; Ellis 1969).

These studies include references to oral traditions, the legendary rulers and personalities, early historic accounts, land ownership, and the changes in land use from traditional to modern times. The following section is a synopsis of these and other sources so as to provide a general overview of the historical and cultural setting related to the project area.

### A. Place Names and *Mō'ōlelo*

The importance of place names and stories connected to an area are an important part of traditional Hawaiian culture and the transmission of cultural knowledge from one generation to the next. The proposed Waimea Trails and Greenway Project falls within the traditional *ahupua'a* boundaries of Lāikūlo (lit., milo tree branch), Waikōloa (lit., duck water, or could refer to a name of a wind), and 'Ōuli (referring to the name of a famous soldier of Kamehameha's army who was skilled with the *mā'a*, or sling) (Puku'i et al. 1974). Puopelu (shortened for Pu'u'ōpēlu) literally means 'ōpēlu hill, and Wai'āka means "laughing-water." The name Wai'āka is used to identify both a stream that flows off of the Kohala mountains and a land section.

*Ke kipu'upu'u ho'ānu 'ili o Waimea*  
(The Kipu'upu'u rain of Waimea that chills the skin of people)  
[Puku'i 1983:188; #1748]

The region generally referred to as "Waimea," which literally means reddish water, as it was thought to be tinted as it drained through the *hupu'u* tree fern forests or through the red soil (Elbert, Ms in Barrera and Kelly 1974). Waimea has been poetically characterized as being "like a spear rubbed by the wind, as the cold spray is blown by the *kipu'upu'u* rain..." (Proverb from a Kamehameha *mele* quoted by Henry Judd in Doyle 1953:42) and has a rich history that is evident in its place names and proverbs.

"Waimea" is a name that also identifies several localities in this section of Kohala (Franklin et al. 1994). They are (a) the town of Waimea (also called Kamuela (Samuel), named either for postmaster Samuel Spencer, or for the rancher Samuel Parker (Puku'i et al. 1974); (b) a region, or *kaima*, that extends from the coast to the uplands and encompasses several *ahupua'a* between Kawaihae and Waikōloa; (c) the upland area only of that region including the entire plain between the Kohala and Mauna Kea Mountains; and (d) the upland region of intensive residential and agricultural occupation—the Waimea Field System (Clark and Kirch 1983:46). In 'Ōlelo no'ēau (Puku'i 1983), Waimea is noted as an area of cool climate and chilling rains:

A. *Hete po'ala i ka anu o Waimea*

Going in a circle in the cold of Waimea

Said of a person who goes in circles and gets nowhere. Waimea, Hawai'i is a cold place and when foggy, it is easy for one unfamiliar with the place to lose his way [Puku'i 1983: 83; #757].

B. *Ka ua Kipu'upu'u o Waimea / Waimea i ka ua Kipu'upu'u*  
The Kipu'upu'u rain of Waimea / Waimea, land of the Kipu'upu'u rain  
An expression often used in songs of Waimea Hawai'i. This area is famed for its cold rain. When Kamehameha organized an army of spear fighters and runners from Waimea, they called themselves Kipu'upu'u after the cold rain of their homeland [Puku'i 1983:169, 319; #1571 & #2913].

C. *Ka ua paliloa o Waimea*  
The Tall-cliff rain of Waimea  
The rain of Waimea, Hawai'i, that sweeps down cliffs. [Puku'i 1983:172; #1593]

Waimea was known for a place of learning the art of fighting. "The land of Waimea was one of the lands where there were many warriors from ancient times. That place, Waimea, furnished Kamehameha with armies of men trained in battle" (Desha 2000: 188). The warriors that came out of this area were called Kipu'upu'u warriors. The traditional *mele* Hōle Waimea maybe the reason behind the naming of the Waimea warriors:

*Hōle Waimea i ka ihe a ka makani*      Waimea is stripped by the spear of the wind  
*Hao mai nā 'āle a ke Kipu'upu'u*      Blown by the gust of the Kipu'upu'u  
*He iā'au kala ihi ia na ke anu*      A staff made stiff in the cold  
*'Ō'o i ka nabele o Mahiki*      Pierced is the forest of Mahiki

Desha translates the hidden meaning:

There is a hidden meaning in this old *mele*, as that forest of Mahiki was a place for making spears for the warrior in ancient times. In times of peace, the *ali'i* and the men would go there to prepare for the times of war to come.

When Kamehameha was staying at Kawaihae, he went with his many warriors to that forest for the making of spears. Some of his court accompanied them, in other words, the chiefly women. At this place of the story, the writer conceals the hidden meaning of the "stripping of Waimea by the spears of the wind" and it is for the reader to guess the meaning. (Desha 2000:192)

*Ke kānoa kipu o Lono-Makahiki: 'ōia ho'i 'o Hōkū'ula!*  
(The sacred bowl of Lono-Makahiki: it is Hōkū'ula!)  
[Ka Hōkū of Hawai'i, 4/23/1914 in Franklin et al. 1994]

Translated and interpreted by Kepā Maly (in Franklin et al. 1994), the legend of Ka-Miki was published in the Hawaiian newspaper "Ka Hōkū o Hawai'i" between the years of 1914-1917. It is a story about two brothers and their journey around the island of Hawai'i. The legend includes references to over 800 place names, and provides interesting information about Pu'u Hōkū'ula, the most prominent hill located just north of Waimea town.

Hōkū'ula (Red Star): When Ka-Miki and Maka'iole drew near to completing their formal 'ōlohe training (fighting and competing skills) under their goddess/great grandmother Ka'uluhe, she told them to go and visit their kīpuna (ancestress) Laninui-ku'i-a-mamao-ia who dwelt at Lanimaomao (Waimea). Laninui-ku'i-a-mamao-ia was the guardian and keeper of the sacred kīnoa (ava mixing bowl) Hōkū'ula which belonged to Lono-Makahiki, and the mau (strainer) called Kalau-o-Kāhuli which was upon the plain of Waikōloa. These two items were to be used in 'awa ceremonies for the brothers 'ulolo (brain eating - completion of training ceremonies) [Ka Hoku o Hawai'i 2/5/1914 in Franklin et al. 1994].

The association of the bowl, or kīnoa of the god Lono (a provider of abundant crops and rain-laden clouds) with Hōkū'ula may refer to the agricultural lands of the region; i.e., (1) the bowl or container could symbolize a land of agricultural abundance; (2) the sprinkling of waters from the bowl could refer to the waters of the streams that flow from the uplands and spread across the plains; and (3) the importance of the rituals of Lono in agricultural endeavors, particularly in the areas of Kohala where large field systems have been archaeologically documented. Thus, the legendary account may symbolically represent actual resources of the Waimea Region.

#### B. Accounts Related to Heiau

Thomas Thurum in his survey of heiau sites on the island of Hawai'i documented a single heiau in Waimea. The heiau, Uli, was of unknown size and class, and was dedicated to Hākau. Uli was said to have been rebuilt by Kamehameha, and its images and steps repaired. Coconuts were brought from Puako, 12 miles away, for its consecration. Only a low mound remains to indicate the location of the heiau, opposite of the church premises (T. Thurum 1908).

A missionary account by Lorenzo Lyons in the 1850's tells of legends within the setting of Waimea, and mentions a heiau in the area:

On a nearby ridge stood another heiau built "...by the great Akua Makuakua who has come from far off Kahiki." From the hillside he watched the rainbows "...and there he found the beautiful goddess Wao." They lived at Hōkū'ula. Each time Wao was ready to bear a child she returned to the Waimea hills, which were sacred to her. The kapu was proclaimed in her honor - the forbidden ground extended "...down across the plains to whatever place a stone happened to stop rolling when started above by her servants." [Doyle 1953 in Barrera and Kelly 1974]

According to legend, Wao changed her servants into stones to guard the land during the night hours. When daylight came she transformed them back into their human forms (Barrera and Kelly 1974:1).

Lorenzo Lyons also tells of the legendary story of a Ho'opili-a-Hae, and mentions her as being the founder of a heiau for women in Waimea:

"The earliest chiefs of Waimea of whom we have record stemmed from the same Ulu-Hema line that led to Liloa, the founder of the island dynasty. Liloa's grandson Keawe-nui-a-Umi took as one of his wives Ho'opili-a-Hae, daughter of Liloa's kahuna Pae-a-Molenole." [Clark and Kirch, 1983:26]

"(The heiau) was attended exclusively by young virgins. In the sanctity of the cool highland forest, they "...performed the sacred ceremonies, learning also the science of healing so that they might eventually minister to others. Hoopiliha'e's children were named for the five rains of the heiau." [Doyle 1953: 42-43] (in Barrera and Kelly 1974:1)

#### C. Historical Battles at Waimea 'O ke alaka koa a Kama i Waimea (a multitude of warriors had Kama at Waimea) [Kamakau 1961 :55-61 in Barrera and Kelly 1974]

Hōkū'ula, located approximately 1 mile east of Wai'aka, is famed for being the location of a prominent battle ground in which Kamalāwālu, the ruler of Maui Island waged war against the Hawai'i Island forces. Deceived by misleading advice from his trusted advisors and poor strategic planning, Kamalāwālu arrived on Hawai'i landing at Kawaihae, only to realize that there were no people there. They continued up to Hōkū'ula, a prominent pu'u. Situated in this manner, he believed his army would be able to have the advantage in defending themselves against the Hawai'i Island forces.

Upon hearing of Kamalāwālu's arrival, Lonoikamakahiki, the Hawai'i Island ruler sent an army from Kona, Ka'u, Puna, and Hilo to Hōkū'ula, where the Maui warriors were stationed. The following morning Kamalāwālu observed that the lowlands were literally covered with countless men. He soon realized that his Maui forces were inferior in numbers and asked Kumaikau "E Kumaikau ma, pehea kēia? He aha kēia le hulehu o lalo?" "Kumaikau and the rest of you, how is the situation? What is the extent of their numbers below?" Kumaikau replied "Akahi nō au a 'ike i ka nui o rā kōnaka o Hawai'i nei..." "I have never seen so many people in Hawai'i before..." After three days of negotiations, the two combatting forces waged battle, with Lonoikamakahiki gaining the victory over Kamalāwālu's army (Formander 1916:342-350).

Another battle fought in the Waimea area was between the leeward and windward chiefs of Hawai'i Island toward the middle of the 18<sup>th</sup> century. This clash took place at Mahiki, east of Waimea, and just across the district boundary in Hamakua. Here, the father of the great chief Alapa'iniakauana was leading his forces against the Hilo chiefs when he was killed. Alapa'iniui was on Maui at the time but returned to Hawai'i and ultimately regained control of the Kona and Kohala districts (Kamakau 1961: 65). Eventually he went on to take over the whole island of Hawai'i and place it under his rule. In his later years, Alapa'iniui lived first in Waipi'o, then lived for sometime in Waimea, and later moved to Kawaihae (Kamakau 1961: 77).

During Kamehameha's campaign to extend his rule to all the major islands, he stayed at Waimea and at Kawaihae for some time. There are mentions of Kamehameha's visits to Waimea in 1791 and 1792 when he rebuilt Pu'u Kohola heiau (Clark and Kirch 1983). At that time a large work force was required and the people of Waimea were solicited. It has also been

suggested by Clark and Kirch (1983:27) that food and *topas* were brought from Waimea to feed and clothe the many warriors in preparation of the Pelelu fleet to battle Maui and O'ahu in 1794 and 1795.

