

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of)	DOCKET NO. A83-557
)	
PRINCEVILLE DEVELOPMENT)	
CORPORATION)	
)	
To reclassify approximately 390 acres of)	
land currently in the Agricultural District)	
into the Urban District at Hanalei, Kauai,)	
Hawai'i, TMK: 5-3-06: 17 and portion of 14)	
_____)	

2011 MAR -9 A 9:36
 LAND USE COMMISSION
 STATE OF HAWAII

**MOTION FOR ORDER AMENDING THE FINDINGS OF FACT, CONCLUSIONS
OF LAW AND DECISION AND ORDER DATED MARCH 28, 1985**

VERIFICATION

AFFIDAVIT OF BENJAMIN M. MATSUBARA

EXHIBITS "1" THROUGH "5"

AND

CERTIFICATE OF SERVICE

BENJAMIN M. MATSUBARA, #993-0
 CURTIS T. TABATA, #5607-0
 WYETH M. MATSUBARA, #6935-0
 Matsubara - Kotake
 888 Mililani Street, 8th Floor
 Honolulu, Hawai'i 96813

Attorneys for Petitioner
 Princeville Prince Golf Course, LLC

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of) DOCKET NO. A83-557
)
PRINCEVILLE DEVELOPMENT)
CORPORATION)
)
To reclassify approximately 390 acres of)
land currently in the Agricultural District)
into the Urban District at Hanalei, Kauai,)
Hawai'i, TMK: 5-3-06: 17 and portion of 14)
_____)

**MOTION FOR ORDER AMENDING THE FINDINGS OF FACT, CONCLUSIONS
OF LAW, AND DECISION AND ORDER DATED MARCH 28, 1985**

TO THE HONORABLE LAND USE COMMISSION OF THE STATE OF HAWAI'I:

Petitioner PRINCEVILLE PRINCE GOLF COURSE, LLC ("Petitioner"), by and through its attorney, BENJAMIN M. MATSUBARA, respectfully moves the Land Use Commission of the State of Hawai'i ("Commission") pursuant to §15-15-70 and §15-15-94 of the Commission's Rules for an Order: 1) recognizing Petitioner's standing to seek and obtain the relief requested herein; and 2) amending the Findings of Fact, Conclusions of Law, and Decision and Order to delete the condition limiting the use of approximately 120 acres of Urban District land for golf course uses for the proposed Princeville Ranch Agricultural Subdivision ("Project").

In support of this Motion for Order Amending the Findings of Fact, Conclusions of Law, and Decision and Order dated March 28, 1985 ("Motion"), Petitioner alleges as follows:

I. BACKGROUND

On March 28, 1985, The Commission issued its Findings of Fact, Conclusions of Law and Decision and Order to reclassify approximately 390 acres from the Agricultural District to the Urban District, subject to the condition that the land be used for golf course uses. The proposed project included an 18 hole golf course, a golf clubhouse with a pro office, snack bar and cart storage.

On May 23, 1989, the Commission issued its Decision and Order Clarifying Condition of Approval by stating that golf course use includes a clubhouse with a restaurant.

On July 26, 1989, the Commission issued its Findings of Fact, Conclusions of Law and Decision and Order on Petitioner's Motion to Clarify, Amend or Delete, if Necessary, Condition of Approval, and on Intervenor's Motion to Amend Condition, which amended the March 28, 1985 and May 23, 1989 orders by permitting the development of a tennis/fitness complex.

Having completed the Prince Golf Course and Prince Clubhouse, there remains approximately 120 acres of Urban District lands that remain undeveloped and will not be developed for golf course use. Petitioner now seeks to delete the condition limiting

the use of the undeveloped Urban District for golf course uses for inclusion in the proposed Princeville Ranch Agricultural Subdivision.

II. CONFORMANCE WITH STATE LAND USE STANDARDS

Petitioner is seeking to delete the condition limiting the use of approximately 120 acres in the Urban District for golf course uses for the purpose including the 120 acres in the development of an agricultural subdivision. Petitioner discusses the following applicable requirements set forth by §15-15-50(c), *Hawai'i Administrative Rules* ("HAR") in support of this motion.

A. PETITIONER AND REPRESENTATIVE

Petitioner Princeville Prince Golf Course, LLC is a Delaware limited liability company with its principal place of business in Honolulu, Hawaii. Correspondence and communications in connection with this motion are to be addressed to its attorney, Benjamin M. Matsubara, at 888 Mililani Street, 8th Floor, Honolulu, Hawai'i, 96813.

B. DESCRIPTION OF THE SUBJECT PROPERTY

The area in question is approximately 120 acres and a part of the Princeville Ranch Agricultural Subdivision project, which is located on the North Shore of Kauai, generally on the central and eastern plateaus makai of Kuhio Highway ("Subject Area"). [Exhibit 1, figure 1.1] Attached hereto and incorporated herein by reference as Exhibit 1 is the Princeville Ranch Agricultural Subdivision Planning Report which includes as appendices supporting surveys and studies. The Subject Area is identified by Tax Map

Key No. (4) 5-3-006: portion of 014 as shown on Exhibit 2 which is attached hereto. The Map Showing Urban Boundary is attached hereto as Exhibit 3.

C. PRESENT USE OF THE SUBJECT PROPERTY AND CONFORMITY TO AGRICULTURAL DISTRICT STANDARDS

The Subject Area is either vacant or being used for grazing. [Exhibit 1, p.2-2]

The Subject Area is consistent with the standards for agricultural districts pursuant to HAR §15-15-19. The Subject Area includes lands with significant potential for grazing or other agricultural uses, and is contiguous to agricultural lands.

D. PETITIONER'S PROPERTY INTEREST IN THE SUBJECT PROPERTY

Petitioner is the owner of the fee simple interest in the Subject Area. [Exhibit 4]

E. DESCRIPTION OF THE USE OR DEVELOPMENT BEING PROPOSED

The Subject Area is approximately 120 acres. The Subject Area is part of a larger 1,024-acre, 21-lot subdivision. The overall subdivision includes 2 golf course lots, 1 SMA lot in the makai Anini Beach and Kalihi Kai Beach Area, and a road lot. The proposed Project is an agricultural subdivision based on a 480 acres site and includes 17 Ag lots. The Subject Area is approximately 120 acres of the 480 acre subdivision. The Subject Area includes one complete lot and portions of 4 other lots from the overall 17-lot subdivision. Within the Subject Area there are potentially a maximum of 15 homesites and portions of 2 homesites, if each lot owner were to maximize the number of homes on each lot.

In coordination with Princeville Ranch, an Agricultural Master Plan has been developed to address the future of agriculture on the North Shore lands owned by Princeville Associates LLC and its subsidiaries. This Plan, entitled as the "Princeville Ranch Agricultural Master Plan" and attached to Exhibit 1 as Appendix A, describes how the subject lands of the planned subdivision, along with over 3,200 acres located mauka of Kuhio Highway and in Hanalei Valley, will be maintained in agricultural uses to support the operations of the Princeville Ranch that currently leases these lands.

Much of the area within each of the 17 Ag lots and all of the SMA lot will remain available to the Ranch for grazing livestock. Portions of the Ag lots could be used for one or more ranch houses and the total potential number of houses will be capped by the Petitioner through CCRs (conditions, covenants and restrictions) and design rules at 75 dwellings although County zoning rules provide a potential maximum of 140 dwellings. The CCRs and design guidelines will establish 75 potential homesites, each comprising approximately 3/4 of an acre, spread across the 17 Ag lots that could be enclosed by fencing for separation from the open grazing areas. The potential 56.25 acres of fenced enclosures, along with approximately 20 acres of fenced Roadway lot and circulations, will be the total acreage removed from present grazing lands. These two areas, which totaled to an approximate area of 76.25 acres, represent about 13% of the 592-acre grazing land currently used by Princeville Ranch in the makai area.

The concept of the planned subdivision has been designed from the outset to keep Princeville Ranch operating for the foreseeable future. [Exhibit 1, p. 2-2]

F. A STATEMENT OF PROJECTED NUMBER OF LOTS, LOT SIZE, NUMBER OF UNITS, DENSITIES, SELLING PRICE, INTENDED MARKET, AND DEVELOPMENT TIMETABLES

The Project includes 17 Ag lots ranging from approximately 10 acres to 200 acres. The expected sales prices range from about \$1,000,000.00 to about \$12,000,000.00, with the bulk of the sales in the \$2,000,000.00 to \$3,000,000.00 range. The intended market includes families who enjoy the ranching lifestyle. The development schedule anticipates construction to commence in 2010 and completion within approximately one year of commencement. [Exhibit 1, p. 2-4]

G. FINANCIAL STATEMENTS AND FINANCING

Petitioner's financial statements are attached hereto and incorporated herein as Exhibit 5. Petitioner intends to finance the Project through members' contributions and the sale of lots.

H. DESCRIPTION OF THE SUBJECT PROPERTY AND SURROUNDING AREAS

The Subject Area is located on the North Shore of Kauai, generally on the central and eastern plateaus makai of Kuhio Highway. The Subject Area is generally surrounded by steep drainage valleys and open pasture lands. The southwestern portion of the Subject Area is bordered by the eastern edge of the existing Prince Golf Course entry road. The Prince Clubhouse is located to the west of the border. Two

closed land fill sites and a concrete batch plant are located to the east of the Subject Area, across from a drainage valley. Kuhio Highway marks the southern boundary of the Subject Area. Princeville Airport is located across from the highway to the south of the Subject Area. While the area is generally undeveloped, they have long been used for cattle grazing by Princeville Ranch. [Exhibit 1, page 1-2]

1. USE OF THE PROPERTY OVER THE PAST TWO YEARS

The Subject Area has been vacant or used for grazing for the past two years. [Exhibit 1, p. 2-2]

2. PRESENT USE OF THE PROPERTY

The Subject Area is currently vacant or used for grazing. [Exhibit 1, p. 2-2]

3. SOIL CLASSIFICATION

The 1972 Land Capability Grouping by the NRCS rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII." NRCS rates the agricultural and erosional characteristics of the Property's Makapili silty clays as follows (the subclassification "e" as shown below means that the soils are subject to erosion if they are cultivated and not protected):

MeB Makapili silty clay, 0 to 8% slope, 30 to more than 60 inches deep, Capability classification IIe - irrigated or nonirrigated. This soil is on broad upland ridges. In a representative profile the surface layer is brown silty clay about 12 inches thick. The subsoil, about 48 inches thick, is reddish-brown, dark reddish-brown, and yellowish-red clay loam and silty clay that has subangular blocky structure. The substratum is silty clay. The surface layer is strongly acid. The subsoil is very strongly acid. Permeability is moderately rapid. Runoff is slow, and the erosion hazard

is slight. The available water capacity is about 1.4 inches per foot of soil. In places roots penetrate to a depth of 5 feet or more. This soil has moderate imitations that reduce the choice of plants or require moderate conservation practices. This soil is used for pasture and sugarcane.

MeC Makapili silty clay, 8 to 15% slope, more than 20 inches deep, Capability classification IIIe - irrigated or nonirrigated. On this soil, runoff is slow to medium and the erosion hazard is slight to moderate. This soil is used for pasture and sugarcane, has severe imitations that reduce the choice of plants or require special conservation practices or both.

MeD Makapili silty clay, 15 to 25% slope, more than 20 inches deep, Capability classification IVe - irrigated or nonirrigated. On this soil, runoff is medium and the erosion hazard is moderate to severe. It has very severe imitations that reduce the choice of plants or require very careful management or both. This soil is used for pasture.

MeE Makapili silty clay, 25 to 40% slope, more than 20 inches deep, Capability classification Vie - nonirrigated. This soil has a profile like that of Makapili silty clay, 0 to 8 % slopes, except that the surface layer is thinner. Runoff is rapid, and the erosion hazard is severe. This soil is used for pasture and woodland. It has very severe imitations that make these soils generally unsuited for cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

NRCS rates the agricultural and erosional characteristics of the Subject Area's Rough broken land (rRR) as consisting of very steep land broken by numerous intermittent drainage channels. In most places it is not stony. It occurs in gulches and on mountainsides on all the islands except Oahu. The slope is 40 to 70 percent. Elevations range from nearly sea level to about 8,000 feet. The local relief is generally between 25 and 500 feet. Runoff is rapid, and geologic erosion is active. The annual rainfall amounts to 25 to more than 200 inches. [Exhibit 1, p. 3-9]

4. AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAII (ALISH)

ALISH ratings were developed in 1977 by the NRCS, the University of Hawai'i (UH) College of Tropical Agriculture and Human Resources, and the State of Hawai'i, Department of Agriculture. This system classifies land into three categories: (a) "Prime" agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) "Unique" agricultural land which is non-Prime agricultural land used for the production of specific high-value crops; and (c) "Other" agricultural land that is non-Prime and non-Unique agricultural land, which is important to the production of crops. About 30% of the Subject Area lands have soils that are rated Prime and about 20% that are rated Other. The rest of the soils, which are generally within the natural drainage valleys, are unclassified. [Exhibit 1, p. 3-10]

5. PRODUCTIVITY RATING

In 1972, the UH Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five levels, with "A" representing the class of highest productivity and "E" the lowest. Most of the land within the Subject Area is classified as C29, which means its overall productivity rating is average and its land type is 29. Land type 29 has a selected crop productivity rating of C for pineapple, vegetables, sugarcane, forage, and grazing, but A rating or B for orchard use; has the

potential of being used as commercial forest land; and has a nonstony texture but poor suitability for machine tillability. [Exhibit 1, p. 3-11]

6. FLOOD AND DRAINAGE CONDITIONS

The Project is situated on a sloping plateau with natural topographical elevations that provide positive slopes for storm water runoff to natural gulches. The majority of storm water from the Project is surface drained in a northerly and easterly direction and eventually empties into the Pacific Ocean at Kalihi Kai Beach via small stream outlets. According to the Federal Emergency Management Agency's Flood Insurance Rate Map, the boundaries of the Project fall outside the defined 100-year flood plain boundaries. . [Exhibit 1, p. 3-44]

7. TOPOGRAPHY OF THE SUBJECT PROPERTY

The planned subdivision will be confined to the plateaus extending makai from Kuhio Highway toward the coast and ranging in elevation from 360 down to 200 feet above sea level. The plateau areas are basically defined by the edge of the "greater than 20 percent slope" shading. Development of farm dwellings and appurtenant structures within the Subject Area and the larger planned agricultural subdivision will be confined to the areas of less than 20 percent slope. [Exhibit 1, p. 3-12]

**I. ASSESSMENT OF IMPACT OF THE PROPOSED USE OR
DEVELOPMENT UPON THE ENVIRONMENT**

1. AIR QUALITY

Air quality in Princeville area is believed to be good at the present time. Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Princeville area is very much affected by its windward and near coastal situation and by nearby mountains. Winds are predominantly trade winds from the east or northeast and provide good ventilation much of the time.

Short-term impacts from fugitive dust during project construction may potentially occur. Because of this, an effective dust control plan for the period of construction should be prepared and implemented. After construction, any long-term impacts on air quality from motor vehicle traffic related to this project are anticipated to be negligible. [Exhibit 1, p. 3-1]

2. NOISE

Development of the Project will involve excavation, grading, and other typical construction activities during construction. Construction noise from the Princeville Agricultural Subdivision project is not expected to impact the distant residential neighbors. Noise from construction activities should be short term and must comply with State Department of Health noise regulations.

After construction is complete, noise generated from stationary mechanical equipment within the Subject Area will meet the State of Hawaii noise regulations. For residential areas (i.e., single-family homes), noise limits are 55 dBA during the day and 45 during the night as of the date of this motion.

The 2018 projections of traffic volumes along Kuhio Highway indicate a minor change in traffic so a negligible future increase in traffic noise along the highway can be expected. Homes within 50 feet from the edge-of-pavement of Kuhio Highway will experience noise levels that exceed the Federal maximum noise limit of 67 dBA for peak hour traffic volumes. No homes are planned to be located 50 feet from Kuhio Highway.

[Exhibit 1, p. 3-30]

3. FLORA

No plant species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs were recorded within or close to the proposed Subject Area. Therefore it is not expected that the modification of the habitat present on the site, or the development of residential lots along the ridgeline here will result in deleterious impacts to any plant species currently listed as endangered, threatened, or that are currently proposed for listing under either federal or State of Hawai'i endangered species statutes. [Exhibit 1, p. 3-2]

4. FAUNA

19 bird species were recorded during station counts. One of the species recorded, Hawaiian Goose, or Nene (*Branta sandvicensis*) is listed as an endangered species under both Federal and State of Hawai`i endangered species statutes. One other species, Pacific Golden-Plover (*Pluvialis fulva*), is an indigenous migratory shorebird species. The remaining 17 species recorded are all considered to be alien to the Hawai`ian Islands. Although not detected, it is probable that the Hawai`ian endemic sub-species of the Short-eared Owl, or *Pueo* use the resources in the general project area. Two other species not detected during the survey, the endangered Hawai`ian Petrel and the threatened Newell's Shearwater have been recorded flying over the project site.

An endangered species awareness program will be developed, which includes general information on the endangered species act and protected species, specific restrictions that will be in force on the job site to protect endangered species, and a set of protocols on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. Similar programs have been developed and are being used at several construction project sites, and resorts on the Island of Kaua`i. If construction activity is planned to occur during the Nene nesting season, which typically runs from October through March on Kaua`i, the Project site will be surveyed by a qualified biologist before the onset of nesting, to determine if there is any active Nene nesting activity occurring on the site. If active Nene nesting does occur

while construction is ongoing, a Nene monitoring protocol will be in place to ensure that no harm befalls the birds.

All exterior lighting associated with the operation of the proposed development will be shielded so as to reduce the potential for interactions of nocturnally flying Hawai`ian Petrels and Newell's Shearwaters with external lights and man-made structures.

No mammalian species protected or proposed for protection under either the Federal or State of Hawai'i endangered species programs were detected during the course of the survey. Although not detected, Hawai`ian hoary bats have been recorded foraging for insects over the project site in the past. The principal potential impact that the development of the site poses to Hawai`ian hoary bats is during the clearing and grubbing phases of the Project. Areas within the gulches that have dense vegetation are likely used to some degree by roosting bats, though normally it is not thought that the availability of roosting habitat is a limiting factor in this species survival. The principal threat that clearing potential roosting habitat poses to this species is between June and July when female bats may be carrying pups and potentially may not be able to flee vegetation clearing activity quickly enough to avoid harm. Following build-out of the Project lighting associated with the development, and landscaping vegetation will likely attract volant insects to the larger agricultural subdivision, which in turn will provide bats with additional foraging opportunities.

No federally or state listed endangered or threatened species were noted in the invertebrates survey. There is no federally designated Critical Habitat for any invertebrate species on or adjacent to the Subject Area. No anticipated actions related to the proposed project activity in the surveyed locations are expected to threaten entire species or entire populations of invertebrates. [Exhibit 1, p. 3-2]

5. SCENIC

The Ag Subdivision of which the Subject Area is a part has been designed to provide optional low-density lots that maximize ocean views. The Homesites are set away from Kuhio Highway as much as possible and landscape berms and planting will screen both noise and traffic from the Homesites. Views from the highway will be mostly of berms and vegetation. Setbacks from the bluffs will reduce visual impacts from Anini Beach and Kalihi Kai Beach, and drainage valleys will separate the homes from the adjacent Anini Vista Subdivision. Portions of the farm dwellings' roof lines may be visible from the highway and from Anini Vista. The covenants, conditions, and restrictions (CC&Rs) will require additional landscape screening to anticipate visual impact. [Exhibit 1, p. 3-52]

6. ARCHAEOLOGICAL

Development in the Subject Area will have no impact on historic properties as none exist in the Subject Area. However, the overall Project has the potential to affect historic properties which are eligible for the Hawai'i Register. Mitigation measures are

recommended to avoid potential impacts. In summary five sites are recommended for preservation (including one actively maintained cemetery and a site with posited burials that is not actively maintained), six sites are recommended for no further work and no sites are recommended for data recovery (preservation of potential sites for data recovery being preferred). SHPD concurs with the significance assessments and mitigation measures including the development of an Agricultural Master Plan to address the five sites recommended for preservation. [Exhibit 1, p. 3-18]

7. CULTURAL

Background research and community consultation indicates that the proposed project will have minimal to no impacts to Hawaiian cultural beliefs, practices, resources (historic and/or cultural properties) sites, and traditions. If iwi or cultural resources are found during the ground disturbance and construction phases of this proposed Project, cultural and lineal descendants of the area and appropriate agencies will be notified and consulted in regard to preparation of appropriate mitigation plans, including a burial treatment plan. [Exhibit 1, p. 3-24]

8. GROUNDWATER

The Project will not adversely impact the groundwater flow rate. Supply to the Princeville Ranch Agricultural Subdivision has been anticipated in planning by Princeville Utilities Company, Inc. ("PUCI"), a private PUC regulated company. Supply of 21,800 GPD for the 120-acre Subject Area and 92,500 GPD for the entire 480-acre Ag

Lots will come from any of PUCI's four wells, two of which draw from the Waimea volcanics and the other two from the Koloa formation. These water supply amounts are not significant in terms of PUCI system's capacity or in comparison to the natural flow of groundwater in either volcanic formation.

With regard to onsite changes to the quantity of groundwater, the 120-acre Subject Area is likely to contribute about 7,620 GPD (5,120 GPD as wastewater and 2,500 and landscape irrigation return flow). This water will percolate below the soil mantle toward the groundwater below. For the entire Agricultural Subdivision, the figures are 34,300 GPD (24,000 GPD as wastewater and 10,300 GPD as irrigation return flow). As an order of magnitude comparison, about 25 percent of onsite rainfall percolates below the root zone. Over the 120-acre Subject Area, this amounts to about a year round average of 150,000 GPD. The projected increase of 7,620 GPD would be an increase of about five percent. Over the entire 480-acre Ag Lots, rainfall-recharge is about 600,000 GPD on average. The Princeville Ranch Agricultural Subdivision project would increase this by about six percent.

Given the perching layers in the saprolite encountered in the two deep onsite boreholes, percolating rainfall or wastewater produced by the Project is not likely to reach the groundwater body which exists at variable depths beneath the site. The percolate is more likely to drain into the gulches which are incised into the plateau.

Despite their very small watershed sizes, these gulches are essentially perennial in their lower reaches. Their flows, albeit quite small amounts, are sustained by water moving laterally along the surface of perching members in the saprolite and seeping into the gulches.

Percolate from individual wastewater leach fields and as excess applied landscape irrigation water will be higher in dissolved nutrients than percolating rainfall recharge or in the groundwater at depth. However, essentially all of the phosphorus in the Project's percolate would be absorbed during passage through the saprolite and a substantial portion of the nitrogen would also be removed by denitrification processes. In other words, most of the nutrients will be stripped out by natural processes. As the percolating quantities are also quite small, no significant water quality impact is expectable. [Exhibit 1, p. 3-60]

9. RECREATIONAL

The Subject Area is located in Princeville. Princeville is a resort/residential community that includes a ranch, agricultural lands, resorts, golf courses, and planned development communities. Princeville Ranch, which the Agricultural Plan is intended to preserve, has recreational activities and resources that supplement the ranching activities. Horseback riding, zip-lines, eco-tours, and hiking are part of the activities provided by the ranch as accessory uses to ranch operations.

Construction activities within the Subject Area would not involve the use of these recreational facilities or impede existing activities conducted there. Impacts to recreational facilities will be minimal if at all. Design of the Project would include developing appropriate erosion control plans and best management practices to minimize runoff from entering surrounding stream waters. Such plans developed would be reviewed and approved by appropriate agencies. Thus, implementation of such plans would provide sufficient measures to minimize impacts on these recreational facilities. [Exhibit 1, p. 3-57]

10. AGRICULTURE

The Project will include the Subject Area for the purposes of implementing the Princeville Ranch Agricultural Subdivision and the Princeville Ranch Agricultural Master Plan for the preservation of the Princeville Ranch. [Exhibit 1, Appendix A]

J. AVAILABILITY OR ADEQUACY OF PUBLIC SERVICES AND FACILITIES

1. SCHOOLS

The existing Princeville community has lower student population densities than many residential communities for at least two reasons. First, there are few full-time residents than typical residential communities, and also, census data shows that Princeville residents tend to have fewer school-age children. Based on commonly used metrics to estimate the potential student population of the 75 single-family farm

dwellings, fewer than 10 students might be expected to reside in the planned agricultural subdivision. Accordingly, the potential 15 single-family farm dwellings and partial two single-family farm dwellings within the Subject Area should have minimal impact on the DOE programs and facilities. Based on the existing excess capacity and the anticipated small student generation from the Project, no significant impact is anticipated. [Exhibit 1, p. 3-56]

2. PARKS

Parks and recreational facilities located in the immediate vicinity of the Subject Area include Anini Beach Park, Kalihi Kai Beach Park, Hanalei Black Pot Beach Park, Hanalei Pavilion Beach Park, Kilauea Park, and the Kilauea Neighborhood Center (County of Kauai, Department of Public Works, Parks Division). The Kilauea Neighborhood Center is an important community resource for Kilauea Town residents. The Center's facilities include a gym, restrooms, park offices, a baseball field, soccer field, and playground. The local farmers market is held every Thursday in this center where local farmers are able to sell their produce. [Exhibit 1, p. 3-57]

3. POLICE PROTECTION

The Kauai Police Department provides services to the North Shore District from their Hanalei Police Substation which serves as a base of operations for police personnel patrolling this coastline. This substation is located approximately 3 miles west of the Subject Area on the mauka (south) side of Kūhio Highway, adjacent to Prince Albert

Park. The next closest station is located in Lihue approximately 25 miles away, and can provide additional police protection if necessary. [Exhibit 1, p. 3-57]

4. FIRE PROTECTION

The Kauai Fire Department has one fire station in the North Shore District located in Princeville. The Hanalei Fire Station is located approximately 3 miles west of the Petition Area, on the makai (north) side of Kūhio Highway. It is co-located with the Hanalei Police Substation. Back-up service is provided by the Kapaa Fire Station. [Exhibit 1, p. 3-57]

5. WASTEWATER SYSTEMS

The Department of Health (DOH) will require that a development connect to an existing gravity sewer system or nearby wastewater treatment plant if available. However, since there is no gravity sewer system that serves the area, it is intended that each Agricultural Lot will install one Individual Wastewater System (septic tank system), for a total of one individual wastewater system (IWS) per lot (17 total) as permitted by Chapter 62 (HAR 11-62). It may be possible that more than one IWS per Agricultural Lot could be constructed if an individual lot owner decides to create a CPR within his Agricultural Lot pursuant to the one acre exception in Chapter 62 (HAR 11-62-31.1B). Wastewater treatment and disposal is proposed to be done via an IWS for each farm dwelling, located within each Agricultural Lot. The IWS will consist of a septic tank system and a leach field or seepage pit for effluent disposal. Proposed farm

dwelling are expected to vary in size and each farm dwelling site is assumed to utilize a maximum 1,250 gallon IWS (which can accommodate a 5 bedroom dwelling). Specific percolation tests will be necessary to size each of the leach fields or design the size and depth of each seepage pit. By implementing the IWS, this Project is not expected to have an impact on public wastewater facilities. [Exhibit 1, p. 3-42]

6. SOLID WASTE DISPOSAL

Kekaha landfill is the primary solid waste disposal site on the island, located on the leeward coastline of Kauai near Kekaha town. The landfill is owned by the County and staffed, in part, with County employees. Landfill operations and monitoring services are contracted to Waste Management, Inc. (WMI). According to the *Integrated Solid Waste Management Plan (March 2009)*, the landfill consists of two disposal areas (Phase I and Phase II). Phase I area, which is a closed unlined landfill, has an estimated 1,717,245 cubic yards of waste in place. Phase II area is a RCRA Subtitle D lined landfill with approximately 1,810,360 cubic yards of waste in place. The Phase II landfill is permitted to an elevation of 85 feet above mean sea level (MSL) for an estimated capacity of 2,194,860 cubic yards. The landfill received 89,156 tons of waste in FY 2005. The permit renewal and modification issued by the State of Hawaii Department of Health (DOH) in April 2005 allows the peak daily disposal rate of 600 tons per day. In FY 2005, the landfill's peak daily disposal rate averaged 244 tons per day.

The remaining permitted capacity of the landfill is 384,500 cubic yards as of May 19, 2006. The County is currently applying for a northwest horizontal expansion of the Phase II area to increase the landfill's capacity. The northwest horizontal expansion would increase the remaining capacity of the Landfill by an additional 370,000 cubic yards. There is also a possibility of expanding the Phase II landfill to the southwest over the northeast side slope of the closed Phase I landfill, which will add an additional 350,000 cubic yards of airspace for a total horizontal expansion volume of 720,000 cubic yards.

The proposed maximum 75 farm dwellings and cattle grazing activity in the Princeville Ranch Agricultural Subdivision Project does not anticipate significant short-term impacts on the existing solid waste collection and disposal system or the environment. There will be no demolition waste, as the Project is currently undeveloped. The majority of pre-construction waste will be green waste from site clearing. A solid waste management plan will be developed as part of the Princeville Ranch's sustainable development initiatives to reduce the impact that the Project may have on the County Landfill. The solid waste management plan will identify efforts to minimize waste generated by the project during construction and operation. [Exhibit 1, p. 3-59]

7. STORMWATER DRAINAGE

The intent of the Agricultural Subdivision Project is to maintain the existing runoff from the subdivision lands upon development in accordance with the County of Kauai's drainage standards. By incorporating retention and detention basins into the planned development, the increases in runoff volumes and peak discharge rates will be mitigated. Within each of the farm dwelling sites, retention facilities are planned to provide an equivalent amount of retention as the calculated increase in runoff due to development.

Increases in runoff volume and peak flows due to the proposed development are calculated to be negligible with respect to the regional runoff volumes and peak flows. The natural gullies and drainageways are significant enough to handle the peak flows which are generated by the regional watershed areas. Considering that the proposed individual developments will be responsible to capture and retain their increases in runoff, the local or immediate impacts due to development will also be negligible. The calculated increases in runoff volume and peak flow from the Subject Area due to the ultimate build-out are not significant and would not significantly impact the downstream areas. [Exhibit 1, p. 3-44]

8. POTABLE WATER

Potable water demands for the entire Princeville area, between the Hanalei River and the Kalihiwai River, are served by the Princeville Utilities Company, Inc. (PUCI).

PUCI gets its water from three deep groundwater wells which have a total sustainable yield of 1.4 MGD (Million Gallons per Day). Presently, the water demands total 1.1 MGD and PUCI has just completed drilling well no. 5 which is estimated to have a yield of 0.8 MGD. With a maximum of 75 (3/4 acre) dwelling sites, the calculated average potable water demand is 140,625 gallons per day (0.141 MGD). The private water system will be able to accommodate the Project's demand. [Exhibit 1, p. 3-41]

9. TRANSPORTATION SYSTEMS

The Project can be accessed from Kuhio Highway by the existing access roads for the Prince Golf Course and Princeville Ranch. The northbound approach is comprised of the access road for the Princeville Ranch while the southbound approach is comprised of the access road for the Princeville Golf Course. Both approaches have one lane at this unsignalized intersection that serves all traffic movements. The existing access roads are paved up to the asphalt parking lots on both sides of the club house. A dirt road continues from the north parking lot to the northern part of the Project site and finally ends before the edge of the steep northerly facing slopes. Currently, there is no roadway within the Subject Area.

The roadways within the Princeville Ranch Agricultural Subdivision will meet the County roadway and fire safety standards and preserve the rural character of the area. The subdivision plan includes a new private 56-foot wide collector roadway system which provides the "backbone" access roads from Kuhio Highway to 15 of the

proposed 17 Agricultural Lots (including the four Agricultural Lots that fall within the Subject Area). Two Agricultural Lots are proposed to have access to Kuhio Highway via the existing Anini Vista Drive. All of the lots that don't have direct contact with the backbone roadway system will have access via "local" 44-foot wide private roadway easements. It is anticipated that future lot owners will construct private roadways along these easements to provide access to their dwelling sites.

The subdivision plan provides for a maximum of 75 farm dwelling "homesites" spread amongst the 17 Agricultural Lots via conditions of a Condominium Property Regime (CPR). The proposed number of farm dwelling sites available within each Agricultural Lot varies between 2 and 7, depending on the size of the subdivided Agricultural Lot and the terrain. It will be a requirement to provide fire protection and emergency vehicle access to each of the farm dwelling sites. Therefore, sites that are not immediately accessible via the backbone roadway system, or local 44-foot wide roadway easements, are proposed to have access via individual roadways within the Agricultural Lots. Each of the proposed roadways will have a cul-de-sac or turnaround at its terminus to meet County requirements.

Proposed roadway improvements which are required for subdivision approval are shown in the construction plans, "Construction Drawings for Lot 2-A-1, Princeville Phase II", prepared by Esaki Surveying and Mapping, Inc. [Exhibit 1, Appendix A of Appendix K] The proposed collector road (Road A) is approximately 3,900 feet in total

length, with 900 linear feet falling within the Subject Area. Collector road cross-sections consist of a 24-foot wide paved, normal crown travelway and 16-foot wide grassed shoulders/swales on each side of the travelway. In the ultimate developed condition, secondary or local roadways within easement areas could have a total length of over 13,200 linear feet, of which approximately 4,900 linear feet falls within the Project area. Local road cross-sections consist of a 20-foot wide paved, normal crown travelway and 12-foot wide grassed shoulders/swales on each side. Curbs, gutters and sidewalks are excluded from the plan in order to preserve the existing rural character and maximize the amount of vegetated open space.

The Project roadways are expected to have a minimal impact to the environment and to the rural character of the area. The roadways within the Project area will have no significant impacts related to the petitioned land use change. [Exhibit 1, p. 3-40]

10. PUBLIC UTILITIES

Electrical power will be provided to the Project by the Kauai Island Utility Cooperative (KIUC). Primary electrical power is distributed from the main electrical generating facility located in Port Allen, throughout the Island of Kauai via a 57 kilovolt (KV) overhead power transmission system to various substations located throughout the island. KIUC provides a three-phase, 12 KV overhead primary distribution systems in the area of the Project. Secondary electrical power is supplied to the site from three,

pole-mounted, 25 KVA transformers located on the north (makai) side of the Kuhio Highway.

Hawaiian Telcom provides telephone service to the Island of Kauai. There are nine exchange areas on the island. A switching station serves each, exchange area, although an exchange may have peripheral or remote locations. The Princeville switching station is located next to the Princeville Fire and Police Stations. It services the area from Princeville to Haena.

Hawaiian Telcom has three aerial cables along Kuhio Highway fronting the Project. One is a fiber optic trunking cable between Princeville and Kilauea. Another is a 100 pair trunking cable between Princeville and Kilauea. The third is a 100 pair cable that provides local service. [Exhibit 1, p. 3-56]

K. LOCATION OF THE PROPOSED USE OR DEVELOPMENT IN RELATION TO ADJACENT LAND USE DISTRICTS AND ANY CENTERS OF TRADING AND EMPLOYMENT

The Subject Area is generally bounded by grazing lands, steep drainage valleys, steep northerly facing slopes, and by the Prince Clubhouse at the southwest border. Two closed land fill sites and a concrete batch plant are located to the east of the Subject Area, across from a drainage valley. Princeville Airport is located across Kuhio Highway, to the south of the Subject Area. Anini Beach Park and Kalihi Kai Beach Park, and Anini Vista are located to the north and northeast, respectively, of the planned agricultural subdivision area. [Exhibit 1, p. 3-28]

L. ECONOMIC IMPACTS OF THE PROPOSED DEVELOPMENT

Over the 20-year analysis period, the State will net about \$12.2 million from development activities associated with the Project, or an average of about \$610,000 per year. About \$3.2 million or nearly \$160,000 per year will be attributable to development activity in the Subject Area. In 20 years, net tax revenues to the State are projected to reach about \$570,000 per year for the Project and about \$150,000 per year for the Subject Area.

In 20 years, net tax revenues to the County are projected to reach about \$170,000 per year, including about \$50,000 per year being attributable to residents living in the Subject Area. [Exhibit 1, p. 3-51]

1. EMPLOYMENT

During the 20-year analysis period, construction employment is expected to average about 22 jobs, including about six jobs associated with development in the Subject Area. It is anticipated that most construction jobs associated with the Project will be filled by workers already living on Kauai. Indirect employment related to Project development is expected to average about 22 jobs on Kauai and 11 jobs on Oahu. Thus, total direct-plus-indirect employment associated with the construction activities will average about 55 jobs per year, with about 44 of them being on Kauai. About 15 direct-plus-indirect jobs will be attributable to construction in the Subject Area. The actual annual job count will fluctuate over time, depending on the pace of construction.

In 20 years, purchases of goods and services by occupants of the ranch houses are projected to support about 43 jobs, including about 39 new jobs on Kauai and four jobs on Oahu. About 11 of these jobs will be attributable to purchases by residents of the farm dwellings in the Subject Area. Onsite annual employment for home and yard maintenance and repair is projected to reach an estimated ten jobs, with about three of these jobs in the Subject Area. [Exhibit 1, p. 3-51]

2. POTENTIAL IMPACT TO AGRICULTURAL PRODUCTION IN THE VICINITY OF THE SUBJECT PROPERTY, AND IN THE COUNTY AND STATE

The Princeville Agricultural Subdivision project as a whole will help sustain and preserve agricultural lands, local agricultural business, and the rural character of the area. The Project will help improve and maintain grazing lands for viable agricultural uses in the future and promote sustainable development and rural agricultural tourism in the area. [Exhibit 1, p. 3-50]

M. IF A RESIDENTIAL DEVELOPMENT IS PROPOSED, A DESCRIPTION OF THE MANNER IN WHICH THE PETITIONER ADDRESSED THE HOUSING NEEDS OF LOW INCOME, LOW-MODERATE INCOME, AND GAP GROUPS

Kauai County Ordinance No. 860 Article 1 Section 1.4(C) and Article 2 Section 2.1(a) requires residential developments with more than 10 residential dwelling units to provide 30% affordable units within a location that is 5 miles or less by public road from the development. Princeville Prince Golf Course, LLC will comply with county affordable housing requirements. [Exhibit 1, p. 4-11]

N. NEED FOR THE PROPOSED DEVELOPMENT

There has been and still is a market for high-end view lots on Kauai, particularly on the North Shore, and particularly of the ocean. The market makes little distinction whether that view is on an agricultural zoned lot or not, or whether it is particularly large or not. The driving force is to secure a view, with the secondary considerations being privacy, space and security. This Project manifests all of these features, and if the market cycle performs according to historical patterns, and if the units are priced competitively, there is no reason not to expect that it would completely sell out within a few years, 2-4 years potentially after market recovery. [Exhibit 1, p. 2-13]

O. AN ASSESSMENT OF CONFORMITY OF THE PROPOSED USE TO APPLICABLE GOALS, OBJECTIVES, AND POLICIES OF THE HAWAII STATE PLAN, CHAPTER 226, HRS, AND APPLICABLE PRIORITY GUIDELINES AND FUNCTIONAL PLAN POLICIES

The Project conforms to the applicable goals, objectives, and policies of the Hawaii State Plan and applicable Priority Guidelines and Functional Plan Policies. A detailed discussion is included in the Planning Report, attached hereto as Exhibit 1, p. 4-1.

P. AN ASSESSMENT OF THE CONFORMITY OF THE PROPOSED USE TO OBJECTIVES AND POLICIES OF THE COASTAL ZONE MANAGEMENT PROGRAM, CHAPTER 205A, HRS

The Project conforms to the objectives and policies of the Coastal Zone Management Program. A detailed discussion is included in the Planning Report, attached hereto as Exhibit 1, p. 4-11.

Q. AN ASSESSMENT OF CONFORMITY OF THE RECLASSIFICATION TO THE APPLICABLE COUNTY GENERAL PLANS, DEVELOPMENT OR COMMUNITY PLANS, ZONING DESIGNATIONS AND POLICIES, AND PROPOSED AMENDMENTS REQUIRED

The Project conforms to the Kauai General Plan, the County of Kauai North Shore Development Plan, and the County of Kauai Comprehensive Zoning Ordinance.

A detailed discussion is included in the Planning Report attached hereto as Exhibit 1, p. 4-4.

R. A STATEMENT ADDRESSING HAWAIIAN CUSTOMARY AND TRADITIONAL RIGHTS UNDER ARTICLE XII, SECTION 7 OF THE HAWAII STATE CONSTITUTION

Petitioner is aware of and sensitive to the existence and practice of native Hawaiian customary and traditional rights that are protected by Article XII, Section 7 of the Hawai'i State Constitution. There are no known traditional gathering activities or cultural practices affecting the Property.

IV. RELIEF REQUESTED

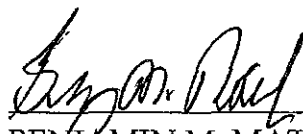
Petitioner seeks an Order: 1) recognizing Petitioner's standing to seek and obtain the relief requested herein; and 2) amending the Findings of Fact, Conclusions of Law, and Decision and Order to delete the condition limiting the use of approximately 120 acres of Urban District land for golf course uses for the proposed Princeville Ranch Agricultural Subdivision Project.

V. CONCLUSION

Based upon the foregoing, Petitioner respectfully requests that the Commission grant this motion after a hearing which Petitioner hereby requests pursuant to HAR §15-15-70(i).

Dated: Honolulu, Hawai'i March 9, 2011

OF COUNSEL:
MATSUBARA - KOTAKE
A Law Corporation



BENJAMIN M. MATSUBARA
CURTIS T. TABATA
WYETH M. MATSUBARA
Attorneys for Petitioner
Princeville Prince Golf Course, LLC

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of)	DOCKET NO. A83-557
)	
PRINCEVILLE DEVELOPMENT)	
CORPORATION)	
)	
To reclassify approximately 390 acres of)	
land currently in the Agricultural District)	
into the Urban District at Hanalei, Kauai,)	
Hawai'i, TMK: 5-3-06: 17 and portion of 14)	
_____)	

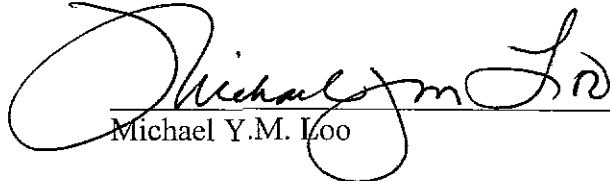
VERIFICATION

STATE OF HAWAII)
)
COUNTY OF KAUAI) SS.:

Michael Y.M. Loo, being first duly sworn, on oath, deposes and says that:

1. I am the Designated Representative of Princeville Prince Golf Course, LLC and in this capacity I am familiar with matters relating to the land which is the subject of Docket No. A83-557 and I am knowledgeable to testify on behalf of the Petitioner.
2. I have personal knowledge of the matters set forth in the foregoing Motion in Docket No. A83-557 and I am qualified and competent to make this verification.
3. I make this verification pursuant to §15-15-39, Land Use Commission Rules.
4. I have read the foregoing document and the contents therefore are true and correct to the best of my knowledge and belief.