### III. HISTORICAL BACKGROUND

#### A. Post-Contact Period

The Waimea area, with its favorable soils and water from Kohala Mountain streams that could be harnessed and distributed on the fairly level plains, was an obvious area for the expansion of introduced food crop production. Waimea was very productive agriculturally in the early years following contact with the Western world. Based on early accounts, *kalo*, or *taro* (*Colocasia esculata* sp.) was the dominant crop with *'uala*, or sweet potatoes (*Ipomoea batatas* sp.) and *kō*, or sugar cane (*Saccharum officinarum* sp.) also grown in substantial quantities.

The decline in traditional Hawaiian agriculture in the Waimea region has been attributed to factors such as: 1) depopulation and the concurrent abandonment of the fields; 2) the pursuit of other commercial interests, such as the sandalwood and *pulu* trade, sugarcane cultivation, and the introduction of cattle.

It is important to mention that after the abandonment of traditional Hawaiian agriculture in Waimea, there were two resurgences of agricultural endeavors to boost the economy of Waimea (Clark and Kirch 1983). In the late 1820's, two Chinese, Lau Ki and 'Aiko started a sugar mill at Lihue, in upper Lāilānilo. While the mill was not successful commercially, sugar production continued in the Waimea area (Barrera and Kelly 1974: 47). In the late 1830's, cotton was grown in Waimea when Governor Kuakini ordered the planting of an "immense field of cotton in the Waimea area." (Kuykendall 1967: 183). In the late 1840's and early 1850's, both sweet and Irish potatoes were cultivated extensively. However by 1865, these crops were reported to have been greatly diminished.

#### B. Mahele and Land Commission Awards

The Organic Acts of 1845 and 1846 initiated the process of the Mahele - the division of Hawaiian lands - which introduced private property into Hawaiian society. In 1848 the crown and the *ali'i* (royalty) received their land titles.

*Kuleana* awards for individual parcels within the *ahupua'a* were subsequently granted in 1850. These awards were presented to tenants - native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners who could prove occupancy on the parcels before 1845 (Apple 1978:45).

The records associated with these awards illuminate the character of the settlement within the *ahupua'a* at the mid-19<sup>th</sup> century. The majority of the individual *kuleana* claims are situated close to streams emptying from the southern slope of Kohala Mountain. The streams include Waikoloa, Kohakohau, Halesha, Waiaka, and Kamikepu. These and other streams flowed onto the Waimea plain then turned to the west (*maka*) to flow down slope towards the Kawaihae/Puako area. The focus of habitation and agriculture was at the base of Kohala Mountain and extending out onto the Waimea plain. The awarded *kuleana* were in a relatively narrow band extending from approximate elevation 2,100 ft and 2,900 ft. This zonal band would include the presently proposed trail corridor.

LCA claims in proximity to the corridor include land use data such as house lots with associated cultivation and enclosed walls, agriculture such as *taro* and *mamaki*. This pattern of land use is exemplified in LCA 3828 to J. A. Palea. Kaubini testified on behalf of Palea's claim of two house lots and a land claim:

I have seen/in three sections, two house-lots and one land section. The land section is in the //i land of Waikoloa [Waikoloa Niu or Lalamilo] in Waimea, Hawaii. It had a fence at one time; it has fallen apart at this time. Two houses for Palea are in there. He had built them and the boundaries are:  
 Mauka, Waho, also Makai by Hueni's land  
 Kohala, by Wiliama Pekele's [Beckley's] land

Palea received this land in 1847 from Hueni. This is an old place on which Palea has lived since 1829. He is living there at the present time (Native Testimony Vol. 4:31).

Research for the proposed Waimea to Kawaihae Highway resulted in the designation of the Lalamilo *Kulanzana* and Ranch District (Barrera and Kelly 1974). The district boundaries encompass a portion of the trail corridor.

#### C. Sandalwood and Pulu

The mountains surrounding Waimea were well-known for rich sandalwood reserves. During the early part of the 19<sup>th</sup> century, as contact with the West was growing, the extent of the sandalwood trade was evident as it became one of the earliest commodities of a newly formed market oriented economy.

Similar to the sandalwood trade, was the exploitation of *pulu*, the soft fiber gathered from the buds of the tree fern (*Cibolium* sp.). *Pulu* was used for stuffing pillows, mattresses, and furniture (Thrum 1929 in Erkelens 1998: 15). The *pulu* trade began in 1851, with shipments to the West Coast of North America and Australia. Like sandalwood, the over-exploitation of this resource also led to its demise. By 1860, the trade had virtually ended (Doyle 1945: 182).

#### D. Population Estimates

The general impression of the pre-contact settlement pattern, constructed from a variety of archaeological and early historical sources, is one of scattered settlements along Waikōloa Stream (Clark 1987: 103; Erkelens 1998: 11). During subsequent decades, with the arrival of western foreigners and missionaries, impressions of the life and landscape would be recorded for 19<sup>th</sup>-century Waimea. In 1823, Asa Thurston counted 220 houses in his walk through Waimea. In the section between 'Ouli and Pu'u Kapu (a distance of approximately 4.8 km or 3 miles), this was interpreted as representing a population of 1,100 to 1,200 individuals (Ellis 1979:399 in Erkelens 1998: 11). Although the population was concentrated at Kea'ali'i (located along Wai'aka Stream) at the time of Thurston's visit, a settlement of 300 to 400 individuals near the present Waimea town is a reasonable estimate (Clark 1987: 103).

It was not, however, until the 1830's that a missionary would be stationed in northern Hawai'i. On July 13, 1832, Lorenzo Lyons and his wife Betsy arrived at Kawaihae by brig from Honolulu to take up residence at Waimea. Lorenzo Lyons had a church and school (for adults) at Waimea in 1835, serving a congregation of from 100 to 500 Hawaiians. In his writings, Lyons stated:

"During the past year I have taken a census of the population of this district and find it to be as follows: Waimea, 1,396; Kohala 6,175; Hamakua 4,015; total 11,586, from which it appears there has been a diminution of the people 3,500, within three and a half years. Marriages are numerous. But the progeny are wanting. Children are not in general, objects of desire. Taxes are in proportion to the number of children. My census may not be correct. Many think I am numbering them for the purpose of taxation, and conceal a part of their number." (Doyle 1945:82-83)

#### E. Cattle Industry

An examination of the cattle industry in the Waimea area clearly shows its dominant role. The cattle industry, which eventually changed the economy and lifestyle of Waimea, had its origins in bullock hunting, which was controlled by Hawaiian chiefs. The initial increase in cattle population was aided by a ten year *kapu* placed on hunting or taking of cattle. Feral cattle multiplied rapidly and ran wild on the plains of Waimea. For some two to three decades after the lifting of the protective ban, bullock hunters were employed to hunt down the wild cattle and take them to a market.

In the 1830's, meat, hides, and tallow began to be marketed, and thus formed the true beginning of the cattle industry. By 1847, about two-thirds of Waimea area had been converted to pasture for government herds of cattle, as well as sheep and horses (Doyle 1945). By the middle of the 1800's the Waimea region was the center of the industry.

The cattle industry had two major impacts on Waimea. The first was the effect of marauding cattle on the unprepared Hawaiian farmer (Erkelens 1998:19). As early as 1802, there were complaints concerning the destruction of gardens by feral cattle (Tumbull 1813:243, in Barrera and Kelly 1974:44). In 1836, Waimea was surrounded by a stone wall to protect it from cattle (Baldwin and Lyons 1837).

The second major impact on Waimea was the increase in population as a result of economic opportunities provided by the cattle industry (Erkelens 1998:19). Bishop (Bishop 1828, in Erkelens 1998:19) reports that Kuakini's arrival in Waimea marked the beginning of the cattle industry, as attendance at church services increased to approximately 1,000 individuals from a previous attendance of 200 (Bishop 1828; WMR 1832; Doyle 1945)

Following Kuakini's construction of the road between Kawaihae and Waimea in 1830, ox carts were able to haul commercial items much more efficiently than was previously possible. Although missionary census records for the period from 1832 to 1845 suggest little overall change in the population of Waimea (approximately 1,000 individuals), there was undoubtedly a change in composition of the constituency, from predominantly Hawaiian to a mix of foreigners and Hawaiians.

#### F. Parker Ranch and the 20<sup>th</sup> Century

John Palmer Parker, an American born in Newton, Massachusetts in 1790, had intended a sailing career when he left home in 1809. After several years at sea, Parker arrived on Hawai'i Island in 1815 and decided to remain there. By 1819, Parker had a Hawaiian *ail'i* wife, Kipikane, and a baby daughter, Mary. Parker and his family went to live at Waipuka in Kohala where he farmed on twenty-one acres that had been granted to him by Kamehameha. In this era, most of the ranch work consisted of capturing wild cattle and domesticating them. As the ranching industry expanded, so did responsibilities such as managing the many personnel of the Parker Ranch, building houses and growing food to feed all. Subsequently, Parker hired South American and Mexican horsemen to train his ranch hands to track, rope, brand, and bring in the wild cattle. These "vaquero," "paniolo," or "espanzuel" not only introduced the management of cattle and horses, but also brought colorful clothes, hats, and saddles that became the mark of Hawaiian *paniolo*. The first Hawaiian *paniolo*, or cowboys, actually predate many of the mainland western cowboys. The ranch personnel also made most of their own gear and machinery, including saw mills.

In the last years of the 19<sup>th</sup> Century, Waimea remained a small town concentrating on the shipment of cattle to export markets. The Waimea of 1881, was graced with two stores, a boarding house, lodging house, and a coffee saloon (Bowser 1881:540). Even at this seemingly late date, wild cattle were occasionally a problem. In 1888, Paul Jarrett was the first to commence fencing Parker Ranch lands to segregate the domesticated from the wild cattle (Doyle 1904). The next Parker Ranch manager, A.W. Carter, (manager 1899-1936), consolidated all the Parker family land holdings under the control of his ward, Thelma Parker. A.W. Carter then began in earnest to increase ranch lands, systematically breed for better, stronger, healthier cattle and horse stock, bought a barge to ship cattle with other Big Island ranchers, increased ditches for watering livestock, and imported different grasses and feed for cattle. He provided the U.S. military branches with cavalry horses and ventured for a short time into training horses and horsemen for polo teams. Parker Ranch then became one of the major providers of horses in Hawai'i and abroad for work, pleasure, and shows. A.W. Carter's son, A.H. Carter succeeded him in 1937. The Parker Ranch had become one of the biggest private businesses in Hawai'i and remains the dominant economic force in Waimea.

Since the early 1900s Waimea has been part of a fast paced urbanization of the Big Island. After the World War II (late 1940s-1950s) a small portion of land near South Kohala Distribution Road was used as a dump "and remnant pieces of disposed car parts and miscellaneous 'junk' can be seen lying on the surface (personal communication, Woody Ramous in McGuire 2002). More recently new developments such as the Sandalwood Subdivision, the Waimea Center, Carter Professional Center, and the Canada France Hawaii Telescope have added to the growing town of Waimea.

In 1993 the W. M. Keck Observatory was placed on Mauna Kea. The headquarters resides in Waimea Town, south of the Waikōloa Stream and north of Mamalahoa Highway. Waimea continues to grow with further urbanization, though Parker Ranch remains a mainstay of the economy of the area.

#### IV. PREVIOUS ARCHAEOLOGICAL RESEARCH

##### A. Previous Studies

A number of archaeological investigations have been conducted in the general vicinity of the project area (Table 1, Figure 3). However, for the purpose of this report, only the studies conducted nearest to the proposed Waimea Trails and Greenways project area were reviewed in detail.

One of the most widely cited studies in this area was completed by Barrera and Kelly (1974). In 1973, the Bishop Museum conducted an archaeological survey and historical review for the proposed Waimea to Kawaihae Road corridor, during which over 4,500 archaeological features were identified, the majority of which were located either near the coast at Kawaihae or in the Lāilānilo area near Waimea.

Of particular interest are the sites located in upper Lāilānilo and upper Waikōloa, which are nearest to the current project area. Based on the survey results, Lāilānilo contains nearly 3,500 features (Barrera and Kelly 1974). The study resulted in the designation of the "Kuleana and Ranch District" in the Lāilānilo portion of the project area (Ibid.) (Figure 4). This information is important as it indicates the high density of surface archaeology that one can expect to find in upper Lāilānilo near the project area. Sites have been described as being included in an extensive habitation and agricultural system. The findings were later expanded upon in 1981, when the Bishop Museum conducted a survey and excavation project along the Mudlane to Kawaihae Road right-of-way (Clark 1981; Clark and Kirch 1983). These feature complexes were then referred to as the Waimea agricultural system (Figure 5):

The Waimea agricultural system comprises the remains of an extensive series of

agricultural features, throughout which are scattered multiple residential structures.

The system forms a large arc to the W and S of the present-day village of Waimea.

Beginning on the S flank of Kohala Mountain, a short distance below Pu'u

La'ela's, this system extends down the slope and onto the Waimea plain W of

town. It then bends to the E, fading out just S of Waimea and W of Kubio Village

(Clark and Kirch 1983:293).

Excavations associated with the Mudlane to Kawaihae project resulted in a total of 45 charcoal samples undergoing radiocarbon analyses. Approximately 71% of the dates were post 1600 A.D. and considered relatively late (Clark and Kirch 1983). Additionally, the Mudlane to Kawaihae project yielded "evidence that the prehistoric and early historic inhabitants of the Waimea region practiced an intensive form of cultivation, utilizing what Clark has termed 'supplemental irrigation.'" This differs from the two classic forms of indigenous Hawaiian agriculture, irrigated pondfield cultivation and dryland field-system cultivation. (Ibid.: 528)

As a result of the information gained through the Mudlane to Kawaihae project, Clark went on to develop a settlement pattern model for the Kawaihae-Waimea region (Clark 1987) This settlement pattern included four zones: Coastal Zone, Intermediate Zone, Kula zone, and Wilderness zone. The current project area lies within the Kula Zone, described as follows:



**Table 1 Previous Archaeological Studies in the Vicinity of the Project Area**

Author (Date)	Location	Nature of Study	Findings
Barrera & Kelly (1974)	Waimea to Kawaihae Road Corridor,	Archaeological Reconnaissance Survey	Approx. 4,561 features were recorded incl. habitation and agricultural complexes. The majority were near coastal Kawaihae or in the Lāilānilo area near Waimea. Of particular interest is the area referred to as the "haleona and ranch district." Many archaeological features recorded incl. habitation and agricultural complexes.
Ching (1979)	Lāilānilo	Archaeological Reconnaissance Survey	No sites were present in or near the vicinity, although a few buildings were of historic interest.
Neller & Beggerly (1980)	Lāilānilo to Pu'ukapu Irrigation System	Archaeological Reconnaissance Survey	321 sites, including both agricultural and residential features were identified.
Clark (1981)	Section 4 (Upland) Lāilānilo Mudlane-Waimea Kawaihae Road Corridor	Archaeological Inventory Survey and Data Recovery	Extensive agricultural system divided into four complexes, each with its own characteristics.
Clark & Kirch (1983)	Mudlane-Waimea Kawaihae Road Corridor	Archaeological Inventory Survey and Data Recovery	Numerous sites identified, both agricultural and habitation. Project provided a broad data base for comparing site distribution data from the coast to upland.
Bonk (1985a)	Waikōloa, Pu'ukapu, 'Ōuli	Archaeological Reconnaissance Survey	11 Sites including habitation and agricultural features
Bonk (1985b)	Waimea to Pa'auilo Watershed	Archaeological Reconnaissance Survey	Single archaeological site including 2 features
Rosendahl (1985)	Lāilānilo	Archaeological Reconnaissance Survey	No sites located
Hammatt & Borthwick (1986)	Lāilānilo Houselots Subdivision	Archaeological Reconnaissance Survey	8 sites including agricultural features and complexes typical of the Waimea Field System

Author (Date)	Lāilānilo Houselots Subdivision	Archaeological Inventory Survey w/ Subsurface Testing	Seven Archaeological sites recorded and limited subsurface excavation conducted. Both habitation and agricultural sites were documented.
Hammatt & Shideler (1989)	Lāilānilo, Ka La Loa Subdivision	Data Recovery	Data analysis suggested that the informal agricultural activity (represented in ag. mounds) were occurring by the mid 13 <sup>th</sup> century, and field boundary walls were constructed by the mid-15 <sup>th</sup> century, with permanent habitation occurring from early 16 <sup>th</sup> century to the late 18 <sup>th</sup> century.
Spencer (1989)	Lāilānilo, Waimea-Pa'auilo Watershed	Archaeological Reconnaissance Survey	No cultural resources observed
Bonk (1989)	Wa'aka	Archaeological Reconnaissance Survey	Contained "low mildly terraced field ridges" and "larger terraces with broader and flatter surfaces behind soil embankments." Falls into field complex #1 (Clark 1981).
Clark et al. (1990)	Waikōloa, Waimea School Improvements	Archaeological Testing and Data Recovery	Profiles of 3 'auwai suggest a historic period origin, prehistoric construction possible. Charcoal sample yielded an age range with preferred date range is A.D. 1449 to 1674
McEldowney (1991)	Pu'ukapu pastoral lot #100	Field Check	stone complex of 2 enclosures
Thompson & Rosendahl (1992)	Potential Sites for North Hawaii Community Hospital / Waimea Elderly Housing Project	Archaeological Inventory Survey	Backhoe testing of 'auwai features encountered charcoal samples which yielded radiocarbon dates as early as 770-1020 A.D.
Erckens (1993)	Waimea Town Center Project	Review of Historical Documents and Background Literature	Review of the Waimea Town Center survey indicated that information previously gathered is incomplete for the project area. Not all archaeological sites and features are presently known.

Previous Archaeological Research

Author(s)	Project/Context	Methodology	Findings/Summary
Schilz (1994)	'Ōuī	Archaeological Inventory Survey	Total of 75 sites recorded including 45 military sites, 14 ranching sites, 9 historic sites, and 7 traditional Hawaiian sites.
Franklin et al. (1994)	Hawaii Preparatory Academy Waimea Campus Expansion	Archaeological Inventory Survey	7 sites associated with agriculture and habitation identified. The sites comprised the formal types: water channel, cemetery, terrace, concrete foundation, and alignment.
Erkelens (1998)	The Kuleana Lots at Pukalani Waimea Town Center Project Area	Archaeological Inventory Survey w/ Subsurface Testing	Sites include 3 19 <sup>th</sup> century house lots, historic cemetery, 4 historic structures, a burial. Skeletal remains of two individuals were encountered during subsurface testing.
Haun et al. (2002)	Lā'āmilō, DHHL Residential Development	Archaeological Inventory Survey w/ Subsurface Testing	Identified 75 sites including 818 agricultural and habitation features. Radiocarbon dating indicated utilization as early as 1500s A.D.
McGuire and Haun (2002)	DHHL Residential Development at Lā'āmilō South Kohala District	Cultural Impact Assessment	No on-going cultural practices identified.
Kikiōi and Borthwick (2002)	Waimea Trails and Greenway Project	Archaeological Assessment	During the assessment they concluded that the trail corridor intersects a number of features, such as 'awwai and field walls and recommended an inventory survey.

Table 2 Field Complexes of the Waimea Agricultural System (per Clark and Kirch 1983)

Field Complex	Location	Description
1	On the Kohala Slope, between Lanikepu and Hale 'āha Gluiches, N of Keau'i'ōmano'o and Kohākohāu Streams	Upper elevation portion dominated by low, mildly terraced field ridges. Lower portion has larger, broad and flat terraces behind soil embankments. Water channels run down slope for drainage. Main channel of 'awwai diverted from Kohākohāu Stream.
2	Bounded on N by Keau'i'ōmano'o and Kohākohāu Streams, and on S by Waikōloa Stream	Low terraces with retaining faces or ridges of soil and/or stone. Long axes of fields oriented perpendicular to prevailing winds. Main channels of 'awwai diverted from Kohākohāu Stream and drain into Waikōloa Stream. Residential features scattered

Previous Archaeological Research

3	Between Waikōloa Stream on the N and Pu'u Pā hill on the S.	throughout area. Largest field complex. Both residential and agricultural features scattered throughout. Dominant agricultural features include: bounded field units; small planting swales; pondfields; 'awwai; minor planning features (mounds, small terraces, modified outcrops). Evidence of 'supplemental irrigation' system.
4	Directly S of the Village of Waimea	Long, narrow fields demarcated by low soil ridges. 'Aiwai divert water from Waikōloa Stream. Also includes residential structures. Similar to Field Complex 3

#### Previous Archaeological Research

Extends from the Intermediate Zone to between 7.3 and 9.7 km inland. It ranges in elevation from 585 m to 830 m (1,919-2,722 ft) in elevation, with small sections extending to as much as 975 m (3,198 ft) elevation. Subsistence activity is dominated by agriculture. Crops included sweet potatoes, dry-land taro, gourds, and *waike*. Habitation sites included single use sites, extended and recurrent occupations, and permanently occupied sites. Habitation features include small walled shelters, caves, overhangs, terraces, platforms, and enclosures. The more intensively occupied habitation sites are clustered in neighborhoods sometimes larger wards. Burial features are also present (Clark 1987).

In 1985, a reconnaissance survey of four parcels proposed for residential developments was completed (Bonk 1985a). Areas I and II of the survey, located south of Waimea Town, contained both agricultural and residential complexes (portions of Field Complex 4). Area IV, located west of Wai'aka, contained several residential sites (portions of Field Complex 2). Also in 1985, a reconnaissance survey of three reservoir sites and a large watershed area extending from Waimea to Pa'ailo was conducted, in which both residential and agricultural features were located (portions of Field Complex 4) (Bonk 1985b).

In 1986, Cultural Surveys Hawai'i (Hamnatt and Borthwick 1986) conducted an archaeological reconnaissance survey on approximately 50 acres located immediately north of Waikōloa Stream. Eight sites, typical of the Waimea Agricultural System, were located (portions of Field Complexes 1 and 2). This work was followed by a detailed archaeological survey and subsurface testing of 12 acres of the original study area (Hamnatt et al. 1988). Seven sites were documented including both agricultural and habitation complexes. Excavations revealed an abundance of indigenous artifacts and *midden*, indicating "this small agricultural-habitation complex was in use in the late prehistoric period and was abandoned before European manufactured goods were available (probably 1820 or before)" (Hamnatt et al. 1988:69). Data recovery of sites yielded radiocarbon dates which "suggest an initial low investment agricultural effort probably in sweet potato production, followed by a gradual intensification of effort just to the west over a period of several centuries" (Hamnatt and Shideler 1989:50).

A reconnaissance survey of approximately 100 acres was conducted at Hawaii Preparatory Academy in Wai'aka (Bonk 1989). Agricultural features associated with Field Complex 1 were located.

In 1990, an inventory survey with subsurface testing and data recovery was conducted at the Waimea School improvements Lot A (Clark et al. 1990). Various agricultural features were located (portions of Field Complex 4). Radiocarbon dating of charcoal recovered during subsurface testing yielded a date range of A.D. 1449 to 1674.