Dated: Princeville, Hawai'i, March 3, 2011



Michael Y.M. Loo

Subscribed and sworn to before me
this 3rd day of March, 2011



Name: Sandra Busto
Notary Public, State of Hawai'i
My commission expires: December 9, 2013
Commission Number: 82-229

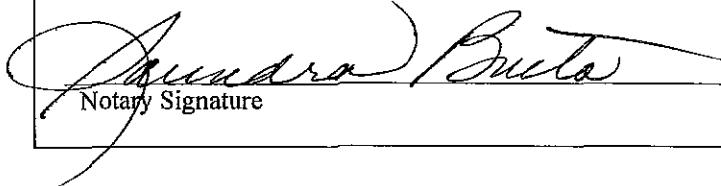


Document Date: March 3, 2011 No. Pages: Two
including all exhibits and this acknowledgement page

Notary Name: SAUNDRA BUSTO Fifth Circuit

Doc. Description: Verification of Michael Y.M. Loo




Notary Signature 3/3/2011
Date

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of) DOCKET NO. A83-557
)
PRINCEVILLE DEVELOPMENT)
CORPORATION)
)
To reclassify approximately 390 acres of)
land currently in the Agricultural District)
into the Urban District at Hanalei, Kauai,)
Hawai'i, TMK: 5-3-06: 17 and portion of 14)
_____)

AFFIDAVIT OF BENJAMIN M. MATSUBARA

STATE OF HAWAII)
) SS.:
CITY AND COUNTY OF HONOLULU)

Benjamin M. Matsubara, being first duly sworn, on oath, deposes and says that:

1. I am one of the attorneys representing Princeville Prince Golf Course, LLC ("Petitioner") in the above entitled matter.
2. I have personal knowledge of the matters set forth herein and am qualified and competent to make this affidavit.
3. Attached hereto as Exhibit "1" is a true and correct copy of the Princeville Ranch Agricultural Subdivision Planning Report.
4. Attached hereto as Exhibit "2" is a true and correct copy of the Tax Map for the Subject Area.

5. Attached hereto as Exhibit "3" is a true and correct copy of the Map Showing Urban Boundary for the Subject Area.

6. Attached hereto as Exhibit "4" is a true and correct copy of the deed for the Subject Area.

7. Attached hereto as Exhibit "5" is a true and correct copy of the financial statements of Petitioner's parent company.

Further Affiant sayeth naught.

Dated: Honolulu, Hawai'i March 8, 2011

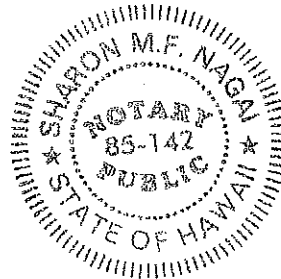
Ben M. Matsubara
BENJAMIN M. MATSUBARA

Subscribed and sworn to me
this 8th day of March 2011

Sharon M.F. Nagai
Name SHARON M.F. NAGAI

Notary Public, State of Hawai'i

My commission expires: 04-21-2013



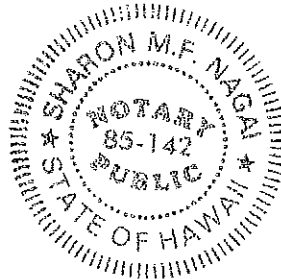
Doc Date: 3-8-2011 # Pages: 2

Name: SHARON M.F. NAGAI First Circuit

Doc. Description: Affidavit of Benjamin M. Matsubara

Sharon M.F. Nagai 3-8-2011
Signature Date

NOTARY CERTIFICATION



Princeville Ranch Agricultural Subdivision

TMK por. (4) 5-3-006: 014

Kalihikai & Kalihiwai, Hanalei, Island of Kaua'i

Planning Report



Applicant:

Princeville Prince Golf Course, LLC
PO Box 223040
Princeville, HI 96722

Prepared by:

Group 70 International, Inc.
Architecture • Planning & Environmental Services • Interior Design • Assets Management
Honolulu, Hawai'i

April 2010

EXHIBIT "1"

Princeville Ranch Agricultural Subdivision

TMK por. (4) 5-3-006: 014

Kalihikai & Kalihiwai, Hanalei, Island of Kaua'i

Planning Report

Applicant:

Princeville Prince Golf Course, LLC
PO Box 223040
Princeville, HI 96722

Prepared by:

Group 70 International, Inc.
Architecture • Planning & Environmental Services • Interior Design • Assets Management
Honolulu, Hawai'i

April 2010

1.0 INTRODUCTION

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Revert from Urban to Agriculture

TABLE OF CONTENTS

SECTION	PAGE
List of Appendices	iii
List of Figures	iii
List of Tables	iv
1.0 INTRODUCTION	
1.1 Project Information Summary.....	1-1
1.2 Petition Area.....	1-2
1.3 Overview of Planned Project	1-2
1.4 Purpose of Planning Report.....	1-2
1.5 Agencies, Organizations, and Individuals Contacted During the Pre-consultation Process	1-3
2.0 SITE AND PROJECT DESCRIPTION	
2.1 Location and Existing Conditions	2-1
2.2 Land Use Designations	2-1
2.2.1 State Land use Designation	2-1
2.2.2 Land Use Commission Docket No. A83-553.....	2-1
2.2.3 Land Use Commission Docket No. A83-557.....	2-1
2.2.4 Kaua’i General Plan.....	2-1
2.2.5 County of Kaua’i Comprehensive Zoning Ordinance	2-2
2.2.6 Development Plan Area.....	2-2
2.2.7 Special Management Area (SMA)	2-2
2.2.8 Subdivision S-2002-23	2-2
2.3 Ownership.....	2-2
2.4 Project Description	2-2
2.5 Princeville Agricultural Lot Market Study	2-4
2.5.1 Identification of the Project and Market	2-4
2.5.2 Overview of the Economy & Real Estate Market	2-10
2.5.3 Historical Trends of the Target Market.....	2-12
2.5.4 Summary	2-13
2.6 Schedule and Timing	2-13
2.7 Project Development Costs	2-14
3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES	
3.1 Natural Environment	3-1
3.1.1 Air Quality	3-1
3.1.2 Flora and Fauna.....	3-2
3.1.3 Climate.....	3-7
3.1.4 Soils	3-8
3.1.5 Topography	3-12
3.2 Archaeological Resources.....	3-18
3.3 Cultural Practices and Resources	3-24

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Revert from Urban to Agriculture

3.4 Land Uses 3-28
3.5 Natural Hazards 3-28
3.6 Noise 3-30
3.7 Roadways and Traffic 3-31
3.8 Infrastructure 3-40
 3.8.1 Roadways..... 3-40
 3.8.2 Water Supply 3-41
 3.8.3 Wastewater Treatment and Disposal..... 3-42
 3.8.4 Drainage 3-44
3.9 Socio-Economic Characteristics..... 3-50
3.10 Visual Resources 3-52
3.11 Public Facilities and Utilities 3-56
 3.11.1 Electrical and Communication Facilities 3-56
 3.11.2 Educational Facilities..... 3-56
 3.11.3 Police Protection 3-57
 3.11.4 Fire Protection 3-57
 3.11.5 Recreational Facilities..... 3-57
 3.11.6 Medical Facilities 3-58
 3.11.7 Solid Waste Disposal..... 3-59
3.12 Hydrology Study 3-60
3.13 Potential Cumulative and Secondary Impacts 3-63

4.0 PLANS AND POLICIES

4.1 Hawai’i State Plan and Functional Plans 4-1
 4.1.1 Hawai’i State Plan 4-1
 4.1.2 Hawai’i State Functional Plans 4-1
4.2 State Land Use Plan..... 4-2
 4.2.1 Urban Land Use District..... 4-2
 4.2.2 Agricultural Land Use District..... 4-3
4.3 County of Kaua’i General Plan 4-4
 4.3.1 Agricultural Land Use Designation 4-4
 4.3.2 Open Land Use Designation..... 4-5
 4.3.3 Resort Land Use Designation 4-6
4.4 County of Kaua’i Comprehensive Zoning Ordinance 4-7
 4.4.1 CZO Agricultural District..... 4-7
 4.4.2 CZO Open District..... 4-8
4.5 County of Kaua’i North Shore Development Plan 4-9
4.6 County of Kaua’i Subdivision Ordinance 4-10
 4.6.1 Lot Size 4-10
 4.6.2 Limitation on Resubdivision 4-10
 4.6.3 CZO Agriculture District Development Standards 4-10
 4.6.4 CZO Residential District Development Standards 4-10
 4.6.5 General Environmental Standards 4-11
4.7 Special Management Area Considerations 4-11
4.8 Affordable Housing 4-11

5.0 LIST OF REFERENCES AND PERSONAL COMMUNICATIONS..... 5-1

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Revert from Urban to Agriculture

LIST OF APPENDICES

- A. Princeville Ranch Agricultural Master Plan
- B. Prince Estates: Economic and Fiscal Impacts
- C. Air Quality Analysis Supplemental Letter
- D. Biological Surveys of a Portion of TMK (4) 5-3-006:014 Princeville Ranch, Hanalei District, Island of Kaua’i
- E. Survey of Invertebrate Resources at ‘Anini, near Princeville, Hanalei District, Kaua’i Island
- F. Preliminary Geotechnical Engineering Exploration Princeville Grand Estates Subdivision TMK: 5-3-06:14
- G. Final Archaeological Inventory Survey for the Proposed Agricultural Subdivision, including Developed and Undeveloped Lands for the Princeville Final Subdivision Project, Hanalei, Kalihikai and Kalihiwai Ahupua’a, Hanalei District, Kaua’i Island
- H. Cultural Impact Assessment for the Planning Report in Support of Princeville’s State Land Use Commission Motion to Revert from Urban to Agriculture, Hanalei, Kalihikai, and Kalihiwai Ahupua’a, Hanalei District, Kaua’i Island TMK: [4] 5-3-006:001 & 014
- I. Environmental Noise Assessment Report Princeville Makai Lands Agricultural Subdivision, Princeville, Kauai, Hawaii
- J. Traffic Impact Report Princeville Subdivision
- K. Princeville Agricultural Subdivision Infrastructure Study, Hanalei, Kauai, Hawaii
- L. North Shore Planning District Heritage Resources
- M. Princeville Hydrology Study
- N. Princeville Resort Agricultural Lot Market Study
- O. State Historic Preservation Division Acceptance Letter of the FINAL Archaeological Inventory Survey – for the Proposed Agricultural Subdivision for the Princeville Final Subdivision Project

LIST OF FIGURES

FIGURE	TITLE	PAGE
1.1	Project Location Map	1-4
1.2	Tax Map Key	1-5
1.3	State Land Use Designation Map	1-6
1.4	Kaua’i County Zoning and Special Management Area Map.....	1-7
1.5	Kaua’i County General Plan	1-8
1.6	Flood Insurance Rate Map	1-9
2.1	Scenario One Lot Sales Distribution by Price	2-9
2.2	Princeville Ranch Agricultural Subdivision Increment Ag Lot Sales	2-14
3.1	View from the Upper, Graded End of the Petition Area Looking Down the Length of the Pasture along the Ridgeline	3-4
3.2	Topography Map.....	3-14
3.3	Natural Resources Soil Conservation Survey (NRCS) Map	3-15
3.4	Agricultural Lands of Importance to the State of Hawai’i (ALISH)	3-16
3.5	Agricultural Productivity Rating Map	3-17
3.6	USGS 7.5-Minute 1996 Lihu’e Quadrangle Map Showing the Eleven Identified Historic Properties within the 400-Acre Subdivision Archaeological Inventory Survey Project Area	3-22

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Revert from Urban to Agriculture

3.7	Existing AM Peak Hour of Traffic	3-33
3.8	Existing PM Peak Hour of Traffic	3-34
3.9	Distribution of Site-Generated Vehicles AM Peak Hour of Traffic.....	3-37
3.10	Distribution of Site-Generated Vehicles PM Peak Hour of Traffic	3-37
3.11	Year 2018 AM Peak Hour of Traffic Without Project.....	3-38
3.12	Year 2018 PM Peak Hour of Traffic Without Project	3-38
3.13	Year 2018 AM Peak Hour of Traffic With Project.....	3-39
3.14	Year 2018 PM Peak Hour of Traffic With Project	3-39
3.15	Princeville Agricultural Subdivision Drainage Tributaries.....	3-46
3.16	Existing Conditions.....	3-48
3.17	Proposed Conditions	3-49
3.18	Existing View of the Pacific Ocean to the North.....	3-53
3.19	Existing View of Open Agricultural Lands, Drainage Valley, and ‘Anini Vista Subdivision to the East.....	3-53
3.20	Existing View of Existing View of Kūhio Highway, Princeville Airport, Open Agricultural Lands, and Mountain Range to the South and Southwest	3-53
3.21	Existing View of Open Agricultural Lands, Mountain Range, Drainage Valley, Prince Clubhouse, and Golf Course to the West	3-54
3.22	Existing View of the Petition Area from Kūhio Highway.....	3-54
3.23	Existing View of the Petition Area from ‘Anini Vista.....	3-54
3.24	Computer Simulated View of the Petition Area from Kūhio Highway (approximately ¼ miles from Princeville Ranch Access Road) after Development	3-55
3.25	Computer Simulated View of the Petition Area from Kūhio Highway (approximately where Princeville Airport building structure is located) after Development	3-55
3.26	Computer Simulated View of the Petition Area from ‘Anini Vista after Development	3-55
3.27	Computer Simulated View of the Petition Area from Kalihi Kai Beach after Development	3-55

LIST OF TABLES

TABLE	TITLE	PAGE
2.1	Summary Description of Project Offering.....	2-5
2.2	Princeville Ranch Agricultural Subdivision, Lot Size, and Homesite Density	2-6
2.3	Estimated Lot values Based on Homesite Values	2-7
2.4	Discounted Lot values Based on Homesite Values	2-8
2.5	Kaua’i Large Lot High-end Home Sale Averages.....	2-13
3.1	Prominent Soil Types in the Petition Area	3-10
3.2	Historic Properties within the Surveyed Project Area.....	3-23
3.3	Trip Generation Characteristics (AM/PM Peak Hours of Traffic).....	3-35
3.4	Existing and Projected (With and Without Project) Traffic Operating Conditions	3-36

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

1.0 INTRODUCTION

This *Planning Report in Support of Princeville’s State Land Use Commission Motion to Amend the Decision and Order* has been prepared in accordance with the requirements of Chapter 205, HRS, which set forth the requirements for the preparation of planning report.

1.1 PROJECT INFORMATION SUMMARY

Type of Document:	Planning Report
Applicant:	Princeville Prince Golf Course, LLC PO Box 223040 Princeville, HI 96722
Name of Action:	Remove the condition of urban designation for golf course only
Class of Action:	Motion to Amend the Decision and Order
Project Location:	Kalihikai & Kalihiwai, Hanalei, Island of Kaua’i (<i>Figure 1.1</i>)
Tax Map Key:	por. (4) 5-3-006: 014 (<i>Figure 1.2</i>)
Landowner:	Princeville Prince Golf Course, LLC
Project Area:	LUC Petition Area: 120 +/- acres
State Land Use District:	Urban District (<i>Figure 1.3</i>)
Kaua’i County Zoning:	Open and Agriculture (<i>Figure 1.4</i>)
Kaua’i County General Plan:	Agriculture/Open/Resort (<i>Figure 1.5</i>)
Special Management Area:	The Petition Area is not within the SMA
Flood Zone:	Zones X (<i>Figure 1.6</i>)
Special Designation:	None

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

1.2 PETITION AREA

The Petition Area is part of the Princeville Ranch Agricultural Subdivision project (the Project), which is located on the North Shore of Kaua'i, generally on the central and eastern plateaus makai of Kūhio Highway (*Figure 1.1*). The Petition Area is generally surrounded by steep drainage valleys and open pasture lands. The southwestern portion of the Petition Area is bordered by the eastern edge of the existing Prince Golf Course entry road. The Prince Clubhouse is located to the west of the border. Two closed land fill sites and a concrete batch plant are located to the east of the Petition Area, across from a drainage valley. Kūhio Highway marks the southern boundary of the Petition Area. Princeville Airport is located across from the highway to the south of the Petition Area. While the area is generally undeveloped, they have long been used for cattle grazing by Princeville Ranch.

1.3 OVERVIEW OF PLANNED PROJECT

The planned Princeville Ranch Agricultural Subdivision project is a subdivision of an approximately 1,000-acre parcel into 21 lots, 17 (Ag Lots) of which would be used for agricultural and associated farm dwelling uses with a combined total area of 480 acres. Two lots (Golf Course Lots) would be used for the existing Prince Golf Course, one lot (SMA Lot) would be composed of lands entirely within the Special Management Area, and lastly, a Roadway Lot which contains access and circulation routes within the subdivision area. The SMA Lot would not be used or developed for farm dwelling purposes, and will remain in open space and agricultural uses. The Petition Area encompasses one planned Ag Lot, a portion of 4 other planned Ag Lots, and a portion of the Roadway Lot.

A Princeville Ranch Agricultural Master Plan was submitted to the Kaua'i County Planning Commission in conjunction with the planned subdivision that received tentative approval in August 2008. This Plan describes how the subject lands of the planned subdivision, along with over 3,200 acres located mauka of Kūhio Highway and in Hanalei Valley, will be maintained in agricultural uses to support the operations of the Princeville Ranch that currently leases these lands.

On the subject makai lands planned for subdivision, much of the area within each of the 17 Ag Lots will remain available to the Ranch for grazing livestock and related Ranch operations. Pre-identified small portions of the lots could be used for one or more ranch houses, with the total potential number of houses capped at 75, 17 of which will be within the Petition Area. Under this plan, much of the land within each lot will remain available for grazing livestock and related agricultural operations – owners will be required to make portions of their land not used for their home site or private agricultural activity, available to the Ranch operators for the Ranch's agricultural operations. This differs from typical agricultural subdivisions where an entire lot is designated for the exclusive use of the landowner, who in turn must develop a specific agricultural use and operate it.

1.4 PURPOSE OF PLANNING REPORT

The purpose of this *Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order to remove the golf course designation*.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

In 1985, to support the construction of the Prince Golf Course, approximately 390 acres of the larger agricultural subdivision were reclassified by the State Land Use Commission (LUC) from the State Agricultural Land Use District to the Urban District, subject to the condition that the land be used for golf course uses. Approximately 120 acres of these Urban lands were never developed and remain undeveloped. This Planning Report is being prepared as an element of an application to the LUC to amend the decision and order to remove the golf course designation.

1.5 AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONTACTED DURING REPORT PREPARATION

The following agencies and groups with jurisdiction or interest have been consulted in the preparation of this Planning Report of the planned project.

State of Hawai'i Agencies

Land Use Commission
Department of Agriculture
Department of Transportation
Office of Environmental Quality Control
Department of Land and Natural Resources
State Historic Preservation Division –DLNR

County of Kaua'i Agencies

County Council
Department of Water Supply
Planning Department

Community Groups and Associations

Princeville Operating Company, LLC Employees
North Shore Association
Princeville at Hanalei Community Association
Carswell Family
Hanalei-Hā'ena Community Association
'Anini Vista Homeowners Association
Princeville II Community Association
Kīlauea Neighborhood Association
Princeville Agricultural Subdivision Association
Kaua'i Board of Realtors (Kauai's north shore members)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order



Figure 1.1 Project Location Map
(Source: United States Geological Survey)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

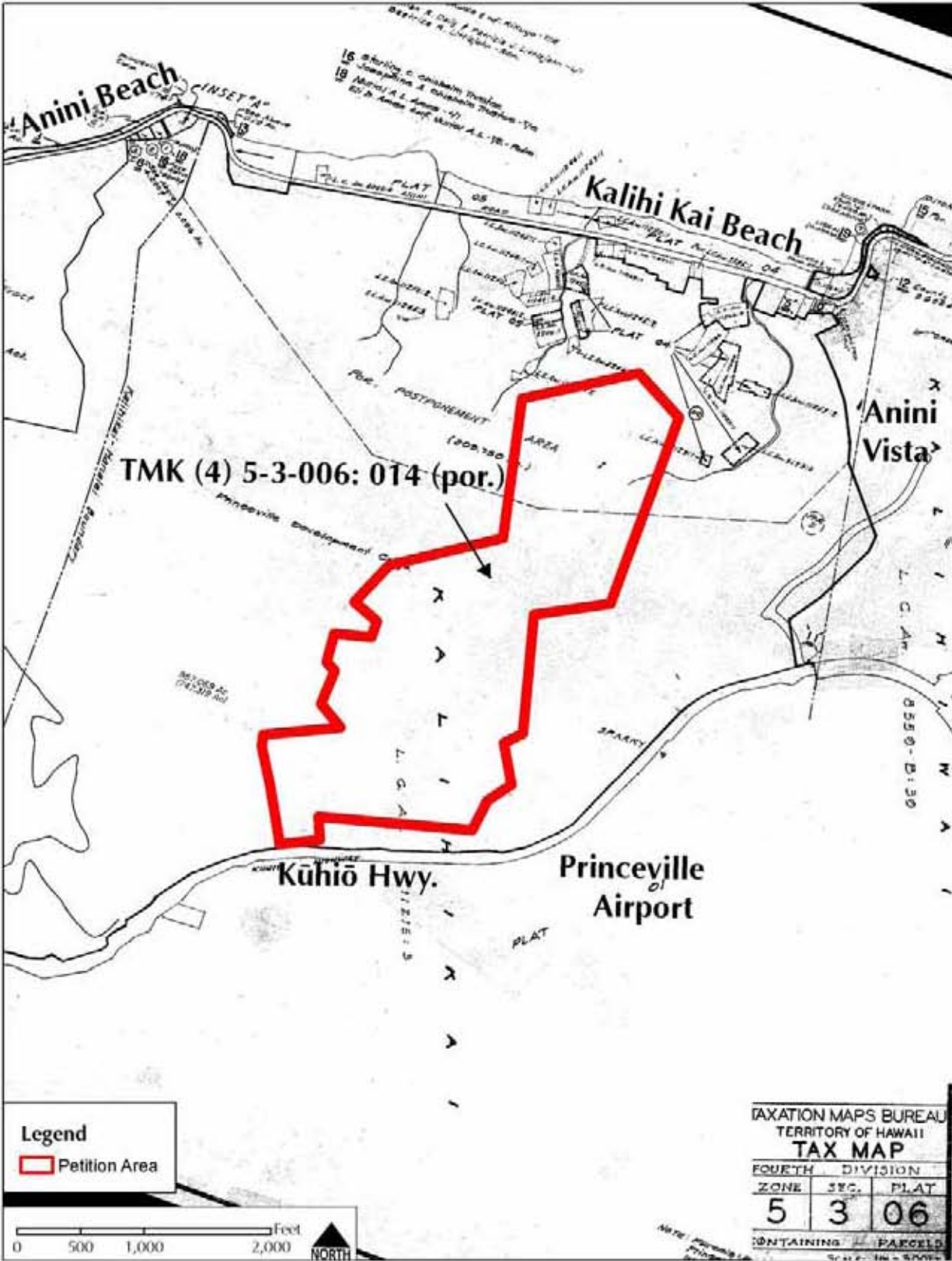


Figure 1.2 Tax Map Key
(Source: County of Kaua'i, 2008)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

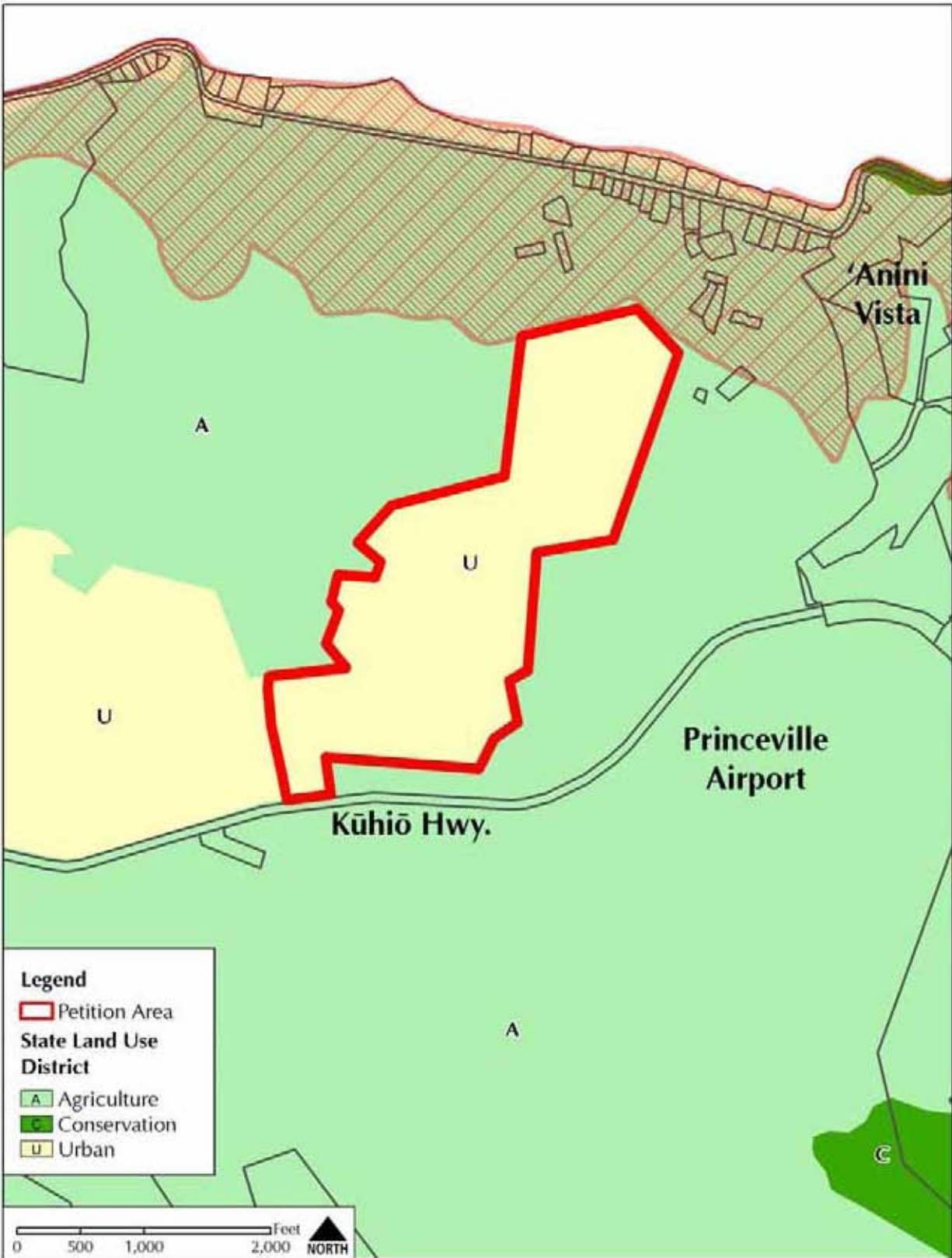


Figure 1.3 State Land Use Designation Map
(Source: State Land Use Commission, 2009)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

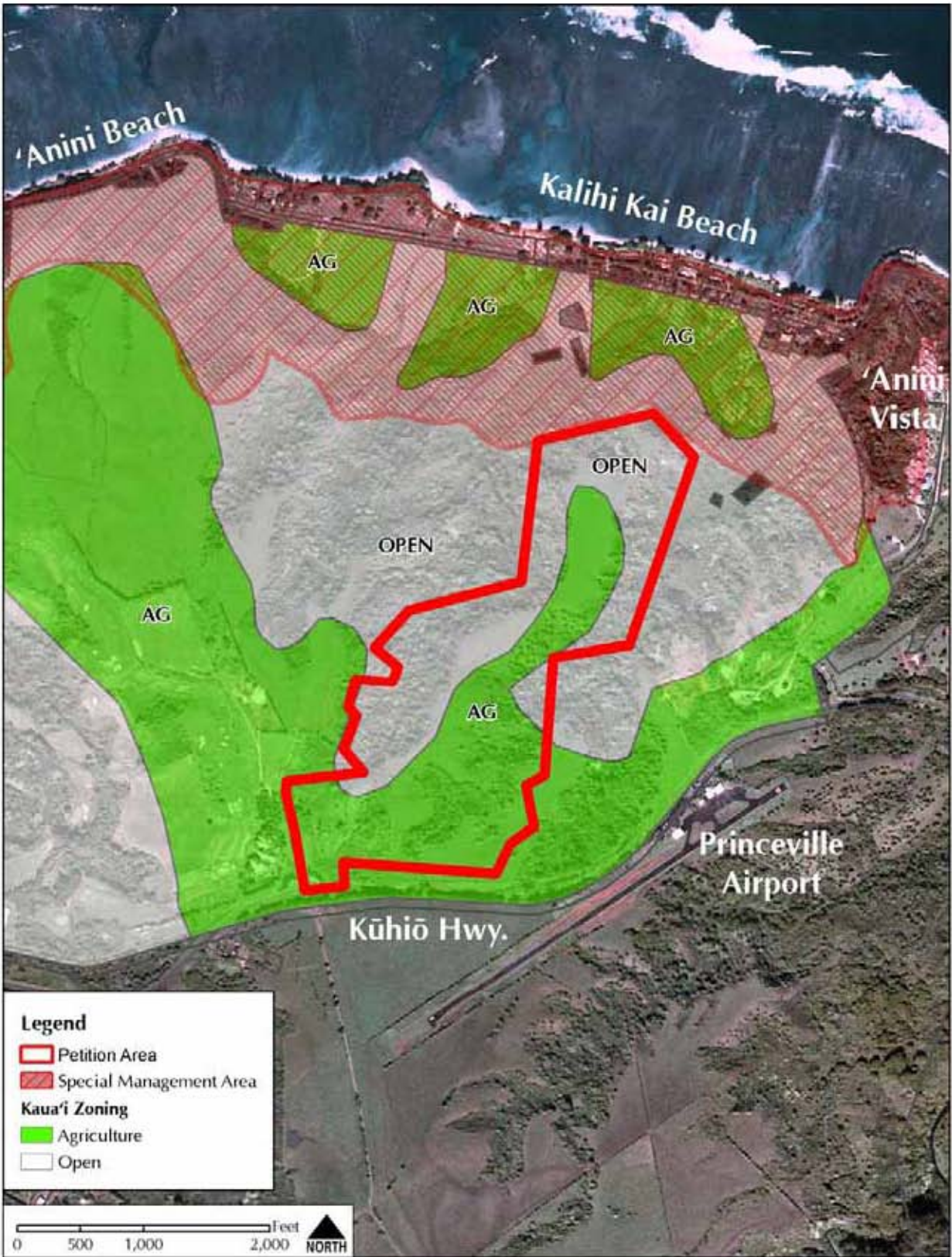


Figure 1.4 Kaua'i County Zoning and Special Management Area Map
(Source: County of Kaua'i, 2002; State Of Hawai'i, 1998)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

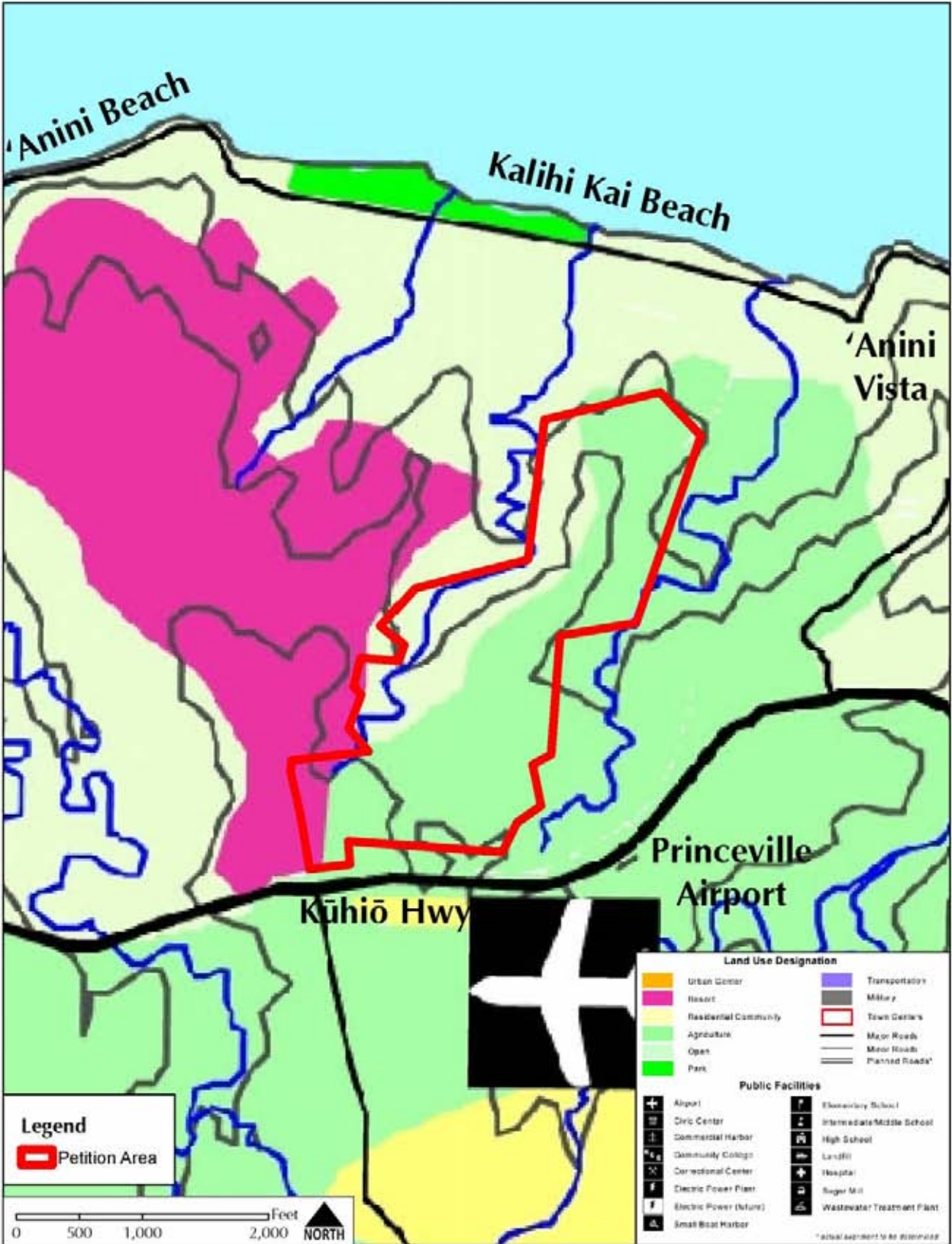


Figure 1.5 Kua'i County General Plan Map
(Source: Northshore Planning District Land use Map, 2000)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

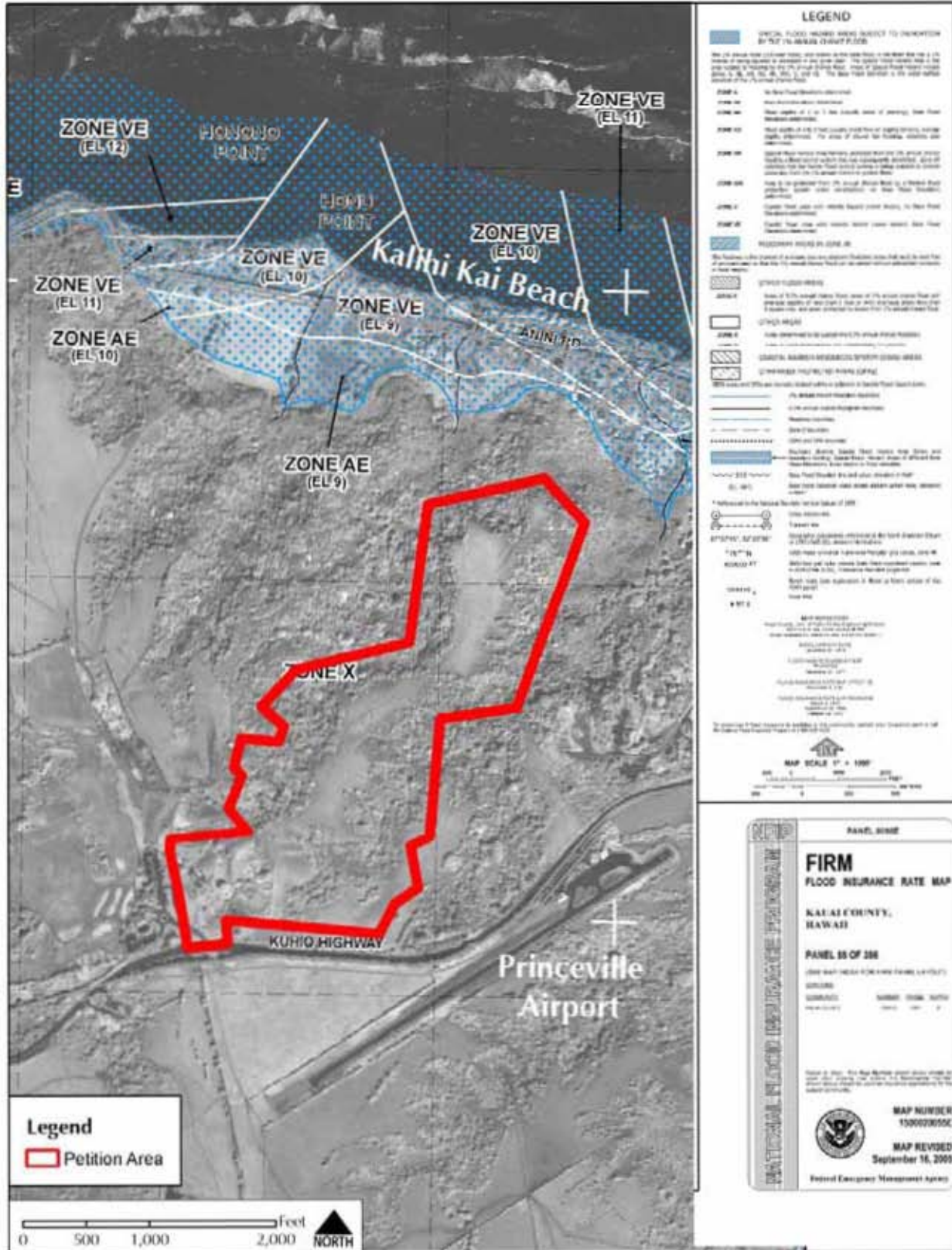


Figure 1.6 Flood Insurance Rate Map
(Source: Federal Emergency Management Agency, 2005)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

2.0 SITE AND PROJECT DESCRIPTION

2.1 LOCATION AND EXISTING CONDITIONS

The Petition Area is an approximately 120 acres portion of a larger 1,000-acre parcel that includes the existing Prince Golf course and vacant land towards 'Anini Beach, Kalihi Kai Beach, and 'Anini Vista (see *Figure 1.1*).

2.2 LAND USE DESIGNATIONS

The respective State Land Use District (SLUD), Kaua'i General Plan, County of Kaua'i Comprehensive Zoning Ordinance (CZO) and other relevant land use designations for the larger agricultural subdivision are described below.

2.2.1 State Land Use Designation

As shown on *Figure 1.3*, the Petition Area is presently located within the State Urban Land Use Districts. The Petition Area was reclassified into the Urban District pursuant to action taken by the LUC in Docket No. A83-553 (April 30, 1985) and Docket No. A83-557 (March 28, 1985).

2.2.2 Land Use Commission Docket No. A83-553

Pursuant to an Amended Decision and Order dated April 30, 1985, some of the makai lands of approximately 197 acres located in the western and central plateau area were incrementally reclassified from the Agricultural District to the Urban District. This approval was subsequently revoked when the Applicant's predecessor failed to undertake the development of this area and the substantial completion of improvements within the time allowed.

2.2.3 Land Use Commission Docket No. A83-557

Pursuant to a Decision and Order dated March 28, 1985, the makai lands of approximately 390 acres were reclassified into the Urban Land Use District, subject to the condition that it be used only for golf course purposes, including a golf clubhouse together with a restaurant and a tennis/fitness complex. The portion classified as Urban is shown in *Figure 1.3*.

The Prince Golf Course and the Prince Clubhouse were subsequently developed within portions of this Urban classification area. However, the eastern portions of the reclassified lands were never utilized and will not be utilized for golf course purposes (the unused golf course area). The applicant intends to use this unused golf course area for agricultural uses including farm dwelling purposes. This unused golf course area is shown in *Figure 1.3*, and makes up the Petition Area requested in this motion to amend decision and order.

2.2.4 Kaua'i General Plan

As shown on *Figure 1.5*, the Petition Area is located in the Kaua'i General Plan Resort, Open, and Agriculture Use Designations. The Petition Area has been consistently located in the Open and Agriculture designations or classifications under prior General Plans. Portions were placed into the Resort Classification in the 1982 Kaua'i General Plan Update (Ord. No 461).

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

2.2.5 County of Kaua'i Comprehensive Zoning Ordinance (CZO)

As shown on *Figure 1.4*, the Petition Area is located in the CZO Open and Agriculture Districts, and has been designated as such since the adoption of the CZO.

2.2.6 Development Plan Area

The Petition Area is located within the North Shore Development Plan Area.

2.2.7 Special Management Area (SMA)

As shown on *Figure 1.4*, the Petition Area is not located within the SMA of the County of Kaua'i.

2.2.8 Subdivision S-2002-23

The Petition Area is a portion of Parcel 2 (TMK 4-5-3-006:014) ("Parcel 2"). Pursuant to Subdivision S-2002-23, Parcel 2 is being consolidated with the Lihue Plantation Company Tract (TMK 4-5-3-006:001 and TMK 5-3-013:040) ("LP Co Tract) and re-subdivided into Lot 2-A-1 and Lot 2-A-2 (the "Parcel 2 Subdivision"). The applicant initially received tentative approval from the Planning Commission for the consolidation of the LP Co Tract and Parcel 2, as set forth in the Tentative Approval letter dated March 1, 2002.

The applicant subsequently amended the Parcel 2 subdivision application to allow the subdivision of the consolidated parcel into Lots 2-A-1 and 2-A-2. Tentative approval of the revised Parcel 2 Subdivision is pending. The Applicant understands that approval of the present Agricultural Subdivision request will be contingent on the Applicant gaining approval of the Parcel 2 Subdivision (S-2002-23).