Thompson and Rosendahl (1992) conducted an inventory survey of potential hospital sites in several locations around Waimea. Numerous agricultural features were located, comprising portions of Field Complexes 2-4.

Recent archaeological investigations in the Waimea Town Center project area have further documented 19<sup>th</sup> and early 20<sup>th</sup> century habitation and associated sites (Erkelens 1998). The

#### Previous Archaeological Research

investigations included surface and sub-surface surveys. Five sites were identified, including house, burials, and agricultural sites (portions of Field Complex 4). All sites and materials observed were historic either from the mid 19<sup>th</sup> or early 20<sup>th</sup> century. The sub-surface investigations also indicated that extensive bulldozing had disturbed large areas of the 10+ acre parcel (ibid.).

An archaeological inventory survey for a proposed DHHL residential development at Lā'ānilo bordering the western portion of the proposed trail was completed in 2002 (Haun et al. 2002). During the inventory survey 75 sites with 818 features were identified and documented. Feature types included, agricultural, permanent and temporary habitation, burial, military defensive position, historic foundation, storage, and a quarry. Based on radiocarbon dating, artifact analyses, and historic documentary research, traditional Hawaiian utilization of the project area was posited to be as early as the 1500s and extending into the mid-1800s (Haun et al. 2002). The DHHL Development Survey area bordered portions of the proposed trail corridor. The proposed trail corridor west (*makai*) of the County Transfer Station would include similar site types.

A cultural impact assessment was also conducted for the same DHHL parcel (McGuire and Haun 2002). The assessment included a detailed background history and a single interview. No present-day cultural practices of any kind were identified though past cultural practices were discussed.

Past cultural practices identified were related to agricultural practices and the utilization of an ancient 'awai or ditch system which traversed much of the Lā'ānilo area. The project area is part of the larger Lā'ānilo field system evidenced by remnant 'awai and dryland terraces. Hawaiian burial practices (pre-contact and historic) were conducted in the project area as evidenced by the presence of burials and graves sites (McGuire and Haun 2002:47).

An archaeological assessment was conducted for the Waimea Trails and Greenway Project (Kikiloi and Borthwick 2002). During the assessment they concluded that the trail corridor intersects a number of features, such as 'awai and field walls. On the western end of the project there were site complexes associated with agriculture and habitation sites from pre-and-post contact eras (Barrera and Kelly 1974, Clark and Kirch 1983, Clark 1987). There are historic features previously documented such as the Imi'ola Church State Site #50-10-06-7151 and associated cemetery, the Spencer Cemetery, and a concrete ford with a date of 1943 suggesting a pre crossing clearly indicating World War II use. This assessment recommended that an archaeological inventory survey be carried out.

## V. BACKGROUND OF KAMA'ĀINA INTERVIEWEES

*Kama'āina* and *kāpuna* with knowledge of the Waimea area were interviewed for this assessment. Four of the interviewees Melvin Hewett, Hideo Kimura, Alan Lindsey, and Lynn Taylor participated in formal interview sessions that were taped and transcribed.

Presented below are backgrounds of the four interviewees. Excerpts from the interviews are incorporated in Section VI TRADITIONAL PRACTICES OF WAIMEA RELATIVE TO THE WAIKŌLOA STREAM.

### MELVIN HEWETT

Mr. Hewett grew up in Waimanalo homestead on the Island of O'ahu. He later moved to the Island of Hawai'i and is currently a trustee for Parker Ranch. Mr. Hewett started with Parker Ranch in 1991. Mr. Hewett has been involved in long range planning (eg. Waimea 20/20) for Parker Ranch and is well aware of the many issues that go into good planning in the Waimea, Kohala region.

### HISAO KIMURA

Hideo Kimura was born in a leap year so he is either 90 or 91 years of age. He attended Waimea School then went to work for Parker Ranch in 1931. Mr. Kimura was the supervising horticulturist for the nursery and responsible for planting and importing of grasses in the ranch paddocks and pastures. He retired from Parker Ranch in 1978.

### ALAN LINDSEY

Alan Lindsey was born in 1931 and was raised in Māhukona. The Lindsey 'ohana goes back 6 generations in the Waimea area. He attended Kanehameha Schools in 1941. In 1948 was employed by Parker Ranch as a cowboy, he later became supervisor. He retired in 1988 from the ranch.

### LYNN TAYLOR

Lynn Taylor moved to Waimea, Hawai'i in 1954 along with her husband James M. Taylor, the head master of Hawai'i Preparatory Academy (HPA). Mrs. Taylor started the elementary school for HPA. Mr. Taylor accepted a job in 1975 as head master at La Jardin in Kailua O'ahu, where they both moved for twenty years. Lynn Taylor now resides in Waimea and is involved in many community activities and organizations such as Waimea Outdoor Circle, and the Waimea Trail Committee.

## VI. TRADITIONAL PRACTICES OF WAIMEA RELATIVE TO THE WAIKŌLOA STREAM

This project seeks to assess traditional cultural practices as well as resources along the trail way. This section will express the different types of traditional practices, cultural resources associated with Waimea. Excerpts from interviews are incorporated throughout this section where applicable.

### A. Gathering for Plant Resources

No specific documentation was found in regards to gathering of plants along Waikōloa Stream. However, Mr. Lindsey mentioned that there was a lot of plants near the stream "There was a lot of *'ilima* before ... it used to be all the *'olena* and use to have the *poha*". Mr. Lindsey also mentioned he used the root of the *kowali* (morning glory) plant to heal the broken bones of his dogs. He would pound the root with Hawaiian salt place it in the *ti* leaf and apply it on the dogs wound. Other long time residents Mr. Kimura and Mrs. Taylor indicated that they remember the banks of the stream as just low pasture grasses and that the vegetation adjacent to the stream now is relatively recent (ie post 1960). The majority of vegetation present now are invasive imports. During this assessment, there were no current practices related to traditional gathering rights identified.

### B. Gathering Resources from the Waikōloa Stream

No specific documentation was found in regards to gathering for subsistence from the stream. From the *kama'āina* interviewees Alan Lindsey expressed his knowledge of the different types of riparian resources in the stream such as tilapia and 'ōpae:

They have the shrimps. The 'ōpae, but you have to get them with the net that they cannot see, if they see that net they swim some place else. So you know how we used to catch them, you know the oranges used to come in the orange bag or the potatoes bags, they get the orange or green bags. What we do we put them underneath where the 'ōpae going come down and hook them up with ropes catch these 2 sides. And then when they drop inside they cannot go through because it is just like a net, like a strainer, like when you mix your poi, same thing. It is orange or green that they cannot see when they drop down it is too late they are in the bag already. Then all they do is take them home and boil them and you get fresh 'ōpae. If you put a white bag there they move somewhere else. I think up there still get yet, but I don't know if anybody go up.

Other interviewees mentioned the absence of people fishing and gathering from the stream. Long time resident and Parker Ranch employee H. Kimura who was the ranches' horticulturalist did not recall anyone 'fishing', other than kids just having fun. Based on informant information there was limited varieties of plants and fish in the stream and that the precious resources was the water.

#### C. Historic Properties

Imi'ōla Church and an associated cemetery are located at the eastern terminus of the trail. The church is on the State and National Register of Historic Places and has been allotted State Site # 50-10-06-7151. Relatively close by on Mamalahoa Highway is the Spencer Family Cemetery.

The proposed trail intersects a number of agricultural features, such as, 'ānawā and field walls *makai* (west) of the County Transfer Station adjacent to the DHHH property. Other site types in that area include, house sites and burials. The area *makai* of the transfer station has been altered far less than the urban core of Waimea. The area is referred to as a portion of the 'Waimea Agricultural System' and the 'Lāilāmi Kūleana Ranch District' (Blarrera and Kelly 1974). Site types include late prehistoric to historic agricultural features, consisting of modified outcrops, mounds, terraces, field boundaries and irrigation ditches ('ānawā). During the archaeological assessment a number of concrete fords and remnant structures related to a pipeline crossing were observed within and along the banks of Waikōloa Stream.

#### D. Burials

No specific documentation was found regarding 'iwi in the project area. However, there are church (ie Imi'ōla) and family cemeteries (ie Spencer Family) within the Waimea Town area. When asked about burials along the stream Mr. Lindsey mentioned "No not in that area because all what is up on the ranch Mānā all the burials are in their own cemetery, Parker Ranch got their own cemetery, they have their own family in there". Previously undocumented burials and possible burial sites were documented *makai* (west) of the County Transfer Station (Haun et al. 2002) in areas through which the trail is planned. Additionally, south of the Waikōloa Stream in the 'iwi of Pūkalanī two unmarked burials were encountered (Erkelens 1998).

#### E. Trails

None of the interviewees mentioned any historic trails that could be affected by the proposed trail.

Based on late 19<sup>th</sup> and 20<sup>th</sup> century maps the primary transportation routes *mauka/makai* correlate closely to the existing major roadways. The primary transportation route the Waimea-Kawaihae Road is north of the proposed trail. The Hawai Mountain Road intersects the Waimea/Kawaihae road at Wai'aka near HPA also north of the proposed trail corridor. Mamalahoa Highway (and its predecessor) enters Waimea Town south of the proposed trail corridor. The proposed trail corridor will have certain access points to existing transportation corridors. The informants indicated that they had no knowledge of any historic trails that might be affected by the proposed greenway trail.

#### F. Nā Mea 'Ukane

There are some things in life that people just can't explain, things not seen or heard but felt deep in your *na'au* (gut). Alan Lindsey mentioned the "calling tree" a tree that has strong spiritual powers:

.... You know by Kohala Estates, you go right across that banyan tree. You know what they call that banyan tree? The "calling tree", when they used to take cattle down in the morning, I used to get up at twelve at night, one o'clock we used to meet at the Ranch Restaurant, eat our breakfast. That banyan tree calls people and some guys...sometimes they go straight for the banyan tree, we say, "where you going?" They hear voices, that are the dead, that is the old Hawaiian dead people, and sometimes you can hear them, they call. But you know I am not afraid of that kind of stuff see because my dad never did make me scared. That is why I could ride any bucking horse and everything. I used to ride bucking bull. ...They say it's a "calling tree". But I don't believe in that, the only guy that can call me is the heavenly father, then I go to that tree. It is all superstition.

A few of the interviewees mentioned a "Rain Rock" which is located north of the project area. Alan Lindsey stated that this "rain stone" was down by Anna's Ranch and people used to believe in it. Mr. Kimura (HK) mentioned that people would pray on this rock for rain:

HK: ...we have the famous well known "Rain Rock" that the Hawaiians have told us to respect and worship.

CSH: Oh, the rain rock!

HK: On the *ma'uka* side.

CSH: Kind of by Anna Perry Fiskes old place.

HK: That's right. You could lie on it.

CSH: Did it rain?

HK: Sometime you got to believe, yeah.

CSH: What is the story that they used to tell you about that rock?

HK: Well...whenever you need...every so often we get slight drought season and sometimes more severe than others then we go there *puke*.

....

HK: My family (father worked for Parker Ranch) lived in the ranch house with a water tank. Water was collected from the roof of the house. Neighbors came and helped them whenever there was a severe drought. We shared this water, when condition-weather was dry.

CSH: They were catching water on the water tank? Or was it still piped in from the stream?

HK: Yeah, water tank. Catchments, from your roof and it accumulates because we use it only on severe drought.

CSH: So all the individual houses had their own individual pipeline in the stream?

HK: From the stream, The County Water Department would see that homes be supplied by piped in water system and each home-the source of the water is from the running water. Yeah. So what we used for a strainer was the Bull Durham bag, everybody had Bull Durham, everyone smokes Bull Durham.

CSH: Put the bag at the end of the pipe.

HK: You collect all of that. You would be surprised.

#### G. Climate Changes in Waimea

As we sat and talked with different people from the community regarding Waikōloa Stream, many were concerned that occasionally the stream ran dry. In fact, the *kama'āhina* mentioned that it doesn't rain as much as it once did. Cattle ranching has played a large part in deforestation which has resulted in less rainfall. Complicating the situation is the tapping and redirecting of streams which has reduced the water flow in a number of streams.

In 1856 the Waimea community was concerned about water issues and how it would affect their community in the future. With the introduction of cattle and the clearing of the forest there was less of an orographic precipitation process. (Orographic Precipitation- precipitation caused by the lifting of moist air over a mountain barrier).

It is in the memory of many foreigners now living there, when the whole of these plains were covered with a thick wood, to the very edge of the slope. Where hardly a tree is to be seen for miles, we were informed by an old resident, that twenty-five years ago he lost himself with his team in the weeds. He also stated that at that time there was far more rain at Waimea than there is now, which indeed might be readily inferred, as clearing the land has been almost entirely effected by the cattle. The few head brought by Vancouver in 1793 increased so rapidly, that early in the present century thousands of them were killed for their hides. At this moment they swarm in the thick jungle that covers the windward or eastern slopes towards Hamakua. They are now gradually destroying this, and thousands of old dead trees both standing upright and lying prostrate, from the present boundary of these woods, and exhibit the mode in which the destruction is effected; for whilst the old trees die of age, no young ones are seen taking their places, as during the last thirty or forty years, the cattle have eaten or trodden them down.

At the present time the vapors and rain which are brought across the plain by the trade winds, are generally dissipated between Waimea village and Lihue, which latter place is something under a mile nearer the brow of the hill, and it is quite usual to notice that at Lihue the weather is fine and the sun shining, whilst at Waimea it is wet, raw and misty. This spot where the vapors now commonly terminate, is three or four miles from the debatable ground between the two winds before alluded to. (Sandwich Islands monthly Magazine, February 1856:44-47 in Barrera and Kelly 1974)

Further in the early 1900's Alfred Carter, of Parker Ranch, filed a petition against the Territory of Hawaii for wrongfully diverting water from the Waikōloa Stream. The residents of Waimea used the stream for basic normal household usage and for pasture lands. It was not used for large scale irrigation system. In the days of traditional farming Waimea was known for it's famous *Kipu'upu'u* rains, only at times did the fields need irrigation. This was acknowledged the by the Supreme Court:

The evidence is to the effect that there were a very few *lois of taro* in the locality in questions. It was shown that the Hawaiians habitually raised in their house-lots dry land taro, bananas and vegetables as well as sugar cane which they cultivated for human consumption as well as for food for their animals. And it is a fair inference from the evidence that the ditch system at Waimea was constructed from the purpose of supplying water to the inhabitants for household purposes and for the irrigation, when the natural rainfall was insufficient, of their cops (Hawaiian Reports Vol. 24: in McGuire and Haun 2002).

In 1917 the case was appealed and the Hawai'i State Supreme Court maintained their decision that the Territory owned all the waters of Waikōloa stream, and that the waters were "subject to reasonable use" by both the Territory and the petitioner (Hawaiian Reports Vol. 24: in McGuire and Haun 2002).

Lynn Taylor observed more of a water flow between 1954-1974 and has a theory of why it rains less:

Most local inhabitants will tell you that it rains less now then formerly, and I think this is true. I do have a theory that the clouds, which have been built up by the trade winds blowing across the Pacific, are no longer almost constantly seeded by the moisture rising from the plunging waterfalls and streams which aren't there, so they often blow away without dropping their precious rain.

In support of Mrs. Taylor's theory there is an article in the Journal of Geophysical Research, they state that "Numerous studies with general circulation models suggest that tropical deforestation can result in regional-scale climate change, namely increased air temperature and wind speed and reduced precipitation and relative humidity". (Hoffmann, WA, W Schroeder, RB Jackson. 2003).

All the informants mentioned water resources, or lack there of, as one of Waimea's primary concerns. None of those interviewed, however, felt that the proposed trail would adversely affect stream resources.

## VII. SUMMARY AND RECOMMENDATIONS

## Summary

Based on background studies much of the project area has been urbanized to such an extent that no surface historic properties exist, except for concrete and boulder stream crossing structures. However the area *makai* of the county transfer station has been slightly altered and contains complexes associated with agriculture and habitation sites from the pre- and post-contact eras. The trail corridor intersects a number of features, such as *'aowai*, and field walls. The area includes a wide array of site types including documented burial sites.

A cultural impact assessment of an approximately 266.4 acres of the DHHL property west of the County Transfer Station documented numerous historic properties. The consultation process included a single knowledgeable individual who indicated that there were no on going cultural practices. It was noted that past cultural practices were evident by remnants of *'aowai* and dryland terraces, as well as presence of burials and graves sites (McGuire and Haun 2002:47).

This cultural impact assessment did not identify any cultural practitioners or any on going practices within the project area.

There were some concerns the community had regarding the project corridor. The stream should be kept clear of any brush to reduce any overflow during a high volume periods. Second, safety of residents who live along the proposed trail. Melvin Hewett expressed his concern stating that "I think from our (Parker Ranch) standpoint, security, and people not wandering right into the homes is the biggest concern". The area that Mr. Hewett is referring to is Parker Ranch's "Heritage Area" which includes Pu'u Opelu the home of Richard Smarts estate. However all of the interviewees expressed the opinion that the trail was a good community based project.

## Recommendations

Based on the above findings, it is recommended that no further formal cultural impact mitigations measures are warranted. However, informants wanted the consultation process to continue through the build-out phase of the project.

It should be noted, however, that historic properties associated with former traditional Hawaiian activities in the project area, such as artifacts, cultural layers, and burials may be present despite the decades of cattle ranching and associated activities in the area west (*makai*) of the county transfer station.

It is our understanding that Waimea is a very close and family oriented community. Thus we feel that it would be educational to have some interpretive themes for the proposed trail corridor. Themes referenced by the informants included history, legends, and how the environment has changed water resources of the Waimea area.

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*APPENDIX C*  
**COMMENT LETTERS AND RESPONSES**



DEPARTMENT OF THE ARMY  
U. S. ARMY ENGINEER DISTRICT, HONOLULU  
FT. SHAFTER, HAWAII 96858-5440

PLEASE TO  
ATTENTION OF

Regulatory Branch



November 27, 2002

Mr. Gerald Park  
Gerald Park Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

This responds to your request for review of the Draft Environmental Assessment (DEA) for Waimea Trails and Greenways, Waimea, South Kohala District, Hawaii. We have reviewed the document with respect to the Corps' authority to issue Department of the Army (DA) permits under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

The DEA indicates construction of the proposed bridges and trail would not involve any discharge of dredged or fill material (including poured concrete) below the ordinary high water mark of Waikoloa Stream or Keauia Stream. Page 2 of the DEA states that each of six planned stream crossings would be accomplished via a single span bridge to avoid construction within the streambed. The typical trail cross-section (Figure 2) shows that the trail would be constructed away from stream banks. Also, page 17 of the DEA states that no wetlands have been encountered in the project area.

Based on the information provided in the DEA, I have tentatively determined that the proposed project will not involve the discharge of dredged or fill material into waters of the United States, including adjacent wetlands, and that a DA permit will therefore not be required. I can provide a final determination of DA permit requirements when project plans are further developed and delimit other planned site work such as clearing, grubbing, grading, and stockpiling of materials.

File No. 200300151 has been assigned to this project. Should you have questions concerning this preliminary determination, please contact Mr. Peter Galloway of my staff (telephone (808) 438-8416; fax (808) 438-4060). Mailed correspondence should be addressed to: Regulatory Branch (CEPOH-EC-R/P, Galloway); U.S. Army Engineer District, Honolulu; Building 230; Fort Shafter, Hawaii 96858-5440.

Sincerely,

George P. Young, P.E.  
Chief, Regulatory Branch



GERALD PARK  
Urban Planner

Planning  
Land Use  
Research  
Environmental  
Studies

1721 Kapiolani Blvd  
Suite 211  
Honolulu, Hawaii  
96814

Telephone:  
(808) 596-7484  
Facsimile:  
(808) 596-7485  
e-mail:  
gerald@kapi.com

February 2, 2004

George P. Young, P.E.  
Chief, Regulatory Branch  
Department of the Army  
U.S. Army Engineer District, Honolulu  
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii  
File No. 200300151

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project and for your preliminary determination that the project will not involve the discharge of dredged or fill material into waters of the United States.

Your comment letter has been forwarded to the Department of Parks and Recreation, County of Hawaii. As you indicated, as project plans are further developed, they will be forwarded to your office for a final determination of DA permit requirements.

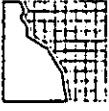
Thank you for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

cc: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii



February 2, 2004

GERALD PARK  
Urban Planner  
Jody Chew  
Federal Highways Administration  
US Department of Transportation  
300 Ala Moana  
Honolulu, Hawaii 96850

Dear Ms. Chew:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

1. Thank you for the information concerning NPDES regulations. The Final Environmental Assessment will include measures for complying with NPDES regulations.
2. The sentence will remain unchanged.
3. Bridge or culvert selections have not been finalized at this time due to the need to determine a final trail alignment first. When the final alignment is established, we will be better able to determine which method would more cost effective and least detrimental to existing environmental conditions.
4. The sentence will remain unchanged.
5. Based on the statements presented in the Draft Environmental Assessment, the Corps of Engineers has determined that a Department of Army Permit will not be required. A final determination of DA permitting requirements, however, is to be contingent on detailed project plans for work near Waikoloa Stream. These plans, when completed, will be submitted to the Corps of Engineers for their review and final determination.

We thank the Federal Highways Administration for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii

Subj: Waimea Trails and Greenways project  
Date: 12/5/2002 8:27:57 AM Hawaiian Standard Time  
From: Jodi Chew@fhwa.doi.gov (Jodi Chew)  
To: geroldpark@aol.com

Gerald,

-Here are a few comments on the draft document for your consideration.

1. Page 19-- NPDES regs have changed. Phase II applies to construction project between 1 and 5 acres. Phase II became final on Dec 8, 1999 and compliance dates are being phased in by each state. More information can be found on EPA web site. I found Storm Water Phase II Final Rule Fact Sheet 3.0 to be particularly helpful.
2. Page 19. I would suggest deleting "The vegetation is neither pristine or unique...." in paragraph 4.
3. Page 19. Paragraph 6. Has bridge or culvert selection been finalized? I anticipate this decision will be made before the EA is finalized. Has coordination and concurrence with reg agency been completed?
4. Page 21. Paragraph 4. Would suggest rewording last sentence to say "Habitat for either species was not seen and has not been identified within the project limits." Statement about coordination with USFW could also be added here if you desired.
5. Page 23. Paragraph 3. Instream work should be coordinated with permitting agency. e.g. Corps. Suggest that the paragraph contain reference to the coordination completed.

Hope these are helpful. Use what you see fit. Toss the rest.

Have a good holiday season.