2.3 OWNERSHIP

The subject land is owned in fee by Princeville Prince Golf Course, LLC.

2.4 PROJECT DESCRIPTION

The proposed action that will be under consideration is a motion to amend a previous condition placed on the Princeville Lands when they were reclassified from Agriculture to Urban. The specific condition was that these lands were designated urban for golf course purposes only.

Most of the land in the earlier petition was used to develop the Prince Golf Course. A remnant 120+/- acre segment was not needed and never developed for the golf course. Since then, the land has been either vacant or used by Princeville Ranch for grazing. It is this remnant 120 acre piece that is the subject of the present petition. The requested amendment is to release this condition to allow the development of an Agricultural Subdivision that allows the Ranch to continue to use significant portions of the makai lands in keeping with the Princeville Ranch Agricultural Master Plan.

The Petition Area is approximately 120+/- acres. This area is part of a larger 1,024-acre, 21-lot subdivision. The overall subdivision includes 2 golf course lots, 1 SMA lot in the makai 'Anini

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Beach and Kalihi Kai Beach Area, and a road lot. The Proposed agricultural subdivision is a 400+ acres site and includes 17 Ag lots. The Petition Area is 120+/- acres of this 400-acre subdivision. The larger agricultural subdivision, which is vital to the Ranch operations becomes infeasible if the 120+/- acres section is excluded from the plan.

The Petition Area includes one complete lot and portions of 4 other lots from the overall 17-lot subdivision. Within the Petition Area there are potentially a maximum of 15 homesites and portions of 2 homesites, if each lot owner were to maximize the number of homes on each lot. This represents a maximum density depiction and is highly unlikely given the type of owners who are likely to purchase these lots. The adjacent 'Anini Vista subdivision is similar and a case in point. Homesites will be approximately $\frac{3}{4}$ -acre sites which may be fenced by the owners. The remainder of the lots will remain open for continued use by the Ranch for grazing or horseback riding.

In coordination with Princeville Ranch, an Agricultural Master Plan has been developed to address the future of agriculture on the North Shore lands owned by Princeville Associates LLC and its subsidiaries. Building on innovative concepts, this Plan has been designed to ensure the long-term economic viability of the Ranch's cattle operation by placing the Ranch on a firmer and more sustainable financial footing; preserve the Ranch's open space and the scenic beauty of the North Shore; and ensure that future uses of the agricultural lands comply with HRS, Chapter 205.

This Plan, entitled as the "Princeville Ranch Agricultural Master Plan" and attached here as *Appendix A*, was submitted to the Kaua'i County Planning Commission in conjunction with the subdivision application. This Plan describes how the subject lands of the planned subdivision, along with over 3,200 acres located mauka of Kūhio Highway and in Hanalei Valley, will be maintained in agricultural uses to support the operations of the Princeville Ranch that currently leases these lands.

To summarize the Ranch Agricultural Master Plan, on the makai lands planned for subdivision, much of the area within each of the 17 Ag lots and all of the SMA lot will remain available to the Ranch for grazing livestock. Portions of the Ag lots could be used for one or more ranch houses, pursuant to a Condominium Property Regime (CPR) that will be established for the affected lands, with the total potential number of houses capped by the applicant through CCRs (conditions, covenants and restrictions) and design rules at 75; County zoning rules provide a potential maximum of 140 dwellings. The CCRs and design guidelines will establish 75 potential homesites, each comprising approximately $\frac{3}{4}$ of an acre, spread across the 17 Ag lots that could be enclosed by fencing for separation from the open grazing areas. The potential 56.25 acres of fenced enclosures, along with approximately 20 acres of fenced Roadway lot and circulations, will be the total acreage removed from present grazing lands. These two areas, which totaled to an approximate area of 76.25 acres, represent about 13% of the 592-acre grazing land currently used by Princeville Ranch in this makai area.

The concept of the planned subdivision has been designed from the outset to keep Princeville Ranch operating for the foreseeable future. Appendix B, Prince Estates Economics and Fiscal Impacts provides a more in-depth analysis of the fiscal aspects of the planned project. Presently, all that obligation and risk is borne by the family that owns the Princeville Ranch brand.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

2.5 MARKET STUDY

2.5.1 Identification of the Project and Market

a. Overview

The Princeville Ranch Agricultural Master Plan ("Plan") encompasses the lands that are currently leased to the Ranch, plus other agricultural lands owned by Princeville Associates LLC and subsidiary companies. These comprise three areas: the "Makai Lands" located below Kūhiō Highway, the "Mauka Lands" located above the highway, and "Hanalei Lands" which are used for ranching and taro farming. The Princeville Ranch Agricultural Subdivision Project involves only the Makai Lands. On the Makai Lands, the planned Princeville Ranch Agricultural Subdivision Project will create 17 Ag Lots (approximately 480 acres combined), 2 Golf Lots, 1 SMA Lot, and 1 Road Lot involving about 1,000 acres. Under this plan, much of the land within each lot will remain available for grazing livestock and related agricultural operations. This differs from typical agricultural subdivisions where an entire lot is designated for the exclusive use of the landowner, who in turn must develop a specific agricultural use and operate it. After farm dwellings are built in the area, it is expected that the Ranch will use the Makai lands primarily to graze horses. Alternatively, cattle grazing and other agricultural activities could be carried out. It should be recognized that while these lands have adequate soils for cultivating crops, intensive corporate scale farm operations are not currently feasible: solar radiation is comparatively low and the lack of irrigation systems (however, drinking water is provided by the Princeville Utilities Company Inc., a privately owned public utility) limits the site for such uses.

Of the 17 Ag Lots, ten will be located primarily in the County's Agricultural District, and seven will be located primarily in the Open District. The new owners will be allowed to build one or more farm dwellings on their Ag Lots. This decision will rest with each individual, some of whom will opt to be the only farm dwelling on the Ag Lot, while others will build as many farm dwellings as allowed per the master planned Princeville Ranch Agricultural Subdivision. If so, there would be a maximum of 75 farm dwellings on the 480-acre Ag Lots.

b. Target Market

Potential purchasers would be attracted to a lifestyle compatible with a ranching environment which preserves wide open spaces, a big sky atmosphere and a low density settlement pattern of homes designed to fit sustainably into the environment. The homes will have a compatible look and feel to the existing Anini Vista subdivision on the adjacent ridge. The new Ag Lot owners will be families who value the beauty of the land, horses, cattle and the spirit of an outdoor community in a green, lush and cool climate.

c. Position and Marketability

Since the breakup of Kīlauea Sugar, there have been a number of successful agricultural subdivisions developed and created. This Princeville Ranch Agricultural Subdivision project seeks to build on that success, given the natural beauty of the site, (particularly, the strong views), the proximity to the resort and the on-going ranch operation. The project's marketability depends on a number of factors, some exogenous and some inherent.

The exogenous factors include the stability of the US (and state of Hawai'i) financial system, the economic growth of the US, global and state economy, state tourism, national, state and county farming regulation (including immigration), and off-shore demand for short and long term accommodation (i.e. migration for primary and/or second home), the demand for beef and

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

agricultural products that can be produced on this land and the costs of construction (labor and materials).

Endogenous factors include pricing of parcels, the cost of construction (as relate to CCR mandates), the cost of maintaining the farm dwelling and surrounding land, the associated costs of living on the ranch (including ranch operations).

d. Description

The following table describes and summarizes the zoning changes and Ag Lot features.

Table 2.1
Summary Description of Project Offering

Area	Units	Minimum Area	Average Area	Maximum Area
Ag Parcels	17	10 acres	20 acres	200 acres
Homesites	78	35,000 sf	35,000 sf	35,000 sf

In sum, there will be 17 Ag Lots offered with 75 total potential homesites, at the maximum, (and, by extension, 17 homesites at the minimum). The table however describes the maximum homes allowed (not including worker housing, which will be determined by both exogenous and endogenous factors).

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

**Table 2.2
Princeville Ranch Agricultural Subdivision, Lot Size, and Homesite Density**

		LOT SIZE (Acres)			Farm Dwelling Density				
		Lot Sizes (Acres)			Allowable			Proposed	
Lot No	Ag/ Open	AG (Ag)	OPEN (O)	Total	AG (Ag)	OPEN (O)	TOTAL	Ag/O	Total
1	O	11.2	12.4	23.7	4	2	6	4/2	6
2	A	25.3	11.0	36.3	5	2	7	4/2	6
3	A	10.8	0.0	10.8	4	0	4	4/0	4
4	A	7.2	0.0	7.2	3	0	3	2/0	2
5	A	16.2	0.0	16.2	5	0	5	4/0	4
6	A	11.3	0.5	11.9	4	0	4	4/0	4
7	O	5.4	11.7	17.2	2	2	4	2/1	3
8	O	14.2	25.1	39.3	5	5	10	4/2	6
9	A	10.8	0.0	10.8	4	0	4	4/0	4
10	O	12.7	40.1	52.8	4	8	12	4/1	5
11	O	7.3	41.6	48.9	3	8	11	2/3	5
12	A	7.6	0.0	7.6	3	0	3	3/0	3
13	A	54.7	11.1	65.8	5	2	7	7/0	7
14	O	7.7	11.8	19.5	2	2	4	3/0	3
15	O	6.0	38.7	44.7	2	7	9	0/2	2
16	A	11.0	7.1	18.1	4	1	5	3/1	4
17	A	25.1	21.3	46.3	5	4	9	4/3	7
18	O	105.0	157.4	262.5	5	31	36		0
19	O	6.0	120.5	126.5	3	23	26		0
20	O	29.1	36.4	65.5	5	5	10		0
Roadway				12.0			0		0
Total		384	547	943	77	102	179		75

In light of the particulars of the offered lots, we estimated what each lot would bring, based on several scenarios:

1. What the lot would bring as a developable piece of property, reselling the individual homesites for profit;
2. What the lot would bring as a stand-alone home site, purchased for its quality of life (livability); and,
3. What the lot would bring as a part of a functioning agricultural operation.

Note that two out of these three scenarios (one and three) estimate the lot value from the bottom up in a logical way – by setting a value on each lot, it attempts to establish a baseline value based on a market in which buyers are ‘rational’ in the sense that they buy with investment return their primary motive. Thus, they would buy the lot at a price that would allow them to recoup their investment plus a profit.

Conversely, there are buyers who are ‘emotional’ and purchase for other reasons. And since these are ‘emotional’ buyers, it is somewhat more difficult to put an estimate on their valuations. This is

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

the scenario number two. Regardless of whether the purchase decision is logical or emotional, using a fair-market valuation method, both kinds of buyers will buy at the price that the market indicates as fair. However, it should be noted that current values used in this analysis will change over time since these units will not come to market in the immediate future. Nor will they completely sell out in the first year they are selling. Therefore, the current values will change with the market, and are most likely to rise, given that the broader market for real property in the county and the state is at a low mark in the real estate cycle, both in terms of activity and in terms of values (prices).

Sales activity is anticipated to stay low over the near term. At the same time values will continue to fall. Thereafter, it is reasonable to expect that activity will recover and values will stabilize. Finally, in the longer run, after real estate activity has risen on a consistent basis over a couple of years, overall values will then follow suit. In recognition of these fluctuating values, a high and a low value for each lot is estimated. The low value encompasses a decline of about 20% in value from today. Similarly, the high value given in the table encompasses a rise of 20% from today. *Table 2.3* describes the estimated low/high price range of each lot.

**Table 2.3
Estimated Lot values Based on Homesite Values**

Lot	Homesites	Lot Price, Low Range (\$)	Lot Price, High Range (\$)	Gross Revs, Low End (\$)	Gross Revs, High End (\$)
1	6	724,952	1,087,428	4,349,712	6,524,568
2	6	2,331,894	3,497,841	13,991,364	20,987,045
3	4	2,156,073	3,234,109	8,624,291	12,936,436
4	2	531,360	797,040	1,062,720	1,594,080
5	4	542,959	814,439	2,171,837	3,257,755
6	4	2,656,545	3,984,818	10,626,180	15,939,270
7	3	2,835,052	4,252,577	8,505,155	12,757,732
8	6	907,310	1,360,965	5,443,861	8,165,791
9	4	633,559	950,339	2,534,236	3,801,355
10	5	732,976	1,099,465	3,664,882	5,497,323
11	5	911,682	1,367,523	4,558,409	6,837,614
12	3	500,939	751,409	1,502,818	2,254,227
13	5	595,615	893,423	2,978,075	4,467,113
14	3	886,076	1,329,115	2,658,229	3,987,344
15	2	1,556,728	2,335,091	3,113,455	4,670,183
16	6	516,004	774,005	3,096,021	4,644,032
17	7	754,616	1,131,924	5,282,314	7,923,470
Total	75	1,163,196	1,683,271	87,239,736	126,245,339

This valuation thus sets a benchmark for what the potential value of each lot would bring at the retail level. Specifically, this is the value a lot buyer might expect to be returned to him if he was to buy a lot and resell the components, the homesites. However, since this is what a buyer can

expect to make on a lot purchased from the master developer, he will only buy it at a substantial discount (to accommodate the risk, to make a return, etc.). For this reason, the master developer would have to discount the value of the lot, in order to entice buyers with a ‘reasonable’ profit.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

This discount (from retail to wholesale) can be as large as 60%-70% of retail in a slow or down market, and as little as 30%-40% in a hot or up market. Thus, we looked at the high-low scenario of 60% and 40% to arrive at a reasonable range of values that these lots might be sold at. (Note: a further caveat is that the lots with excellent views would be more marketable than those with more commonplace views, and thus the discount applied to the view lots would be less than the non-view lots). *Table 2.4* below uses a mid-point for the gross revenue value of the lot and applies a 40% and 60% discount factor to arrive at a reasonable range of price points:

**Table 2.4
Discounted Lot values Based on Homesite Values**

Lot	Homesites	Gross Revs, Mid Point (\$)	Value, with 60% Discount (\$)	Value, with 40% Discount (\$)
1	6	5,437,140	2,174,856	3,262,284
2	6	17,489,205	6,995,682	10,493,553
3	4	10,780,363	4,312,145	6,468,218
4	2	1,328,400	531,360	797,040
5	4	2,714,796	1,085,918	1,628,878
6	4	13,282,725	5,313,090	7,969,635
7	3	10,631,444	4,252,577	6,378,866
8	6	6,804,826	2,721,930	4,082,896
9	4	3,167,795	1,267,118	1,900,677
10	5	4,581,102	1,832,441	2,748,661
11	5	5,698,011	2,279,205	3,418,807
12	3	1,878,523	751,409	1,127,113
13	5	3,722,594	1,489,038	2,233,557
14	3	3,322,787	1,329,115	1,993,672
15	2	3,891,819	1,556,727	2,322,016
16	6	3,870,026	1,548,011	3,961,735
17	7	6,602,892	2,641,157	3,961,735
Total	75	106,742,537	42,081,780	63,122,669

As seen in the bottom of *Table 2.4*, we estimate the net value to the master developer of these lot sales will be between \$42 and \$63 million dollars. This depends on the evolution of values in the market over the period of time it takes to bring these units up for sale and then to sell them out. *Figure 2.1* below summarizes the lot offering by price range, showing that the bulk of sales will come in the \$2-\$3 million range.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order



Figure 2.1 Scenario One Lot Sales Distribution by Price

Next, we look at the other two scenarios for projecting the values for these lots. These are:

- Buying into an agricultural operation; and,
- Buying a home site for an individual (the emotional purchase).

The first idea, that of buying into an ongoing cattle ranching operation, is a marginally less attractive to the target market than the second idea. Indeed, of the many who have made their home, primary or secondary, on Kauai, their main motivation is to live in a beautiful location.

As such, they are more than willing to calculate their investment return primarily in terms of lifestyle and experience. This is opportune, inasmuch as the idea of investing for a return in an Ag operation, like ranching, is not particularly compelling (and nowhere near as that of living on the bluff looking out at the ocean). As an investment, it is low risk/low return. It has the benefit of being countercyclical, returning higher yields than real estate when the market is down.

However, there is not as much upside potential, as residential returns historically have shown very good appreciation over 10-20 years. Having diminished the idea buyers will be motivated by return by investing in ranching relative to lifestyle, we hasten to add that ranching, per say, is an important contributor to the emotional motivation to purchase because it delivers on the promise of lifestyle and extraordinary experience. Simply put, there is no better way of capturing the sense of place on these bluffs, and of living in the community of Kauai, than riding around the property, overseeing the livestock, checking the fencing, maintaining the water and the feedstock distribution network, etc. Additionally, it provides a basis for camaraderie and good will amongst those who buy here.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

The second idea of buying a home site for emotional reasons is a very viable proposition. This is exemplified by a long history of rising prices on the North Shore of Kauai for view lots. This is particularly so in the case of homesites with a western exposure, the 'Bali Hai' view, the values of which appear to at a premium over non-Bali Hai views on the order of 25% and higher.

Ultimately, we believe this will be the primary demand for these lots - individuals wanting to secure a unique view. The second greatest demand will come from developers looking to provide a high-end home for offshore buyers. It should be noted that these two segments overlap, with some buyers not reselling some or all of their homesites, and some developers taking one or more of the homesites for their own personal use.

That said, if every lot purchaser was interested in maximizing their return by reselling their homesites, this 'reoffering' would be concentrated mainly in the mid-range price brackets. As seen in the distribution below, most of the resales would be below a million dollars. Finally, we tried to look what would be the benefit (and the detriment) for these lots of being tied to a relationship to the ranch and the resort. The benefits would be:

- The access to resort facilities and services, including security; and,
- The ability to use ranch resources to maintain and improve their home site (fencing, assistance in the event of natural disaster, upkeep of the paths and pasture).

The negatives would be the obligation to lease some of the land to the ranch at very low rental rates and the need to occasionally accommodate ranch activities on their properties. Maintenance of the pasture may be viewed as neutral on balance depending on the buyer's desire to use the land. On balance, the buyer's perception of the relationship with the resort slash ranch should be slightly positive, in as much as the ranch and the resort offer some very attractive services and attributes not available for other, similar agricultural farming estates (access to resort facilities, as well as to ranch help and facilities). However, that perception may not to prove to be valid over time, something that could give future buyers pause.

In sum, the target market for this offering will see it primarily in light of the value of the homesites, be they one per lot or be they the entire potential provision of homesites per lot. The following section analyzes overall market for high-end properties on the island and throughout the state in relation to the general economy (as the uniqueness of the locale and the views warrant attention from buyers who consider themselves allied or tied to other islands, like Maui or the Big Island).

2.5.2 Overview of the Economy & Real Estate Market

a. Economic Activity Globally

Through the 2nd quarter of 2009, the 18-month slowdown in the Hawaiian economy is accelerating, with no end in sight. This is reflected in the table above, which shows that the US and European economy has stabilized somewhat, while Japan is still showing weakness. This does not portend good news for Hawaii the next 1-2 years. Given the ongoing job and income growth weakness in the country and the state, consumption spending has been cut back drastically. This will negatively affect our number one industry, tourism, both for the short and, more importantly, the mid-term future. Overtime, we think that Asia will rebound first, with our visitor growth starting there. The third quarter has shown somewhat better economic data but prospects remain cautious.

b. Economic Conditions on Kaua'i

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

The island economy is in poor shape, with layoffs in every sector of the economy, save federal and military, with job counts off some 6% over the last two years. Offsetting this, there is continued military spending, as well as some construction activity, thanks to a number of affordable housing projects that have just gotten underway. The island's visitor industry has fallen off significantly, and looks to fall more this year. If the economy turns around next year, then it still would take another 1-2 years for visitor counts to rise and another 2-3 for room rates to move up again. The impact of this on the overall Kaua'i county economy is falling jobs. At the same time, the value of residential permits has been boosted by the number of affordable projects that have begun. However, this is anticipated to be temporary, as a number of other projects, both primary and second home housing, have slowed or been put on hold.

c. Real Estate Market

The real estate market in Kaua'i topped out 3 years ago, and has fallen dramatically since. It is currently near to the last low in the cycle, brought on by Hurricane Iniki. Total resale activity (since new homes closings are volatile and misrepresent the overall trend) is down significantly, followed by prices to a lesser extent.

Looking at sales by the individual type, all residential sales are down, but especially condo sales (as they are preferred by offshore buyers). Lot sales have held up better than the rest, possibly since there is an additional economic benefit to owning them (agricultural activities) besides shelter.

Looking at the price trend, lot prices have been the most volatile, with single-family prices being the least volatile. The peak in lot prices came well after the peak in lot sales, and appears to be the most attractive to the high-end of the market (by dint of its dramatic appreciation).

Looking just at the resort market housing segment (properties sold within a resort-zoned master planned community), we see overall sales are down but prices are holding up. In contrast with the total market, sales are far less volatile, as are prices. These characteristics (stability, as opposed to volatility, both in terms of activity and values) are prized by investors, part of this project's target market.

Isolating just for the homesite sales for the resort market, this market has slowed down this year, after having a very good one last year (DMB/AB project in Poipu, Kukuiula). In terms of this market, the proposed project is compatible in terms of pricing, as well as in terms of velocity. The average number of sales since 2003 is over 50 units, which is at a level that is well within the comfort zone of most developers/investors looking to market either 17 lots or 75 homesites.

Looking at the competition, the overall activity in the agricultural estate lot market has been significantly diminished by the market downturn, both on Kaua'i and throughout the state. Two years ago, there were a great many high-end lot programs (albeit not necessarily ag lots, particularly on the Big Island, where land is plentiful). Kaua'i had two such projects, one mauka of Kealia beach (Kealanani) and the other on the south shore at Kekuiula. The first, Kealanani, was a potential competitor in terms of prices, although not in terms of product or services. Kealanani does not have anywhere near the quality of views for its units, except the immediate ravine ones (lots of ravines in this project, but hardly any panoramas). It also is dependent on a novel agricultural operation, that of growing and harvesting tea. While this may prove very successful, there is a lot of uncertainty in starting it up. Finally, it experienced significant financing difficulties.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

The other, Kukuiula, is more competitive, in the sense of providing a resort setting at high prices, but comes with a long list of features and services that will result in dramatically higher annual maintenance fees than this one (even with the ranching operation). In sum, we see some competition, but very little of it direct. As such, there is not a lot of potential for competition to interfere with the marketing of this project. And, even if there was, the market should be able to absorb much if not all of it, as conditions improve.

2.5.3 Historical Trends of the Target Market

Lot sales (over 2 acres, over 3/4 acre) whose values are greater than \$1 million were analyzed, as that approximates the sub-market that the subject property targets (this is in light of the fact that the immediate area surrounding the homesites that can be contained, i.e., fenced off, is about 35,000 sf).

a. Kaua'i Large Lot Homesite Sales Trends

Relative to the 17 lots being offered, there has been a sizable demand for high quality homesites, certainly well within the feasibility to sell these out within 3-5 years, if and when the market returns to a level of activity that approximates the averages for 5 and 10 years (13-18 sales, p.a.). Given that average rate of 16 sales a year, as well as potential capture rate of 25% of the market, this project should sell out in a little more than 4 years.

In addition to the market for large lot, high-end homesites, there is an additional consideration regarding the marketability of the project, and that is that it relates to the market for a high-end house. As noted earlier, there are a number of developers who will purchase these lots in order to convert them into individual house/lot packages and resell them on the open market. As such, the high-end home market needs also to be considered. In fact, it probably is as good an indicator of the depth of the market, as most if not all lot purchasers will calibrate their offer to what they could resell the components of their lot, i.e., the homesites. The parameters deemed appropriate for this market would be single family sales over \$1.5 million on lots larger than 35,000 sf (the envelope of area specifically dedicated, and fenced off, for homesites within this project).

b. Market Shares

This project is assumed to have a market share, which is essentially a capture rate at which they would convert potential to actual buyers. In arriving at this factor, the marketability of the project in relation to comparable offerings being made in both the developer and the resale market is considered.

A 25% to 33% capture rate is anticipated to be attainable, given the following:

1. The location of the project on Kaua'i, and in particular, on the north shore;
2. The panoramic views of the ocean, mountain and sunset;
3. The ample and attractive space in the lots and around the homes;
4. The affiliation with the resort and the ranch; and
5. The uncertainty of the impact of ranching operations, going forward.

c. Kaua'i Large Lot Sales Averages

Assuming the average sales over the last decade, this project would sell out within 2.2 to 2.9 years. To be sure, the current market's activity is under this, meaning that sell out will be slower. That said, there should be a recovery in the next 2-4 years, and the sales rates associated with that event

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

are quite high, relative to this project's 17-lot offering, to have confidence that it will be sold out within these next 4-6 years. Finally, other segment of this demand was looked at, that is for high-end large lot homes, and subjected that data to the same kind of analysis. *Table 2.5* below shows that, under this scenario, completion would occur between 15 and 20 years. This assumes that each and every available homesite will become a home, which is unlikely. As mentioned earlier, a number of these lots will be sold to buyers for emotional reasons, and that these buyers will not develop all the homesites available to them.

Table 2.5
Kaua'i Large Lot High-end Home Sale Averages

Year	Lots Closed	33% Share	25% Share
2000	12	4.0	3.0
2001	7	2.3	1.8
2002	9	3.0	2.3
2003	8	2.7	2.0
2004	16	5.3	4.0
2005	28	9.3	7.0
2006	20	6.7	5.0
2007	28	9.3	7.0
2008	7	2.3	1.8
2009 (Est.)	10	3.3	2.5
Sales, p.a.		4.8	3.6
Yrs. To Complete		15.5	20.7

2.5.4 Summary

In conclusion, there has been and still is a market for high-end view lots on Kaua'i, particularly on the North Shore, and particularly of the ocean. The market makes little distinction whether that view is on an agricultural zoned lot or not, or whether it is particularly large or not. The driving force is to secure a view, with the secondary considerations being privacy, space and security. This project manifests all of these features, and if the market cycle performs according to historical patterns, and if the units are priced competitively, there is no reason not to expect that it would completely sell out within a few years, 2-4 years potentially after market recovery.

2.6 SCHEDULE AND TIMING

Design of the Princeville Ranch Agricultural Subdivision is occurring during the State Land Use Commission Motion to Amend the Decision and Order from Urban to Agriculture process. Construction of this project will occur after completion of obtaining necessary entitlements and the Project's design. The current schedule is for construction to begin in 2010 and be completed within a year in 2011. The estimated initial construction cost for this project is \$5.1 million, which includes the access road, an entry feature, site work, and infrastructure. The initial construction will be done in a single phase. However, the Ag Lots will be sold and developed incrementally. *Figure 2.2* shows the three increments of the Ag Lot sales. The first increment includes 10 Ag Lots, which are expected to be on the market in 2011. The second increment includes 2 Ag Lots, which will be available for purchase in 2013. The last increment includes 5 Ag Lots, portions of these lots are within the Petition Area. These lots are expected to be on the market by 2015.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

2.7 PROJECT DEVELOPMENT COSTS

The initial project development cost is estimated at \$5.1 million, which includes the construction cost of the Road Lot that will provide access to the planned Ag Lots, utilities, and entry feature. The estimated development cost of the Road Lot, infrastructure and utilities, and entry feature within the Petition Area is estimated at \$1.4 million. Homeowners will be responsible for the development and construction of their respective access roads, Homesites, detention basin, and farm dwellings. The minimum vertical construction cost of a farm dwelling is estimated at \$1.8 million.



Figure 2.2 Princeville Ranch Agricultural Subdivision Increment Ag Lot Sales

(Source: The Resort Group, LLC June 15, 2009)

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing environmental setting and identifies possible impacts of the proposed project. Strategies to mitigate those potential impacts are also identified.

3.1 NATURAL ENVIRONMENT

3.1.1 Air Quality

B.D. Neal and Associates examined the potential air quality impacts related to the proposed Princeville Ranch Agricultural Subdivision Project in November, 2008. The results of this examination along with background information related to this issue and recommended mitigation measures are included in a letter dated November 4, 2008 (*Appendix C*). The examination considered the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities and suggests mitigative measures to reduce any potential air quality impacts where possible and appropriate. Both Federal and State standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. Hawai'i air quality standards are comparable to the national standards except those for nitrogen dioxide and carbon monoxide which are more stringent than the national standards.

Existing Conditions

Air quality in Princeville area is believed to be good at the present time. Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. The climate of the Princeville area is very much affected by its windward and near coastal situation and by nearby mountains. Winds are predominantly trade winds from the east or northeast and provide good ventilation much of the time. Wind speeds typically vary between about 10 and 25 miles per hour. Temperatures in the Princeville area are generally very consistent and moderate with an average daily temperature of about 70°F to 75°F. Average annual rainfall in the area amounts to about 75 to 85 inches.

Air quality in the vicinity of the Project presently is mostly affected by emissions from natural, industrial, agricultural and/or vehicular sources with the latter probably being the dominant factor. The little air quality monitoring data available for the area from the Department of Health suggest that air quality standards are currently being met.

Anticipated Impacts and Mitigation Measures

If the proposed project is given the necessary approvals to proceed, some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. These impacts are anticipated to be minor. Short-term impacts from fugitive dust will likely occur during the Project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers' vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan will be implemented to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

areas, using wind screens, washing the tires of construction equipment before they leave the site, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of larger agricultural subdivision areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the Project boundary during construction period could be considered as a means to evaluate the effectiveness of the Project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the Project site during off-peak traffic hours.

After the construction period, long-term impacts on air quality from motor vehicle exhausts can potentially occur at or near any project that attracts large volumes of motor vehicle traffic. The Project traffic study indicates that the Project traffic volumes at 'Anini Vista Drive and at Prince Golf Course Road would increase by about 5 to 6 percent. The traffic study also indicates that traffic level-of-service at these intersections is presently good and that by the year 2018, with or without the Project, traffic conditions would remain essentially unchanged.

Based on extensive research in assessing traffic-related air quality impacts, traffic volume increases of less than about 5 percent or less than 100 vehicles per hour and traffic approach volumes of less than about 1,000 vehicles per hour do not cause any significant impacts on air quality if adequate traffic level-of-service is provided. The Project traffic study indicates that traffic volumes in the larger agricultural subdivision should remain well within these criteria. Considering the small project related traffic volumes that are expected, traffic from the proposed project should have no measurable long-term impacts on air pollution levels in the larger agricultural subdivision. Although a detailed air quality modeling study could be performed to quantitatively predict project impacts, such an analysis seems unwarranted for a project of this small scale.

In summary, short-term impacts from fugitive dust during project construction may potentially occur. Because of this, an effective dust control plan for the period of construction should be prepared and implemented. After construction, any long-term impacts on air quality from motor vehicle traffic related to this project are anticipated to be negligible.

3.1.2 Flora and Fauna

A biological study, which includes botanical survey, avian survey, and mammalian survey, for the Petition Area was conducted by Rana Biological Consulting, Inc. in April and May 2009 (*Appendix D*). A survey of invertebrate resources was conducted by Steven Lee Montgomery, Ph. D., in April 2009 (*Appendix E*).

The primary purpose of the biological study was to determine if there are any botanical, avian or mammalian species currently listed, or proposed for listing under either federal or State of Hawai'i endangered species statutes within or adjacent to the Petition Area. The federal and State of Hawai'i listed species status follows species identified in the following referenced documents, Department of Land and Natural Resources (DLNR) 1998, Federal Register 2005, U. S. Fish & Wildlife Service (USFWS) 2005, 2008). Fieldwork was conducted on April 6 and 7, and May 29, 2009. Potential impacts of the development within the Petition Area to any sensitive or protected native botanical, avian or mammalian species were evaluated. Appropriate minimization and/or mitigative measures that could be implemented to reduce or eliminate any such impacts were also included. The primary emphasis of the invertebrate resources survey was on invertebrates that are

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

endemic, indigenous, or threatened species, especially those having legal status under either, or both federal and state endangered species statutes (DLNR 1996, Fed Reg 2008b, USFWS 2005a, 2009).

The botanical survey was undertaken on April 6 and 7, 2009 utilizing wandering transects that traversed most parts of the subject parcel. The site was revisited on May 29 to confirm the occurrence of certain native trees. The steepness of some mid-to-lower gulch areas limited access in these areas, although for the most part these steep slopes are either beyond the proposed developed area or undevelopable due to their steepness. In addition to identifying the plants present within the study site, qualitative estimates of plant abundance were made. The survey was conducted in the wet season and therefore plants typical of this site, including annuals, were readily observed and identified. Only some of the pasture grasses proved difficult to identify because of a lack of flowers (some grasses mature and/or flower as the season becomes drier in late Spring or early Summer). The avian survey was conducted on April 7, 2009, the zoologist sited eight avian count stations spaced approximately equidistant from each other across the Petition Area. Eight-minute point counts were made at each station. Stations were each counted once. Counts were concentrated between 7:15 a.m. and 9:30 a.m., the peak of daily bird activity. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the larger agricultural subdivision.

The invertebrate field survey was conducted by Steven Lee Montgomery, Ph. D. at the site on April 7 and 8, 2009. A general assessment of terrain and habitats was conducted at the start of the survey. Transects were walked through the Petition Area, and sampling sites selected to represent differences in elevation, vegetation, substrate, and other ecological factors. Known host plants for native invertebrate species were examined. Special attention was given to steep ravine walls which could shelter remnant native invertebrate populations. Surveying efforts were conducted at various times of day and night, a technique which is vital for a thorough invertebrate survey, as many insects are only active at night. However, monitoring at a different time of the year, or for a longer period of time, might produce a longer or different invertebrate list. Weather and seasonal vegetation plays an especially important role in any survey of invertebrates.

Existing Conditions

a. Botanical

The habitat present on the site can be roughly divided into two major types: open pasture and more or less closed secondary forest. The bulk of the site is a grassy plateau, which is currently being used as an active pasture for cattle and horses. Grazing by these animals presently controls the vegetation growing on the ridgeline (*Figure 3.1*). A plant checklist (*Table 1 of Appendix D*) was compiled from field observations. Many of the plant species observed were most abundant along the boundary between forest and pasture. Another distinctive aspect of the species distributions is that the weedy species, which tend to be found in highly disturbed sites, are limited to the uppermost part of the Petition Area. The forest along the sides of the gulches is dominated by Java plum (*Syzygium cumini*), strawberry guava (*wi* or *Psidium cattleianum* var. *littorale*), Christmas berry (*Schinus terebinthifolius*), scattered mango (*Mangifera indica*) and pandanus (*hala* or *Pandanus tectorius*). Understory growth is dense in many places, with strawberry guava (*P. cattleianum*) and shoebutton ardesia (*Ardesia elliptica*) the dominant shrubs. Ferns are especially dense on the steeper, western gulch margin. Ferns found in localized abundance on these slopes are *Nephrolepis multiflora*, *Sphenumerous chinensis*, *Blechnum appendiculatum*, *Phymatosorus*

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

scolopendria, and *uluhe* (*Dicranopteris linearis*) in scattered openings in the forest. Here also, where open areas occur on the steep upper slope, tufted beardgrass (*Schizachyrium condensatum*) forms nearly impenetrable stands. These grass stands tend to be more open along the eastern gulch margin because the more gently sloping ground there allows access by grazing horses and cattle.

A total of 100 species of ferns and flowering plants were identified as occurring in the larger agricultural subdivision during the course of our survey. Included are 12 (12%) native species (indigenous and endemic species). These native plants are common species on lowland Kaua'i, although three are endemic species. These three species, (*koai'a* or *Acacia koai'a*, *'ōhi'a* or *Metrosideros polymorpha*, and a tree fern or *hapu'u*, *Cibotium glaucum*) were observed by S. L. Montgomery, who conducted the invertebrate survey of the property along the makai margin of the shorter eastern ridge within a part of the Petition Area missed during the April 6-7 botanical survey. This area was revisited on May 29 and the presence of *'ōhi'a* and *koai'a* on the property further confirmed.



Figure 3.1 View from the Upper, Graded End of the Petition Area Looking Down the Length of the Pasture along the Ridgeline

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

b. Avian

A total of 332 individual birds of 19 species, representing 15 separate families, were recorded during station counts (*Table 2 of Appendix D*). One of the species recorded, Hawaiian Goose, or Nēnē (*Branta sandvicensis*) is listed as an endangered species under both Federal and State of Hawai'i endangered species statutes survey (DLNR 1998, Federal Register 2005, USFWS 2005, 2008). One other species, Pacific Golden-Plover (*Pluvialis fulva*), is an indigenous migratory shorebird species. The remaining 17 species recorded are all considered to be alien to the Hawaiian Islands. Avian diversity and densities were in keeping with the locations and the habitat present on the site. Four species, Western Meadowlark (*Sturnella neglecta*), Nutmeg Mannikin (*Lonchura punctulata*), Japanese White-eye (*Zosterops japonicus*), and Common Myna (*Acridotheris tristis*), are accounted for 50% of the total number of all birds recorded during station counts. The most commonly recorded species was Western Meadowlark, which accounted for slightly more than 14% of the total number of individual birds recorded. In average, 42 birds were detected per station count.

c. Mamalian

Four mammalian species were detected during the course of this survey. Several horses (*Equus c. caballus*) were seen to the west of the site, additionally, domestic cattle (*Bos taurus*) were heard from lands to the east of the site, as were several dogs (*Canis f. familiaris*). Additionally, scat, tracks and sign of horse, cattle, dog and pig (*Sus s. scrofa*) were observed at numerous locations within the Petition Area. The endangered Hawaiian hoary bat was not seen during the course of this survey. No mammalian species protected or proposed for protection under either the Federal or State of Hawai'i endangered species programs were detected during the course of this survey (DLNR 1998, Federal Register 2005, USFWS 2005, 2008).

d. Invertebrate

The review of previous publications shows no previous native invertebrate surveys in the larger agricultural subdivision. The Petition Area sampled in this biological survey yielded only a very few native species of arthropods. No invertebrate listed under either federal or state endangered species statutes was located within the survey area. Protected species such as Newcomb's Snail, Kaua'i Cave Wolf Spider, native *Drosophila* (flies), and Blackburn's sphinx moth were not found within the property, as suitable habitats for these species were not present. The absence of many native host plants on much of the property due to years of agriculture and grazing (Yucha & Hammatt 2008) contributes to the paucity of Hawaiian arthropods at this site. The parcel includes grazed grassland of primarily alien species introduced since 1790 and ravines with remnant native plant species. Native Hawaiian plants of interest as hosts or shelter for native invertebrates were limited or confined to ravines in comparison to less altered island locations at similar elevations and with parallel rainfall. Alien predatory ants are another major cause for the scarcity of native arthropods. The big-headed ant (*Pheidole megacephala*) is present in vast colonies on the property. These ants are well documented as a primary cause of low levels of native arthropods at elevations up to 2000 ft. (Perkins 1913). Ant species populations often do not overlap, effectively apportioning the hunting grounds among themselves, offering few ant-free zones to native arthropods.

Table 1 of Appendix E records the results of day and night invertebrate surveys. Some of the native species found within the Petition Area include: beetles (possibly *Plagithmysus obscurus*- needs to obtain beetle larvae for rearing for confirmation); flies and mosquitoes (*Forcipomyia hardyi* and *Limonia* or crane fly); hala mealybug; case bearers (*Hyposmocoma*), micro-moths (*Eudonia* sp.),

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

and *Mestolobes miniscula*; and dragonflies and damselflies (*Pantala flavescens* or indigenous globe skimmers and *Megalagrion*).

No attempt was made in the survey to document the many alien species common throughout the lowlands of the Hawaiian Islands. The following alien species poses threat to the health of native invertebrates or human health. These include wasps, bees and ants - *Leptogenys falcigera* or crustacean eating ant and *Pheidole megacephala* or big-headed ant. The crustacean eating ant (*Leptogenys falcigera*) is known for preying on invertebrates such as sow bugs. The big-headed ant (*Pheidole megacephala*) is common in the Hawaiian Island lowlands and preys on most small invertebrates. These ants are not known to bite or sting humans, caution should be used, however, anywhere nests or large numbers of ants are found.

Honey bees (*Apis mellifera*) and paper wasps (*Polistes exclamans*) were seen in this survey and can be encountered at any time of day. Their sting is known to cause severe allergic reaction in sensitive individuals. Unlike honey bees, paper wasps can sting repeatedly, making them more dangerous in some ways. The Sonoran carpenter bee (*Xylocopa sonorina*), a large, introduced bee was seen in several areas. Although relatively large, and noisy in flight, they are usually harmless unless handled.

Anticipated Impacts and Mitigation Measures

a. Botanical Resources

No plant species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs were recorded within or close to the proposed Petition Area. Therefore it is not expected that the modification of the habitat present on the site, or the development of residential lots along the ridgeline here will result in deleterious impacts to any plant species currently listed as endangered, threatened, or that are currently proposed for listing under either federal or State of Hawai'i endangered species statutes (DLNR 1998, Federal Register 2005, USFWS 2005, 2008).

b. Nēnē

The principal potential impacts that the development of the site poses to Nēnē is during the construction phase of the Project, and following build-out by the increased number of humans and associated activities, such as driving, pets etc. that will occur within the Project site. Although, Nēnē on Kaua'i tend to show a remarkable disregard of human activity, fatalities have occurred on construction sites, along roads, and numerous nests have failed due to human disturbance and as a direct result of predators taking eggs and goslings (David 2009a, 2009b).

c. Hawaiian Petrel and Newell's Shearwater

The principal potential impact that the development of the site poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with exterior lighting of structures and appurtenances that are built on the property.

d. Hawaiian Hoary Bat

The principal potential impact that the development of the site poses to Hawaiian hoary bats is during the clearing and grubbing phases of the Project. Areas within the gulches that have dense vegetation are likely used to some degree by roosting bats, normally it is not thought that the availability of roosting habitat is a limiting factor in this species survival (Bonaccorso, 2009). The

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

principal threat that clearing potential roosting habitat poses to this species is between June and July when female bats may be carrying pups and potential may not be able to flee vegetation clearing activity quickly enough to avoid harm (Bonaccorso 2005, 2007, 2009). Following build-out of the Project lighting associated with the development, and landscaping vegetation will likely attract volant insects to the larger agricultural subdivision, which in turn will provide bats with additional foraging opportunities.

It is likely that endangered Nēnē will use resources on the site, and both Newell's Shearwaters and Hawaiian Petrels may fallout onto the site. An endangered species awareness program will be developed, which includes general information on the endangered species act and protected species, specific restrictions that will be in force on the job site to protect endangered species, and a set of protocols on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. Similar programs have been developed and are being used at several construction project sites, and resorts on the Island of Kaua'i. If construction activity is planned to occur during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Project site will be surveyed by a qualified biologist before the onset of nesting, to determine if there is any active Nēnē nesting activity occurring on the site. If active Nēnē nesting does occur while construction is ongoing, a Nēnē monitoring protocol will be in place to ensure that no harm befalls the birds.

All exterior lighting associated with the operation of the proposed development will be shielded so as to reduce the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures (Reed et al. 1985, Telfer et al. 1987).

e. Invertebrate

No federally or state listed endangered or threatened species were noted in this survey (USFWS 2006). There is no federally designated Critical Habitat for any invertebrate species on or adjacent to the subject property. No anticipated actions related to the proposed project activity in the surveyed locations are expected to threaten entire species or entire populations.

Native Hawaiian plant, vertebrate, and invertebrate populations are often interdependent. The health of native Hawaiian invertebrate populations depends upon habitat quality and absence or low levels of predators introduced from the continents. Existing native flora environments will be preserved as habitats for the few native invertebrate species. Tree removal/pruning necessary for retaining open view channels will be selective. Native plants appropriate to the area will be used as decorative planting within the proposed development, which would enhance habitat for native species. Using native plants in landscaping will also help lower demand for irrigation water in the long term. A mix of ground cover, shrub, and tree heights of native plants will also help slow run off on slopes and retain moisture.

Employees and others using the area will be alerted of possible invertebrate species when on the property as they may pose a serious risk to some individuals.

3.1.3 Climate

Existing Conditions

Climate on the Island of Kaua'i, as well as within the State of Hawai'i, can be characterized as having low day-to-day and month-to-month variability. Differences in the climates of various areas are generally attributable to the island's geologic formation and topography creating

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

miniature ecosystems ranging from tropical rain forests to dryer plains along with corresponding differences in temperature, humidity, wind, and rainfall over short distances (University of Hawai'i Dept. of Geography, 1998). Annual and daily variation in temperature depends to a large degree on elevation above sea level, distance inland, and exposure to trade winds.

Kaua'i's temperatures generally have small seasonal variations between the warmest months (August and September) and the coolest months (January and February). Daily maximum temperatures usually run from the high 70's in winter to the mid-80's in summer, while daily minimum temperatures run from the mid-60's to the low 70's, respectively. Average monthly temperatures recorded along the island's north shore at Princeville Ranch in 2000 were between 69 and 77 degrees Fahrenheit (NOAA, 2000).

Winds are predominantly "trade winds" from the east-northeast except for occasional periods when "Kona" storms may generate strong winds from the south, or when the trade winds are weak and land breeze to sea breeze circulations develop. Wind speeds typically vary between 5 and 15 miles per hour providing relatively good ventilation much of the time. Lower velocities (less than 10 mph) occur frequently and the usual northeasterly trade winds tend to break down in the Fall giving way to more light, variable wind conditions through the Winter and on into early Spring.

Rainfall on Kaua'i is highly variable depending upon elevation and location with respect to the tradewinds. The north shore region of this island has a wetter climate than the eastern or western regions. Average annual rainfall in this area is about 72 inches (NOAA, 2000). Most of the rainfall occurs during winter storms usually taking place from October through April.

Anticipated Impacts and Mitigation Measures

The proposed action will have no effect on climatic conditions, and therefore no mitigation measures are required.

3.1.4 Soils

Existing Conditions

a. Terrain

As described in the Primary Geotechnical Engineering Exploration Report, 2007 (*Appendix F*) the Petition Area is composed of level to gently sloping plateau or bluff with slopes ranging from 2%-4%, bordered with drainage valleys to the west and east with slopes ranging from 25%-50%, and steep northerly facing slopes above the 'Anini and Kalihikai coastal areas. The development within the Petition Area will be confined to the plateau areas. The grading and clearing required for the Homesites development will be minor because homesites will be limited to approximately one acre or less and the plateau consists primarily of gentry rolling grasslands.

b. Soil Types

Figure 3.3 shows the types of soils as defined by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service. The predominant, higher-quality soil type within the Petition Area on the plateau is Makapili silty clay, (MeB and MeC), 0 to 8% slopes and 0 to 15% slopes, NRCS rating of IIe and IIIe. These soil types are classified as "prime farmlands" by the NRCS and are suitable for pasture and are accounted for approximately 30% of the plateau area. More or less, location of these soil types coincided with the Agricultural Lands of Importance to the State of Hawai'i (ALISH)'s "Prime" agricultural land

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

designation area (see *Figure 3.4*). Lower-quality soil type within the Petition Area includes Makapili silty clay 15 to 25% slope and Makapili silty clay 25 to 40% slope. The soil within the drainage valleys is primarily classified as Rough Broken Land (rRR). Makapili soils with slopes less than 40% has good engineering characteristics, and are suitable for road fill and foundations for low buildings and highways. The Rough Broken Land consists of very steep land broken by numerous intermittent drainage channels. Runoff is rapid and geologic erosion is active. Economically, while Makapili soils are commonly used for irrigated sugarcane, pasture, and woodland; Rough Broken Land has no economic use but serves as a wildlife habitat.

c. Soil Ratings

Three classification systems are commonly used to rate soils in Hawai'i according to their agricultural productivity characteristics: (1) Land Capability Grouping, (2) Agricultural Lands of Importance to the State of Hawai'i, and (3) Overall Productivity Rating.

Land Capability Grouping (NRCS Rating)

The 1972 Land Capability Grouping by the NRCS rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII." NRCS rates the agricultural and erosional characteristics of the Petition Area's Makapili silty clays as follows (the subclassification "e" as shown below means that the soils are subject to erosion if they are cultivated and not protected):

- MeB** Makapili silty clay, 0 to 8% slope, 30 to more than 60 inches deep, Capability classification IIe - irrigated or non-irrigated. This soil is on broad upland ridges. In a representative profile the surface layer is brown silty clay about 12 inches thick. The subsoil, about 48 inches thick, is reddish-brown, dark reddish-brown, and yellowish-red clay loam and silty clay that has subangular blocky structure. The substratum is silty clay. The surface layer is strongly acid. The subsoil is very strongly acid. Permeability is moderately rapid. Runoff is slow, and the erosion hazard is slight. The available water capacity is about 1.4 inches per foot of soil. In places roots penetrate to a depth of 5 feet or more. This soil has moderate imitations that reduce the choice of plants or require moderate conservation practices. This soil is used for pasture and sugarcane.
- MeC** Makapili silty clay, 8 to 15% slope, more than 20 inches deep, Capability classification IIIe - irrigated or non-irrigated. On this soil, runoff is slow to medium and the erosion hazard is slight to moderate. This soil is used for pasture and sugarcane, has severe imitations that reduce the choice of plants or require special conservation practices or both.
- MeD** Makapili silty clay, 15 to 25% slope, more than 20 inches deep, Capability classification IVe - irrigated or non-irrigated. On this soil, runoff is medium and the erosion hazard is moderate to severe. It has very severe imitations that reduce the choice of plants or require very careful management or both. This soil is used for pasture.
- MeE** Makapili silty clay, 25 to 40% slope, more than 20 inches deep, Capability classification VIe - non-irrigated. This soil has a profile like that of Makapili silty clay, 0 to 8 % slopes, except that the surface layer is thinner. Runoff is rapid, and the erosion hazard is severe. This soil is used for pasture and woodland. It has

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

very severe imitations that make these soils generally unsuited for cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

The Makapili series fall into Pasture Group 10 and Woodland Group 9, described by NRCS as follows:

The vegetation in unimproved pasture is dominantly ricegrass, hilogress, yellow foxtail, lantana, joe, false staghorn fern, melastoma, rhodomyrtus, sensitiveplant, guava, Christmas berry, and ohia. Unimproved pasture produces 3,000 to 5,000 pounds of air-dry forage per acre per year. Forage production is well distributed throughout the year.

Forage species for improved pasture are kikuyugrass, pangolagrass, and intortum. Well-managed pasture produces 8,000 to 10,000 pounds of air-dry forage per acre per year (U.S. Department of Agriculture, Soil Conservation Service; August 1972:147).

Suitable tree species are saligna eucalyptus, blackbutt eucalyptus, robusta eucalyptus, tallowwood eucalyptus, lemon-gum eucalyptus, Nepal alder, albizzia, monkeypod, Norfolk island pine, Australian toon, and Queensland maple. Seeding mortality is slight. Plant competition is severe from melastoma, rhodomyrtus, false staghornfern, and guava (U.S. Department of Agriculture, Soil Conservation Service; August 1972:151).

NRCS rates the agricultural and erosional characteristics of the Petition Area’s Rough broken land (rRR) as consisting of very steep land broken by numerous intermittent drainage channels. In most places it is not stony. It occurs in gulches and on mountainsides on all the islands except O’ahu. The slope is 40 to 70 percent. Elevations range from nearly sea level to about 8,000 feet. The local relief is generally between 25 and 500 feet. Runoff is rapid, and geologic erosion is active. The annual rainfall amounts to 25 to more than 200 inches.

These soils are variable. They are 20 to more than 60 inches deep over soft, weathered rock. In most places some weathered rock fragments are mixed with the soil material. Small areas of rock outcrop, stones, and soil slips are common. Included in mapping were areas of colluvium and alluvium along gulch bottoms.

This land type is used primarily for watershed and wildlife habitat. In places it is used also for pasture and woodland. The dominant natural vegetation in the drier areas consists of guava, lantana, Natal redtop, bermudagrass, koa haole, and molasses grass. Ohia, kukui, koa, and ferns are dominant in the wetter areas. Pukiawe, a’alii, and sweet vernalgrass are common at the higher elevations. (Capability classification VIIe, non-irrigated).

Table 3.1 illustrates the types of soils found within the Petition Area.

Table 3.1
Prominent Soil Types in the Petition Area

Soil	Soil Type	Runoff	Erosion
Makapili Series (MeB, MeC, MeD, MeE)	Silty Clay	Slow to Rapid	Slight to Severe
Rough Broken Land (rRR)	-	Rapid	Active

(Soil Conservation Service Soil Classification)

Agricultural Lands of Importance to the State of Hawai'i (ALISH)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

ALISH ratings were developed in 1977 by the NRCS, the University of Hawai'i (UH) College of Tropical Agriculture and Human Resources, and the State of Hawai'i, Department of Agriculture. This system classifies land into three categories: (a) "Prime" agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) "Unique" agricultural land which is non-Prime agricultural land used for the production of specific high-value crops; and (c) "Other" agricultural land that is non-Prime and non-Unique agricultural land, which is important to the production of crops.

As indicated in *Figure 3.4*, about 30% of the Petition Area lands have soils that are rated Prime and about 20% that are rated Other. The rest of the soils, which are generally within the natural drainage valleys, are unclassified.

Overall Productivity Rating (LSB Rating)

In 1972, the UH Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five levels, with "A" representing the class of highest productivity and "E" the lowest. Most of the land within the Petition Area is classified as C29, which means its overall productivity rating is average and its land type is 29 (*Figure 3.5*). Land type 29 has the following characteristics:

- A selected crop productivity rating of C for pineapple, vegetables, sugarcane, forage, and grazing, but A rating or B for orchard use;
- The potential of being used as commercial forest land;
- A nonstony texture but poor suitability for machine tillability (University of Hawai'i Land Study Bureau; 1967:13).

In summary, two of the above three soil-rating systems indicate that the subject lands have areas that are good for cultivating crops (II or better under the NRCS rating, and Prime and Unique under the ALISH rating).

d. Geotechnical Properties

The general subsurface conditions exploration of the Petition Area by drilling and sampling test borings was performed by Geolabs Inc. in January 2004 (Boring number 1 and 2) and November 2006 (Boring number 101) as shown in plate 2 of *Appendix F*. According to the Primary Geotechnical Engineering Exploration Report, 2007 by Geolabs (*Appendix F*), the materials encountered in the borings were classified by visual and textural examination in the field by the geologist and soils were classified in general conformance with the Unified Soil Classification System. The boring drilled and sampled for both explorations indicate that the upland plateau region of the larger agricultural subdivision, including the Petition Area, is generally underlain by stiff to very stiff residual and saprolitic soils consisting of very moist clayey silts with fine sand extending to the maximum depth explored of about 91.5 feet below the existing ground surface. In general, the explorations encountered a surface layer of topsoil, consisting of brown clayey silts with much organic matter, ranging in thickness from about 0.5 to 1.0 feet below the existing ground surface. Near-surface silty and clayey residual soils were encountered in the upper 3 to 10 feet of the borings and some scattered zones of friable, extremely weathered basalt rock throughout the test boring depths. In addition, the soils were observed to be frequently wet, indicating groundwater seepage and potential perched groundwater conditions. However, static ground water levels in the borings drilled were not discovered.

Anticipated Impacts and Mitigation Measures

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Earth moving activities during construction (e.g., grading, clearing, excavation) have potential to increase erosion especially within the flat plateau area where most of the construction activities occur. Best management practices will be implemented to mitigate potential adverse impacts. However, soil loss from erosion is expected to be minimal, as the ground cover and plants on the steep slopes will not be disturbed during and after construction. Also, due to the existing steep slopes bordering the ridgelines, general building setback guidelines for future residential structure will be established. Each owner will obtain geotechnical consultation and site-specific assessment of building setbacks and other potential geological and geotechnical constraints and hazards before construction.

3.1.5 Topography

Existing Conditions

Kaua'i is the oldest, as well as one of the most structurally complex, of the main islands in the Hawaiian chain. Like the others, it consists principally of a huge shield volcano built up from the sea floor by many thousands of thin flows of basaltic lava. Toward the end of the growth of the shield, its summit collapsed to form a broad caldera.

After the completion of the great Kaua'i shield came a long period of erosion during which no volcanic activity occurred. Then volcanism resumed. Eruptions emanated from a series of minor vents arranged in nearly north-south and northeast-southwest lines across the eastern two-thirds of the island. The lavas, cinder cones and ash beds of this last volcanic period are known as the Kōloa series. Today, the volcano is considered extinct.

The Princeville plateau was formed by this Kōloa series, which features lava flows of various basalts (olivine, picrite, nepheline, and melilite-nepheline) and basanite that erupted from numerous vents scattered throughout eastern Kaua'i. One such vent is Pu'u Po'oku, found just mauka of the larger agricultural subdivision, across Kūhio Highway and near the Po'oku Stables. The lava dome created by this vent deflected the course of the Hanalei River westward to its present course. The Princeville area between the Hanalei and Kalihiwai Rivers was once a large valley cut into lavas of the Waimea Canyon volcanic series, the series of eruptions that gave birth to the island. Later, this valley was refilled with lava from the Kōloa series, and over the centuries this lava apron was traversed by stream-cut erosional gullies, the largest of which is 'Anini Gulch. Hanalei Valley separates Waimea Canyon lavas on the west from Kōloa lavas on the east. Both Hanalei and Kalihiwai Valleys were cut when sea level was considerably lower than it is now, but as sea level rose dramatically and then receded to its present level, the valleys were alluviated, producing the flat floors they have today. The 100- to 200-foot cliffs defining the seaward edge of the planned subdivision area are believed to have been cut by wave action (MacDonald, Davis & Cox).

Anticipated Impacts and Mitigation Measures

As described in Section 2.4, the planned subdivision will be confined to the plateaus extending makai from Kūhiō Highway toward the coast and ranging in elevation from 360 down to 200 feet above sea level. As seen in *Figure 3.2*, the plateau areas are basically defined by the edge of the "greater than 20 percent slope" shading. Development of farm dwellings and appurtenant structures within the petition and the planned subdivision larger agricultural subdivision will be confined to the areas of less than 20 percent slope.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Since these plateaus consist of gently rolling grasslands, any grading and clearing required for the development of the dwellings would be minor. The only significant physiographic changes anticipated would be those resulting from roadway grading to bring the horizontal and vertical curve characteristics on the new access roads to County standards. All grading activities will be conducted in compliance with all County, State and federal requirements, and standard best management practices will be implemented to assure minimal impact to the surrounding area and watershed.

The excavation for the Road Lot within the Petition Area is estimated to be 2,330 cubic yards, which will require a grading permit from the County of Kaua'i. In addition to the grading permit, the National Pollutant Discharge Elimination System (NPDES) general permit is also required. Hawaii's NPDES program is administered by the Hawaii Department of Health's Clean Water Branch (CWB), which requires all construction sites disturbing more than one-acre to obtain permit coverage. The Petition Area discharges water into inland receiving water Class II and marine receiving water Class A, therefore the construction activity within the Petition Area will be managed in a way to only require NPDES general permits and is exempted from NPDES individual permit requirement.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

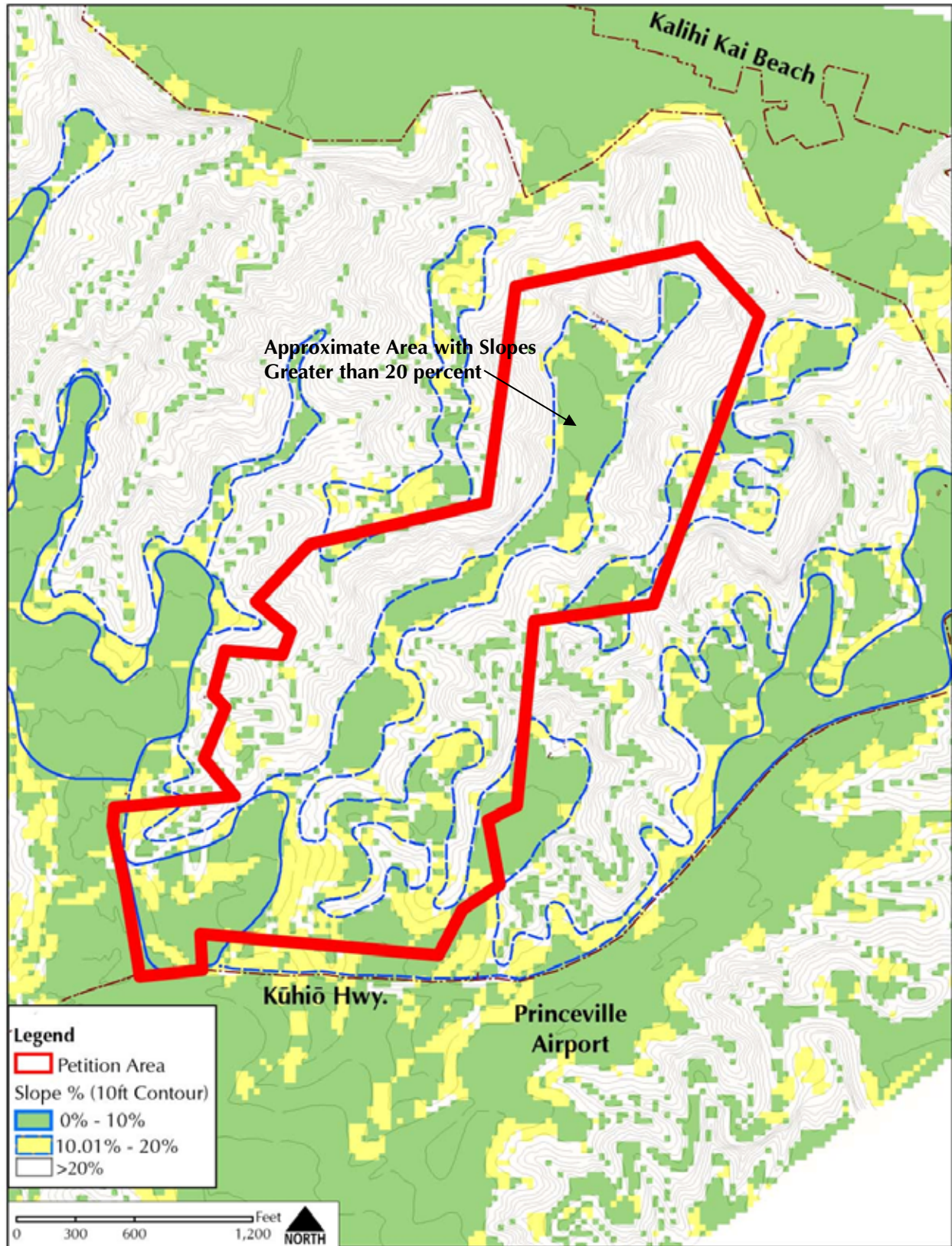


Figure 3.2 Topography Map
(Source: R.M. Towill (Survey Base Map), 2008)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

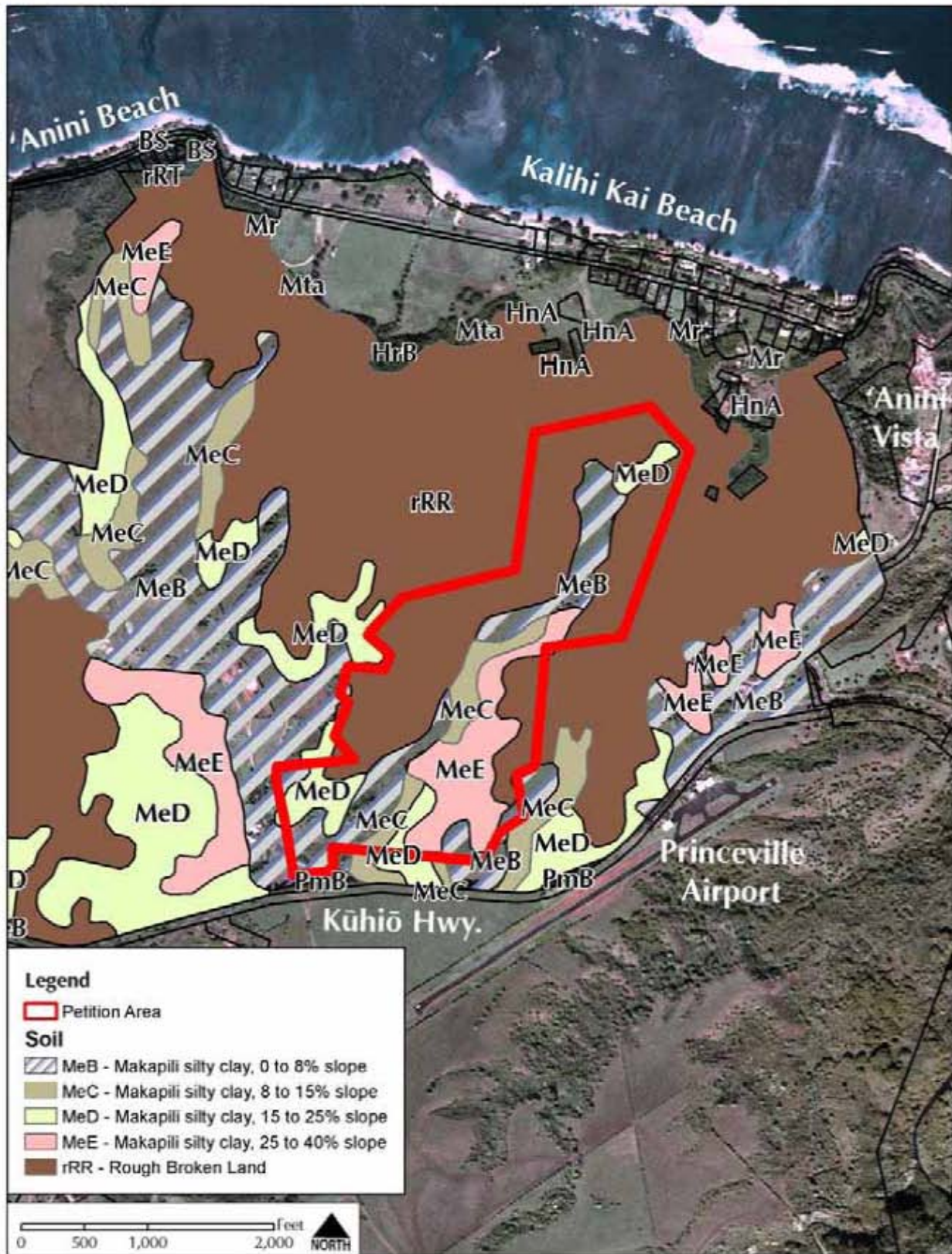


Figure 3.3 Natural Resources Soil Conservation Survey (NRCS) Map
(Source: U.S. Department of Agriculture NRCS, 1972)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

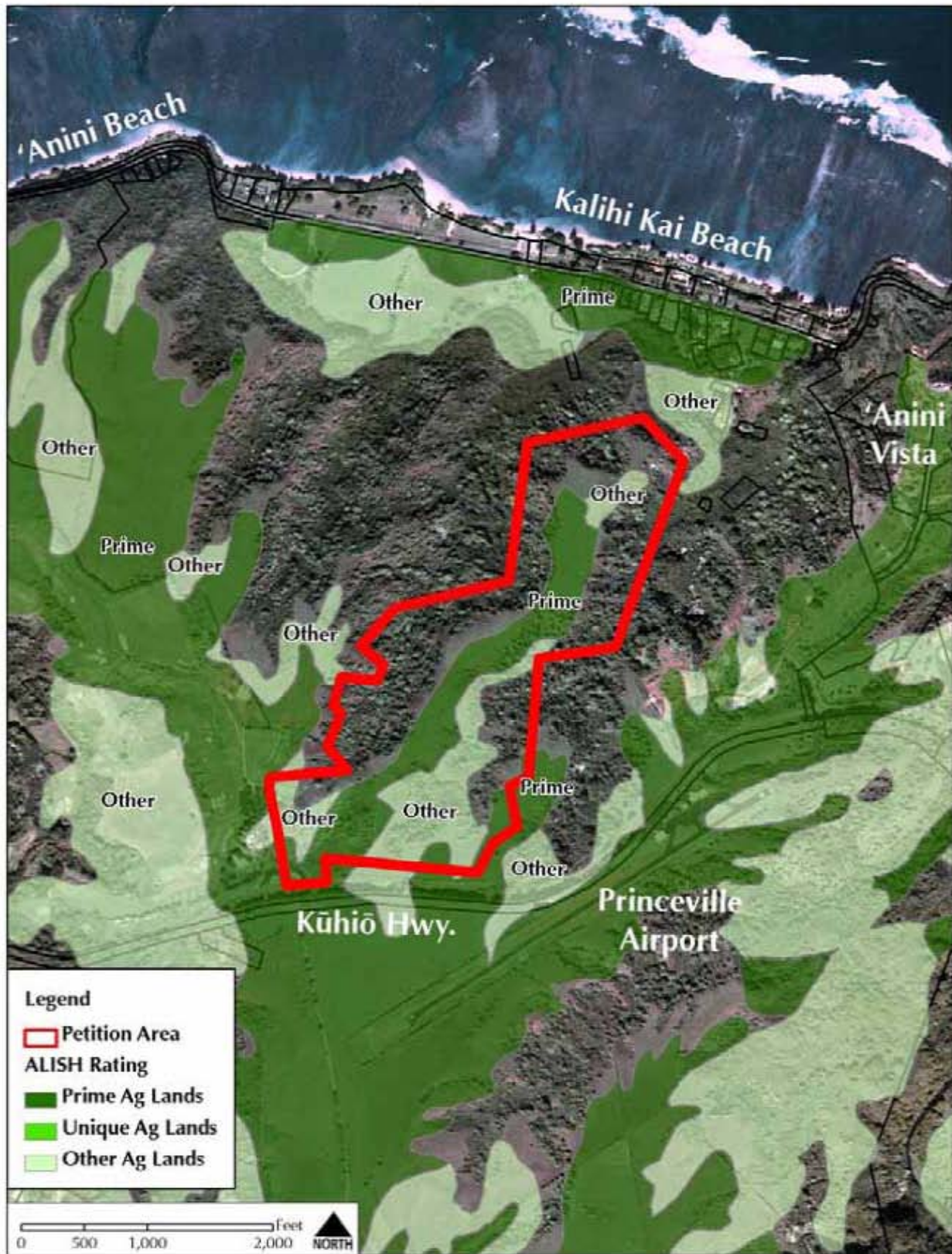


Figure 3.4 Agricultural Lands of Importance to the State of Hawai'i (ALISH) Map
(Source: State of Hawai'i Department of Agriculture, 1977)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

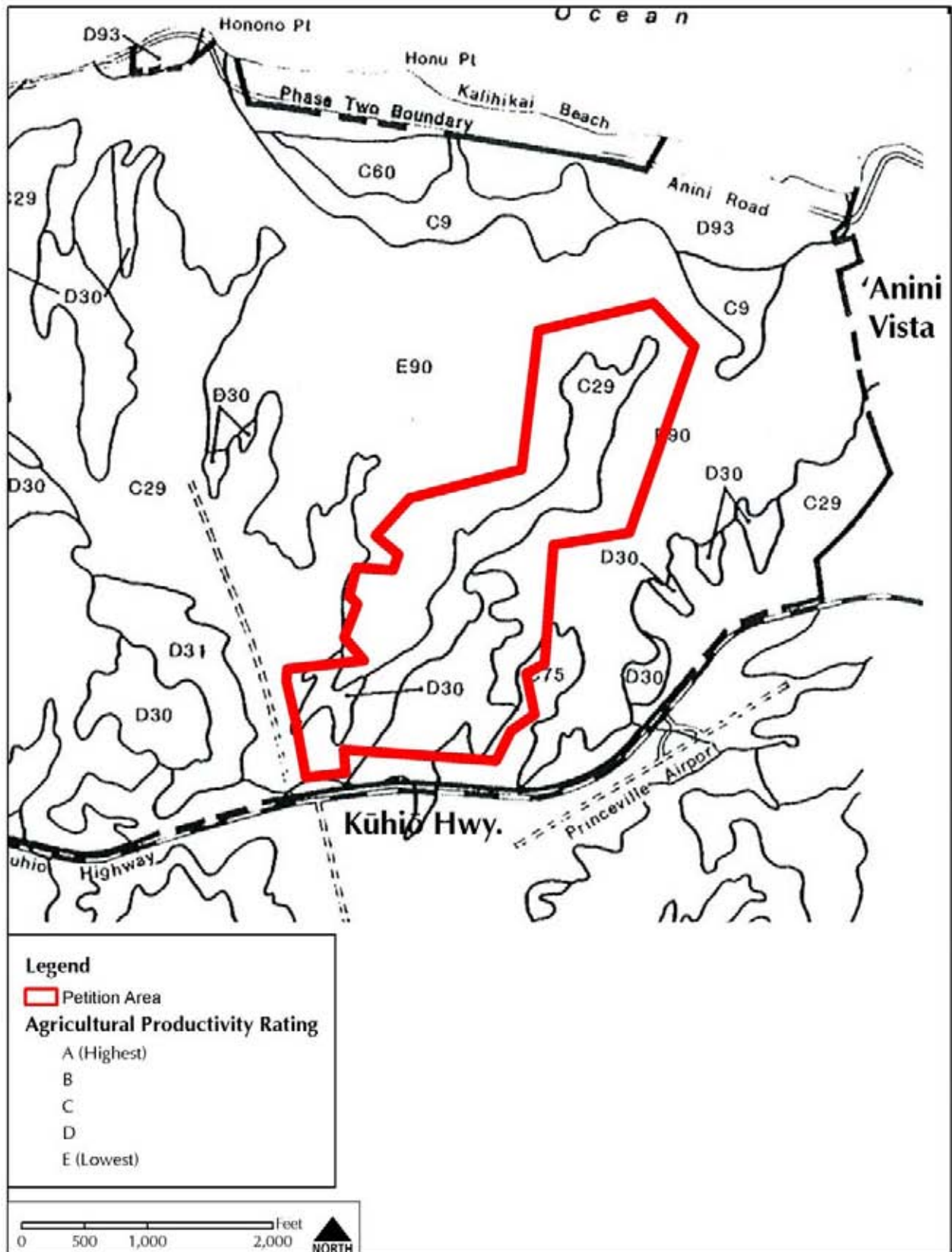


Figure 3.5 Agricultural Productivity Rating Map
(Source: University of Hawai'i Land Study Bureau, 1972)

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.2 ARCHAEOLOGICAL RESOURCES

An Archaeological Inventory Survey was conducted by Cultural Surveys Hawai'i (CSH) for the proposed project in April 2009 (*Appendix G*). The survey was reviewed and accepted by the State Historic Preservation Division (SHPD) in May 2009. This archaeological inventory survey documented all historic properties within the Princeville Ranch Agricultural Subdivision project site, which includes the Petition Area. A surface inventory survey was conducted and backhoe trench testing focused on location and evaluation of subsurface deposits, such as buried cultural layers that could not be located by surface pedestrian inspection.

The following archaeological inventory survey scope of work satisfies the Hawai'i Administrative Rules Title 13 (Department of Land and Natural Resources), Subtitle 13 (State Historic Preservation Division), Chapter 276 (Rules Governing Standards for Archaeological Inventory Surveys and Reports). The scope of work includes:

1. Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award documents, and the reports from prior archaeological investigations. This research will focus on the specific agricultural subdivision's past land use, with general background on the pre-contact and historic settlement patterns of the *ahupua'a* and district. This background information will be used to compile a predictive model for the types and locations of historic properties that could be expected within the larger agricultural subdivision.
2. A complete (100 %) systematic pedestrian inspection of the larger agricultural subdivision to identify any potential surface historic properties. Surface historic properties will be recorded with an evaluation of age, function, interrelationships, and significance. Documentation will include photographs, scale drawings, and, if warranted, limited controlled excavation of select sites and/or features.
3. Based on the agricultural subdivision's environment and the results of the background research, subsurface testing with a combination of hand and backhoe excavation to identify and document subsurface historic properties that would not be located by surface pedestrian inspection may be appropriate. Appropriate samples from these excavations will be analyzed for cultural and chronological information. All subsurface historic properties identified will be documented to the extent possible, including geographic extent, content, function/derivation, age, interrelationships, and significance.
4. As appropriate, consultation with knowledgeable individuals regarding the larger agricultural subdivision's history, past land use, and the function and age of the historic properties documented within the larger agricultural subdivision.
5. As appropriate, laboratory work to process and gather relevant environmental and/or archaeological information from collected samples.
6. Preparation of an inventory survey report, which will include the following:
 - a) A project description;
 - b) A section of a USGS topographic map showing the larger agricultural subdivision boundaries and the location of all recorded historic properties;
 - c) Historical and archaeological background sections summarizing prehistoric and historic land use of the larger agricultural subdivision and its vicinity;
 - d) Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR 13-276. Each historic property will be assigned a Hawai'i State Inventory of Historic Properties number;

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- e) If appropriate, a section concerning cultural consultations [per the requirements of HAR 13- 276-5(g) and HAR 13-275/284-8(a)(2)].
- f) A summary of historic property categories, integrity, and significance based upon the Hawai'i Register of Historic Places criteria;
- g) A project effect recommendation;
- h) Treatment recommendations to mitigate the Project's adverse effect on any historic properties identified in the larger agricultural subdivision that are recommended eligible to the Hawai'i Register of Historic Places.

This scope of work included full coordination with the State Historic Preservation Division (SHPD), and county relating to archaeological matters.

Existing Conditions

The Petition Area is located approximately 3.5 km east of Hanalei Bay on the north shore of Kaua'i and is part of Kalihikai *ahupua'a*. The larger agricultural subdivision stretches across portions of the *ahupua'a* of Hanalei, Kalihikai, and Kalihiwai. The Petition Area encompasses vacant land, currently being used by the Ranch for cattle grazing. While most of the larger agricultural subdivision remains relatively undeveloped; construction and development activities have been concentrated in the southern and southwestern portions of the larger agricultural subdivision, near Kūhiō Highway. These include the Princeville Prince Golf Course, Princeville Restaurant and Bar, and Princeville Spa. Predominant coastal features located adjacent to the larger agricultural subdivision include 'Anini Beach, Honono Point, Honu Point, and Kalihi Kai Beach. Natural drainages within the larger agricultural subdivision include 'Anini Stream to the west and Honu, Kalihikai, and Kowali Stream to the east. The coastal (makai) portion of the larger agricultural subdivision is generally level extending from essentially sea level south to abut steep ridges and stream valleys that cut into the relatively level table lands in the central and southern portions of the larger agricultural subdivision. The larger agricultural subdivision receives approximately 1500 to 2000 mm (59 to 79 in) of rain per year falling mostly in the winter months (Giambelluca et al. 1986). According to the U.S

The fieldwork component of this archaeological inventory survey was accomplished between September 9th and November 12th, 2008 by five CSH archaeologists. Fieldwork consisted of a 100% coverage pedestrian inspection within all accessible portions of the larger agricultural subdivision. Steep cliff faces and ridge slopes could not be surveyed due to safety concerns. It seems unlikely that these steep areas possess any form of human modification. The pedestrian inspection of the larger agricultural subdivision was accomplished through systematic sweeps. The interval between the archaeologists was generally 5-10 m. All historic properties encountered were recorded and documented with a written field description, site maps, photographs, scale drawings, and each site was located using Garmin GPSmap 60CSx GPS survey technology (accuracy 5-10 m).

Background research included: a review of previous archaeological studies on file at SHPD/DLNR ; review of documents at Hamilton Library of the University of Hawai'i, the Hawai'i State Archives, the Mission Houses Museum Library, the Hawai'i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai'i State Archives and the Archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona 'Aina database (www.waihona.com).

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

This research provided the environmental, cultural, historic, and archaeological background for the larger agricultural subdivision. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the larger agricultural subdivision.

Many mythological and legendary accounts pertaining to the ahupua'a encompassing the current larger agricultural subdivision document the abundance of food resources afforded by ample rainfall within the area. In addition, the area is located near the prime coastal fishing grounds of the Nā Pali Coast. Evidence of abundant pre-contact wetland agriculture has been observed within the relatively level table lands that originate within the Project area and continue south, especially within the well-documented Hanalei Wildlife Refuge located along the southwestern edge of the larger agricultural subdivision (Cleghorn 1979b; Schilt 1980; Shapiro 1993). The arrival of Euro-Americans to Kaua'i Island brought significant changes to traditional subsistence practices within the Hanalei area. An 1831 land lease to Richard Charlton by the governor of Kaua'i provided the first large scale cattle ranching operation in the area. This enterprise was soon followed by sugar cane and silk production in the mid-1830's with varying degrees of success. By the 1840's, coffee cultivation had come to dominate the landscape of the Hanalei area comprising an estimated 1000 acres within Hanalei Valley. Coffee cultivation continued to thrive until the 1850's when a severe drought and a subsequent blight ravaged coffee trees at Hanalei as well as elsewhere throughout Hawai'i. It was at this time in the 1850's that a resurgence of sugar cane cultivation pioneered by Mr. Charles Titcomb and later by Robert Crichton Wyllie led to the creation of the Princeville Plantation, portions of which are located within the current larger agricultural subdivision. It seems likely that the multitude of post-contact agricultural operations significantly impacted, if not destroyed, a number of previously existing pre-contact structures within and near the current larger agricultural subdivision. It was soon realized that sugar cane was unsuitable for the somewhat unpredictable climate of the Hanalei area and efforts were abandoned with the last crop harvested in 1893. Plantation land was subdivided and leased to for rice cultivation in the lowlands and cattle ranching in the table lands. Rice continued as the dominant cultivar into the 20th century, but began to decline shortly after as lower-priced rice grown in California inundated the market. By the 1930's, most of the original Chinese rice farmers had sold their lands to Japanese rice farmers and the decline in rice cultivation continued until the last rice mill, run by the Haraguchi family closed in the early 1960's. Throughout the short-lived success and eventual failures of several agricultural pursuits (coffee, silk, sugar cane, rice), one well-suited crop, taro, continued to thrive in the Hanalei area throughout the 20th century. As Japanese farmers phased out rice production in the 1950's and 60's, they converted their fields to taro lo'i. By the late 1980's, taro growing, that once dominated the traditional Hawaiian landscape, was firmly re-established within Hanalei. Wetland taro cultivation continues to present day occupying many of the same terraces and planting areas that have been used throughout the centuries.

Prior to the extensive land alteration caused by over a century of commercial agricultural activities, portions of the larger agricultural subdivision would likely have contained historic properties related to dry land agriculture within the southern table lands, wetland cultivation within the deep central valleys, and habitation remnants along the northern coast. These historic properties would have included stone and earthen terraces, irrigation ditches, and mounds. Buried pre-contact cultural deposits within the larger agricultural subdivision area may consist of lo'i sediment, midden, artifact scatters, and possible human remains. Remnants of post-contact agricultural infrastructure are also likely to exist within the larger agricultural subdivision and may include terraces, historic artifact scatters, and water control features. Military-related structures may also exist within the larger agricultural subdivision especially along the ridge tops were commanding

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

views of the coast are afforded. Previously identified historic properties within the current larger agricultural subdivision consist of a cemetery with approximately 20 grave plots (Cleghorn 1979a) and Ka-D10-10 an agricultural system near the mouth of 'Anini Stream (Earle 1978).