Jodi Chew

----- Headers -----

Return-Path: <Jodi.Chew@fhwa.doi.gov>  
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 Date: Thu, 05 Dec 2002 13:27:27 -0500  
 From: "Jodi Chew" <Jodi.Chew@fhwa.doi.gov>  
 To: <geroldpark@aol.com>  
 Subject: Waimea Trails and Greenways project  
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 Content-Disposition: inline

Harry Kim  
Mayor



Lawrence K. Mahuna  
Police Chief

**County of Hawaii**  
**POLICE DEPARTMENT**  
349 Kapiolani Street • Hilo, Hawaii 96720-3998  
(808) 935-3111 • Fax (808) 961-8449

**received**  
12.17.02



**GERALD PARK**  
Urban Planner  
Planning  
Land Use  
Research  
Environmental  
Studies

February 2, 2004

Lawrence K. Mahuna  
Police Chief  
County of Hawaii  
Police Department  
349 Kapiolani Street  
Hilo, Hawaii 96720

December 16, 2002

Mr. Gerald Park  
Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, Hawaii 96814

Dear Chief Mahuna:  
Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

Areas set aside for parking trail user vehicles will be provided at selected locations along the trail. An off-street parking area is proposed at the western terminus of the trail at a to be built County of Hawaii park. The Clark family donated the land for the park to the County of Hawaii.

Other areas where off-street parking would be provided include the Carter Center near Lindsey Road and the Nature Park off Kawaihae Road. Other parking areas will be designated, as they are made available. It is anticipated that motorists would park on road shoulders near access points to the trail. The Department of Parks and Recreation and the Waimea Trails Committee would like to work with the police department to identify road shoulders near off-street parking areas that could be used for short-term parking by trail users. Use of road shoulders for parking should neither hinder traffic movement nor compromise public safety.

Signs will be posted warning motorists to not leave valuables in their vehicles and to lock their vehicles before entering the trail.

We thank the Police Department for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii

Dear Mr. Park:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

The Hawaii County Police Department supports the concept of this project.

Of concern, however, is the lack of sufficient designated areas for vehicle parking. The idea of having trail users arriving by car, parking their vehicles on road shoulders where available and access the trail on foot is unacceptable. Current road shoulders are inadequate to accommodate this type of usage. The anticipation that most trail users will be Waimea residents who will not have any parking needs is unrealistic. The Kohala Coast is a tourist destination. Many of our visitors will find this activity attractive.

In addition, vehicles left unattended will be subject to break-ins, etc. It will be necessary to erect signs warning motorists of such concerns.

Should you have any questions, please contact Captain Robert Kaaua of our S. Kohala District station at (808) 887-3080.

Sincerely,

LAWRENCE K. MAHUNA  
POLICE CHIEF

  
THOMAS J. HICKCOX  
ASSISTANT POLICE CHIEF  
FIELD OPERATIONS BUREAU

RK:lli



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. Box 3379  
HONOLULU, HAWAII 96814-3379

December 18, 2002

LOWELL J. DEERY, ASSESSOR, DPA  
ATTORNEY GENERAL'S OFFICE

is hereby acknowledged by  
DATE  
02-302/epo

received  
12/17/02

Mr. Gerald Park  
Gerald Park Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: Draft Environmental Assessment (DEA)  
Waimea Trails and Greenways  
Waimea, South Kohala, Hawaii

Thank you for the opportunity to review and comment on the subject proposal. The DEA was routed to the various branches of the Environmental Health Administration. We have the following comments:

Wastewater Branch (WWB)

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

If you have any questions, please contact the Wastewater Branch at (808) 586-4294.

Clean Air Branch (CAB)

There is a significant potential for fugitive dust emissions during all phases of construction. Proposed construction activities will occur in proximity to existing school, business and residential establishments and major thoroughfares, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

Mr. Gerald Park  
December 18, 2002  
Page 2

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

- a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;
- b. Providing an adequate water source at the site prior to start up of construction activities;
- c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d. Controlling of dust from shoulders and access roads;
- e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f. Controlling of dust from debris being hauled away from project site.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at (808) 586-4200.

Solid and Hazardous Waste Branch (SHWB)

The Office of Solid Waste Management (OSWM) notes the presence of an inactive landfill adjacent to the Count's refuse transfer station. The landfill ceased operations in 1987.

OSWM inspections in April 2001 and February 2002 revealed the presence of an active underground fire. The presence of surface cracks, fissures, sinkholes, and smoke were noted during the inspections, indicating the presence of an underground fire as well as sub-surface setting. The landfill ceased operations before the existence of OSWM; thus, OSWM does not know the precise boundaries and extent of the landfill. OSWM has received odor complaints from the Sandalwood community that is upwind of the landfill.

The landfill is under the jurisdiction of the County of Hawaii's Department of Environmental Management. The county is currently managing the fire situation under the Department of Health orders to develop and carry out a remedial and monitoring plan. Due to its proximity to the landfill, the proposed trail may be affected by nuisance odors produced by the fire.

If you have any questions, please contact the Solid and Hazardous Waste Branch, Office of Solid Waste Management, at (808) 586-4226.

Mr. Gerald Park  
December 18, 2002  
Page 3

**Noise, Radiation and Indoor Air Quality (NRIAQ) Branch**

All project activities shall comply with the Administrative Rules of the Department of Health, Chapter 11-46, on "Community Noise Control."

If you have any questions, please contact the NRIAQ at (808) 586-4701.

Sincerely,

*Jane F. Harrigan-Lum*

JUNE HARRIGAN-LUM, MANAGER  
Environmental Planning Office

c: CAB  
SHWB  
NRIAQ



February 2, 2004

GERALD PARK  
Urban Planner

Planning  
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1221 Ekoluani Blvd.  
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Honolulu, Hawaii  
96811

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(808) 596-7484  
Facsimile:  
(808) 596-7485  
e-mail:  
geraldpark@aol.com

Jane Harrigan-Lum, Manager  
Environmental Planning Office  
Department of Health  
State of Hawaii  
PO Box 3378  
Honolulu, Hawaii 96801-3378

Dear Ms. Lum:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

1. Wastewater Branch (WWB)

At this time, no wastewater facilities are proposed along the trail or at trailheads.

2. Clean Air Branch (CAB)

Construction activities will comply with the air pollution regulations contained in Chapter 60, Hawaii Administrative Rules and construction notes contained in construction plans for the project. Construction plans and all construction notes written therein will be approved by the Department of Public Works, County of Hawaii.

3. Solid and Hazardous Waste Branch (SHWB)

The Department of Parks and Recreation is aware of the nuisance odors produced at the inactive landfill adjacent to the County's refuse transfer station. Efforts to realign the trail section adjoining the landfill through a section of the Lalaimilo Agriculture Subdivision have not been successful. Thus, this portion of the trail will pass between the landfill and Waikoloa Stream. Signs will be posted along the trail alerting users of odors emanating from the landfill.

4. Noise, Radiation and Indoor Air Quality (NRIAQ)

Construction activities will comply with Chapter 11-46 "Community Noise Control".

We thank the Department of Health for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

*Gerald Park*

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii

**PANILOLO PRESERVATION SOCIETY**  
62-2279-B Kanehoa Drive • Kamuela, Hawaii 96743

Board of Directors  
William C. Bergin, DVM/MS  
President  
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Vice President  
Mrs. Phyllis G. Fox  
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Mrs. Patricia C. Bergin  
Mr. Carl Carlson  
Mr. Donald G. DeSiva  
Mr. Pat Fitzgerald  
Mr. Robert J. Curtis  
Mr. Rick Hobbin  
Mr. "Sonny" Kerkeloid  
Mr. Edg Lee  
Mr. Rob Pacheco  
Mr. Alex Ponomareff  
Mr. H. Frederick Rice  
Mr. Bill White

Dec. 16, 2002.

Gerald Park, Urban Planner  
c/o Clem Lam  
Waimea Trails & Greenways  
Kamuela, HI 96743

Dear Mr. Park:

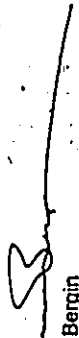
The purpose of this memorandum is to provide continued support for the development of equestrian trail access through the community of Kamuela/Waimea, the heart of Paniolo Country.

Attached you will find a copy of our purposes and aims and note that trails are a vital part of our mission of preservation.

We request that the Waimea Trails and Greenways group kindly reconsider this void in the planning process. Paniolo Preservation Society stands in support of Judy Ellis' efforts on behalf of the Waimea Equestrian Trail Association to return this issue to the "front burner."

I welcome the opportunity to re-establish horseback transportation through this community given its very historic place in the annals of Hawaii's rich history.

Sincerely,

  
Dr. Billy Bergin  
President

*Gunnel, on the evening of December 16, Judy Ellis convened a meeting of the WETA and allied equestrian organizations. I will forward upon a summary memorandum along with a review of the draft e.A.*

Board of Directors  
William C. Bergin, DVM/MS  
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Mr. Peter Baldwin  
Vice President  
Mrs. Phyllis G. Fox  
Treasurer  
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Mr. Pat Fitzgerald  
Mr. Robert J. Curtis  
Mr. Rick Hobbin  
Mr. "Sonny" Kerkeloid  
Mr. Edg Lee  
Mr. Rob Pacheco  
Mr. Alex Ponomareff  
Mr. H. Frederick Rice  
Mr. Bill White

**PANILOLO PRESERVATION SOCIETY**  
62-2279-B Kanehoa Drive • Kamuela, Hawaii 96743

Established in January 1999, this statewide not-for-profit educational organization adopted the following mission, purpose and goals:

- 1) To educate the public and increase public awareness and appreciation of the significance of the Paniolo in the histories of Hawaii and the Western cowboy heritage of America, and the resources that represent the living and ongoing Paniolo heritage.
- 2) To collect, preserve and interpret those artifacts and natural history that represent the Paniolo heritage, including without limitation, saddlery, tack gear, clothing, headgear, art, photographs, films, books, papers, reports, letters, trails, abu, fine cabins, stables, corrals, stone walls, traps, shipping sites, flora, fauna, grasslands and kipuka.
- 3) To collect, preserve and interpret the living heritage of Paniolo history, including without limitation, language, oral histories, skills, music, food and story telling.
- 4) To increase public awareness and appreciation for the Paniolo role in the birth, growth and productivity of the livestock industry and sport of rodeo historically and presently in the State of Hawaii.
- 5) To provide the financial resources to achieve the mission and goals of the Paniolo Preservation Society via membership and fund raising.
- 6) To utilize resources to achieve the mission and goals of the Paniolo Preservation Society by operating within appropriate curatorial standards.

received  
12-17-02

RECEIVED  
DEC 17 2002  
HAWAIIAN HISTORICAL SOCIETY



**PANILO PRESERVATION SOCIETY**  
62-2279-B Kanehoa Drive • Kamuela, Hawaii 96743

**Board of Directors**

William C. Bright, DVM/MS  
President  
Mr. Peter Babbitt  
Vice President  
Mrs. Phyllis C. Fox  
Treasurer  
Mrs. Patricia Anne Cook  
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Mr. John Morgan  
Mr. Don "Curly" Cartwell  
At-Large  
Mrs. Leslie Agostino  
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Mr. Carl Carlson  
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Mr. Robert J. Garcia  
Mr. Rick Hobbitt  
Mr. "Sonny" Krahealand  
Ms. Edgy Lee  
Mr. Bob Pacheco  
Mr. Alex Pencovoff  
Mr. H. Frederick Rice  
Mr. Bill White

Dec. 30, 2002

Mr. Gerald Park, Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, HI 96814

Dear Gerald:

This memorandum is subsequent to a meeting of the Waimea Equestrian Trail Association that occurred at 5 p.m., Mon., Dec. 16, 2002 at the offices of Waimea Preservation Association. Mrs. Judy Ellis called the meeting to order and the following allied and interested groups were represented:

Paniolo Preservation Society  
Waimea Hawaiian Homesteaders Riding Unit  
Hawaii Island Quarter Horse Association  
Pa'u Society of Hawaii  
Mauna Kea Polo Club  
Hawaii Saddle Club  
Parker Ranch Round-Up Club  
Hawaii Preparatory Academy Equestrian Unit  
Waikii Ranch Barrel Racing Club  
Hawaii High School Rodeo Association  
Hale Kea Farms  
Big Island English and Dressage Riding Chapter  
Kohala Rodeo Club  
Hawaii Rodeo Cowboys Association

Mrs. Ellis requested that I review the Draft Environmental Assessment prepared for the Waimea Trails and Greenways and the Department of Parks and Recreation, County of Hawaii, and these are my observations:

First, in the opening statement, reference is made to the proposal of a "multi-use trail through the town of Waimea," but closes the paragraph stating it being an "alternative transportation corridor for bicycle and pedestrian use," only.

**PANILO PRESERVATION SOCIETY**

Furthermore, under Purposes of the Project, the mission statement reads:

"Waimea Trails and Greenways is a vision for a non-vehicular transportation link between Waimea's residential, recreational and community services." Continuing under the Purposes section, there are specific references that include "horse to work," "ride a bicycle or a horse away from the highway." In its closing statement, this section describes linking ancient Hawaiian pathways to scenic hiking and riding areas such as Waipio (valley) lookout, etc.

Under D. Social Characteristics comes the most disturbing statement that while "the Waimea Trails and Greenways initially included accommodating equestrian users, because of the narrow trail width in some areas and potential conflict between man and animal, an alternative trail exclusively for equestrian users is being sought."

Please be advised that the consortium of fourteen allied organizations listed above through the Waimea Equestrian Trail Association uniformly express concern over the process by which Waimea Trails and Greenways summarily dismissed equestrian trailing to "the back burner."

In closing, please advise this office as to the next step in this process, notably a meeting with appropriate parties.

Sincerely,

  
Dr. Billy Bergin  
President

Cc: Mr. Glen Miyao, County Parks & Recreation  
Mrs. Judy Ellis, Waimea Equestrian Trail Association



GERALD PARK  
Urban Planner

- Planning
- Land Use
- Research
- Environmental
- Studies
- 1221 Kapoiahi Blvd  
Suite 211  
Honolulu, Hawaii  
96814
- Telephone:  
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- Fax/Fine:  
(808) 596-7485
- email:  
geraldpark@001.com

February 2, 2004

Paniolo Preservation Society  
c/o Dr. Billy Bergin, President  
62-2279-B Kanehoa Drive  
Kamuela, Hawaii 96743

Dear Dr. Bergin:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We requested the assistance of Clemson Lam of the Waimea Preservation Association (formerly Waimea Main Street) to address your comments. He provided the following response:

Thank you for getting the equestrian community active in Waimea Trails and Greenways efforts to provide equestrian trails in Waimea.

From the inception of the Waimea Trails and Greenways, equestrian use was planned and considered an important part of the trail. During negotiations with Parker Ranch, the Parker Ranch Trustees were adamant that the equestrian use be taken out of the mix of trail users, citing safety reasons. Their participation in granting easements across their land was contingent upon equestrian use being deleted from the easement where bicycles and pedestrians were to be present citing that it is just a matter of time when an accident will happen that could prove fatal. The Outdoor Circle echoed their statement and said they would not allow horses in the Nature Park.

We planned and held meetings, inviting the equestrian community come forth, learn about the developments and participate in finding a way to provide equestrian trails in Waimea. The equestrian community came and listened.

We looked at alternatives and decided the only way we could preserve equestrian use was to have a separate trail dedicated to equestrians only--they responded that this was preferable. We were able to get the Department of Hawaiian Home Lands to forego their request of a 16 acre piece of State land adjacent to the County Transfer Station that would be used as a trail head that would be large enough to accommodate horse trailer parking. From this point, equestrian trails could go to the west on State land where the easement would be wide enough (200 feet +) so the trail uses could be separated safely.

This equestrian trail could link up with the Parker Ranch trail system that would start at Paniolo Park. At this time there is no land committed to an equestrian trail between the County Transfer Station and Paniolo Park. We welcome the participation of the equestrian community to help create trail easements for equestrian use, either shared with other uses or exclusive to horses.



Dr. Billy Bergin  
February 2, 2004  
Page 2

We thank the Paniolo Preservation Society for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii





STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS  
P.O. BOX 1879  
HONOLULU, HAWAII 96818

MATHEW C. SOON  
CHAIRMAN  
HAWAIIAN HOME LANDS COMMISSION

received  
1/27/04 2:22



GERALD PARK  
Urban Planner

- Planning
- Land Use Research
- Environmental Studies

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e-mail: geraldpark@hawaii.gov

February 2, 2004

Mfiah Kane, Chairman  
State of Hawaii  
Department of Hawaiian Home Lands  
PO Box 1879  
Honolulu, Hawaii 96805

Attn: Darrell Yagodinich

Dear Chairman Kane:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. Your support for the project is appreciated.

The Master Plan proposes the construction of a fence to separate the trail (and trail users) from adjoining land uses as a measure to mitigate concerns over privacy and safety that you raise. The areas in which fencing would be erected will be determined during the design stage of the project. It has not been determined if fencing would be placed on both sides of the stream or on one side with the stream functioning as a natural barrier.

We thank the Department of Hawaiian Home Lands for participating in the environmental review process. The Department of Parks and Recreation will apprise the Department of Hawaiian Home Lands of progress in implementing this project. The Waimea Preservation Association is anticipated to keep the community including residents of the proposed Department of Hawaiian Home Lands Subdivision informed of progress in construction of the trail.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii

December 20, 2002

Mr. Gerald Park  
Urban Planner  
1400 Kycroft Street, Suite 876  
Honolulu, Hawaii 96814-3021

Dear Mr. Park:

Subject: Draft Environmental Assessment  
Waimea Trails and Greenways

Thank you for allowing our review of the subject report dated October 2002.

As mentioned on Page 22 of the report, the Department of Hawaiian Home Lands proposes development of house lots above what is proposed as Increment 2 of the trail along Waikoloa Stream. Please note our concern for privacy and safety from intruders for families that will be living adjacent to the trail. We also recognize the opportunity to use the trail to travel to Waimea Town by walking or by bicycle, rather than by automobile.

We would appreciate being apprised of progress in implementing this proposed project. If you have any questions regarding our comments, feel free to call Joe Chu at 587-6421.

Aloha,

Darrell Yagodinich  
Raynard C. Soon, Chairman  
Hawaiian Home Commission

Harry Kim  
Mayor



Galen M. Kuba  
Acting Director

**County of Hawaii**  
**DEPARTMENT OF PUBLIC WORKS**

Alupua Center  
101 Pauahi Street, Suite 7 - Hahaione, Hawaii 96720-2003  
(808) 941-8321 • Fax (808) 941-8300

received  
12-20-02

December 18, 2002

Gerald Park Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, Hawaii 96814-3021

**SUBJECT: ENVIRONMENTAL ASSESSMENT**  
Waimea Trails and Greenways  
Prepared for: Department of Parks & Recreation  
TMKs: 6-2-07, 6-5-03, 04, 05, 6-6-01, 03, 05

We have reviewed the subject Environmental Assessment forwarded by your letter dated November 18, 2002 and have the following comments.

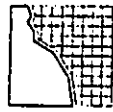
1. All development-generated runoff shall be disposed of on site and shall not be directed toward any adjacent properties.
2. Sections of the proposed trail will be constructed within Flood Zone AE and a small portion within Flood Zone A. Construction within the Flood Zones shall conform to the requirements of Chapter 27, Flood Control, of the Hawaii County Code. Flood Zone AE is the Special Flood Hazard Area inundated by the 100-year flood where base flood elevations are determined and Flood Zone A represents those areas where base flood elevations are not determined.
3. All earthwork activity, including grading, grubbing and stockpiling, shall conform to Chapter 10, Erosion and Sedimentation Control, of the Hawaii County Code.
4. Any Improvements within the County right-of-way shall conform to Chapter 22, County Streets, of the Hawaii County Code and may require a permit from the Department of Public Works.

Should you have any questions or concerns, please contact Kelly Gomes at 961-8327.

*Galen M. Kuba*  
GALEN M. KUBA, Division Chief  
Engineering Division

KG

c: ENG-KON



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Urban Planner

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February 2, 2004

Galen M. Kuba, Division Chief  
Engineering Division  
Department of Public Works  
County of Hawaii  
101 Pauahi Street, Suite 7  
Hilo, Hawaii 96720

Dear Mr. Kuba:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

1. Development generated runoff shall be contained on-site and not directed towards adjacent properties.
2. Chapter 27, Section 27-33 (1) allows the construction of public and private outdoor non-structural recreational facilities if deemed not to adversely affect the floodway and increase the base flood elevation.

The project consists of constructing a 10-foot wide concrete path that will follow the general contour of the land. Minor adjustments to grades may be necessary to accommodate ADA requirements. The project, however, will not be creating any major areas of fill that could significantly affect the base flood elevation.

3. A grading plan shall be submitted to the Department of Public Works for review and approval.
4. Improvements within the County right-of-way shall conform to Chapter 22, Hawaii County Code.

We thank the Department of Public Works for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

*Gerald Park*

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii

LINDA UNCLE  
DIRECTOR OF PARKS



STATE OF HAWAII  
ENVIRONMENTAL COUNCIL  
235 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
Telephone: (808) 586-4185  
Fax: (808) 586-4186  
E-mail: [cec@hawaii.gov](mailto:cec@hawaii.gov)

December 18, 2002

MICHAEL PATE  
Chairman  
PATRICIA THINGMANAM  
VICE CHAIRPERSON

received  
12.24.02

Ms. Patricia Engelhard, Director  
County of Hawaii's  
Department of Parks and Recreation  
101 Pauahi Street, Suite 6  
Hilo, Hawaii 96720

Dear Ms. Engelhard:

Subject: Draft Environmental Assessment for the Waimea Trails and Greenways, Waimea, Hawaii

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please consult with the charter school, which is located in the Kamuela Experiment Station, to determine the impact of the project on the school's operations.
2. Please consult with the DLNR's Commission on Water Resources Management and Aquatic Resources Division to determine the project's impact on the affected streams.
3. Please use the Environmental Council's guidelines (attached) to study the project's cultural impacts.

Should you have any questions, please call Jeyan Thingmanam at 586-4185.

Sincerely,

*Genevieve Salmonson*  
Genevieve Salmonson  
Director

c: Gerald Park



GERALD PARK  
Urban Planner

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[gs@geraldpark.com](mailto:gs@geraldpark.com)

February 2, 2004

Genevieve Salmonson, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

1. The proposed project should not adversely affect the charter school. Short and long-term impacts described in this assessment are applicable to the school.
2. The Draft Environmental Assessment was submitted to the Department of Land and Natural Resources for review. As of this date, comments have not been received from the Commission on Water Resources Management and Aquatic Resources Division.
3. A cultural impact assessment has been prepared. Excerpts from the cultural assessment are included in this document and the entire assessment is appended.

We thank the Office of Environmental Quality Control for participating in the environmental review process.

Sincerely,

GERALD PARK URBAN PLANNER

*Gerald Park*  
Gerald Park  
Principal

c: Patricia G. Engelhard, Director Department of Parks and Recreation, County of Hawaii



December 26, 2002

**received**  
12-29-02

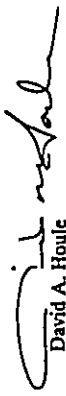
Mr. Gerald Park  
1400 Rycroft Street, Suite 876  
Honolulu, HI 96814-3021

Dear Mr. Park:

Thanks you for sending us a copy of the Draft Environmental Assessment for the Waimea Trails and Greenways Project.