A total of 11 historic properties consisting of a total of 23 total features were identified within or near the 400 acre subdivision area. However, none of the 11 historic properties are located within the Petition Area. (*Figure 3.6*). A total of 10 of these historic properties are located along the northern (makai) boundary of the larger agricultural subdivision area with the majority (7) located along 'Anini Stream. Modifications observed along or near the banks of 'Anini Stream consisted of two irrigation ditches SIHP # 50-80-03-5013 and SIHP # 50-80-03-5018 (CSH 1 and CSH 6), two single terraces SIHP # 50-80-03-5015 and SIHP # 50-80-03-5022 (CSH 3 and CSH 10), a modified outcrop SIHP # 50-80-03-5016 (CSH 4), a partially mortared wall SIHP # 50-80-03-5017 (CSH 5), and a complex of adjacent terraces SIHP # 50-80-03-5014 (CSH 2). A historic-era cemetery SIHP # 50-80-03-5021 (CSH 9) consisting of five headstones was observed on a ridge top in the northwestern corner of the larger agricultural subdivision area approximately 158.0 m west of 'Anini Stream. SIHP # 50-80-03-5014 (CSH 2), SIHP # 50-80-03-5017 (CSH 5), and portions of SIHP # 50-80-03-5013 (CSH 1) are located outside of the current larger agricultural subdivision area boundary. Additional historic properties located within the larger agricultural subdivision area include a military bunker SIHP # 50-80-03-5020 (CSH 8), a remnant irrigation ditch SIHP # 50-80-03-5019 (CSH 7), and a complex SIHP # 50-80-03-5023 (CSH 11) consisting of 4 terraces, 2 mounds, 1 alignment, and 1 leveled area. The SIHP # 50-80-03-5020 (CSH 8), military bunker, is located along the northern boundary of the larger agricultural subdivision approximately 167.0 m south of Honono Point. SIHP # 50-80-03-5019 (CSH 7), remnant irrigation ditch, is located at the base of a ridge south of the polo field along 'Anini Road. The SIHP # 50-80-03-5023 (CSH 11) complex is located at the base of the western tributary gulch of 'Anini Stream.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

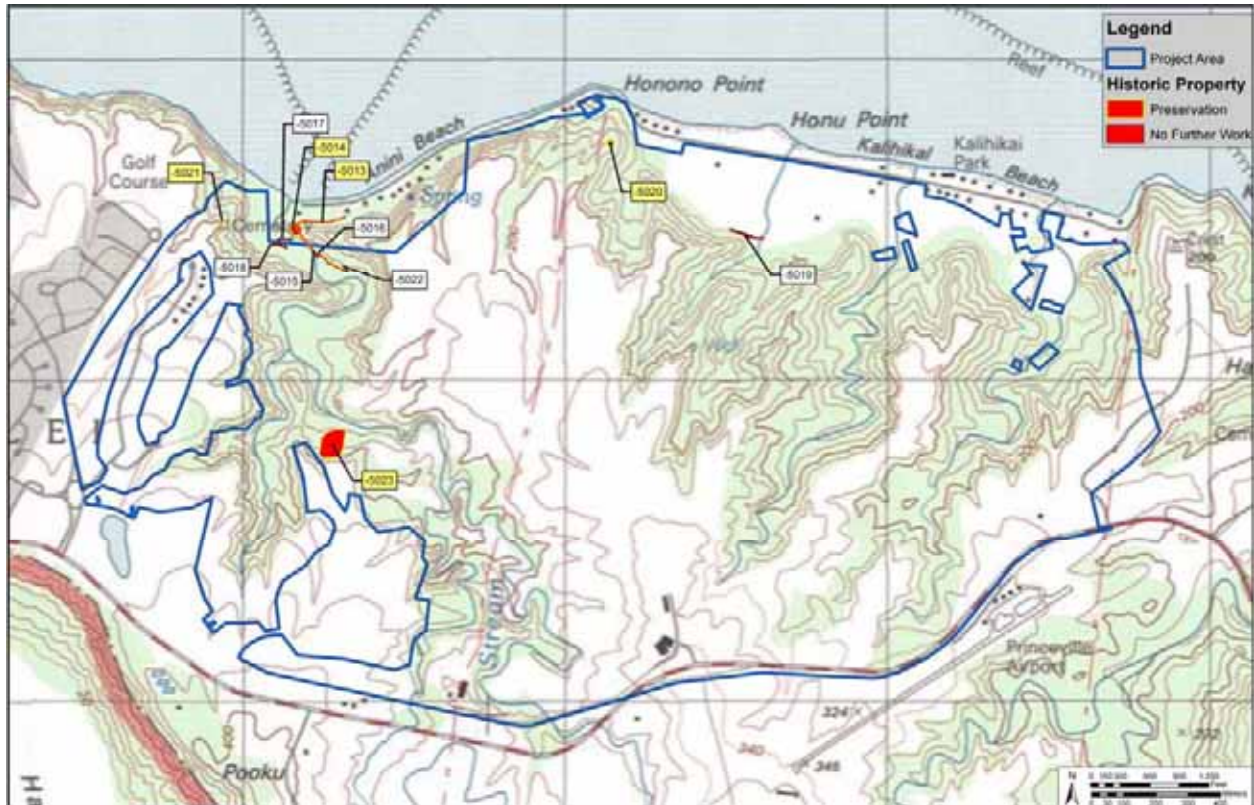


Figure 3.6 USGS 7.5-Minute 1996 Lihue Quadrangle Map Showing the Eleven Identified Historic Properties within the 400-Acre Subdivision Archaeological Inventory Survey Project Area

Each historic property identified by the current study was evaluated for significance according to the five criteria established for the Hawai’i Register of Historic Places as shown below and in *Table 3.2*.

- A - Associated with events that have made an important contribution to the broad patterns of our history;
- B - Associated with the lives of persons important in our past;
- C- Embodies the distinctive characteristics of a type, period, or method of construction represents the work of a master, or possesses high artistic value;
- D- Have yielded, or is likely to yield information important for research on prehistory or history;
- E - Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group’s history and cultural identity.

**Table 3.2
Historic Properties within the Surveyed Agricultural Subdivision Area**

SIHP #	Structure	Function	Significance	Recommendation
--------	-----------	----------	--------------	----------------

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

(50-80-03-)				
5013 (CSH 1)	Ditch	Pre-contact irrigation	D	Preservation, consultation with SHPD re: breaches (note: partially outside agricultural subdivision area per se)
5014 (CSH 2)	Terraces (6)	Pre-contact habitation & agriculture	C & D	Preservation (note: outside agricultural subdivision area per se)
5015 (CSH 3)	Terrace (1)	Pre-contact agriculture	D	No further work
5016 (CSH 4)	Modified outcrop	Pre-contact agriculture	D	No further work
5017 (CSH 5)	Mortared wall & alignment	Post-contact water control	D	No further work (note: outside agricultural subdivision area per se)
5018 (CSH 6)	Ditch	Pre-contact irrigation	D	No further work
5019 (CSH 7)	Ditch	Pre-contact irrigation	D	No further work
5020 (CSH 8)	Bunker	WWII military fortification	A & D	No further work
5021 (CSH 9)	Cemetery (5 headstones)	Burial	D & E	Preservation
5022 (CSH 10)	Terrace (1)	Pre-contact	D	No further work
5023 (CSH 11)	Complex (4 terraces, 2 mounds, 1 alignment, 1 leveled area)	Pre-contact habitation, agriculture & burial	D & E	Preservation

Anticipated Impacts and Mitigation Measures

Development in the Petition Area will have no impact on historic properties. However, the overall project has the potential to affect historic properties which are eligible for the Hawai’i Register. To avoid potential impacts, the following mitigation measures are recommended (summarized in *Table 3.2* above). In summary five sites are recommended for preservation (including one actively maintained cemetery and a site with posited burials that is not actively maintained), six sites are recommended for no further work and no sites are recommended for data recovery (preservation of potential sites for data recovery being preferred). SHPD concurs with the significance assessments and mitigation measures including the development of a Agricultural Master Plan to address the five sites recommended for preservation. The mitigation measures should be completed prior to any land disturbing activities within the larger agricultural subdivision. See *Appendix G* for details.

3.3 CULTURAL PRACTICES AND RESOURCES

A Cultural Impact Assessment (CIA) was conducted by Cultural Surveys Hawai’i (CSH) for the proposed project in June 2009 (*Appendix H*). For this study, the Area of Potential Effect (APE) consisted of the approximately 120 acre Petition Area footprint within the larger context of Hanalei and Kalikikai Ahupua’a.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

This CIA is included in the Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order from Urban to Agriculture, changing the area for a designation of an urban for golf course zone to an agricultural subdivision. This CIA is not part of an Environmental Assessment or Environmental Impact Statement. Through document research and ongoing cultural consultation efforts, this report provides preliminary information pertinent to the assessment of the proposed project's impacts to cultural practices and resources (per the Office of Environmental Quality Control's (OEQC) Guidelines for Assessing Cultural Impacts). Hawaiian organizations, agencies and community members have been and continue to be contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the vicinity. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the Kaua'i Island Burial Council (KIBC), and community and cultural organizations.

The Methodology for the CIA includes:

1. Examination of cultural and historic resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding traditional cultural practices at or near the parcel; present uses of the parcel; and/or other (non-Hawaiian) practices, uses, or traditions associated with the parcel.

Existing Conditions

As pertinent to the Princeville Ranch Agricultural Subdivision project area and planned programmatic objectives and outreach outcomes, the noteworthy findings and applicable recommendations from this study include the following:

a. Archaeological and Cultural Sites

Previously identified historic properties within the current project area consist of a cemetery with approximately 20 grave plots (Cleghorn 1979a) and Ke-D10-10 an agricultural system near the mouth of 'Anini Stream (Earle 1978). The AIS companion study (Yucha and Hammatt 2008) to the current CIA is currently being prepared. Eleven sites were found, nine of which are pre-contact and two of which are historic. The pre-contact sites include: three irrigation ditches, an agricultural complex consisting of six terraces, two agricultural terraces, a modified outcrop, a wall, and a complex of eight features including 4 terraces, 2 mounds, one alignment and a leveled area; three of the features have been initially interpreted as burials. Few ilina (burials) have been documented (e.g. Jourdane 1996, McMahon 1999, Dega 2003) near the project area and each of the burials was recovered in beach sand. No burials other than a historic cemetery have been documented in the project area. (1) The heiau within the closest proximity to the project area is Po'okū Heiau, Bennett's (1931) Site 139. It is approximately 400.0 m south of the project's southern boundary. A total of five heiau were recorded in Hanalei Ahupua'a, three in Kalihiwai, and one in Kalihikai.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Prior to western contact, the hill areas of the three ahupua'a under study may well have been used for gatherings as part of the land open to all ahupua'a members/ Economically, viable plants have been identified in association with archaeological remains on the lower slopes (25 to 125-foot elevation) of the valley ridge; these have been associated with dry land or kula lands to supplement the crops growing in the adjoining terraces (Cleghorn 1979; Schilt 1980). The pandanus groves of the upper slopes of the valley wall would have been another resource for residents of Hanalei Ahupua'a, who would not have to travel so far mauka to find the hala needed for their mats, etc.

b. Natural Features and Vegetation

The project area is located approximately 3.5 km east of Hanalei Bay on the north shore of Kaua'i spanning portions of the ahupua'a of Hanalei, Kalihikai, and Kalihiwai. Pre-dominant coastal features located adjacent to the project are include 'Anini Beach, Honono Point, Honu Point, and Kalihikai Beach. Natural drainages within the project area include 'Anini Stream to the west and Honu, Kalihikai, and Kowali Stream to the east. Vegetation within the project area includes mango (*Mangifera indica*), it (*Cordyline fruticosa*), noni (*Morinda citrifolia*), laua'e (*Phymatosorus grossus*), cat's claw (*Caesalpinia decapetala*), hau (*Hibiscus tiliaceus*), hala (*Pandanus ordoratisium*), koa haole (*Leucaena leucocephala*), palapalai (*Microlophis strigosa*), java plum (*Syzygium cumini*), white ginger (*Hedychium coronarium*), kukui (*Aleurites moluccana*), and exotic grasses.

c. Mo'olelo

There are many mo'olelo about Hanalei including the story of Lonoikamakahiki, Kawelo and the giant Kauahoa of Hanalei and the legend of the lovers Paalua and Kawelu. Many 'olelo no'eau, traditional sayings or proverbs, associated with Hanalei have references to the rains and winds.

d. Human Settlement and Land Use Pattern

Hanalei is the largest ahupua'a in the moku of Halele'a, had long afforded possibilities for intensive agricultural and cultural development by the Hawaiian of Kaua'i during the centuries before Euro-American contact. The large alluvial flat on both sides of Hanalei River has been farmed extensively for taro for centuries. Kalihikai is a small ahupua'a that "had quite extensive lo'i areas near the sea. There were lo'i back along main streams and side streams", although the valley is shallow (Handy and Handy 1972:421).

The middle 19th century brought great changes to the three ahupua'a under study, including private and public land ownership laws known as the Māhele (literally, 'to divide' or 'to section'). The Kuleana Act of 1850 allowed maka'āinana, to principle, to own land parcels at which they were currently and actively cultivating and/or residing. As a result of the Māhele, Land Commission Awards (LCA) were claimed in five distinct clusters within Hanalei Ahupua'a; the shoreline, the Mahaana (taro fields adjacent to Waioli Ahupua'a), Puapuahoi-Limanui (the bottom lands of the Hanalei River), 'Anini (on the coast northeast of Hanalei Bay), and Kīloa (inland and adjacent to Limanui). Almost all of the Hanalei Ahupua'a LCAs were lowland locations far from the current project area, with the exception of those at 'Anini, which are located along the northwest edge of the project area. In Kalihikai the situation is reversed – almost all of the LCAs lie within the project area. See Figure 9 and Table 1 in *Appendix H* for a list of the LCAs in the vicinity of the current project area.

Handy suggests that by 1930s, Hanalei Valley comprised a patchwork of mutating idle and active agricultural fields and pastures which reflected the vagaries of decades of shifting economic

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

pressures. As the Japanese farmers phased out rice production in the 1950s and 1960s, they converted their fields to taro lo'i. By the late 1980s, taro-growing, that once dominated the traditional Hawaiian landscape, was finally re-established within Hanalei, and farmed in two areas of the valley. More recently, severe hurricanes – “Iwa” in 1982 and “Iniki” in 1992 – have demonstrated the precariousness of human development within the Halele'a environment, just as natural disasters thwarted the efforts of the newly-arrived nineteenth century entrepreneurs. However, the endurance of taro through the changes documented above – and its flourishing today – may preserve the memory of the pre-contact Hanalei with its heiau, hula house, and starting places for races to the beach.

e. Community Consultation

CSH attempted to contact 35 people for the purposes of this CIA; fourteen people responded; and five kūpuna and/or kama'āina were interviewed for more in-depth contributions. The findings from the interviews are as follow:

1. The project area and environs including streams, shoreline, and wetlands has a long history of use by Kānaka Maoli (native Hawaiians), and other kama'āina groups for a variety of cultural and subsistence activities including fishing, gathering of limu (seaweed, algae), farming of taro, various vegetables and fruits including watercress, swamp cabbage, hō'io (*Diplazium sandwichianum*), and bananas. One respondent, granddaughter of the last konohiki he'e (manager of octopus fishing rights) in Kalihikai-Kalihiwai, noted that the shoreline makai of the project area was the only konohiki he'e in the islands.
2. There are two specific, but related concerns regarding fresh and ocean waters below the project site. One is the level of pollution in the waters. The second is that resources which were once plentiful, such as he'e (octopus), limu (seaweed) such as waewae'iole, (*Codium edule*) and stream resources such as 'o'opu and hihiwai (*Neretina granosa*) are now rare. The shoreline was described by many interviewed as flourishing in the old days. A majority of community consultants interviewed for the report believe that the change is a result of polluted runoff from septic systems along the shoreline and development further mauka, including the golf course. Previous interruption of waterways and overfishing are also believed to be contributing factors. Two of the respondents wanted assurance that measures would be taken to control runoff from the homes located in the Project area both during and after construction.
3. Current subsistence practices occurring in the project area include pig hunting. One community respondent hunts in the area weekly. If he is no longer able to access the project area he will find other hunting grounds. However, several contacts attribute an excess of wild pigs in the area to the reason a particular variety of taro, the 'ahe, prized for its lū'au (young taro tops), can no longer be found near project area. OHA requested that current subsistence practices be given consideration in project development.
4. A majority of community contacts interviewed for this report mention kama'āina families in the 'Anini Beach area having to sell their land because of increasing property taxes as a result of wealthier individuals purchasing surrounding properties. This change in demographics has affected the cultural landscape makai of the project area. According to the respondents, only one of the original kama'āina families, the Lannings, still lives in the area. For two of the respondents who still own interests near the project area a further increase in property taxes would make holding on to their kuleana lands difficult.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

5. Although none of the respondents knew of any burials in the project area, a number mentioned the disrespect that 'Anini Vistas showed in dealing with burials found there. Several respondents wanted assurance that should any burials be found at the project site that they would be treated respectfully and that proper SHPD procedures be followed.

Anticipated Impacts and Mitigation Measures

Background research and-community consultation, indicates that the proposed project will have minimal to no impacts to Hawaiian cultural beliefs, practices, resources (historic and/or cultural properties) sites, and traditions. It is recommended that project personnel be alerted as to the potential for inadvertent cultural finds. If iwi or cultural resources are found during the ground disturbance and construction phases of this proposed project, cultural and lineal descendants of the area and appropriate agencies (e.g., , OHA, OIBC) will be notified and consulted in regard to preparation of appropriate mitigation plans, including a burial treatment plan.

Currently, the Ranch and the Princeville Prince Golf Course allow hunting, typically by their employees, primarily to control wild pigs which damage the golf course and the pastures. Therefore, subsistence practices will be given consideration within the Project area, where such activities will not disturb farm dwellings.

The increased hardscape and impermeable surfaces can potentially affect ground water percolation and supply. However, the very low density of the proposed plan and the sustainable design guidelines that are part of the CC&Rs for the lots should minimize potential impacts and avoid affecting streams or springs. Also, the Princeville Ranch Agricultural Master Plan's intent to preserve the ranch activities, to the extent possible, together with its sustainable land management approach will result in better protections of natural resources. Measures will be in place to control runoff from farm dwellings located in the Project and the Petition Area both during and after construction. For the same reasons the proposed Project should have little or no impact on ocean resources.

The alternatives allowed under the current General Plan for resort expansion and 2,000 homes will have a greater impact on property values more than the proposed low-density agricultural subdivision project. The proposed low-density plan will keep development to a minimum. Impacts on property values will probably be similar to the adjacent 'Anini Vista project, which is already developed.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.4 LAND USES

Existing Conditions

a. Current Land Uses on the Project Site

The Petition Area is approximately 120 acres and located within the State Urban Land Use District. The Petition Area was reclassified into the Urban District subject to the condition that it be used only for golf course purposes pursuant to action taken by the LUC in Docket No. A83-553 (April 30, 1985) and Docket No. A83-557 (March 28, 1985). The Petition Area is currently vacant and used for grazing. The southwest corner of the Petition Area is currently being used as a stockpile site for soil and gravel materials.

b. Adjacent Land Uses

The Petition Area is generally bounded by grazing lands, steep drainage valleys, steep northerly facing slopes, and by the Prince Clubhouse at the southwest border. Two closed land fill sites and a concrete batch plant are located to the east of the Petition Area, across from a drainage valley. Princeville Airport is located across Kūhio Highway, to the south of the Petition Area. 'Anini Beach Park and Kalihi Kai Beach Park, and 'Anini Vista are located to the north and northeast, respectively, of the planned agricultural subdivision area.

Anticipated Impacts and Mitigation Measures

Ag Lots are being proposed within the Petition Area, as part of a larger planned agricultural subdivision, which will include fenced enclosures (Homesites), access roads, and common pasture areas. A maximum of 15 single-family farm dwellings and portions of two single-family farm dwellings (approximately 11.8 acres) and about 6,348 linear feet of major access roadways are being planned within the Petition Area. As this is a very low density development, a majority of the land area within the Petition Area will be preserved for pasture uses, which are consistent with the current use. New structures will be landscape screened and will generally be minimally visible from the Highway, 'Anini Beach and Kalihi Kai Beach, and 'Anini Vista. The proposed use is therefore compatible with existing and surrounding land uses and negative impacts are not anticipated.

3.5 NATURAL HAZARDS

Existing Conditions

Based on the Federal Emergency Management Agency's *Flood Insurance Rate Map, FIRM Community Panel No. 1500020055E*, effective September 16, 2005, all of the Ag Lots within the Petition Area are located in "Zone X". As depicted in *Figure 1.6*, the flood Zone X designation indicates the area is outside of the 500-year floodplain. No dams that could fail and trigger flooding are located upstream from the larger agricultural subdivision. In recent history, the greatest tsunami run-up height recorded at Princeville was 24 feet in 1946. The larger agricultural subdivision is located atop the coastal bluffs at elevations of 200 feet or more.

Hurricanes have struck and produced significant damage on the island of Kaua'i in recent history. Kaua'i has had two recent hurricanes: Hurricane Iwa (November 1982) and Hurricane Iniki (September 1992). Both wrought extensive damage throughout Hanalei, to the buildings, the crops, coral reefs, and also particularly to tourism judging from the decline in visitors in years following both hurricanes (Kaua'i General Plan, 2000).

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Hurricane 'Iwa, taken from the Hawaiian language name for the frigate bird ('Iwa, lit. "Thief"), was the first significant hurricane to hit the Hawaiian Islands since statehood in 1959. 'Iwa was the twenty-third tropical storm and the twelfth and final hurricane of the 1982 Pacific hurricane season. The hurricane devastated the islands of Ni'ihau, Kaua'i, and O'ahu with wind gusts exceeding 100 mph (160 km/h) and rough seas exceeding 30 feet (9 m) in height. 'Iwa reached peak winds of 90 mph (145 km/h) late on November 23, 1982 while located 245 miles (395 km) southwest of Waimea on the island of Kaua'i. Its forward speed increased to 30 to 40 mph, and on November 24, 1982 'Iwa passed just north of the island of Kaua'i. The right semicircle of the storm extended across Kauai and Oahu, with gusts from 100 to 120 mph (161 to 193 km/h) (Mariners Weather Log, 1983). The acceleration of the hurricane concentrated the energy of its swells, resulting in high waves and storm surge across the Hawaiian Islands, though primarily near the path of the center. The storm surge was estimated to reach eight feet (two meters) on the south coast of Kaua'i. The surge reached 900 feet (275 m) inland, exceeding a 100-year flood event for the area (United States Geological Survey, 2005). The heaviest rainfall reported from the island chain was from the Intake Wainiha 1086 site, where 20.33 inches (516 mm) was measured (Hydrometeorological Prediction Center, 2007).

'Iwa severely damaged or destroyed 2,345 buildings, including 1,927 houses, leaving 500 people homeless. Rising waters washed out multiple roads near the coastline. Strong winds initially left the entire island of Kauai without power (United Press International, 1982). Damage throughout the state totaled \$312 million (1982 USD, \$697 million 2009 USD). One person was killed from the high seas, and three deaths were indirectly related to the hurricane's aftermath.

Hurricane Iniki (in Hawaiian Iniki means "strong and piercing wind" Central Pacific Hurricane Center, 1992) was the most powerful hurricane to strike the state of Hawai'i in recorded history. Forming during the strong El Niño of 1991–1994, Iniki was one of eleven Central Pacific tropical cyclones during the 1992 season. It was the first hurricane to hit the state since Hurricane 'Iwa in the 1982 season, and the first major hurricane since Hurricane Dot in 1959. The eye of Hurricane Iniki passed directly over the island of Kaua'i on September 11, 1992, as a Category 4 hurricane on the Saffir-Simpson Hurricane Scale. The National Weather Service reported wind gusts of up to 175 mph (280 km/h). The highest recorded wind speed from Hurricane Iniki was a 227 mph (365 km/h) reading from the Navy's Makaha Ridge radar station. Upon making landfall the hurricane produced storm tides of 4.5–6 feet (1.4–1.8 m), with some portions of the coastlines having high water marks of up to 18 feet (5.5 m). In addition, strong waves of up to 35 feet (10.5 m) in height crashed along the southern coastline for several hours, causing a debris line of more than 800 feet (250 m) inland. Because it moved quickly through the island, there were no reports of significant rainfall (US Army Corps of Engineers, 1993).

According to the Central Pacific Hurricane Center, Iniki caused around \$1.8 billion (1992 US D, \$2.8 billion 2009 USD) in damage and six deaths. At the time, Iniki was among the costliest United States hurricanes, and it remains one of the costliest hurricanes on record in the eastern Pacific. Damage was greatest on Kaua'i, where the hurricane destroyed over 1,400 houses and severely damaged over 5,000 residences. The entire island lacked electricity and television service for an extended period of time. Electric companies restored only 20% of the island's power service within four weeks of Iniki, while other areas were without power for up to three months (Central Pacific Hurricane Center, 1992).

The risk of damage from earthquakes on Kaua'i is quite low since the island is tectonically stable and volcanically inactive.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Anticipated Impacts and Mitigation Measures

Because the plateau lands are situated well above the coastal area and the stream courses, the Petition Area is secure from stream flooding, as well as coastal inundation. To prevent ponding or localized flooding resulting from on-site storm run-off, all drainage infrastructure will be designed and constructed to meet applicable standards.

While Kaua'i will continue to be vulnerable to hurricanes, civil defense agencies have improved response and preparedness to address future emergency situations. Additionally, changes to building codes should reduce the damage from future hurricanes. All construction will necessarily conform to relevant building codes to mitigate the risk of wind and seismic damage. To mitigate any risk from erosion-induced landslides, no development is planned for lands with slopes exceeding 20%, and further, the existing dense vegetative cover will not be removed from these steeply sloped lands.

3.6 NOISE

An acoustic study for the proposed project was conducted by D.L. Adams Associates in November 2008 (*Appendix I*).

Existing Conditions

Long term noise measurements were conducted at two locations on the northern and southern boundaries of the planned agricultural subdivision project site. The hourly noise levels generally ranged from 48 dBA to 56 dBA throughout the daytime and nighttime hours. The calculated day-night level, Ldn, at the Project site was approximately 59 dBA for the measurement period. Environmental noises such as the ocean, wind, rain and birds dominated the ambient noise environment; in fact, the windy and rainy weather during the measurement period caused ambient noise levels that could be slightly higher than usual. The measured sound levels at the planned agricultural subdivision project site were relatively static and are typical of a rural environment.

Anticipated Impacts and Mitigation Measures

Development of the Petition Area will involve excavation, grading, and other typical construction activities during construction. Construction noise from the Princeville Agricultural Subdivision project is not expected to impact the distant residential neighbors. Noise from construction activities should be short term and must comply with State Department of Health noise regulations. The Contractors should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. However, the State DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

After construction is complete, noise generated from stationary mechanical equipment within the Petition Area must meet the State of Hawaii noise regulations. For residential areas (i.e., single-family homes), noise limits are 55 dBA during the day and 45 during the night. Mitigation of mechanical noise to meet the State DOH noise rules should be incorporated into the Project design.

The 2018 projections of traffic volumes along Kūhio Highway indicate a minor change in traffic so a negligible future increase in traffic noise along the highway can be expected. Homes within 50 feet from the edge-of-pavement of Kūhio Highway will experience noise levels that exceed the Federal maximum noise limit of 67 dBA for peak hour traffic volumes. No homes are planned to be located this close to Kūhio Highway.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.7 ROADWAYS AND TRAFFIC

A traffic study for the planned agricultural subdivision project was prepared by Wilson Okamoto Corporation (WOC) in November 2008 (*Appendix J*).

Existing Conditions

The Petition Area is located adjacent to Kūhiō Highway between 'Anini Vista Drive and Ka Haku Road. Kūhiō Highway serves as the main access road along the northern and eastern coasts of Kaua'i from its origin in Hā'ena along the North Shore of the island to its termination at Kaumuali'i Highway and Rice Street in Līhu'e. In the vicinity of the Petition Area, Kūhiō Highway is a predominantly two-lane, two-way State of Hawai'i roadway oriented in the east-west direction. At the southeast corner of the Project site, Kūhiō Highway intersects 'Anini Vista Drive. At this non-signalized T-intersection, the eastbound approach of the highway has one lane that serves left-turn and through traffic movements while the westbound approach has one lane that serves through and right-turn traffic movements. 'Anini Vista Drive is a two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with Kūhiō Highway, the 'Anini Vista Drive approach has one lane that serves left-turn and right-turn traffic movements.

West of the intersection with 'Anini Vista Drive, Kūhiō Highway intersects the existing access roads for the Prince Golf Course and Princeville Ranch. At this non-signalized intersection, the eastbound approach of the highway has a shared through and right-turn lane and exclusive left-turn lane while the westbound approach has one through lane and exclusive turning lanes. The northbound approach is comprised of the access road for the Princeville Ranch while the southbound approach is comprised of the access road for the Princeville Golf Course. Both approaches have one lane at this intersection that serves all traffic movements. In addition, there is an additional westbound departure lane along Kūhiō Highway to allow right-turning vehicles from the golf course to turn freely onto the highway.

Further west, Kūhiō Highway intersects Kapaka Street. At this non-signalized intersection, both approaches of the highway have one lane that serves all traffic movements. Kapaka Street is a two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with the highway, the Kapaka Street approach has one lane that serves all traffic movements. The southbound approach is comprised of an access road for an adjacent parking area. At the intersection with the highway, this access road has one lane that serves all traffic movements.

Near the southwest corner of the Project site, Kūhiō Highway intersects Ka Haku Road. At this non-signalized T-intersection, the eastbound approach of the highway has one through lane and an exclusive right-turn lane while the westbound approach has one through lane and an exclusive right-turn lane. Ka Haku Road is a two-lane, two-way roadway that provides access to the residential, commercial, and resort uses along its alignment. At the intersection with the highway, the Ka Haku Road approach has one lane that serves left-turn and right-turn traffic movement.

WOC conducted field investigations on September 23-24, 2008. Investigations consisted of manual turning movement count surveys at the above intersections between the morning peak hours of 6:00AM and 9:00AM, and the afternoon peak hours of 3:00 PM and 6:00PM. The AM peak hour of traffic generally occurs between 7:30 and 8:30 in the vicinity of the planned project. In the afternoon, the PM peak hour of traffic generally occurs between 4:15 and 5:15.

The following intersections were assessed in the traffic study:

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- Kūhiō Highway and 'Anini Vista Drive
- Kūhiō Highway, Prince Golf Course Access Road and Princeville Ranch Access Road
- Kūhiō Highway and Kapaka Street
- Kūhiō Highway and Ka Haku Road

The highway capacity analysis performed was based upon procedures presented in the "Highway Capacity Manual," Transportation Research Board, 2000, and the "Highway Capacity Software," developed by the Federal Highways Administration. The analysis is based upon the concept of Level of Service (LOS).

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal, free-flow traffic operating conditions and LOS "F" unacceptable or congested traffic operating conditions.

a. Kūhiō Highway and 'Anini Vista Drive

At the intersection with 'Anini Vista Drive, Kūhiō Highway carries 319 vehicles eastbound and 537 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, the overall traffic volume is higher with 661 vehicles traveling eastbound and 447 vehicles traveling westbound. The critical traffic movement on the Kūhiō Highway approaches is the eastbound left-turn and through traffic movement which operates at LOS "A" during both peak periods.

The 'Anini vista Drive approach of this intersection carries a low volume of vehicles during both peak periods. Only 3 vehicles and 10 vehicles were observed heading southbound on the approach during the AM and PM peak periods, respectively. The 'Anini Vista Drive approach operates at LOA "B" during both peak periods.

b. Kūhiō Highway, prince Golf Course Access Road, and Princeville ranch Access Road

At the intersection with the access roads for the Prince Golf Course and Princeville Ranch, Kūhiō Highway carries 345 vehicles eastbound and 502 vehicles westbound during the AM peak hour of traffic. During the PM park hour, the overall traffic volume is higher with 603 vehicles traveling eastbound and 424 vehicles traveling westbound. The critical traffic movements on the Kūhiō Highway approaches are the eastbound and westbound left-turn traffic movements which operates at LOS "A" during both peak periods.

The northbound approach of the intersection is comprised of the access road for Princeville Ranch. This approach carries a low volume of vehicles during both peak periods. Only 5 vehicles and 8 vehicles were observed heading northbound on this approach during the AM and PM peak periods, respectively. The Princeville ranch access road approach operates at LOS "A" and LOS "B" during the AM and PM peak periods, respectively.

The southbound approach of the intersection is comprised of the access road for the Prince Golf Course. This approach carries 21 vehicles and 67 vehicles southbound during the AM and PM peak periods, respectively, and operates at LOS "B" during both peak periods. *Figure 3.7* and *Figure 3.8* show the existing AM and PM peak hour of traffic.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

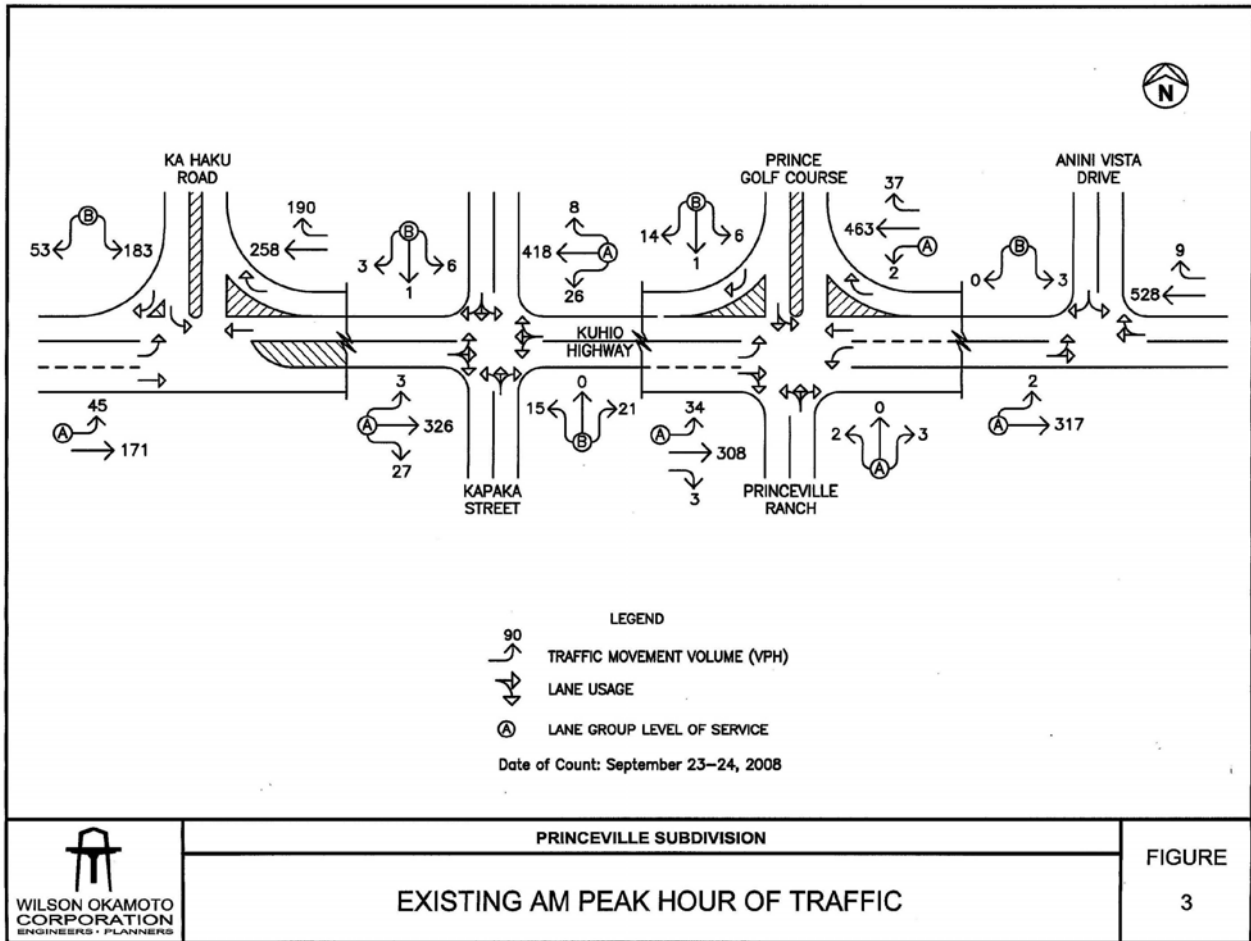


Figure 3.7 Existing AM Peak Hour of Traffic

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

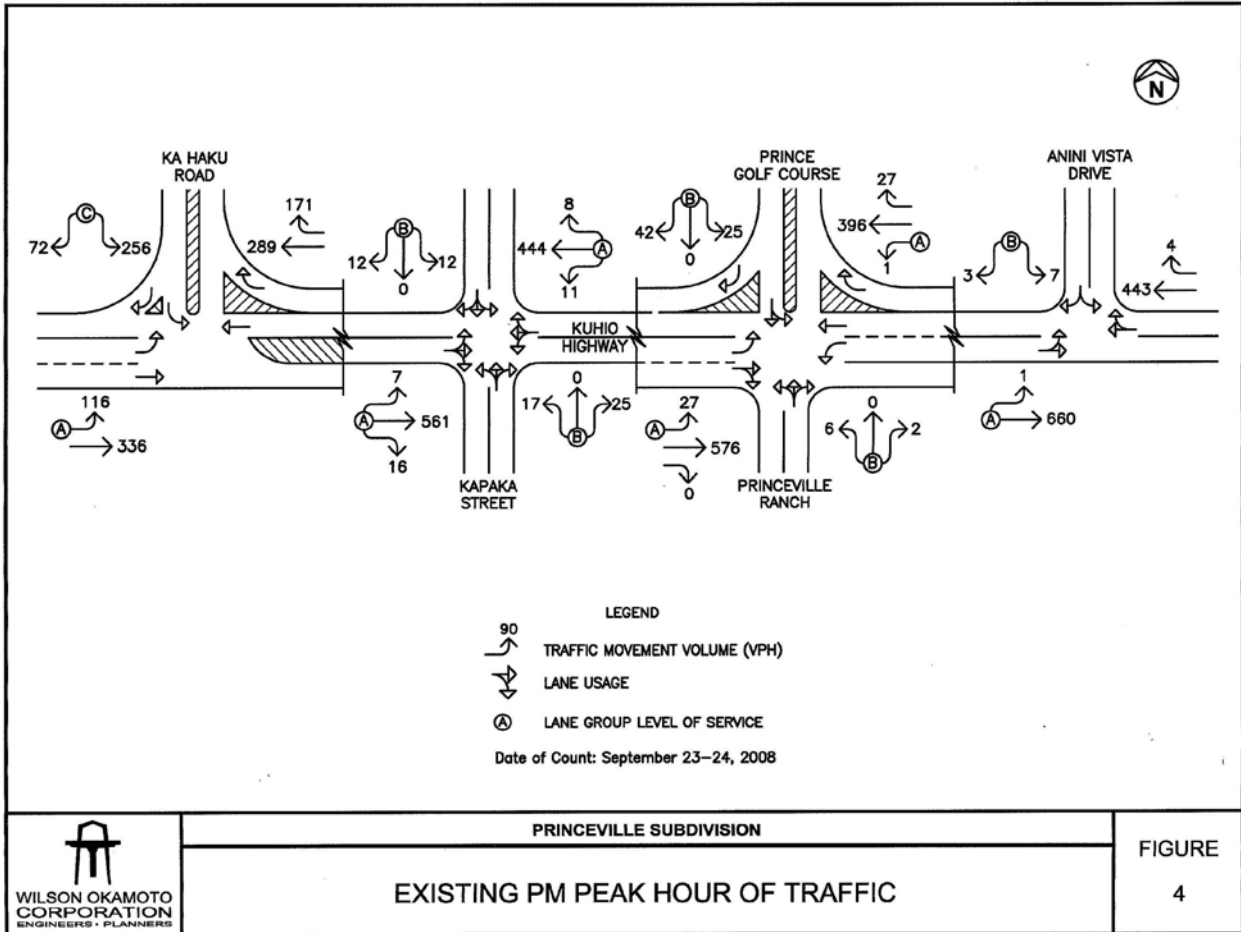


Figure 3.8 Existing PM Peak Hour of Traffic

Anticipated Impacts and Mitigation Measures

The trip generation methodology used to project future traffic conditions is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in “Trip Generation, 7th Edition,” 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit. *Table 3.3* summarizes the Project site trip generation characteristics applied to the AM and PM peak hours of traffic to measure the impact resulting from the planned subdivision.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

Table 3.3
Trip Generation Characteristics (AM/PM Peak Hours of Traffic)

Single-Family Detached Housing
Independent Variable: # of Units = 75

Projected Trip Ends		
AM PEAK	ENTER	14
	EXIT	42
	TOTAL	56
PM PEAK	ENTER	48
	EXIT	28
	TOTAL	76

Existing traffic operating conditions at the studied intersections are discussed below in a comparative manner with projected conditions in 2018, which is when it is assumed all the subdivision lots have been developed and occupied.

Figure 3.9 and Figure 3.10 show the distribution of site-generated vehicular trips at the study intersections during the AM and PM peak hours. Access to the proposed subdivision will be provided via ‘Anini Vista Drive and the existing access road for the Prince Golf Course. Site-generated trips were distributed between these two access points based upon their proximity to the proposed residential dwelling units. At Kūhio Highway, the directional distribution of these trips was based upon the distribution of traffic for the other existing Princeville developments. As such, the direction of site-generated trips at the intersections with ‘Anini Vista Drive and the Prince Golf Course/Princeville Ranch access roads was based on the existing distribution of traffic at the intersection of Kūhio Highway with Ka Haku Road. Therefore, during the AM peak period of traffic, 80.9% of entering vehicles were assumed to be heading northbound while 19.1% were assumed to be heading southbound. Similarly, 22.5% of existing vehicles were assumed to be heading northbound while 77.5% were assumed to be heading southbound. During the PM peak period, 59.6% of entering vehicles were assumed to be heading northbound while 40.4% were assumed to be heading southbound. Similarly, 22.0% of existing vehicles were assumed to be heading northbound while 78.0% were assumed to be heading southbound.

The Projected Year 2018 AM and PM peak hour traffic volumes and operating conditions at the study intersections *without* the proposed Princeville Subdivision are shown on Figures 3.11 and Figure 3.12, and summarized in Table 3.4. The northbound approach of Princeville Ranch access road at the intersection with Kūhio Highway and the Prince Golf Course access road is expected to deteriorate from LOS “A” to LOS “B” during the AM peak period. The remaining traffic movements at this intersection, as well as, the other study intersections are expected to continue operating at levels of service similar to existing traffic conditions during both peak hours of traffic.

Figure 3.13 and Figure 3.14 shows the year 2018 cumulative AM and PM peak hour traffic conditions at the study intersections *with* the proposed planned subdivision. The cumulative volumes consist of site-generated traffic superimposed over Year 2018 projected traffic demands.

Existing and projected (with and without project) AM and PM peak hour traffic conditions with the development of the Project are summarized below in Table 3.4. The traffic report provides a full discussion of how site-generated trips are distributed between the two subdivision access points, and other forecasting methodologies utilized in the analysis.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

**Table 3.4
Existing and Projected (With and Without Project) Traffic Operating Conditions**

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2018		Exist	Year 2018	
				W/out proj	W/ proj		W/out proj	W/ proj
Kūhio Hwy / ‘Anini Vista Dr	Eastbound	LT	A	A	A	A	A	A
	Southbound	LT-RT	B	B	B	B	B	B
Kūhio Hwy / Prince GC Access Rd / Princeville Ranch Access Rd	Eastbound	LT	A	A	A	A	A	A
	Westbound	LT	A	A	A	A	A	A
	Northbound	LT-TH-RT	A	B	B	B	B	B
	Southbound	LT-TH-RT	B	B	B	B	B	B
Kūhio Hwy / Kapaka St	Eastbound	LT-TH-RT	A	A	A	A	A	A
	Westbound	LT-TH-RT	A	A	A	A	A	A
	Northbound	LT-TH-RT	B	B	B	B	B	C
	Southbound	LT-TH-RT	B	B	B	B	B	B
Kūhio Hwy / Ka Haku Rd	Eastbound	LT	A	A	A	A	A	A
	Southbound	LT-RT	B	B	B	C	C	C

Despite the addition of the Project-generated vehicles to Kūhio Highway, traffic operations within the Project vicinity are expected to remain similar to Year 2018 Without Project conditions. The critical movements at the intersections of Kūhio Highway with ‘Anini Vista Drive, the Prince Golf Course and Princeville Ranch Access Roads are expected to remain operating at LOS “B” or better during both peak periods. Similarly, the critical movements at the intersection of Kūhio Highway with Ka Haku Road is expected to continue operating at LOS “B” or better during the AM peak period and at LOS “C” or better during the PM peak period. The northbound approach of the intersection of Kūhio Highway with Kapaka Street is expected to operate at a slightly lower level of service during the PM peak period due to the anticipated increase in traffic along Kūhio Highway. There is no internal linkage from the planned subdivision to Kapaka Street and Ka Haku Road, therefore no significant impact is anticipated at these intersections from the proposed development.

WOC made the following recommendations.

1. Maintain sufficient sight distances for motorists to safely enter and exit all project driveways/roadways.
2. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Provide adequate turn-around area for delivery and refuse vehicles to maneuver on the Project site to avoid vehicle reversing maneuvers onto public roadways.
4. Provide sufficient turning radii at all project driveways/roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

With the implementation of the above recommendations, the proposed project is not expected to have a significant impact on traffic operations in the vicinity of the Project. No improvements to any of the intersections in the vicinity are recommended, as the existing conditions of these intersections are considered adequate to handle the Projected traffic in 2018.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

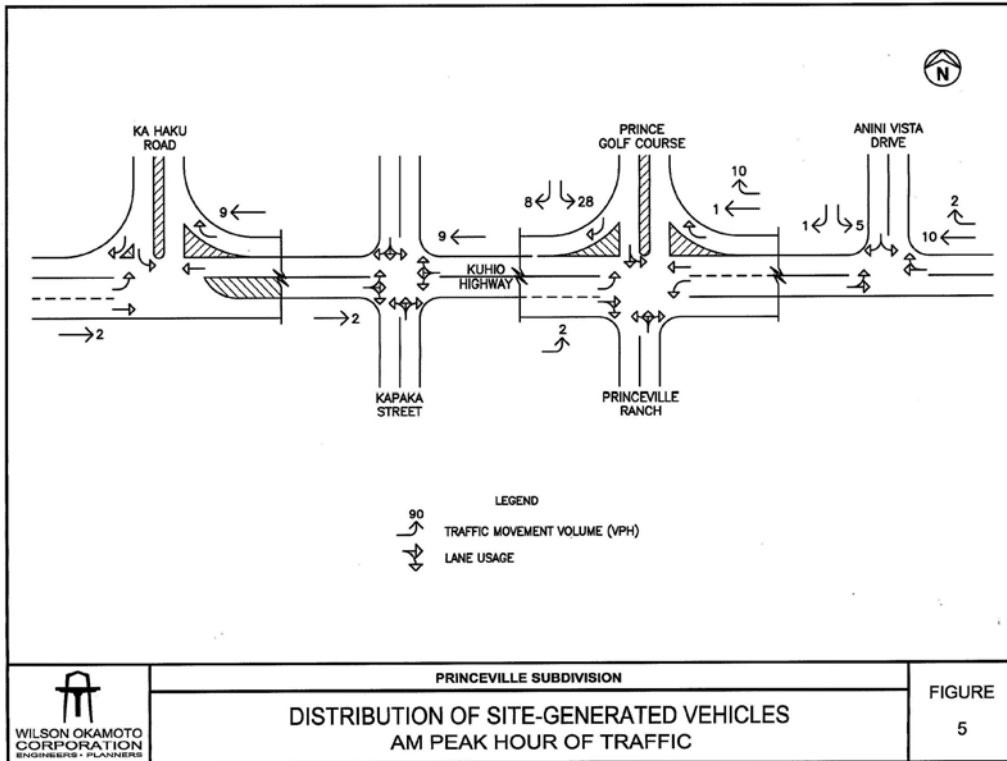


Figure 3.9 Distribution of Site-Generated Vehicles AM Peak Hour of Traffic

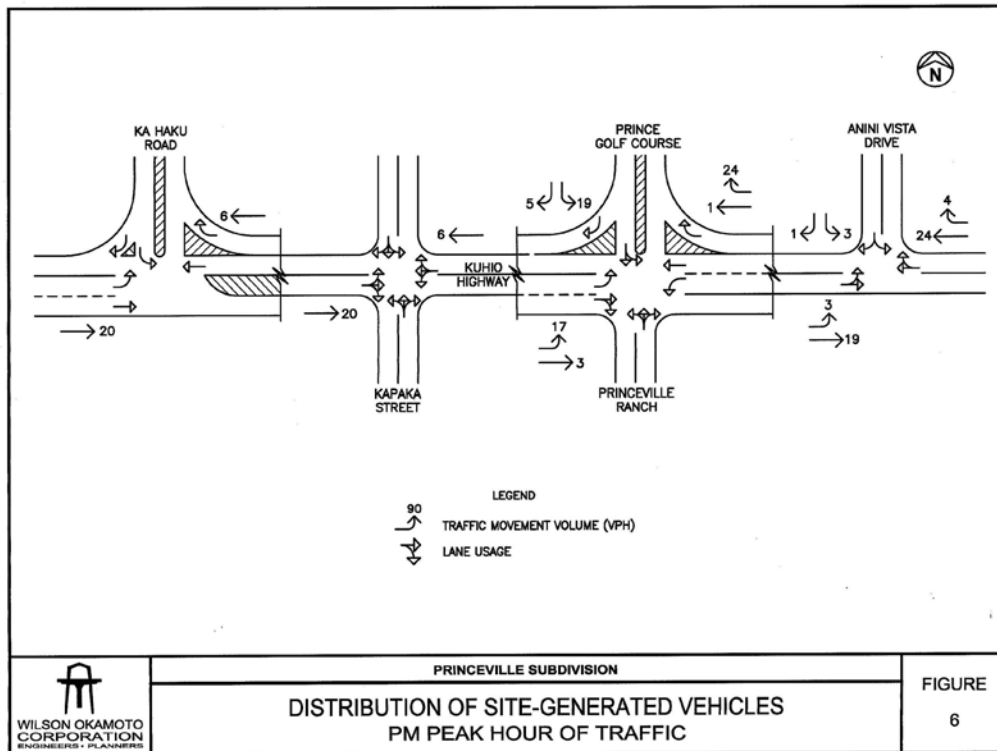


Figure 3.10 Distribution of Site-Generated Vehicles PM Peak Hour of Traffic

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

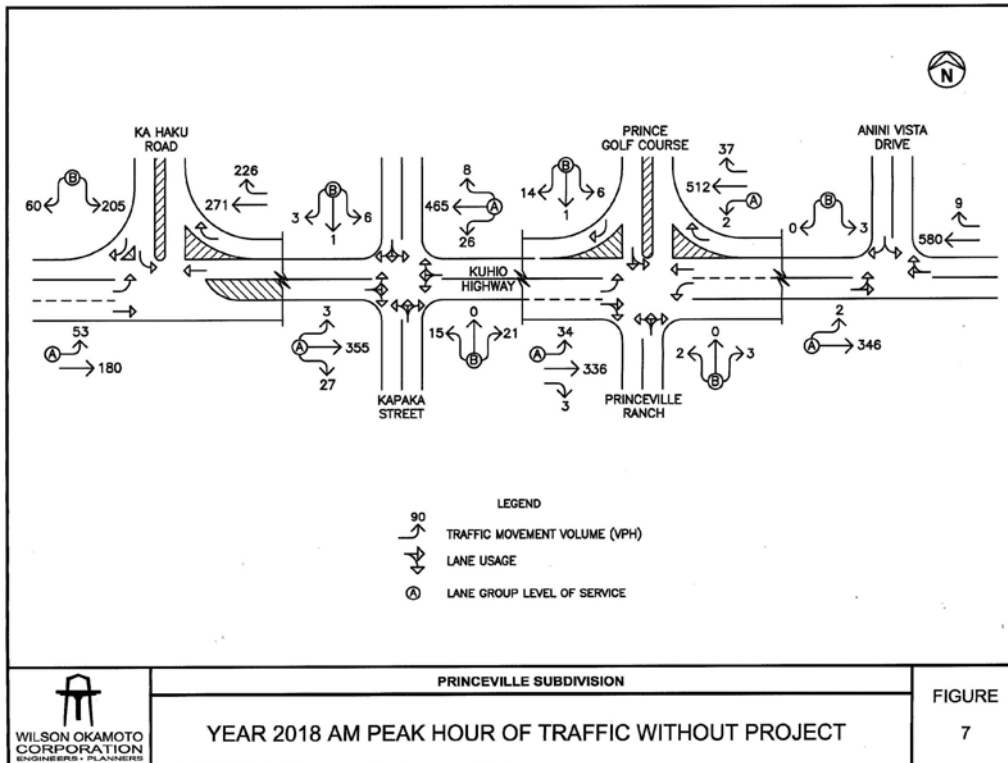


Figure 3.11 Year 2018 AM Peak Hour of Traffic Without Project

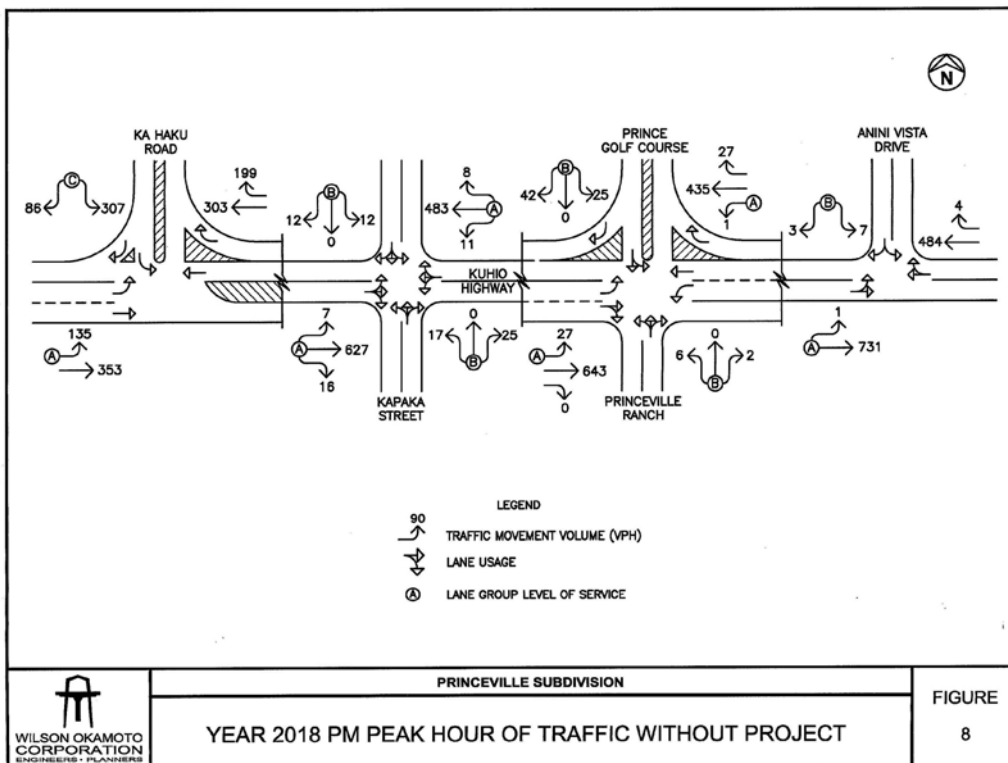


Figure 3.12 Year 2018 PM Peak Hour of Traffic Without Project

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

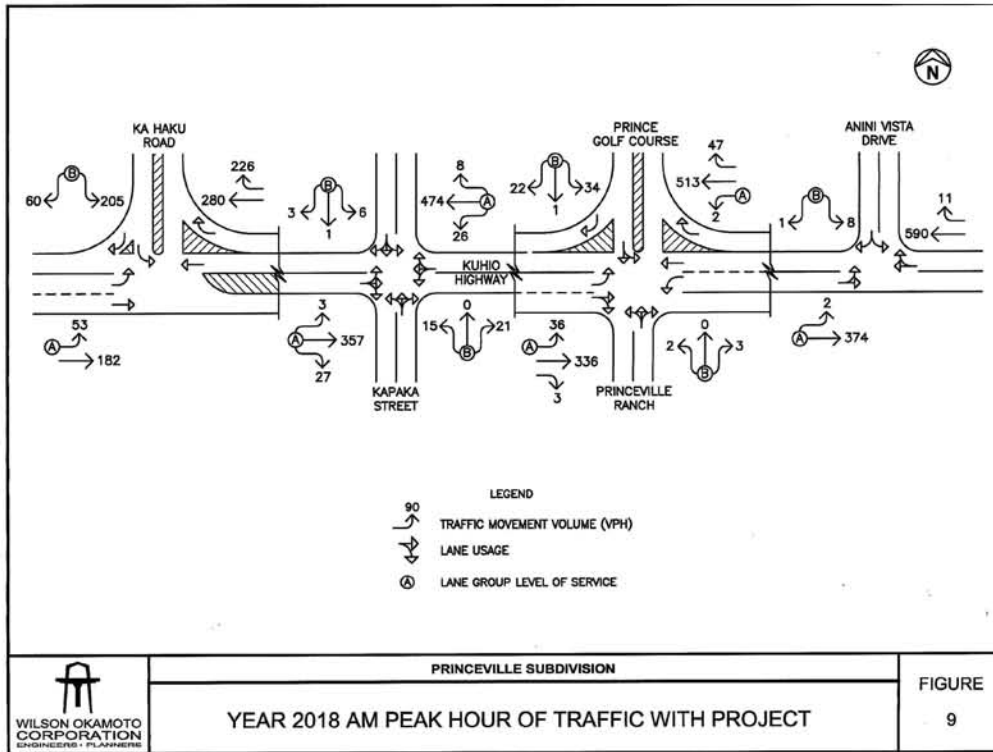


Figure 3.13 Year 2018 AM Peak Hour of Traffic With Project

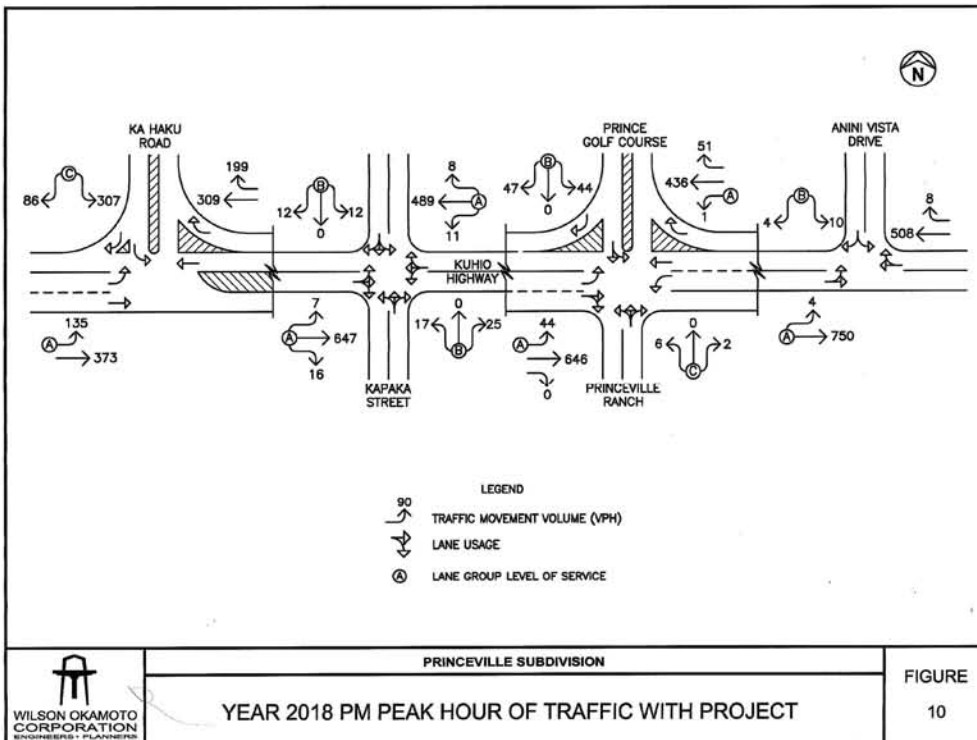


Figure 3.14 Year 2018 PM Peak Hour of Traffic With Project

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.8 INFRASTRUCTURE

3.8.1 Roadways

Existing Conditions

The Petition Area can be accessed from Kūhiō Highway by the existing access roads for the Prince Golf Course and Princeville Ranch. The northbound approach is comprised of the access road for the Princeville Ranch while the southbound approach is comprised of the access road for the Princeville Golf Course. Both approaches have one lane at this non-signalized intersection that serves all traffic movements. The existing access roads are paved up to the asphalt parking lots on both sides of the club house. A dirt road continues from the north parking lot to the northern part of the Project site and finally ends before the edge of the steep northerly facing slopes. Currently, there is no roadway within the Petition Area.

Anticipated Impacts and Mitigation Measures

The roadways within the Princeville Ranch Agricultural Subdivision will meet the County roadway and fire safety standards and preserve the rural character of the area. The subdivision plan includes a new private 56-foot wide collector roadway system which provides the "backbone" access roads from Kūhiō Highway to 15 of the proposed 17 Ag Lots (including the four Ag Lots that fall within the Petition Area). Two Ag Lots are proposed to have access to Kūhiō Highway via the existing 'Anini Vista Drive. All of the lots that don't have direct contact with the backbone roadway system will have access via "local" 44-foot wide private roadway easements. It is anticipated that future lot owners will construct private roadways along these easements to provide access to their dwelling sites.

The subdivision plan also provides for a maximum of 75 farm dwelling "homesites" spread amongst the 17 Ag Lots via conditions of a Condominium Property Regime (CPR). The proposed number of farm dwelling sites available within each Ag Lot varies between 2 and 7, depending on the size of the subdivided Ag Lot and the terrain. It will be a requirement to provide fire protection and emergency vehicle access to each of the farm dwelling sites. Therefore, sites that are not immediately accessible via the backbone roadway system, or local 44-foot wide roadway easements, are proposed to have access via individual roadways within the Ag Lots. Each of the proposed roadways will have a cul-de-sac or turnaround at its terminus to meet County requirements.

Proposed roadway improvements which are required for subdivision approval are shown in the construction plans, "Construction Drawings for Lot 2-A-1, Princeville Phase II", prepared by Esaki Surveying and Mapping, Inc. (*Appendix A of Appendix K*). The proposed collector road (Road A) is approximately 3,900 feet in total length, with 900 linear feet falling within the Petition Area. Collector road cross-sections consist of a 24-foot wide paved, normal crown travelway and 16-foot wide grassed shoulders/swales on each side of the travelway. In the ultimate developed condition, secondary or local roadways within easement areas could have a total length of over 13,200 linear feet, of which approximately 4,900 linear feet falls within the Petition Area. Local road cross-sections consist of a 20-foot wide paved, normal crown travelway and 12-foot wide grassed shoulders/swales on each side. Curbs, gutters and sidewalks are excluded from the plan in order to preserve the existing rural character and maximize the amount of vegetated open space.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

The project roadways are expected to have a minimal impact to the environment and to the rural character of the area. The roadways within the Petition Area will have no significant impacts related to the petitioned land use change.

3.8.2 Water Supply

Existing Conditions

Presently, there are no water system improvements within the proposed agricultural subdivision, with the exception of the golf course. Potable water demands for the entire Princeville area, between the Hanalei River and the Kalihiwai River, are served by the Princeville Utilities Company, Inc. (PUCI). PUCI gets its water from three deep groundwater wells which have a total sustainable yield of 1.4 MGD (Million Gallons per Day). Presently, the water demands total 1.1 MGD and PUCI has just completed drilling well no. 5 which is estimated to have a yield of 0.8 MGD.

The groundwater is pumped into three reservoirs for distribution to approximately 1,700 customers of the Princeville Resort and surrounding areas. The primary storage reservoir consists of a 1.5 million gallon reservoir (overflow elevation of 439 feet MSL) constructed in the early 1970’s. The reservoir is located approximately 3,600 feet south (mauka) of the Princeville Airport. The two other reservoirs include a 0.5 MG tank and a 0.05 MG tank which are both at 585 feet MSL. See *Figures 3-1 and 3-2 in Appendix K*. PUCI is also planning to construct a 1.2 MG reservoir, which is currently in the design stage.

There is a 24-inch diameter water transmission line located approximately 200 feet southwest of the Princeville Airport’s southwestern boundary line which carries water from the 1.5 MG reservoir to Kūhiō Highway and then westward along the highway to the Princeville resort areas. Water is then brought to the existing Prince Golf Course clubhouse by a 12-inch branch water transmission line which crosses the highway near the golf course access road and terminates approximately 500 feet into the site. The capacity of the 12-inch line is estimated to be 35,000 gallons per minute with a pressure of 69 psi.

The quality and treatment of the water are under the control of the Princeville Utilities Company, which is regulated by the Hawaii Public Utilities Commission.

Anticipated Impacts and Mitigation Measures

The proposed water system is designed in conformance with the Department of Water’s Water System Standards, 2002. Distribution pipes are required to deliver the peak hour flow with a minimum residual pressure of 40 psi, and the maximum daily flow plus fire flow with a minimum residual pressure of 20 psi at the critical fire hydrant. The maximum velocity in water mains, without fire flow, is 6 feet per second. The following design criteria were used:

<u>Land Use</u>	<u>Average Daily Demand</u>
Single Family Residential	500 GPD/Unit
Agricultural	2,500 GPD/acre

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

Demand Factors

Maximum Daily Demand = (1.5) x Average Daily Demand

Peak Hourly Demand = (3.0) x Average Daily Demand

The project includes 17 Ag Lots on approximately 400 acres, with most of the area intended for open grazing of livestock. For planning purposes, it’s prudent to use the higher of the two demands listed above, 2,500 gallons per acre, per day, for agricultural uses. With a maximum of 75 (3/4 acre) dwelling sites, the calculated average potable water demand is 140,625 gallons per day (0.141 MGD). The private water system will be able to accommodate this demand.

The calculated potable water demands for the ultimate build-out of the Ag Lots are summarized as follows:

<u>Study Area</u>	<u>Average</u> <u>(MGD)</u>	<u>Max. Day</u> <u>(MGD)</u>	<u>Peak</u> <u>(MGD)</u>
Petition Area (17 dwelling sites)	0.032	0.048	0.096
Non-Petition Area (58 dwellings)	<u>0.109</u>	<u>0.163</u>	<u>0.326</u>
TOTAL	0.141	0.211	0.422

The proposed onsite (private) water system improvements include a 12-inch ductile iron water main along the collector roads, individual service laterals and water meters to service each subdivided lot and fire hydrants spaced at 500 feet in compliance County codes.

Typical Department of Water pressure (service) zones incorporate a minimum elevation difference of 100 feet between the elevation “head” of the reservoir and the service area. A portion of the proposed agricultural subdivision, including a portion of the Petition Area, falls above the 330-foot elevation (tank overflow elevation of 439 feet MSL) and must be served by the higher 585-foot system. This includes portions of Lot 9 and Lot 12.

Completion of the 75 farm dwellings full build-out would likely result in a small increase in water demand. This increase is not expected to have a significant impact on the water system or source capacity, since the population within the Project will increase gradually over time. Also, it is likely that each farm dwelling will incorporate water-saving fixtures and rain catchment system to comply with the United States Green Building Council (USGBC)’s Leadership in Energy and Environmental Design (LEED) requirements as recommended by the Ranch. This strategy can potentially reduce the farm dwellings’ potable water demand.

3.8.3 Wastewater Treatment and Disposal

Existing Conditions

There is no gravity sewer system servicing the proposed subdivision. The nearest wastewater treatment facility is located in the Princeville Resort area. The Prince Golf Course clubhouse is serviced by a pump station which pumps the sewage to Princeville’s treatment plant. Originally

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order

the Club House used a leach field for disposal of the effluent but this system has been phased out and is no longer in use.

Anticipated Impacts and Mitigation Measures

The Project is located outside of the Underground Injection Control (UIC) area established by the State Department of Health. Therefore, the underlying aquifer is not considered drinking water source. No groundwater is expected to be encountered at the depth that the septic systems will be installed for the proposed farm dwellings. The criteria for calculating sewage demand follow the design standards of the County of Kaua’i and the State of Hawai’i. The design criteria are as follows:

SEWER DEMAND RATES

Average daily per capita flow = 100 gpd
Single-Family Residential = 4 persons/unit

Maximum Daily Flow = average daily flow x flow factor
Ground Water Infiltration = 1250 gal/acre/day
Design Peak Flow = design maximum flow + ground water infiltration

SEPTIC SYSTEM SIZING

Up to 4 bedrooms = 1,000 gallon tank
5 bedrooms = 1,250 gallon tank*
Average daily per capita flow = 100 gpd
Occupancy = 2 persons/bedroom

Maximum Flow Rate = 1,000 gallons per day

Maximum no. of septic systems per subdivision = 50 (lots or dwelling units)

The calculated sewer demands for the ultimate build-out of the Ag Lots utilizing the County design standards are summarized as follows:

Study Area	Average (MGD)	Max. Day (MGD)	Peak (MGD)
Petition Area (17 dwelling sites)	0.0068	0.034	0.082
Non-Petition Area (58 dwellings)	0.0232	0.116	0.311
TOTAL	0.0300	0.150	0.393

The Department of Health (DOH) will require that a development connect to an existing gravity sewer system or nearby wastewater treatment plant if available. However, since there is no gravity sewer system that serves the area, it is intended that each Ag Lot will install one Individual Wastewater System (septic tank system), for a total of one individual wastewater system (IWS) per lot (17 total) as permitted by Chapter 62 (HAR 11-62). It may be possible that more than one IWS per Ag Lot could be constructed if an individual lot owner decides to create a CPR within his Ag Lot pursuant to the one acre exception in Chapter 62 (HAR 11-62-31.1B).

Wastewater treatment and disposal is proposed to be done via an IWS for each farm dwelling, located within each Ag Lot. The IWS will consist of a septic tank system, which can be approved by DOH, and a leach field or seepage pit for effluent disposal. Proposed farm dwellings are expected to vary in size and each farm dwelling site is assumed to utilize a maximum 1,250 gallon

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

IWS (which can accommodate a 5 bedroom dwelling). See *Figure 4-1* in *Appendix K* for a typical septic system layout. Specific percolation tests will be necessary to size each of the leach fields or design the size and depth of each seepage pit. A brief description of each IWS is provided below.

A septic tank system consists of the following:

- A watertight septic tank constructed of fiberglass. These tanks will be underground around 10 to 15 feet from the foundation of the house and typically 18 to 24 inches below the surface.
- Two chambers within the septic tank created by an internal wall with an opening for flow from one chamber to the next. The first chamber, which is under continuous addition of new wastewater is around two-thirds the size of the tank, while the second chamber makes up the remaining one-third of the tank. The second chamber allows re-suspended particles to settle and digestion to occur.
- An inlet and outlet device at either end of the tank. The inlet tee forces incoming wastewater down into the tank to prevent flow of wastewater directly across the top of the wastewater to the outlet, which allows for settling. The outlet tee draws effluent from the settled wastewater between the sludge and scum layers.
- An optional effluent filter may be installed to prevent solids from leaving the tank and entering the leach field.
- Gas-tight, cast iron manhole frames and covers with concrete risers (as needed).
- A leach field (or drain field) which receives the treated wastewater that is delivered from the outlet of the septic tank. The effluent is further treated before being absorbed into the soil. Each leach field will consist of a series of perforated PVC pipes and a subsurface gravel bed to provide further filtration of treated wastewater and facilitate absorption.
- A seepage pit, which may be allowed by the DOH if the terrain is not suitable or too steep for a leach field. Seepage pits could consist of subsurface 6 foot or 8 foot diameter pre-cast concrete rings with a gravel bed to facilitate absorption, similar to the leach field.

By implementing the IWS, this Project is not expected to have an impact on public wastewater facilities.

3.8.4 Drainage

Analyses of the storm runoff volume were done for the existing and developed conditions, including the proposed roadways and farm dwelling sites (see *Appendix B* in *Appendix K*). For the developed condition, the ultimate build-out of secondary roadways and all 75 farm dwellings were assumed.

Existing Conditions

The Agricultural Subdivision Project is situated on a sloping plateau with natural topographical elevations that provide positive slopes for storm water runoff to natural gulches. The majority of storm water from the project is surface drained in a northerly and easterly direction and eventually empties into the Pacific Ocean at Kalihi Kai Beach via small stream outlets. According to the Federal Emergency Management Agency's Flood Insurance Rate Map, the boundaries of the Agricultural Subdivision Project fall outside the defined 100-year flood plain boundaries.

The proposed Agricultural Subdivision Project can be described as affecting four main watersheds. A portion of the Ag Lots and most of the Golf Course Lots falls within the 'Anini Gulch watershed.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

The 'Anini Gulch watershed is approximately 1,300 acres and extends up into the hillside to over 1,000 feet above sea level. The majority of the Agricultural Subdivision Project area falls within the smaller, more localized watersheds shown on *Figure 3.1*. Some of the tributary area extends above Kūhiō Highway, below the Princeville Airport, and runoff from this area is conveyed across Kūhiō Highway via underground culverts.

The design criteria for the proposed drainage facilities are taken from the County of Kaua'i's Storm Water Runoff System Manual, July 2001. The *Erosion and Sediment Control Guide for Hawai'i* is also used as references in determining existing as well as proposed runoff characteristics.

The criteria used in this study are summarized below:

- Hydrographs for Existing and Developed Conditions Peak Flows
 - Rainfall Depths = SCS TP-43
 - Runoff Curve Numbers = NRCS
 - Time of Concentration = NRCS
 - Runoff computation (greater than 100 acres) = TR-55
 - Peak Flow computation (less than 100 acres) = Rational Method ($Q=CIA$)
- Recurrence Interval
 - Areas greater than 100 acres: $T_m = 100$ years
 - Areas less than 100 acres: $T_m = 2$ years

The calculated existing 100-year, 24-hour runoff volume from the entire Ag Lots and Road Lot area (approximately 490 acres) is 587 acre-feet. The calculated 100-year, 24-hour storm peak discharge rate is 3,190 cubic feet per second (cfs). Storm water discharges from the site are conveyed via the natural gullies and drainageways within the site toward the ocean. Considering the Petition Area only, the calculated 100-year, 24-hour runoff volume and peak discharge rate is 121 acre-feet and 743 cfs, respectively.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

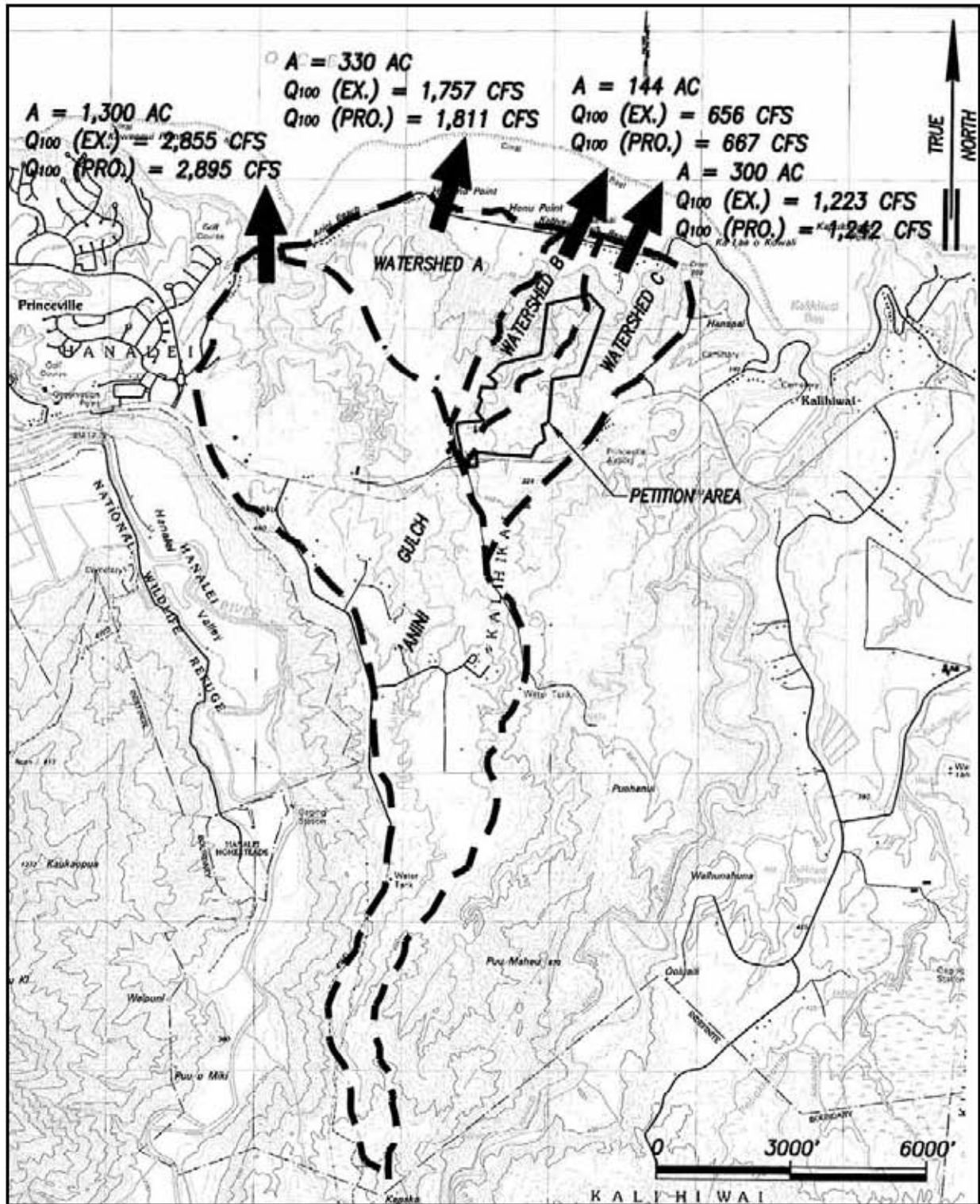


Figure 3.15 Princeville Agricultural Subdivision Drainage Tributaries

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Anticipated Impacts and Mitigation Measures

The calculated developed 100-year, 24-hour runoff volume for the entire Ag Lots and Road Lot area is 600 acre-feet. Increase in runoff volume is primarily due to the increase in impermeable ground surface from the development of roofs, sidewalks, courtyards and pavements. The increase in runoff volume due to the ultimate development is 13 acre-feet. The calculated 100-year, 24-hour storm peak discharge rate is 3,260 cubic feet per second (cfs), which is an increase of 70 cfs. Considering the ultimate development of the Petition Area, the calculated 100-year, 24-hour runoff volume and peak discharge rate is 125 acre-feet and 766 cfs, respectively. This is an increase in runoff volume and peak flow of 4 acre-feet and 23 cfs respectively.

The Petition Area spans two independent watersheds as shown on *Figure 3.1*. Increases in peak discharge rates are therefore calculated for both tributaries. It was determined that the increase in peak discharge rate due to the ultimate build-out is only 13 cfs for the eastern tributary and 8 cfs for the western tributary. These calculated increases are negligible compared to the 1,240 cfs and 670 cfs peak discharges for the eastern and western tributaries, respectively.

The intent of the Agricultural Subdivision Project is to maintain the existing runoff from the subdivision lands upon development in accordance with the County of Kaua'i's drainage standards. By incorporating retention and detention basins into the planned development, the increases in runoff volumes and peak discharge rates will be mitigated. Within each of the farm dwelling sites, retention facilities are planned to provide an equivalent amount of retention as the calculated increase in runoff due to development. The average dwelling site is calculated to need an approximate storage of 2,400 cubic feet (0.056 acre-feet) due to development of the site. Storage could be provided by underground piping or storage chambers, or it can be provided above ground in shallow basins. See *Appendix C* in *Appendix K* for the retention calculations.

The roadways will be constructed such that storm water is diverted from the centerline of the roadways and off onto the grass shoulder areas. Increased storm water runoff due to development of the roadways (increased impervious surfaces) will be conveyed through the grassed swales and into underground drain collection systems via surface drain inlets. The underground drainage systems will discharge the roadway runoff into the natural drainageways throughout the site to maintain the natural drainage patterns. Pervious pavements may also be utilized to minimize the increased runoff from roadways. The proposed underground drainage system is designed to convey the 2-year, 1 hour peak flow and the roadway surface is designed to convey the 100-year, 1-hour peak flow within the roadway prism. See *Appendix D* in *Appendix K* for the roadway drainage system calculations.

Increases in runoff volume and peak flows due to the proposed development are calculated to be negligible with respect to the regional runoff volumes and peak flows. The natural gullies and drainageways are significant enough to handle the peak flows which are generated by the regional watershed areas. Considering that the proposed individual developments will be responsible to capture and retain their increases in runoff, the local or immediate impacts due to development will also be negligible. The calculated increases in runoff volume and peak flow from the Petition Area due to the ultimate build-out are not significant and would not significantly impact the downstream areas.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

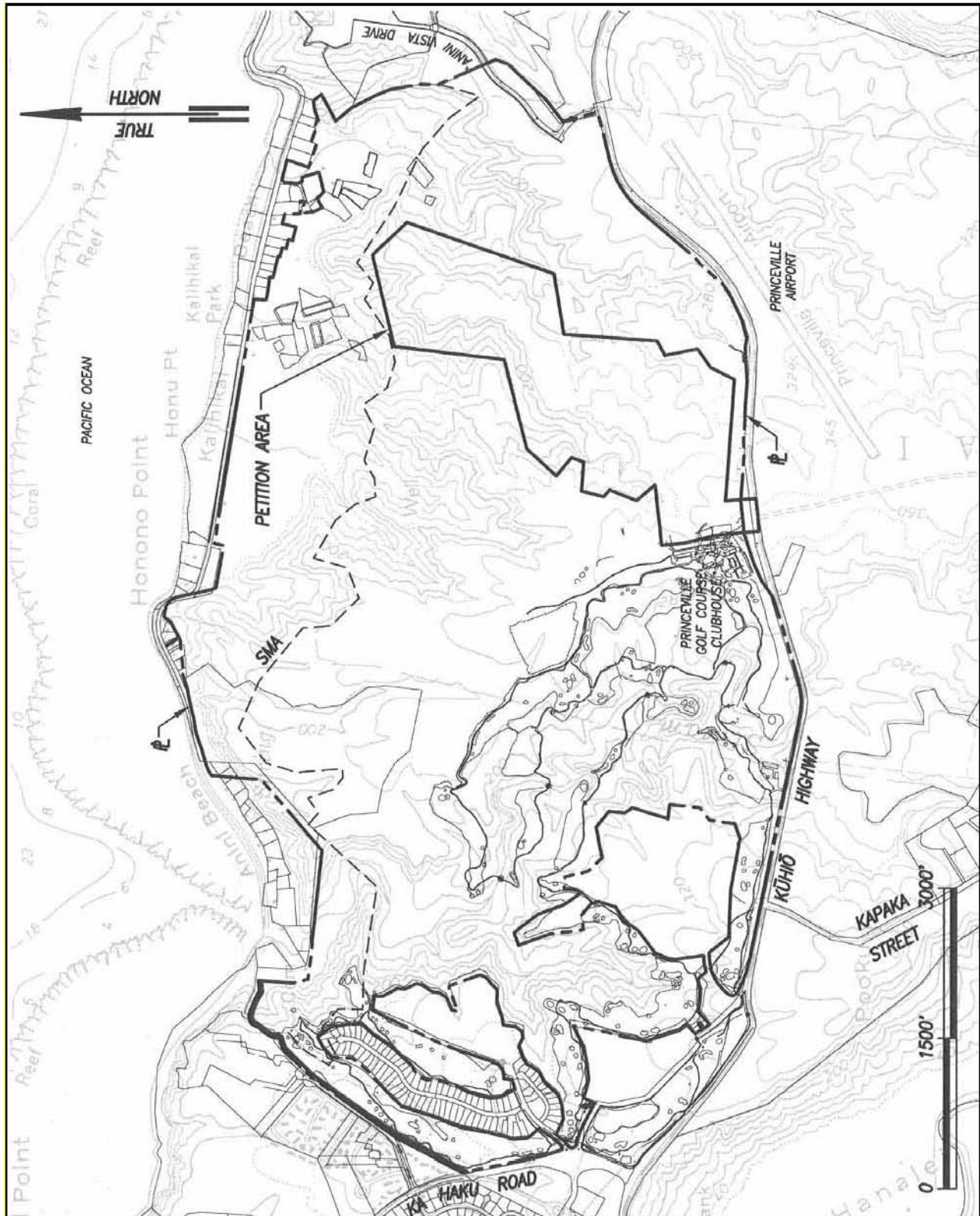


Figure 3.16 Existing Conditions

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

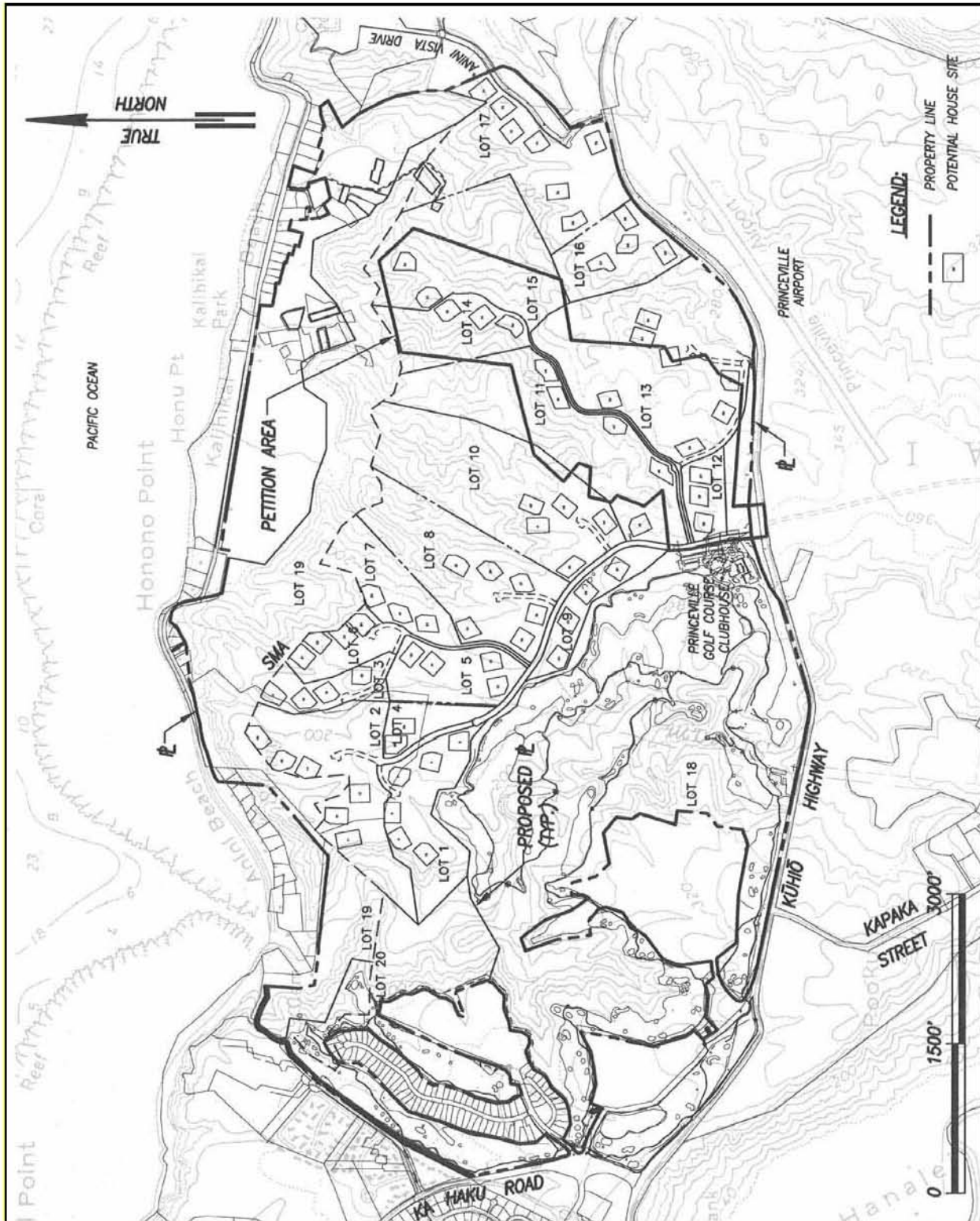


Figure 3.17 Proposed Conditions

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.9 SOCIO-ECONOMIC CHARACTERISTICS

The 120 acres of land (the Petition Area), which is being requested for Motion to Amend the Decision and Order, from urban for golf course only to agricultural, will be developed into a 17-lot agricultural subdivision as part of the planned Princeville Ranch Agricultural Subdivision project. The Project will include up to 75 farm dwellings. However, it is likely that fewer farm dwellings will be built since a number of the lot owners may not want to develop the maximum number of farm dwellings allowed on their lot. In 20 years (the assumed analysis period), it is estimated that about 34 farm dwellings will be built, with about nine of them being in the Petition Area. As explained in the "Princeville Ranch Agricultural Master Plan," most of the land on each lot will remain available for pasturing the Ranch's cattle and horses. The Project will appeal to comparatively wealthy families who enjoy the ranching lifestyle.