As you requested, we have reviewed the document and have no comments to offer at this time.

Sincerely,

  
David A. Houle  
Chief Operating Officer

P.O. Box 458 • Kamuela, Hawaii 96743  
Telephone: (808) 885-7311 • Facsimile: (808) 885-5602  
[www.parkerranch.com](http://www.parkerranch.com)



February 2, 2004

GERALD PARK  
Urban Planner

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[geraldpark@aol.com](mailto:geraldpark@aol.com)

Dear Mr. Houle:  
Subject: Waimea Trails and Greenways  
Waimea, District of South Kohala, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. The Department of Parks and Recreation and the consultants for the project acknowledge the continued support and participation of Parker Ranch in this exciting project.

Sincerely,

GERALD PARK URBAN PLANNER

  
Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii





received  
11.21.02

STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPOLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

December 6, 2002

HRD 02/837

Mr. Gerald Park  
Urban Planner  
1400 Rycroft Street  
Suite 876  
Honolulu, HI 96814-3021

Re: Waimea Trails and Greenways - Draft Environmental Assessment  
Waimea, District of South Kohala, Hawaii

Dear Mr. Park:

This is in response to your letter of November 18, 2002, within which you had requested the Office of Hawaiian Affairs to review and comment on the Draft Environmental Assessment (DEA) for the proposed project in Waimea. Upon review of the DEA, OHA has some concerns with the project as detailed.

It is noted that the project will be a multi-use trail for a non-vehicular transportation link between Waimea's residential, recreational and community services. Use of the trail will be restricted to foot, bicycle, or horse travel and the trail is anticipated to link ancient Hawaiian pathways to scenic hiking and riding areas.

We understand that a portion of the project trail will bisect the Lalamilo Field Complex, an area known for archaeological sites. In following the contours of the Waikoloa Stream, the trail also borders a large portion of the proposed Dept. of Hawaiian Home Lands Lalamilo Subdivision Project and is estimated to be 4.5 miles long.

**Archaeological Survey**

OHA will be concerned with the project's compliance to HRS 6E-43 and its protections for prehistoric and burial sites.

It is our understanding that an archaeological assessment was done in lieu of an actual archaeological survey or reconnaissance. OHA recommends that an archaeological survey be conducted. Because this project area is part of the larger Lalamilo field complex as evidenced by remnant 'auwai and dryland terraces, there may be pre-contact and historic Hawaiian burials located within the project area. An archaeological survey will help assess the presence or absence of burials and cultural artifacts or structures along a proposed pathway. An archaeological survey will also assist you in ensuring that the pathway and rest-stops avoid archaeological sites.

Gerald Park  
Waimea Trails and Greenways  
December 6, 2002  
Page 2 of 2

**Cultural Impact Statement**

The DEA must include a substantive cultural impact statement based upon consultation with the Hawaiian community, as required by Act 50, Session Laws of Hawaii, 2000. This is significant because the project area is part of the larger Lalamilo field complex.

The cultural impact statement must identify and describe the cultural practices located within the potentially affected area; assess the impact on these practices; examine alternatives to the proposed action; and propose mitigation measures if needed. It is recommended that you consult with Native Hawaiian individuals and organizations to determine the impact of the proposed structures and activities on cultural practices.

The DEA should also include a discussion of the methods used to identify and select persons with knowledge of cultural practices and the results of consultation with them.

Based on our conversations with the Hawaii County Parks and Recreation Division, it is understood that a Cultural Impact Statement will be prepared. OHA looks forward to reviewing that document when it is available. We are always interested in ensuring that Hawaiian customary, traditional, and access rights are protected.

**National Historic Preservation Act (NHPA) - Section 106 Consultation**

Since this project will be receiving funding from the federal government, a NHPA Section 106 Consultation is required. A formal consultation does not begin until a written Request for Consultation is made by the respective Federal Agency to OHA. The request should be sent by mail to the following address:

Attn: Request for Section 106 Consultation  
Administrator  
Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, HI 96813-5349

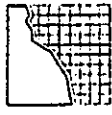
The position of the Office of Hawaiian Affairs with regards to the propriety and adequacy of the Section 106 Consultation is that without proper identification of all potentially interested stakeholders at the beginning of the project, the consultation process will be flawed and insufficient. NHPA requires any Federal agency contemplating an undertaking to attempt to identify all potentially interested stakeholders.

Thank you for the opportunity to review and comment on this proposed project. If you have any questions, please feel free to contact Leimana DaMaTe, Hawaiian Rights Division, at 594-1944, or email her at [leimanad@oha.org](mailto:leimanad@oha.org).

Sincerely,



Ernest M. Kimoto  
Acting Director, Hawaiian Rights Division



GERALD PARK  
Urban Planner

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February 4, 2004

Ernest M. Kimoto, Acting Director  
Hawaiian Rights Division  
Office of Hawaiian Affairs  
711 Kapiolani Boulevard, Suite 500  
Honolulu, Hawaii 96813

Dear Mr. Kimoto:

Subject: Waimoa Trails and Greenways  
Waimoa, District of South Kohala, Hawaii

Thank you for reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. We offer the following responses to your comments in the order presented.

1. Archaeological Survey

An archaeological survey was performed as part of the archaeological assessment prepared for the project. The consulting archaeologists recommended that an archaeological inventory survey be performed with emphasis on the trail alignment (or easement) through the Lahamilo Agricultural Field System.

2. Cultural Impact Statement

A cultural assessment has been prepared and appropriate sections incorporated into the Final Environmental Assessment.

3. National Historic Preservation Act Section 106 Consultation

Section 106 consultation will be initiated with the State Historic Preservation Division after the completion of the environmental assessment process.

We thank the Office of Hawaiian Affairs for participating in the environmental review process.  
Sincerely,

GERALD PARK URBAN PLANNER



Gerald Park  
Principal

c: Patricia. G. Englehard, Director Department of Parks and Recreation, County of Hawaii





STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
1400 RYECROFT STREET, SUITE 876  
HONOLULU, HAWAII 96814

PETER E. YOUNG, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

AQUATIC RESOURCES  
WADING AND OCEAN RECREATION  
COMMISSION ON WATER RESOURCES  
CONSERVATION AND RESOURCES  
DEVELOPMENT  
CULTURAL RESOURCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
STATE PARKS

January 28, 2003

Mr. Gerald Park  
Gerald Park Urban Planner  
1400 Rycroft Street, Suite 876  
Honolulu, HI 96814-3021

Dear Mr. Park:

**SUBJECT:** Chapter 6E-8 Historic Preservation Review--Draft Environmental Assessment for Waimea Trails and Greenways Project (County of Hawaii Department of Parks and Recreation)  
Lalamilo, Waikoloa and Ouli, South Kohala, Hawaii Island  
TMK: (3) 6-2; 6-5; 6-6

LOG NO: 31585  
DOC NO: 0301PM09

Thank you for transmitting a copy of the Draft Environmental Assessment (DEA) for the proposed Waimea Trails and Greenways project for our review and comment. The DEA was received in our office on November 20, 2002. In our preliminary review of the DEA we noted that an archaeological assessment study had been undertaken for the proposed project. A copy of the assessment report was transmitted to our office on January 23, 2003.

The proposed Waimea Trails and Greenways project is described in the DEA as an approximately 4.5 mile long alternative transportation corridor for bicycle and pedestrian use. The trail would follow the meandering course of Waikoloa Stream through urban and agricultural lands, from the County of Hawaii Park opposite the South Kohala View Estates residential subdivision, on the west side of Waimea Town, to Church Row in Waimea Town. Eventually, the trail system would link old Hawaiian trails to hiking and equestrian areas, such as the Waipio Valley overlook. The trail system would be developed in phases.

The archaeological assessment study for the proposed trail was undertaken by Cultural Surveys Hawaii (CSH). Their report, entitled "An Archaeological Assessment of Proposed Waimea Trails and Greenways Project Within the Lalamilo and Waikoloa Ahupua'a, South Kohala District, Island of Hawaii" (Kikioi, Borhwick and Hammatt, 2002), indicates that there are a number of historic sites located within or in close proximity to the proposed project area. These include portions of a traditional Hawaiian agricultural field system, and historic structures, such as the

Mr. Gerald Park  
Page Two

Imi'ola Church and cemetery (Site 50-10-06-7151) which is on the State and National Register of Historic Places.

The CSH archaeological assessment report recommends an inventory survey of the proposed project area. We agree with this recommendation. A report on the survey should be submitted to our office for review and approval.

If you should have any questions about this project please contact our Hawaii Island archaeologist, Patrick McCoy (692-8029).

Aloha,

*P. Holly McEldowney*  
P. Holly McEldowney, Acting Administrator  
State Historic Preservation Division

PM:jk

c. Doug Borhwick, Cultural Surveys Hawaii  
Glen Miyao, Hawaii County Department of Parks and Recreation  
Pua Aiu, Office of Hawaiian Affairs

received  
2.1.03



GERALD PARK  
Urban Planner

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February 2, 2004

P. Holly McEldowney, Acting Administrator  
Historic Preservation Division  
Department of Land and Natural Resources  
State of Hawaii  
555 Kakauihewa Building  
601 Kamehaha Boulevard  
Kapolei, Hawaii 96707

Dear Ms. McEldowney:

Subject: Waimaea Trails and Greenways  
Waimaea, District of South Kohala, Hawaii

Thank you for reviewing the Draft Environmental Assessment prepared for the subject project. As recommended by the consulting archaeologists and confirmed in your correspondence, an archaeological inventory survey should be performed for the project area. However, rather than undertaking an inventory survey for the 4.5 mile long trail, it is proposed that an inventory survey be performed for that section of the Lalaimo Field Complex traversed by the trail. The survey would include the project area between the County of Hawaii Refuse Transfer Station on the east and a proposed County of Hawaii Park on the west (the trail terminus/origin at Kawaihale Road). The boundaries of the survey shall be determined when a final trail alignment is established. The alignment is proposed to follow the centerline of Waikoloa Stream extending outwards up to 100+ feet.

The section of the trail between Church Row on the east and the County of Hawaii Refuse Transfer Station on the west has been altered by historic and current agricultural and urban uses. The presence of subsurface historic properties in this trail segment is thought to be low in comparison to the Lalaimo Field Complex where many features would be encountered. This was pointed out in the archaeological assessment performed by Cultural Surveys Hawaii. It is proposed that archaeological monitoring be conducted during construction of this trail segment rather than an inventory survey.

We thank the State Historic Preservation Division for participating in the environmental assessment review process.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park  
Principal

c: Patricia G. Englehard, Director Department of Parks and Recreation, County of Hawaii



Harry Kim  
Mayor

Patricia G. Englehard  
Director

Patricia N. Mizuno  
Deputy Director

County of Hawaii  
DEPARTMENT OF PARKS AND RECREATION  
101 Puuahi Street, Suite 4 - 11th Fl., Honolulu, HI 96720  
(808) 541-4311 • Fax (808) 541-4411

December 24, 2002

MEMORANDUM

TO: GLENN MIYAO, PARK PLANNER  
FROM: ~~GLENN MIYAO~~  
PAMELA MIZUNO, DEPUTY DIRECTOR  
SUBJECT: WAIMAEA TRAILS & GREENWAYS  
DRAFT ENVIRONMENTAL ASSESSMENT

Members of the newly formed Hawaii County Bicycle/Pedestrian Advisory Committee were given copies of the above-referenced draft environmental assessment and offered no comments by the December 23<sup>rd</sup> deadline.

Thank you for the opportunity to review Draft EA.