The Project is expected to contribute to the preservation, viability and stability of the Ranch. As a result, Ranch employment and payroll are not expected to change significantly. Additional community benefits provided by the Project and the related Princeville Ranch Agricultural Master Plan will include:

1. Preservation of agricultural resources (i.e., most of the Project lands and nearly all of the Ranch's mauka and Hanalei lands will remain available for ranching and farming).
2. Continuation of taro farming on Ranch lands in Hanalei.
3. Reduced development (at most, 75 ranch houses for both the Project Area and mauka lands, compared to over approximately 2,200 homes currently allowed for the makai lands and approximately 3,000 homes allowed for both mauka and makai lands under the County General Plan).
4. Perpetuation of the rural character and lifestyle of the North Shore.
5. Preservation of open space, scenic beauty, and flora and fauna.
6. Contribution to the visitor industry (scenic open space and a picturesque setting for horseback riding and adventure activities).

Existing Conditions

There is currently no resident population on the Petition Area. A few ranch employees occasionally work in this area when cattle are transferred to this area for finishing grazing.

Anticipated Impacts and Mitigation Measures

The anticipated socio-economic impacts for the local community are positive. The Princeville Agricultural Subdivision project as a whole will help sustain and preserve agricultural lands, local agricultural business, and the rural character of the area. The Project will help improve and maintain grazing lands for viable agricultural uses in the future and promote sustainable development and rural agricultural tourism in the area.

Additional jobs may be anticipated in association with the new residences and the new community associations, particularly in the construction and maintenance of the properties and common areas. There should be an increase in services to the development. A small population increase is anticipated within the Petition Area. Any secondary population growth induced by the Project is considered negligible and would not result in significant impacts. Socio-economic benefits from the Project are discussed in detail below:

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

a. Employment Benefits

1) Construction and Related Employment

During the 20-year analysis period, construction employment is expected to average about 22 jobs, including about six jobs associated with development in the Petition Area. It is anticipated that most construction jobs associated with the Project will be filled by workers already living on Kaua'i. As other construction projects are completed on the island, Kaua'i construction workers will be hired to work on the various components of this Project, and will then move on to other Kaua'i projects. Thus, the Project will help keep Kauai's existing construction workers employed. Indirect employment related to Project development is expected to average about 22 jobs on Kaua'i and 11 jobs on O'ahu. Thus, total direct-plus-indirect employment associated with the construction activities will average about 55 jobs per year, with about 44 of them being on Kaua'i. About 15 direct-plus-indirect jobs will be attributable to construction in the Petition Area. The actual annual job count will fluctuate over time, depending on the pace of construction.

2) Employment Generated by Consumption Expenditures

In 20 years, purchases of goods and services by occupants of the ranch houses are projected to support about 43 jobs, including about 39 new jobs on Kaua'i and four jobs on O'ahu. About 11 of these jobs will be attributable to purchases by residents of the farm dwellings in the Petition Area. Onsite annual employment for home and yard maintenance and repair is projected to reach an estimated ten jobs, with about three of these jobs in the Petition Area.

b. Fiscal Benefits

1) County

Project development activity is expected to have a negligible impact on County finances in as much as the developer will provide an interior road, water distribution, drainage, etc., while home builders will provide individual wastewater disposal systems. Also, most construction workers are expected to be from Kaua'i so will not require additional services from the County. In 20 years, net tax revenues to the County are projected to reach about \$170,000 per year, including about \$50,000 per year being attributable to residents living in the Petition Area. The positive fiscal return to the County reflects the high property values for the farm dwellings and the Ag Lots. This differs from typical residential communities where County services are partially subsidized by tax revenues from resort, resort-residential, commercial, and industrial properties.

2) State

Unlike the County, the State derives substantial net revenues from development activity. Over the 20-year analysis period, the State will net about \$12.2 million from development activities associated with the Project, or an average of about \$610,000 per year. About \$3.2 million or nearly \$160,000 per year will be attributable to development activity in the Petition Area. Net revenues are high because of the amount of economic activity associated with selling lots and building the farm dwellings. In 20 years, net tax revenues to the State are projected to reach about \$570,000 per year for the Project and about \$150,000 per year for the Petition Area. The positive return to the State reflects the high income and consumption levels of occupants of the farm dwellings. This differs from typical residential communities for which State services are partially subsidized by tax revenues derived from resort and commercial activities.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.10 VISUAL RESOURCES

Existing Conditions

The Petition Area is located on Kaua'i northshore plateau between 200'-340' above mean sea level, above the 'Anini and Kalihikai coastal areas. It is surrounded by drainage valleys, undeveloped open agricultural lands, and an existing Prince Golf Course. The existing views from the Petition Area consist of the surrounding open agricultural lands, Prince Clubhouse and golf course, Pacific Ocean views, vegetated drainage valleys, Kūhio Highway, mountain range, Princeville Airport, and 'Anini Vista Subdivision. (*Figures 3.5 through 3.8*). To the north, the Pacific Ocean is visible. The view of open agricultural lands, drainage valleys, and 'Anini Vista Subdivision are to the east. The view of open agricultural lands, mountain range, Prince Clubhouse and golf course are to the west. To the south and southwest are the view of Kūhio Highway, Princeville Airport, open agricultural lands, and mountain ranges. There are currently no structures on the site.

The Petition Area lies within an area designated as a Scenic Roadway Corridor. The purpose of Scenic Roadway Corridor designation is to conserve open space, scenic features, and views within and along Kaua'i's most heavily-traveled roadways. Scenic Roadway Corridors are primarily designated in areas where surrounding lands are generally classified as Agriculture and Open as shown on the Kaua'i County's General Plan's Heritage Resources Map (*Appendix L*). Currently there are no special zoning overlay or corridor regulations administered around the Petition Area.

Anticipated Impacts and Mitigation Measures

The Ag Subdivision of which the Petition Area is a part has been designed to provide optional low-density lots that provide, quiet, privacy, maximize ocean views and maintain a rural, ranch ambiance. As such the Homesites are set away from Kūhiō Highway as much as possible and landscape berms and planting will screen both noise and traffic from the Homesites. Reciprocally, views from the highway will be mostly of berms and vegetation. Setbacks from the bluffs will reduce visual impacts from 'Anini Beach and Kalihi Kai Beach, and drainage valleys will separate the homes from the adjacent 'Anini Vista Subdivision. As shown in *Figures 3.23 through 3.25*, insignificant portions of the farm dwellings' roof lines may be visible from the highway and from 'Anini Vista, more or less from different locations. The covenants, conditions, and restrictions (CC&Rs) will require additional landscape screening to anticipate visual impact. Ongoing grazing activity will merge a ranch ambiance to the rural residential uses.

The low-density farm dwellings within the Petition Area are unlikely to affect the sense of open space and rural character of the area. Furthermore, the dwellings within the Petition Area were to be harmonized with the existing ranch operation. Therefore, the development will not change Princeville Ranch's sense of place and local residents' impression of the area as a rural agricultural community.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order



Figure 3.18 Existing View of the Pacific Ocean to the North



Figure 3.19 Existing View of Open Agricultural Lands, Drainage Valley, and 'Anini Vista Subdivision to the East



Figure 3.20 Existing View of Kūhio Highway, Princeville Airport, Open Agricultural Lands, and Mountain Range to the South and Southwest

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville’s State Land Use Commission
Motion to Amend the Decision and Order



Figure 3.21 Existing View of Open Agricultural Lands, Mountain Range, Drainage Valley, Prince Clubhouse, and Golf Course to the West



Figure 3.22 Existing View of the Petition Area from Kūhio Highway



Figure 3.23 Existing View of the Petition Area from ‘Anini Vista

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order



Figure 3.24 Computer Simulated View of the Petition Area from Kūhio Highway (approximately ¼ miles from Princeville Ranch Access Road) after Development



Figure 3.25 Computer Simulated View of the Petition Area from Kūhio Highway (approximately where Princeville Airport building structure is located) after Development

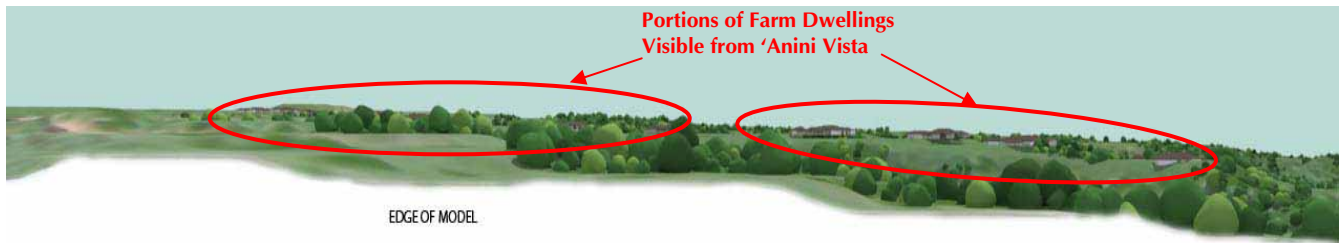


Figure 3.26 Computer Simulated View of the Petition Area from 'Anini Vista after Development



Figure 3.27 Computer Simulated View of the Petition Area from Kalihi Kai Beach after Development

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

3.11 PUBLIC FACILITIES AND UTILITIES

This section discusses the Petition Area's probable impact on public facilities and utilities serving the Petition Area and surrounding area.

3.11.1 Electrical and Communication Facilities

Existing Conditions

Electrical power will be provided to the Project by the Kaua'i Island Utility Cooperative (KIUC). Primary electrical power is distributed from the main electrical generating facility located in Port Allen, throughout the Island of Kauai via a 57 kilovolt (KV) overhead power transmission system to various substations located throughout the island. KIUC provides a three-phase, 12 KV overhead primary distribution systems in the area of the Project.

Secondary electrical power is supplied to the site from three, pole-mounted, 25 KVA transformers located on the north (makai) side of the Kūhio Highway.

Hawaiian Telcom provides telephone service to the Island of Kaua'i. There are nine exchange areas on the island. A switching station serves each, exchange area, although an exchange may have peripheral or remote locations. The Princeville switching station is located next to the Princeville Fire and Police Stations. It services the area from Princeville to Hā'ena.

Hawaiian Telcom has three aerial cables along Kūhio Highway fronting the Project. One is a fiber optic trunking cable between Princeville and Kīlauea. Another is a 100 pair trunking cable between Princeville and Kīlauea. The third is a 100 pair cable that provides local service. Hawaiian Telcom has no short-term plans to increase the line capacity.

Anticipated Impacts and Mitigation Measures

The Petition Area will generate a minimal increase in demand for electrical and communication services. The increased demand from a maximum of 15 single-family farm dwellings and partial two single-family farm dwellings within the Petition Area is not expected to have a significant impact on the distribution or power generation facilities. Appropriate coordination will be conducted with these utility companies during the Project's design to ensure appropriate service and utility improvements are provided.

3.11.2 Educational Facilities

Existing Conditions

The North Shore District currently contains two public schools operated by the State Department of Education (DOE): Kīlauea Elementary School and Hanalei Elementary School. The Petition Area is located within the Hanalei Elementary School district. All North Shore public school students in grades 7 through 12 attend Kapa'a Intermediate and High School. The schools on Kaua'i's North Shore all have significant excess capacity.

Anticipated Impacts and Mitigation Measures

The existing Princeville community has lower student population densities than many residential communities for at least two reasons. First, there are few full-time residents than typical residential communities, and also, census data shows that Princeville residents tend to have fewer school-age children. Based on commonly used metrics to estimate the potential student population of the 75

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

single-family farm dwellings, fewer than 10 students might be expected to reside in the planned agricultural subdivision. Accordingly, the potential 15 single-family farm dwellings and partial two single-family farm dwellings within the Petition Area should have minimal impact on the DOE programs and facilities. Based on the existing excess capacity and the anticipated small student generation from the Project, no significant impact is anticipated.

3.11.3 Police Protection

Existing Conditions

The Kaua'i Police Department provides services to the North Shore District from their Hanalei Police Substation which serves as a base of operations for police personnel patrolling this coastline. This substation is located approximately 3 miles west of the Petition Area on the mauka (south) side of Kūhio Highway, adjacent to Prince Albert Park. The next closest station is located in Lihue approximately 25 miles away, and can provide additional police protection if necessary.

Anticipated Impacts and Mitigation Measures

The potential 15 single-family farm dwellings and partial two single-family farm dwellings within the Petition Area should have minimal impact on the police department's operations or ability to provide adequate protection services to the surrounding Princeville community and the larger North Shore District either during construction or upon completion of the Project. Off-duty police staff may be hired to assist in directing traffic during construction activities if required. However, this assistance will likely be minimized as all of the construction activities will occur within the larger agricultural subdivision, and is not expected to involve closure of any roadway lanes.

3.11.4 Fire Protection

Existing Conditions

The Kauai Fire Department has one fire station in the North Shore District located in Princeville. The Hanalei Fire Station is located approximately 3 miles west of the Petition Area, on the makai (north) side of Kūhio Highway. It is co-located with the Hanalei Police Substation. Back-up service is provided by the Kapa'a Fire Station (Planning Dept., November 2000).

Anticipated Impacts and Mitigation Measures

The potential 15 single-family farm dwellings and partial two single-family farm dwellings within the Petition Area are expected to have minimal impact on the Fire Department's operations or ability to provide fire protection services to the larger agricultural subdivision and surrounding Princeville community. The planned subdivision will be designed to meet fire and building code requirements. This will include providing necessary hydrants and meeting fire flow requirements for water system improvements. Appropriate design plans will also be coordinated with the Fire Department for their review during the Project's design phase.

3.11.5 Recreational Facilities

Existing Conditions

The Petition Area is located in Princeville. Princeville is a resort/residential community that includes a ranch, agricultural lands, resorts, golf courses, and planned development communities. Neighboring towns include Hanalei to the west and Kīlauea to the east. Highly-used public recreational facilities located in the immediate vicinity of the Petition Area include 'Anini Beach Park, Kalihi Kai Beach Park, Hanalei Black Pot Beach Park, Hanalei Pavilion Beach Park, Kīlauea

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Park, and the Kīlauea Neighborhood Center (County of Kaua'i, Department of Public Works, Parks Division). The Kīlauea Neighborhood Center is an important community resource for Kīlauea Town residents. The Center's facilities include a gym, restrooms, park offices, a baseball field, soccer field, and playground. The local farmers market is held every Thursday in this center where local farmers are able to sell their produce.

Other popular tourist attractions within the vicinity of the Petition Area include The Kīlauea Lighthouse is located on Kīlauea Point, which is the northernmost point in the Hawaiian island chain; the Kīlauea Point National Wildlife Refuge, home to a diverse population of nesting seabirds, and is a part of the Kaua'i National Wildlife Refuge (NWR) Complex; Hanalei Valley Lookout, offers one of the most famous views on Kaua'i - the Hanalei National Wildlife Refuge and Hanalei taro fields where majority of local Hawai'i's taros are grown; and the historic one-way Hanalei Bridge at the valley floor.

Princeville at Hanalei also features 2 World-Class Championship Golf Courses; Prince Golf Course and Makai Golf Course, making up a total of 45-Holes. Prince Golf Course enjoys magnificent views from 300 feet above the Pacific Ocean and is rated as Hawaii's No. 1 Golf Course by Golf Digest. Makai Golf Course is Hawaii's premier 27-hole layout and has also been ranked by Golf Digest as one of Hawaii's top courses. Designed to enhance the natural habitat of Kauai's North Shore while providing strategic variety for golfers, these golf courses provide spectacular private recreational opportunities.

Princeville Ranch which the Ag Plan is intended to preserve has recreational activities and resources that supplement the ranching activities. Horseback riding, zip-lines, eco-tours, and hiking are part of the activities provided by the ranch as accessory uses to ranch operations.

Anticipated Impacts and Mitigation Measures

Construction activities within the Petition Area would not involve the use of these recreational facilities or impede existing activities conducted there. Impacts to recreational facilities will be minimal if at all. Design of the Project would include developing appropriate erosion control plans and best management practices to minimize runoff from entering surrounding stream waters. Such plans developed would be reviewed and approved by appropriate agencies. Thus, implementation of such plans would provide sufficient measures to minimize impacts on these recreational facilities.

3.11.6 Medical Facilities

Existing Conditions

Medical facilities located within the North Shore District include Kaua'i Medical Clinic in Kīlauea. Emergency service is provided from its Lihue location. Emergency ambulance service also is provided by the Hanalei Fire Station.

Anticipated Impacts and Mitigation Measures

The limited number of additional residents that the planned subdivision is expected to add to the North Shore population should not adversely impact the provision of medical service to the community.

3.11.7 Solid Waste Disposal

Existing Conditions

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

According to the County of Kaua'i Department of Public Works Solid Waste Division's *Integrated Solid Waste Management Plan (March 2009)*, the average per capita per day waste generation for the north shore is 7.79 pounds (8.04 pounds for the island of Kaua'i) and is projected to increase to 8.16 pounds in 2013 (8.76 pounds for the island of Kaua'i). The lower average waste generation rate for the north shore district in comparison to the whole island average is due to less commercial space per capita. Currently, Princeville Ranch and Princeville Golf Course contracted with Garden Isle Disposals for solid waste disposal service, and green waste is mulched and recycled onsite.

Kekaha landfill is the primary solid waste disposal site on the island, located on the leeward coastline of Kaua'i near Kekaha town. The landfill is owned by the County and staffed, in part, with County employees. Landfill operations and monitoring services are contracted to Waste Management, Inc. (WMI). According to the *Integrated Solid Waste Management Plan (March 2009)*, the landfill consists of two disposal areas (Phase I and Phase II). Phase I area, which is a closed unlined landfill, has an estimated 1,717,245 cubic yards of waste in place. Phase II area is a RCRA Subtitle D lined landfill with approximately 1,810,360 cubic yards of waste in place. The Phase II landfill is permitted to an elevation of 85 feet above mean sea level (MSL) for an estimated capacity of 2,194,860 cubic yards. The landfill received 89,156 tons of waste in FY 2005. The permit renewal and modification issued by the State of Hawai'i Department of Health (DOH) in April 2005 allows the peak daily disposal rate of 600 tons per day. In FY 2005, the landfill's peak daily disposal rate averaged 244 tons per day.

The remaining permitted capacity of the landfill is 384,500 cubic yards as of May 19, 2006. The County is currently applying for a northwest horizontal expansion of the Phase II area to increase the landfill's capacity. The northwest horizontal expansion would increase the remaining capacity of the Landfill by an additional 370,000 cubic yards. There is also a possibility of expanding the Phase II landfill to the southwest over the northeast side slope of the closed Phase I landfill, which will add addition 350,000 cubic yards of airspace for a total horizontal expansion volume of 720,000 cubic yards.

Anticipated Impacts and Mitigation Measures

The proposed maximum 75 farm dwellings and cattle grazing activity in the Princeville Ranch Agricultural Subdivision Project does not anticipate significant short-term impacts on the existing solid waste collection and disposal system or the environment. There will be no demolition waste, as the property is currently undeveloped. The majority of pre-construction waste will be green waste from site clearing. A solid waste management plan will be developed as part of the Princeville Ranch's sustainable development initiatives to reduce the impact that the project may have on the County Landfill. The solid waste management plan will identify efforts to minimize waste generated by the project during construction and operation. At the minimum the solid waste management plan will include the following:

- Recycle of green waste generated during site excavation and grading. Once construction begins, recycling will be encouraged and practiced as practicable and to the level available within the County of Kaua'i. Non-hazardous waste will be transported directly to the landfill.
- Prevention of waste or "source reduction" by efficient material use during construction.
- Materials reuse during construction.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- Recycling program during construction and operational phase of the development. Recyclable materials will be separated out from non-recyclable materials, hauled from the site to the appropriate company, and eventually processed to make new products.

3.12 HYDROLOGY STUDY

Existing Conditions

a. Water Use for Potable Consumption and Landscape Irrigation

Water use for potable consumption and landscape irrigation for all of the Princeville Ranch Agricultural Subdivision would be supplied by the Princeville Utilities Company, Inc. (PUCI) system. PUCI is a private, PUC-regulated company that provides water for all of the Princeville Resort. At present, its system is supplied by three wells (identified by State Nos. 1126-01, 1126-02, and 1127-02) and from three storage tanks of 1.5, 0.5, and 0.05 million gallons (MG) in size. A fourth well has been drilled and its permanent pump and connecting pipeline have been designed as an addition to the PUCI system. *Table 1* in *Appendix M* summarizes information on these four wells.

b. Wastewater Treatment and Disposal

Most of the Princeville Resort is served by PUCI's wastewater collection, treatment, and disposal system. However, the proposed Princeville Ranch Agricultural Subdivision is outside of that system's service area.

c. Hydro-Geologic Setting

Topography

The 120-acre site consists of a narrow and gently sloping (about 3 percent) plateau bounded by steep-sided drainage gullies. The steeply sloping land, defined as having slopes greater than 20 percent, comprises about 80 acres or 67 percent of the 120-acre site. The planned one-acre homesites would be arrayed along the moderately sloping plateau. Drainage would occur laterally into the adjacent gulches. Topography of the 120-acre site is typical for the remainder of the 480-acre Agricultural Subdivision.

Geology

All of the proposed 480-acre Ag Lots would be on the gently sloping plateau created by latter stage volcanics of the Kōloa formation that has been incised by a number of eroded drainage gullies. Three boreholes have been drilled by Geolabs, Inc. along the central plateau in the 120-acre Petition Area, two of them to a depth of about 90 feet. All three encountered residual (weathered in place) silty clay soil underlain by a deeply weathered sapprolite. The two deeper boreholes encountered water seeping into the boreholes at several depths in the sapprolite, but did not encounter a groundwater body (the bottoms of these boreholes were more than 150 feet above sea level). These conditions are typical across the entire Princeville plateau.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

The thickness of the latter stage, Kōloa volcanics is not known, but it is likely to be substantially more than 1000 feet Kūhiō Highway and even greater at the seaward end of the plateau. Presumably, the Kōloa volcanics are separated from the original, shield building Waimea volcanics at depth by a weathered surface created by the several-million year interval between the two periods of volcanic activity. To the extent that it is known, the two geologic formations are hydrologically distinct from each other.

Groundwater Occurrence

Groundwater occurs in two different regimes in the Princeville area, each associated with the two different volcanic formations. In inland areas where the Waimea volcanics are exposed or accessible at practical drilling depths, groundwater occurs in very permeable volcanics that yield water to wells in great quantities. Groundwater in this formation is partially to fully confine by the weathered surface of the Waimea lavas and by the overlying and less permeable Kōloa volcanics. PUCI's first two wells, Nos. 1126-01 and 1126-02 on *Table 1* and *Figure 2* in *Appendix M*, draw water from the Waimea volcanics. Both wells have very large hydraulic capacities (1,400 GPM). However, the long term yield of the compartment they both draw from has been determined to be about 1.0 million gallons per day (MGD).

Occurrence of groundwater in the latter stage Kōloa volcanics has far more variability than in the Waimea volcanics. The Kōloa lavas are poorly to moderately permeable and have numerous interbedded weathered soil layers which locally function as perching members. As a result, water levels in the Kōloa volcanics range from a few feet to hundreds of feet above sea level and well yields vary from a few GPM to as much as 500 GPM.

Two of PUCI's well, Nos. 1127-02 and 1126-03, draw water from the Kōloa volcanics. As the data in *Table 1* in *Appendix M* demonstrate, their water levels are profoundly different (240 feet above sea level in 1127-02 and 11 feet in 1126-03) as are their yields (230 feet of drawdown at 400 GPM in 1127-02 compared to 28 feet of drawdown at 550 GPM in 1126-03). A much smaller private well has been drilled into the Kōloa volcanics seaward of the 120-acre Petition Area (No. 1326-03 on *Table 2* and *Figure 2* in *Appendix M*). It was drilled through alluvium and encountered Kōloa volcanics about 70 feet below sea level. The piezometric head in the Kōloa volcanics at that location was six feet above sea level and the well's yield was a very modest five GPM. As an aside, the other well in the near vicinity, No. 1326-02, is 85 feet deep (to 75 feet below sea level). It was drilled through clay, coral, and sand. It was not drilled deep enough to reach the Kōloa volcanics.

Based on the foregoing, it is reasonable to expect that groundwater exists in the poor to moderately permeable Kōloa volcanics beneath the Princeville Ranch Agricultural Subdivision site. The piezometric head may be between five and ten feet above sea level. However, the flow lavas in which this groundwater resides are likely to be at least tens of feet below sea level. Lava flows above these water bearing lavas are deeply weathered and poorly permeable. As such, they function as a confining layer over the aquifer in the unweathered Kōloa volcanics rather than being a part of the aquifer itself. Except to supply individual households at modest pumping rates, the aquifer below the site does not constitute a significant, exploitable resource.

Anticipated Impacts and Mitigation Measures

Three actions resulting from the project's development have the potential to impact groundwater resources. These are: (1) use of groundwater for potable consumption and landscape irrigation; (2) subsurface disposal of wastewater treated in individual septic tank and leach field systems; and (3) percolation of excess applied irrigation water on residential landscaping.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

1) Water Use for Potable Consumption and Landscape Irrigation

Supply to the Princeville Ranch Agricultural Subdivision has been anticipated in planning by PUCI. PUCI expects the year-round average use to be 1,000 gallons per day (GPD) per homesite. For the 120-acre Petition Area, this would amount to about 16,000 GPD. For the 480-acre Ag Lots with up to 75 homesites, the total would be 75,000 GPD. PUCI has also allocated 3,500 GPD per acre for five acres of entry feature and roadway landscape irrigation. Of this 17,500 GPD, about one-third (5,800 GPD) would be used on the 120-acre Petition Area. However, no water use to irrigate the pasture land outside of any of the one-acre homesites is anticipated.

2) Wastewater Treatment and Disposal

For the very small quantities of wastewater that will be generated, extending sewer service to the agricultural system is simply not cost effective. As such, each of the homesites will have an individual system consisting of a septic tank and leach field. Of the 1,000 GPD/homesite of expected water use, about 320 GPD would be within-building use (based on 80 GPD per person and four people per dwelling) that would be treated and disposed of in the individual septic tank and leach field systems. Total wastewater treated and disposed of in this manner within the 120-acre Petition Area would be about 5,120 GPD. Over the entire Ag Lots, wastewater disposal would be up to 24,000 GPD.

3) Percolation of Excess Landscape Irrigation

As a year-round average, landscape irrigation is expected to be about 680 GPD per homesite. With the common area landscaping included, this would amount to about 16,700 GPD on the 120-acre Petition Area and up to 68,500 GPD over the larger, 480-acre Ag Lots area. If it is assumed that 15 percent of this is applied in excess of the evapotranspiration of the landscaping, about 2,500 GPD would percolate below the root zone to the groundwater at depth within the 120-acre Petition Area. Over to 480-acre Ag Lots area, it would amount to about 10,300 GPD.

Negative impacts to the groundwater, both in terms of flow rate and water quality, is not anticipated as a result of the above actions as described below:

Changes to the Groundwater Flow Rate

Supply of 21,800 GPD for the 120-acre Petition Area and 92,500 GPD for the entire 480-acre Ag Lots will come from any of PUCI's four wells, two of which draw from the Waimea volcanics and the other two from the Kōloa formation. These water supply amounts are not significant in terms of PUCI system's capacity or in comparison to the natural flow of groundwater in either volcanic formation.

With regard to onsite changes to the quantity of groundwater, the 120-acre Petition Area is likely to contribute about 7,620 GPD (5,120 GPD as wastewater and 2,500 and landscape irrigation return flow). This water will percolate below the soil mantle toward the groundwater below. For the entire Agricultural Subdivision, the figures are 34,300 GPD (24,000 GPD as wastewater and 10,300 GPD as irrigation return flow). As an order of magnitude comparison, about 25 percent of onsite rainfall percolates below the root zone. Over the 120-acre Petition Area, this amounts to about a year round average of 150,000 GPD. The projected increase of 7,620 GPD would be an increase of about five percent. Over the entire 480-acre Ag Lots, rainfall-recharge is about 600,000 GPD on average. The Princeville Ranch Agricultural Subdivision project would increase this by about six percent.

Given the perching layers in the sapprolite encountered in the two deep onsite boreholes, percolating rainfall or wastewater produced by the project is not likely to reach the groundwater

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

body which exists at variable depths beneath the site. The percolate is more likely to drain into the gulches which are incised into the plateau. Despite their very small watershed sizes, these gulches are essentially perennial in their lower reaches. Their flows, albeit quite small amounts, are sustained by water moving laterally along the surface of perching members in the sapprolite and seeping into the gulches.

Changes to Groundwater Quality

Percolate from individual wastewater leach fields and as excess applied landscape irrigation water will be higher in dissolved nutrients than percolating rainfall recharge or in the groundwater at depth. However, essentially all of the phosphorus in the project's percolate would be absorbed during passage through the sapprolite and a substantial portion of the nitrogen would also be removed by denitrification processes. In other words, most of the nutrients will be stripped out by natural processes. As the percolating quantities are also quite small, no significant water quality impact is expectable.

3.13 POTENTIAL CUMULATIVE AND SECONDARY IMPACTS

Cumulative effects are impacts, which result from the incremental effects of an activity when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertake such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The agricultural subdivision within the Petition Area is not anticipated to generate substantial cumulative impacts. At full build-out, the planned low-density agricultural subdivision within the Petition Area will add a maximum of 15 single-family farm dwellings and partial two single-family farm dwellings in a generally rural district, and will enable the perpetuation of on-going cattle operations at Princeville Ranch.

Secondary effects are impacts that are associated with, but do not result directly from, an activity. The planning report of the Petition Area addresses development of the planned subdivision in the context of maintaining viable agricultural activities in the vicinity. The full impacts through secondary effects would be the development of the Princeville agricultural subdivision which will have 17 lots and a maximum build out of 75 units; inclusive of the Petition Area.

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

4.0 RELATIONSHIP TO STATE AND COUNTY LAND USE PLANS AND POLICIES

4.1 HAWAI'I STATE PLAN AND FUNCTIONAL PLANS

4.1.1 Hawai'i State Plan

The Hawai'i State Plan, Chapter 226, Hawai'i Revised Statutes (HRS), serves as a written guide for the future long range development of the State. The Plan identifies statewide goals, objectives, policies, and priorities. The proposed project is consistent with the following provisions of the State Plan:

a. Section 226-7 Objective and policies for the economy-agriculture.

(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

(2) Continued growth and development of diversified agriculture throughout the State.

(b) To achieve the agriculture objectives, it shall be the policy of this State to:

(5) enhance agricultural growth by providing public incentives and encouraging private initiatives.

The planned subdivision within the Petition Area involves the construction of transportation improvements by a private party to serve a planned agricultural subdivision. The planned subdivision will support diversified agricultural activities and in so doing, would contribute to its continued growth and development, maintaining consistency with the State Plan.

b. Section 226-17 Objectives and policies for facility systems-transportation.

(b) To achieve the transportation objectives, it shall be the policy of this State to:

(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.

The planned intersection improvements will be entirely financed by a private party who will be responsible for the cost of design and construction. In this regard, the project will address the State Plan objective of encouraging the reasonable distribution of financial responsibility for ensuring completion of the project by the private sector.

4.1.2 Hawai'i State Functional Plans

The State Functional Plans are designed to implement the broader goals, objectives, and policies of the State Plan through specific actions identified as Implementing Actions (IA). While the planned subdivision is not specifically identified as an IA, the project maintains consistency with the Transportation and Agricultural Functional Plans through the following:

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

a. State Transportation Functional Plan

Objective I.F: Improving and enhancing transportation safety

Objective III.A: Expansion of revenue bases for transportation improvements.

Policy III.A.2. Pursue private sector participation in the financing of transportation systems, developments and projects.

The planned subdivision within the Petition Area involves the design and construction of a privately financed roadway system that will serve an agricultural subdivision. The project will comply with State and County requirements to provide for the safety of the driving public.

b. State Agricultural Functional Plan

Objective B: Achievement of an orderly agricultural marketing system through product promotion and industry organization.

Policy B(2): Encourage the development of Hawai'i's agricultural industries.

The Petition Area involves promotion of the agricultural industry by supporting current ranching operations. It represents an important supporting feature that will facilitate the development of an agricultural subdivision. The subdivision in turn, will provide a crucial and innovative strategy for the preservation and growth of diversified agriculture, such as the long-standing ranching operation of Princeville Ranch.

4.2 State Land Use Plan

4.2.1 Urban Land Use District

As described above in paragraph 2.2.3 LUC Docket No. A83-557, in 1985 a portion of the subject property containing approximately 390 acres was reclassified into the Urban Land Use District, subject to the condition that it be used only for golf course purposes, including a golf clubhouse together with a restaurant and a tennis/fitness complex.

The Golf Course Lots being created in the subdivision will be located within the Urban Land Use District. Pursuant to HRS Section 205-2(b), which provides that Urban districts shall include activities or uses as provided by ordinances or regulations of the county with which the urban district is situated, the use of the Golf Course Lots for golf course purposes is recognized as a permissible use.

As also noted above in paragraph 2.2.3, reclassification of those portions of the Urban district identified as "Unused Golf Course Lands" into the Agricultural District is being sought to support the planned use of these lands for ranching activities and agricultural purposes including farm dwellings.

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

4.2.2 Agricultural Land Use District

The remainder of the subject property is located within the Agricultural Land Use District. Permitted uses in the Agricultural District are set forth in HRS Section 205-4.5(a), which provides as follows:

a. §205-4.5 Permissible uses within the agricultural districts.

(a) Within the agricultural district, all lands with soil classified by the land study bureau's detailed land classification as overall (master) productivity rating class A or B shall be restricted to the following permitted uses:

- (1) Cultivation of crops, including but not limited to crops for bioenergy, flowers, vegetables, foliage, fruits, forage, and timber;
- (2) Game and fish propagation;
- (3) Raising of livestock, including but not limited to poultry, bees, fish, or other animal or aquatic life that are propagated for economic or personal use;
- (4) Farm dwellings, employee housing, farm buildings, or activities or uses related to farming and animal husbandry. "Farm dwelling", as used in this paragraph, means a single-family dwelling located on and used in connection with a farm, including clusters of single-family farm dwellings permitted within agricultural parks developed by the State, or where agricultural activity provides income to the family occupying the dwelling;
- (5) Public institutions and buildings that are necessary for agricultural practices;
- (6) Public and private open area types of recreational uses, including day camps, picnic grounds, parks, and riding stables, but not including dragstrips, airports, drive-in theaters, golf courses, golf driving ranges, country clubs, and overnight camps;
- (7) Public, private, and quasi-public utility lines and roadways, transformer stations, communications equipment buildings, solid waste transfer stations, major water storage tanks, and appurtenant small buildings such as booster pumping stations, but not including offices or yards for equipment, material, vehicle storage, repair or maintenance, treatment plants, corporation yards, or other similar structures;
- (8) Retention, restoration, rehabilitation, or improvement of buildings or sites of historic or scenic interest;
- (9) Roadside stands for the sale of agricultural products grown on the premises;
- (10) Buildings and uses, including but not limited to mills, storage, and processing facilities, maintenance facilities, and vehicle and equipment storage areas that are normally considered directly accessory to the above mentioned uses and are permitted under section 205-2(d);

While there are no A and B lands within the proposed agricultural subdivision, the planned uses within the Agricultural District include ranching and agricultural activities, and farm dwellings occupied by the owners of Princeville Ranch. These uses are recognized as permissible uses under HRS Section 205-4.5(a).

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

4.3 COUNTY OF KAUAI GENERAL PLAN

The Kaua'i General Plan is a direction-setting policy document that is intended to serve as a guide to help plan and improve the physical environment and quality of life for the people of Kaua'i, and to address the overall development of the island. This document also states the County's vision for Kaua'i and establishes the strategies to help achieve that vision.

4.3.1 Agricultural Land Use Designation

Portions of the Petition Area are located in the Kaua'i General Plan Agriculture Land Use Designation. The policies governing such lands are set forth in section 5.2.1 of the Kaua'i General Plan, which provides as follows:

a. Section 5.2.1 Policy

(a) Lands included within the Agriculture designation shall be predominantly used for or held in reserve to be used in the future for agricultural activities. These activities include the breeding, planting, nourishing and caring for, gathering, and processing of any animal or plant organism, including aquatic animals and plants, for the purpose of producing food or material for non-food products; the commercial growing of flowers or other ornamental plants; the commercial growing of forest products; and the commercial breeding and caring for domestic animals and pets.

(b) The primary intent of the Agriculture designation is to conserve land and water resources in order to:

- (1) insure an excellent resource base for existing and potential agricultural uses;
- (2) assure a sufficient supply of land available for sale or lease at a cost that is economically feasible for agricultural enterprise; and
- (3) promote and preserve open agricultural lands as a key element of Kaua'i's rural character and lifestyle, essential to its image as "The Garden Island" and to the continued viability and development of Kaua'i's visitor industry.

(c) In administering zoning and subdivision regulations, the County shall seek to preserve important agricultural lands. Important agricultural lands include those designated "A" or "B" by the Land Study Bureau evaluation or "Prime" or "Unique" by the Agricultural Lands of Importance State of Hawai'i evaluation; provided that these ratings shall be superseded at such time as the State of Hawai'i officially maps and designates Important Agricultural Lands, as mandated in the State Constitution.

(d) Lands designated Agriculture shall include: important agricultural lands; lands in active agricultural use; lands with potential for agriculture, silviculture or aquaculture; and other lands not suited for urban development because of location, topography, economy of public services, or other purpose related to general health, safety and welfare.

(e) The secondary intent of the Agriculture designation is to provide an opportunity for Kaua'i citizens to reside in an agricultural community. An "agricultural community" is an area that has both agricultural uses and residences. Typically, an agricultural community is established through subdivision of land and provision of roads and potable water service.

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Agricultural communities are generally located in outlying areas, do not have convenient access to County facilities, and may not receive the full range or highest level of County services such as are available to residential communities, towns, and urban centers.

(f) The primary intent of the Agriculture designation shall take precedence over the secondary intent.

(g) To implement the Agriculture designation, specific controls on the subdivision and alteration of designated lands shall be formulated to prevent the dissipation of agricultural potential, the loss of rural character, and the dispersal of residential and other urban uses.

(h) The following principles shall be applied in the development of an agricultural community:

- (1) maintain irrigation works and easements where feasible and beneficial to existing or potential agricultural uses within the site or downstream; and
- (2) preserve wetlands and streams and provide a riparian buffer area to prevent land disturbance and to filter runoff.

The Petition Area within the General Plan Agriculture Designation will include farm dwelling and agricultural activities such as ranching. These uses are compatible with other uses in the area, as well as with the surrounding environment. The intent of the larger agricultural subdivision is to preserve ranching and agricultural uses of the area. As such, the subdivision complies with the General Plan policy in that it will help preserve, maintain and improve the natural characteristics of the area, will allow the area to remain predominantly free of development, and will be incidental to the use and open character of the surrounding lands.

4.3.2 Open Land Use Designation

Portions of the Petition Area are located in the Kaua'i General Plan Open Land Use Designation. The policies governing such lands are set forth in section 5.3 of the Kaua'i General Plan, which provides as follows:

a. Section 5.3.1 Policy

(a) The intent of the Open designation is to preserve, maintain or improve the natural characteristics of non-urban land and water areas that:

- (1) are of significant value to the public as scenic or recreation resources;
- (2) perform essential physical and ecologic functions important to the welfare of surrounding lands, waters, and biological resources;
- (3) have the potential to create or exacerbate soil erosion or flooding on adjacent lands;
- (4) are potentially susceptible to natural hazards such as flood, hurricane, tsunami, coastal erosion, landslide or subsidence; or
- (5) form a cultural, historic or archaeological resource of significant public value.

(b) Lands designated Open shall include: important landforms such as mountains, coastal bluffs, cinder cones, and stream valleys; native plant and wildlife habitat; areas of predominantly steep slopes (20 percent or greater); beaches and coastal areas susceptible to coastal erosion or hurricane, tsunami, or storm-wave inundation; wetlands and flood

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

plains; important scenic resources; and known natural, historic and archaeological resources. Open shall also include parks, golf courses, and other areas committed to outdoor recreation.

(c) Lands designated Open shall remain predominantly free of development involving buildings, paving and other construction. With the exception of kuleanas and other small lots of record, any construction that is permitted shall be clearly incidental to the use and open character of the surrounding lands.

The General Plan Open District within the Petition Area are primarily areas with 20 percent slopes or greater along the western drainage valley of the Petition Area. Therefore, no farm dwelling is anticipated to be located within the General Plan Open District. The subdivision itself will have minimal adverse impact on the surrounding environment, and will include agriculturally related uses that are compatible with the General Plan policy in that it will help to preserve, maintain and improve natural characteristics of the area, will allow the area to remain predominantly free of development, and will be incidental to the use and open character of the surrounding lands. We feel our plans are consistent with the County open space policies.

4.3.3 Resort Land Use Designation

Portions of the Petition Area are located in the Kaua'i General Plan Resort Land Use Designation. The policies governing such lands are set forth in Section 5.4.2 of the Kaua'i General Plan, which provides as follows:

a. Section 5.4.2 Resort

Section 5.4.2.1 Policy

(a) Lands included within the Resort designation shall be used predominantly for housing and serving visitors to Kaua'i. In addition to hotels and multi- and single-family dwellings used for transient lodging, the Resort designation shall provide for commercial, recreational and public facilities that serve visitors or support the visitor industry. Lands designated Resort may also be used for residential purposes, including resort employee housing.

(b) Resort-designated areas shall be served with wastewater treatment plants and shall have the full range of urban services.

(c) The Resort designation shall be reserved for a limited number of locations.

- (1) Primary resort destinations intended to accommodate 1,500 visitor units or more include Princeville, Wailua-Kapa'a, and Po'ipū-Kukui'ula.
- (2) Secondary resort destinations include Nukoli'i and Lihu'e.
- (3) A rural resort destination shall be located in the Kapalawai-Waimea area. It shall be oriented to inn- and residential-style visitor accommodations and shall be limited to ten percent of the island's total number of visitor units.

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

Uses within the Petition Area within the General Plan Resort Designation will include farm dwellings and agricultural activities such as ranching. None of the area proposed for LUC reclassification from Urban to Agriculture is designated by the General Plan as Resort. The subdivision itself will include uses that are compatible with other uses in the area, as well as the surrounding environment, and thus will have minimal adverse impact on the surrounding environment. Farm dwellings within the Petition Area will provide for the continuation of existing agricultural activities, which will not interfere with the ability of the owners of the lots with the Resort Designation to seek approval for resort type uses.

4.4 COUNTY OF KAUAI COMPREHENSIVE ZONING ORDINANCE

The purpose of the Comprehensive Zoning Ordinance (CZO) is to provide regulations and standards for land development and the construction of buildings and other structures in the County of Kauai. The regulations and standards prescribed in the CZO are intended to regulate development to ensure its compatibility with the overall character of the island.

4.4.1 CZO Agriculture District

Portions of the larger agricultural subdivision are located in the CZO Agriculture District. Uses in the CZO Agriculture District are set forth in CZO Article 7, which provides in relevant part as follows:

a. Section 8-7.1 Purpose.

(a) To protect the agriculture potential of lands within the County of Kauai to insure a resource base adequate to meet the needs and activities of the present and future.

(b) To assure a reasonable relationship between the availability of agriculture lands for various agriculture uses and the feasibility of those uses.

(c) To limit and control the dispersal of residential and urban use within agriculture lands

b. Section 8-7.2 Generally Permitted Uses And Structures.

The following uses and structures are permitted in agriculture districts:

- (1) Accessory structures and uses
- (2) Aquaculture
- (3) Diversified agriculture
- (4) Forestry
- (5) Grazing
- (6) Historic sites
- (7) Intensive agriculture
- (8) Livestock, poultry, and piggeries, except as provided in Sec. 8-7.3
- (9) Minor food processing related to agricultural products
- (10) Orchards and nurseries
- (11) Outdoor recreation
- (12) Pet keeping and raising, except as provided in Sec. 8-7.3
- (13) Public parks and monuments
- (14) Resource management

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- (15) Single family detached dwellings
- (16) Specialized agriculture
- (17) Undeveloped campgrounds
- (18) Warehousing, storage and packing of plant products
- (19) Wildlife management

Uses within the Petition Area within the CZO Agriculture District include farm dwellings, ranching and agricultural activities, and the golf course, which are compliant with the Generally Permitted Uses and Structures allowed in the district pursuant to CZO Section 8-7.2. The intent of the larger agricultural subdivision is to support existing ranching activities and to preserve these activities as a future use of this area. Various forms of ranching currently take place at Princeville including the raising of livestock and outdoor recreation such as horseback riding. The aforementioned subdivision uses are compatible with other uses in the area, as well as with the surrounding environment. As such, the subdivision complies with CZO Section 8-7.2

4.4.2 CZO Open District

Portions of the larger agricultural subdivision are located in the CZO Agriculture District. Uses in the CZO Agriculture District are set forth in CZO Article 8, which provides in relevant part as follows:

a. Section 8-8.1 Purpose.

(a) To preserve, maintain or improve the essential characteristics of land and water areas that are:

- (1) of significant value to the public as scenic or recreational resources;
- (2) important to the overall structure and organization of urban areas and which provide accessible and usable open areas for recreational and aesthetic purposes;
- (3) necessary to insulate or buffer the public and places of residence from undesirable environmental factors caused by, or related to, particular uses such as noise, dust, and visually offensive elements.

(b) To preserve, maintain or improve the essential functions of physical and ecological systems, forms or forces which significantly affect the general health, safety and welfare.

(c) To define and regulate use and development within areas which may be potentially hazardous.

(d) To include areas indicated on the County General Plan as open or as parks.

(e) To include areas clearly marked on the County General Plan or on Zoning maps as "Special Treatment – Open Space" if an applicant represents to government authorities that any properties or areas within a development proposal or subdivision application will remain in either permanent open space or private park areas, or if the Council in the exercise of its zoning power requires as a condition of rezoning that an area be designated for permanent open space or private park. This does not preclude the Council from exercising its zoning authority as provided in Sec. 46-4, HRS. Within areas so designated,

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

no uses, structures, or development inconsistent with such designation shall be generally permitted or permitted by use permit without express provision to the contrary. The Council is hereby authorized to make such factual determination as necessary incident to this section.

(f) To provide for other areas which because of more detailed analysis, or because of changing settlement characteristics, are determined to be of significant value to the public.

b. Section 8-8.2 Generally Permitted Uses And Structures.

- (1) Accessory uses and structures
- (2) Day-use areas
- (3) Diversified agriculture
- (4) Livestock and grazing, except as provided in Sec. 8-8.3
- (5) Outdoor recreation
- (6) Parks and monuments
- (7) Private recreation areas
- (8) Resource management
- (9) Single family detached dwellings
- (10) Undeveloped campgrounds

Approximately 30% of the potential farm dwellings would be located within the CZO Open District. This subdivision itself will include agriculturally related uses that are compatible with other uses in the area, as well as the surrounding environment, and thus will have no significant adverse impact on the environment. Accordingly, the subdivision complies with the CZO Open District purpose in that it will help to preserve, maintain and improve the essential natural characteristics of the area, will allow the area to remain predominantly free of development, and will be incidental to the use and open character of the surrounding lands.

4.5 COUNTY OF KAUAI NORTH SHORE DEVELOPMENT PLAN

The goals and objectives of the North Shore Update, as adopted by the North Shore Development Plan Ordinance, include the following:

- | | |
|---------|--|
| Goal A: | To preserve the unique natural beauty of the North Shore Planning Area. |
| Goal B: | To preserve the special rural charm of the North Shore Planning Area. |
| Goal C: | To provide for the safety and welfare of the people and their property of the North Shore Planning Area. |
| Goal D: | To provide for economic subdivision of the North Shore Planning Area. |
| Goal E: | To preserve the wildlife and flora of the North Shore, recognizing man's dependence upon this preservation for his own health and welfare. |
| Goal F: | To insure the preservation of historic archaeological sites in the North Shore Planning Area. |

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- Goal G: To create a subdivision for evolutionary growth that depends upon a planning process whereby conflicts can be resolved through the establishment of priorities and community participation.
- Goal H: To provide for recreational opportunities that are compatible with unique qualities and natural features of the North Shore.

The planned use of the Petition Area will not conflict with any of the noted goals. The design, layout and appearance of the subdivision will be compatible with the natural beauty of the area. As such, the proposed uses will not conflict with Goals A or B. The subdivision will provide economic opportunities for area residents, and thus will promote Goal D. The planned use will have no adverse impact on the public safety or welfare, on any endangered species of plants or animals, on archaeological or historic sites, or on recreational opportunities on or around the larger agricultural subdivision. Accordingly, it will not conflict with Goals C, E, F or H. The subdivision was approved in compliance with Goal G.

4.6 COUNTY OF KAUA'I SUBDIVISION ORDINANCE

The planned subdivision within the Petition Area complies with the Subdivision Ordinance as set force in the following paragraphs:

4.6.1 Lot Sizes

The subdivision lots will be greater than the five (5) acre minimum lot size requirement applicable to subdivided lots located within the North Shore Development Plan Area.

4.6.2 Limitation on Resubdivision

The larger agricultural subdivision will be subject to the one-time subdivision restriction applicable to lands within the Agricultural District (CZO Sec. 8-7.4(c)).

4.6.3 CZO Agriculture District Development Standards

The minimum average lot width of the subdivision lots will be no less than one hundred fifty (150) feet, per CZO Sec. 8-7.6(1). The average length of the Lots will be not greater than four (4) times their individual widths, per CZO Sec. 8-7.6(2). If required by the Planning Commission, the applicant will provide public access, per CZO Sec. 8.7.6(4).

4.6.4 CZO Residential District Development Standards

CZO Sec. 8-7.6 and 8-8.5(d) require that the following CZO Residential District Development Standards be met:

- a. None of the subdivision lots will be in excess of: six hundred (600) feet of traveling distance from a public thoroughfare; or three hundred (300) feet of traveling distance from vehicular access adequate for fire protection vehicles, refuse collection vehicles, moving vans or other standard service vehicles. (CZO Sec. 8-3.7(a)(1)).

Princeville Ranch Agricultural Subdivision

Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order

- b. The Right-of-Way width and improvements of private streets in the Subdivision shall be equivalent to County Standards for public streets (CZO Sec. 8-3.7 (a)(3)).
- c. The subdivision lots will be served with potable water and agricultural water from the private water distribution system operated by PUCI. (CZO Sec. 8-3.7(c)(4)).

4.6.5 General Environmental Standards

The Golf Course lots, SMA lots and Agriculture lots will be located mauka of the Special Management Area (SMA) boundary, so as not to intrude into the SMA and thus preserve the scenic and environmental integrity of the SMA and coastal areas. The covenants, conditions and restrictions (CC&Rs) will require a minimum setback of farm dwellings along the bluff overlooking the coastal areas to mitigate off-site visual impacts from 'Anini Beach and Kalihi Kai Beach.

Existing landforms (such as drainage swales, rock out-croppings, and slopes) and existing flora and fauna will be minimally disturbed. No areas of historic or scientific interest will be disturbed.

The subdivision lots will be located so as to preserve and optimize the open space of the larger agricultural subdivision. The use and occupancy of the lots will be harmonious with the area's natural environment.

4.7 SPECIAL MANAGEMENT AREA

The Petition Area is not located within the Special Management Area (SMA), which was established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. The larger agricultural subdivision area is consistent with the objectives and policies of the SMA rules and with Chapter 205A, HRS.

The planned agricultural subdivision will not impact any recreation, historic resources, scenic and open space, or coastal and marine ecosystems. The subdivision will not interfere with any views to or along the shoreline. Design criteria will assure that the planned subdivision will be compatible with and will blend into the surrounding area. Best management practices will be implemented to mitigate potential adverse impacts.

4.8 AFFORDABLE HOUSING

Kaua'i County Ordinance No. 860 Article 1 Section 1.4(C) and Article 2 Section 2.1(a) requires residential developments with more than 10 residential dwelling units to provide 30% affordable units within a location that is 5 miles or less by public road from the development. As needed, Princeville Prince Golf Course, LLC will comply with county affordable housing requirements.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

5.0 LIST OF REFERENCES AND PERSONAL COMMUNICATIONS

B.D. Neal and Associates. Princeville Ranch Agricultural Subdivision Project Air Quality Impact Assessment. November 2008.

Belt Collins, Inc. Environmental Impact Statement for Princeville Phase II. 1982.

Cultural Surveys Hawai'i, Inc. Archaeological Inventory Survey for the Proposed Agricultural Subdivision, including Developed and Undeveloped Lands for the Princeville Final Subdivision Project, Hanalei, Kalihikai and Kalihiwai Ahupua'a, Hanalei District, Kaua'i Island. December 2008.

Cultural Surveys Hawai'i, Inc. Cultural Impact Assessment for the Planning Report in Support of Princeville's State Land Use Commission Motion to Amend the Decision and Order from Urban to Agriculture, Hanalei, Kalihikai, and Kalihiwai Ahupua'a, Hanalei District, Kaua'i Island TMK: [4] 5-3-006:001 & 014. July 2009.

Cultural Surveys Hawai'i, Inc. State Land Use Commission Letter to George Atta. March 2009.

Cultural Surveys Hawai'i, Inc. State of Hawaii Department of Land and Natural Resources State Historic Preservation Division Acceptance Letter of the Final Archaeological Inventory Survey for the Proposed Agricultural Subdivision, Including Developed and Undeveloped Lands for the Princeville Final Subdivision Project on Approximately 400 Acres, Hanalei, Kalihikai, and Kalihiwai Ahupua'a, Hanalei District, Kauai Island, Hawai'i TMK:(4)5-3-006:001&014. May 2009.

Department of Geography. Atlas of Hawai'i. Third Edition. University of Hawai'i at Hilo. University of Hawai'i Press. Honolulu, Hawai'i. 1998.

D. L. Adams Associates, Ltd. Environmental Noise Assessment Report Princeville Makai Lands Agricultural Subdivision Princeville, Kauai, Hawaii. November 2008.

Federal Emergency Management Agency. Flood Insurance Rate Map, County of Kaua'i, Panel 55 of 356. September 16, 2005.

Geolabs, Inc. Preliminary Geotechnical Engineering Exploration Princeville Grand Estates Subdivision TMK: 5-3-06:14, Princeville, Kaua'i, Hawai'i. January 2007.

National Oceanic and Atmospheric Administration (NOAA). Climatological Data Annual Summary; Hawai'i and Pacific. Volume 94, Number 13. Department of Commerce, United States of America. National Climatic Data Center. Asheville, North Carolina. 2000.

Plasch Econ Pacific, LLC. Prince Estates: Economics and Fiscal Impacts. July 2009.

Plasch Econ Pacific, LLC. Princeville Ranch Agricultural Master Plan. 2009.

PRINCEVILLE RANCH AGRICULTURAL SUBDIVISION

Planning Report in Support of Princeville's State Land Use Commission
Motion to Amend the Decision and Order

Rana Biological Consulting, Inc. Biological Surveys of a Portion of TMK (4) 5-3-006:014 Princeville Ranch, Hanalei District, Island of Kaua'i. April 2009.

Ricky Cassidy. Princeville Resort Ag Lot Market Study. August 2009.

Steven Lee Montgomery, Ph. D. Survey of Invertebrate Resources at 'Anini, near Princeville, Hanalei District, Kaua'i Island. April 2009.

Tom Nance Water Resource Water Engineering. Memorandum: Potential Impact on Groundwater of the Proposed Princeville Agricultural Subdivision. August 2009.

U.S Department of Agriculture, Soil Conservation Service. Soil Survey of Islands of Kaua'i, O'ahu, Maui, Moloka'i and Lāna'i, State of Hawai'i. Prepared in cooperation with the University of Hawai'i Agricultural Experiment Station. August 1972.

Wilson Okamoto Corporation. Traffic Impact Report Princeville Subdivision. November 2008.

Websites:

<http://www.climate-zone.com/climate/united-states/hawaii>

<http://www.prh.noaa.gov/cphc/summaries/1992.php#Iniki>

<http://www.prh.noaa.gov/cphc/summaries/1982.php>

<http://www.usgs.gov>

Personal Communication:

Aipoalani, C. Kunane, Chairman Kaua'i-Ni'ihau Island Burial Council

Andrade, Carlos, Hawaiian Studies Professor Expert on Hanalei

Ayau, Halealoha, Hui Mālama O Nā Kūpuna O Hawai'i Nei

Cayan, Phyllis Coochie, SHPD

Chuan, Ray, Kaua'i Friends of the Environment

Crawl, Dee

Drake, Lyah, Kaua'i Museum

Forrest, Kainoa Chandler, Hanalei Hawaiian Civic Club

Furfaro, Jay

Haraguchi, Rodney, Kauai Taro Growers Assoc.

Hashimoto family

Inoad/Kelekoma family

Kaohi, Lionel, Hawaiian Civic Club of Kaumualii

Kekua, Kehaulani, Director of Kaua'i Culture & Heritage Center/Kumu Hula

Kimura, Jan, Princeville at Hanalei

Kruse, John, Kaua'i Island Burial Council

Loo, Mike

Lovell-Obatake, Cheryl

McMahon, Nancy, SHPD-Kaua'i Archaeologist

Mijares, Scott, Save Kaua'i

Namuo, Clyde, OHA

Sproat, Stacy, Waipa Foundation

Oi, Tommy, DLNR-L Kauai Land Division

Paik, Linda Kaleo, SHPD

Tsuchiya, Rick, KHPRC

Wichman, Randy, KHPRC

APPENDIX A. PRINCEVILLE RANCH PRESERVATION PLAN

FINAL

Revised PRINCEVILLE RANCH PRESERVATION PLAN

PREPARED FOR:
Princeville Associates LLC and its subsidiary
Princeville Prince Golf Course LLC

PREPARED BY:
Group 70 International, Inc.

January 2010

CONTENTS

EXECUTIVE SUMMARY..... ES-1

1. INTRODUCTION..... 1

 a. Overview of the Agricultural Master Plan..... 1

 b. Required Approvals..... 1

 c. Purpose of the Plan..... 1

 d. Organization of the Document..... 2

2. PROPERTY LOCATION, LAND OWNERSHIP AND ACREAGE..... 2

3. LAND-USE DESIGNATIONS AND PLANS..... 2

 a. State Districts..... 2

 b. County General Plan..... 2

 c. County Zoning..... 3

 d. County Shoreline Management Area..... 3

4. AGRONOMIC CONDITIONS..... 3

 a. Terrain..... 3

 b. Soil Types..... 3

 c. Soil Ratings..... 4

 d. Elevations..... 5

 e. Slopes..... 5

 f. Climate..... 5

 g. Irrigation Water..... 6

 h. Distance to Markets..... 6

 i. Summary..... 6

5. AGRICULTURAL HISTORY..... 7

 a. Early Hawaiian Agriculture..... 7

 b. Historic Agricultural Activities..... 7

 c. Princeville Ranch..... 8

 d. Taro Farms..... 9

6. CURRENT RANCH AND FARM OPERATIONS.....	9
a. Princeville Ranch.....	9
b. Taro Farms.....	12
7. DEVELOPMENT OPTIONS.....	12
8. PRINCEVILLE RANCH AGRICULTURAL MASTER PLAN.....	12
a. Overview.....	12
b. Ranch and Related Operations.....	13
c. Potential Future Crops.....	16
d. Agricultural Subdivision.....	16
9. BENEFITS OF THE AGRICULTURAL MASTER PLAN.....	19
10. REFERENCES.....	21

FIGURES

1. Island of Kaua'i
2. North Shore, Kaua'i
3. Princeville Ranch Ownership
4. Princeville Properties with State Land Use Districts
5. Kaua'i County General Plan, Land Uses
6. Kaua'i County Zoning
7. Princeville Properties with Soil Types
8. Princeville Properties with Agricultural Lands of Importance to the State of Hawai'i
9. Princeville Properties with Land Study Bureau Agricultural Productivity Rating
10. Princeville Properties with Topography and Slopes
11. Princeville Properties with Solar Radiation
12. Princeville Properties with Rainfall Pattern
13. Princeville Ranch Preservation Plan/Agricultural Master Plan
14. Princeville Ranch Makai Agricultural Subdivision
15. Subdivision Lot Sizes and Residential Density

EXECUTIVE SUMMARY

1. INTRODUCTION

This document presents the Princeville Ranch Agricultural Master Plan ("Plan") which is designed to help perpetuate agricultural activities on Princeville Ranch ("Ranch"), along with other agricultural activities and resources. This Plan was developed in coordination with Princeville Ranch, which has been operated by the Carswell Family. The Carswells have been connected with the ranch since 1978.

The Ranch is comprised of three areas: Princeville Ranch "Makai Lands" located below Kuhio Highway, Princeville Ranch "Mauka Lands" located above the highway, and "Hanalei Lands" which are used for ranching and taro farming.

This Plan involves only the agricultural subdivision application for the Makai Lands. A portion of the Princeville Ranch currently operates on lots 1 thru 17, and lot 19, of the proposed 20 lot subdivision (S-2008-21). The Plan does not include lots 18 and 20 of the proposed subdivision, which contains the existing Prince Golf Course, approved in 1985.

2. CURRENT RANCH OPERATIONS

As the Ranch is currently structured, the future of its 177-year heritage of equestrian and cattle operations has become challenging due to increased operating costs and the marginal profitability of ranching. Future economic viability of the Ranch will require ongoing improvements to maintain the existing assets, improve productivity, reduce operating costs, etc. However, only modest investment in Ranch improvements can be justified at this time, given the low income from ranch operations.

3. OVERVIEW OF THE PLAN

The Agricultural Master Plan has been designed to enable the use of the Makai Lands to support (1) ensuring the long-term economic viability of the Ranch's cattle operation at Princeville by preserving the ranch lands from higher density development; (2) continuing grazing and equestrian activities; (3) preserving the agricultural resources for future agricultural opportunities; (4) preserving the Ranch's rural character and the scenic beauty of the North Shore; and (5) ensuring that future uses of the agricultural lands comply with HRS, Chapter 205.

4. BACKGROUND

Princeville Associates LLC, through its wholly owned entities, controls certain lands in Hanalei and Princeville, Kauai, Hawaii, which are partially located in the State Land Use Commission ("SLUC") Agricultural District. These lands include the following:

1. Makai Lands. These lands are located makai of Kuhio Highway within Lot 2-A-1 and are identified by Kauai Tax Map Key No. (4) 5-3-006:014 (por.). The owner is Princeville Prince Golf Course, LLC.
2. Mauka Lands. These lands are located mauka of Kuhio Highway identified by Kauai Tax Map Key Nos. (4) 5-3-001:002 (por.) and 015 (por.). The owners are Princeville Mauka Village LLC (of Parcel 2) and Princeville Development LLC (of Parcel 15).
3. Hanalei Lands. These lands are located in Hanalei Valley and are identified by Kauai Tax Map Key No. (4) 5-4-003:001 (por.). The owner is Princeville Agricultural LLC.

Portions of these lands (which are collectively referred to as the "Princeville Ranch Lands") are currently used by the Carswell Family (through their wholly owned entities, Po'oku Stables, Inc. and Princeville Ranch Inc.) for agricultural and related uses. Most of the Princeville Ranch Lands are located in the SLUC Agricultural District. The uses on the Princeville Ranch Lands include cattle and horse pasturage, equestrian trail rides, and other outdoor activities. [NOTE: Portions of the Hanalei Ranch Lands are leased to other third parties for taro production.] In particular, the Carswell Family has been using the Makai Ranch Lands for cattle and horse pasturage and equestrian trail rides.

The Makai Lands are part of Lot 2-A-1, which also includes the Prince Golf Course and Clubhouse (located in the SLUC Urban District) and certain lands located within the Special Management Area ("SMA"). Lot 2-A-1 is being subdivided in twenty (20) lots described as follows: Agricultural Lots 1 - 17; Golf Course Lots 18 and 20; SMA Lot 19; and Road Lot A. The Agricultural Lots are all located in the SLUC Agricultural District. As a condition of final subdivision approval, the Agricultural Lots will be limited to a total density of 75 farm dwelling units to be located within 75 designated Homesites. The Homesites will each be one (1) acre in or less size. The remainder of each Agricultural Lot (outside of the Homesites) will be designated as Agricultural Areas. The owners of the Agricultural Lots and Homesites will all be required to be part of Master Association established pursuant to a Master Declaration Of Covenants, Conditions And Restrictions Of The Princeville Ranch Subdivision ("Master Declaration"). The Master Declaration will provide that the Agricultural Areas within each lot will be subject to Agricultural Easements which will allow the Master Association to use or lease such Agricultural Areas for Agricultural Activities. The Master Association will initially exercise this power by leasing the Agricultural Areas to the Carswell Family to allow it to continue its current Agricultural Activities (ranching/trail rides) within the Agricultural Areas.

The purpose of this Plan is: to describe the Agricultural Activities within the Agricultural Lots; and to describe how such Agricultural Activities will be integrated into the agricultural, ranching, and related activities on the Mauka Lands and the Ranch Lands.

5. BENEFITS OF THE AGRICULTURAL MASTER PLAN

The implementation of the Agricultural Master Plan will provide the following benefits:

- Perpetuation of Princeville Ranch cattle and equestrian operations
- Preservation of agricultural resources
- Reduced development (at most 75 ranch houses compared to over 1,450 homes allowed under the County General Plan)
- Continuation of the rural character and lifestyle of the North Shore
- Preservation of open space, scenic beauty and flora and fauna
- Contribution to the visitor industry (scenic open space and a setting for equestrian activities)
- Contribution to employment
- Increased real property and excise taxes for the County and State

PRINCEVILLE RANCH AGRICULTURAL MASTER PLAN

1. INTRODUCTION

a. Overview of the Agricultural Master Plan

This document presents the Princeville Ranch Agricultural Master Plan ("Plan") which is designed to preserve Princeville Ranch ("Ranch"), along with other agricultural activities and resources. This Plan encompasses the portions of the subdivision of makai lands that are currently leased to the Ranch. Princeville Ranch currently operates on lots 1 thru 17, and lot 19, of a proposed 20 lot subdivision (S-2008-21). The Plan does not include lots 18 and 20 of the proposed subdivision, which contains the existing Prince Golf Course, approved in 1985.

The Plan covers the following components:

- Cattle operations
- Equestrian operations
- Farming
- A subdivision design that preserves most of the Ranch's pasture land usage and heritage
- A continuation of management structure that allows the Ranch to reduce costs while maintaining the opportunity for profitability
- Ranch houses on a limited portion of the land

b. Required Approvals

Implementation of the new land ownership and land uses will require that the County of Kaua'i Planning Commission approve an Agricultural Subdivision for Princeville Associates lands located makai of Kuhio Highway. In addition, the subdivision and subsequent development and use of this land must comply with the land-use requirements contained in Chapter 205 of the Hawai'i Revised Statutes (HRS).

c. Purpose of the Plan

This Plan was prepared to ensure the sustainability of historic ranch operations at Princeville, preserve agricultural resources for potential agricultural use in the future, and preserve the resulting scenic open space that benefits both residents and the visitor industry.

d. Organization of the Document

The following section clarifies the location of the Princeville Associates LLC lands discussed in this document, acreages, and ownership of the lands by the Princeville Associates LLC's subsidiary companies. Section 3 provides information on current State and County land-use designations and plans. Section 4 provides information on the agronomic conditions. Sections 5 and 6 summarize information on historic and current agricultural uses of the Princeville Associates lands. Section 7 summarizes development options for the Ranch. Section 8 provides details on the Agricultural Master Plan. The final section describes the economic and other benefits that will accrue once the Plan is fully implemented. Supporting maps are at the end of this document.

2. PROPERTY LOCATION, LAND OWNERSHIP AND ACREAGE^[1]

The Makai Lands of the Ranch comprise approximately 603 acres stretching from Kuhio Highway down to Anini Road, and between the Prince Golf Course to the west and Anini Vista Subdivision to the east. The lot being subdivided includes the Prince Golf Course, which will become lots 18 and 20 of the subdivision. Current land ownership is shown in Figure 3.

3. LAND-USE DESIGNATIONS AND PLANS

a. State Districts^[1]

State land-use designations for the Ranch's Makai Lands are shown in Figure 4. About 544 acres are in the State Agricultural District and about 400 acres in the Urban District.

Regarding the Urban acreage, reclassification to Urban occurred in 1985, subject to the condition that the land be used for a golf course and a related golf clubhouse, restaurant and tennis/fitness complex. Subsequently, the Prince Golf Course and the Prince Clubhouse were developed, but the eastern plateau of the Makai Lands was not and will not be used for a golf course. As discussed in Section 7 below, this land is to be used for agricultural activities and farm dwellings.

b. County General Plan^[1,2]

As shown in Figure 5, the Kaua'i General Plan designates most of the Makai Lands as Resort, Agriculture and Open. The Mauka Lands are designated Residential Community, Agriculture and Open.

The County General Plan allows for over 1,450 resort/residential units makai of Kuhio Highway, within the area of the proposed agricultural subdivision.

c. County Zoning^[1]

While nearly all of the Princeville Associates lands are zoned Agriculture and Open, about 63 acres of the Makai Lands are zoned Residential (Figure 6).

d. County Shoreline Management Area^[1]

The County Shoreline Management Area (SMA) is makai of a line that runs along the forward-most edge of the cliffs shown in Figure 2.

4. AGRONOMIC CONDITIONS

a. Terrain^[3]

As depicted in Figure 2, the Makai Lands and Mauka Lands in the Agricultural District are composed of level to gently sloping plateaus interspersed with valleys and gulches. The Hanalei Lands in the Agricultural District are flat bottom lands on the coastal plain.

<u>Makai Lands</u>		<u>NRCS Ratings</u>
MeB	Makapili silty clay, 0 to 8% slopes	Ile
<u>Mauka Lands</u>		
PmB	Pooku silty clay, 0 to 8% slopes	IIIs
<u>Hanalei Lands</u>		
HmA	Hanalei silty clay loam, 0 to 2% slopes	IIw
HnA	Hanalei silty clay, 0 to 2% slopes	IIw
HrB	Hanalei silty clay deep water table, 0 to 6% slopes	IIw
MtA	Mokule'ia clay loam, poorly drained variant	IIIw

b. Soil Types^[4]

Figure 7 shows the types of soils as defined by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service. By area, the predominant, higher-quality soil types are as follows:

c. Soil Ratings

Three classification systems are commonly used to rate soils in Hawai'i: (1) Land Capability Grouping, (2) Agricultural Lands of Importance to the State of Hawai'i, and (3) Overall Productivity Rating.

Land Capability Grouping (NRCS Rating)^[6]

The 1972 Land Capability Grouping by the NRCS rates soils according to eight levels, ranging from the highest classification level "I" to the lowest "VIII."

As indicated above, the higher quality soils are rated Ie, IIw, IIIs and IIIw. Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices. Class III soils have limitations that reduce the choice of plants, or require special conservation practices, or both. The subclassification "e" means that the soils are subject to erosion if they are cultivated and not protected; "s" indicates that the soils are stony, have unfavorable texture, are shallow, or have low water-holding capacity; and "w" indicates that the soils have excess water because they are poorly drained, or are subject to seasonal flooding or seepage.

Agricultural Lands of Importance to the State of Hawai'i (ALISH)^[8]

ALISH ratings were developed in 1977 by the NRCS, the University of Hawai'i (UH) College of Tropical Agriculture and Human Resources, and the State of Hawai'i, Department of Agriculture. This system classifies land into three categories: (a) "Prime" agricultural land which is land that is best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (b) "Unique" agricultural land which is non-Prime agricultural land used for the production of specific high-value crops; and (c) "Other" agricultural land which is non-Prime and non-Unique agricultural land that is important to the production of crops.

As indicated in Figure 8, most of the Princeville Associates LLC lands have soils that are rated Prime and Other. Some of the soils in the Hanalei Lands are rated Unique. The soils in the valleys, gulches and areas in the mountains are not rated.

Overall Productivity Rating (LSB Rating)^[6]

In 1972, the UH Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five levels, with "A" representing the class of highest productivity and "E" the lowest. The better soils on the Princeville Associates lands are rated C, although some of the plateau areas are rated D (Figure 9). The valleys, gulches and areas in the mountains are rated E. None of the Princeville Associates lands has higher-quality A or B soils.

Summary Evaluation of Soil Quality

In summary, two of the above three soil-rating systems indicate that the Princeville Associates lands have areas that are good for cultivating crops (II or better under the NRCS rating, and Prime and Unique under the ALISH rating). However, the LSB rating indicates that the soils are lower in quality (C or below).

d. Elevations^[9]

The Makai Lands and Mauka Lands in the Agricultural District range in elevation from about 200 feet near the bluffs to about 500 feet at the mauka border of the Agricultural District, while the Hanalei Lands in the Agricultural District range from about 10 to 20 feet (Figure 2). These lands are suitable for crops that are generally referred to as "low-elevation crops," as opposed to "high-elevation crops" such as those being grown in Kula, Maui or Waimea on the Big Island.

e. Slopes^[11]

As indicated by Figure 10, the better agricultural lands have slopes from level to about 10%.

f. Climate

Like other areas in Hawai'i, the North Shore of Kaua'i has a mild *semitropical* climate that is due primarily to three factors: (1) Hawai'i's mid-Pacific location near the Tropic of Cancer, (2) the influence of surrounding warm ocean waters that vary little in temperature between the winter and summer seasons, and (3) prevailing northeasterly tradewinds that bring air having temperatures that are close to those of the surrounding waters.

Solar Radiation^[7]

Most of the Princeville Associates lands receives a comparatively low amount of sunshine, with an average daily insolation of 300 to 350 calories per square centimeter (Figure 11). Most agricultural areas on Kaua'i receive 400 to 500 calories per square centimeter.

Temperatures^[8]

Average daily temperatures in the area are generally moderate, ranging from about 65°F to 85°F.

Rainfall^[10]

Annual rainfall on the North Shore of Kaua'i is comparatively high. The Makai Lands average somewhat less than 75 inches a year, while the Mauka average nearly 100 inches a year (Figure 12).

Winds and Storms^[11]

During normal tradewind conditions, winds coming off the ocean average about 20 miles per hour. Storms are infrequent, occurring mostly from the south in the winter months during Kona weather.

g. Irrigation Water^[10,11]

The Mauka and Makai Lands lack agricultural irrigation systems for watering crops. However, drinking water is provided by the Princeville Utilities Company Inc., a privately owned public utility.

h. Distance to Markets^[12]

The trucking distance from Hanalei to Lihu'e is about 31 miles, which exceeds that for all other major farm areas on the island.

i. Summary

In summary, the Princeville Associates lands have soils that are adequate for cultivating crops. However, solar radiation is comparatively low; the Makai Lands and Mauka Lands lack irrigation systems; and the trucking distance to Lihu'e is long.

5. AGRICULTURAL HISTORY^(13,14)

a. Early Hawaiian Agriculture

Hanalei was a prime agricultural area for pre-contact Hawaiians who grew crops there starting in the 13th century or possibly earlier—over 700 years ago. Precontact crops included taro, bananas, breadfruit, sweet potatoes, yams and coconuts. Livestock included chickens, dogs and pigs.

b. Historic Agricultural Activities

After western contact, a great many major and minor commercial agricultural activities were attempted in the Princeville and Hanalei area, including:

- Cattle ranching (1831 to present).
- Mulberry orchards to feed silk worms (1836 to 1840), with fine silk exported to Mazatlan and Mexico City.
- Coffee plantations (1842 to 1862) which were the first and largest ones in Hawai'i.
- Sheep for wool (1848).
- Cotton (1848).
- Tobacco (1852).
- A sugarcane plantation having the most modern sugar mill in Hawai'i (about 1861 to about 1893).
- Rice in abandoned taro lo'i (1860s to 1960), with rice being the second largest crop in Hawai'i for many decades, and Hanalei the top rice producer in the Islands.
- Modern taro (from the 1940s to present).
- American Bison (1970s to 2006)

Other crops that have been grown on Kaua'i's North Shore include, but are not limited to: bananas and plantains, cabbage, citrus (oranges and limes), corn, dates, grapes, guavas, Irish potatoes, lettuce, olives, peaches, pineapples, pomegranates, tamarinds (a spice), and yams.

Nearly all of the above agricultural efforts failed due to such factors as droughts, floods, insect pests, various blights and diseases, low solar radiation, cool temperatures, high shipping costs, loss of laborers to the California Gold Rush, and competition from other farm areas that could supply markets at lower prices. Of the above agricultural activities, the major long-term success came from rice production. However, it eventually succumbed to lower-cost rice grown in California.

c. Princeville Ranch

The first cattle ranch on Kaua'i and also one of the earliest in Hawai'i was founded in 1831, or about 40 years before the great western cattle drives. Richard Charlton, British Consul to Hawai'i, leased from the Governor of Kaua'i the lands from the eastern side of Hanalei Valley to Kalihwai—lands which eventually were absorbed by Princeville. To stock the ranch, Longhorn cattle were imported from California when California was still part of Mexico.

The estate that eventually would become Princeville began in 1842 when British sea captain Godfrey Rhodes and Frenchman John Bernard leased 150 acres of government land for a coffee plantation.

In 1853, Richard Crichton Wyllie purchased the lease to one of the two coffee plantations on the North Shore of Kaua'i. Wyllie was Hawai'i's British proconsul before serving as Hawai'i's Minister of Foreign Affairs from 1845 to his death in 1865. Over the decade between 1853 and 1863, Wyllie acquired about 11,000 acres on the North Shore. In 1860, he named his plantation Princeville in honor of a visit by the 2-year-old Crown Prince of Hawai'i, Prince Albert Edward Kauikeaouli Kaleioapa a Kamehameha and his parents, King Kamehameha IV and Queen Emma. About this same time, Wyllie changed the focus of his plantation from coffee to sugarcane.

In 1892, missionary son Albert Spencer Wilcox purchased an interest in the plantation and, by 1895, he held the controlling interest. Under Wilcox, the primary agricultural activity of Princeville was changed from a sugarcane plantation back to a cattle ranch, and the fields were replanted in grasses for cattle grazing.

In 1916, Lihu'e Plantation purchased Princeville to obtain the water rights to the Hanalei River. In the mid-1920s two tunnels were dug to divert the water from the headwaters of the Hanalei River to the Lihu'e Plantation.

In 1968, Princeville was sold to Eagle County Development Corporation, which began resort development on a portion of the Princeville land. Princeville changed ownership in 1987 and then again in 1990, followed by the purchase in 2005 by Princeville Associates LLC.

In 1978, the Carswell family began trail rides on Princeville lands, thereby adding another visitor activity to Kaua'i. In 1994, they took over the Princeville Ranch cattle operations, and expanded their trail riding and equestrian business. The Carswells are a fifth-generation kama'aina family related to Albert Spencer Wilcox who, in the 1890s, had changed Princeville from a sugarcane plantation back to a cattle ranch.

d. Taro Farms

From at least the 13th century to the mid-1800s, taro was a major crop in the Hanalei area. The crop was grown in the valleys, on terraced hillsides, and on the coastal plain in large irrigated lo'i. Irrigation water was supplied by two large ditches (about 2 and 3 miles long, and 5 to 6 feet deep) and a network of smaller ditches.

By 1860, most lo'i were abandoned due to the decline in the Hawaiian population and changes in Hawai'i's economy.

Modern taro production in Hanalei dates from about 1940 following the decline in rice production. In 1972, the U.S. Fish and Wildlife Service purchased 917 acres of Princeville, including land that continues to be leased to taro farmers. Over the years, the successive Princeville landowners have leased additional land to taro farmers.

6. CURRENT RANCH AND FARM OPERATIONS

a. Princeville Ranch⁽¹⁰⁴⁾

Cattle Operations

Po'oku Stables, Inc.—also known as Princeville Ranch Stables and referred to in this document as Princeville Ranch—leases about 3,000 acres from Princeville Associates LLC. Most of the Ranch operations are located on the Mauka Lands, although cattle graze on some of the Makai Lands and on the Hanalei Lands. The Ranch offices, Po'oku Stables and other facilities are located on Kapaka Street, mauka of Kuhio Highway (see Figure 2).

The Ranch is a "cow-calf" operation for the production of beef. The herd includes about 220 Brangus cows—a crossbreed of 5/8 Angus and 3/8 Brahma. This crossbreed handles the heat and humidity of the tropics better than full Angus cattle. The cows are bred by ten Brangus or Angus Plus bulls that are carefully selected to produce calves with low birth weights, yet high growth rates. All the Princeville bulls have been provided by Kauai's Kipu Kai Ranch, where the nation's most advanced animal genetics have been used.

The breeding process is left up to Mother Nature. The bulls join the cows for 2-1/2 months from May to mid-July. Cows have a 9-month gestation period and normally produce one calf a year between February and April. Branding, vaccinating and worming the calves takes place each May in the working corral, after which they are re-vaccinated and re-wormed on a 6-month schedule. In November when the calves are about 8 months old, some are shipped to the mainland for finishing. Before they are shipped, the entire herd of cows, calves and bulls numbers around 500 animals. Each year's crop of calves is separated into three major groups. The first group includes

most of the males and a small number of females which are shipped to the Pacific Northwest where they spend the next 7 months in pasture, followed by 3 months in an Oregon feedlot. Shipping calves to the mainland for finishing is a common

practice for Hawai'i ranches because most ranches do not have enough of the right type of grass for finishing. Princeville Ranch retains ownership of its animals and feeds them a natural vegetarian finishing ration with very little grain. Antibiotics and growth hormones are not used. The mainland-finished beef is marketed through Oregon Country Beef in Whole Foods markets and through restaurants on the West Coast. Also, "Country Natural Beef featuring Hawai'i Ranchers" can be found in selected markets in Hawaii, including the Princeville Chevron Convenience Store. These natural beef products return a premium price and enhance the viability and sustainability of Princeville Ranch.

The second group of Princeville calves, comprising about a third of the calves, are kept at the Ranch to graze in the Hanalei pastures which have strong grass for finishing the animals. The resulting natural grass-fed beef is sold locally under the brand name "Princeville Pride." The grasses on the Hanalei Lands are higher in protein and more suited to grass-finishing than the pastures on the Mauka Lands. Grass-finished beef takes 24 to 30 months compared to about 17 to 20 months for feedlot-finished beef. The supply of grass-fed beef is limited by the carrying capacity of the Ranch's pastures, rather than by the size of the Hawai'i market. At Princeville, about 3 acres of good pasture land are required to maintain each animal.

The third group of calves consists of replacement heifers, the young females who will some day become moms in the herd. They are selected for their appearance, temperament, health and physical suitability to deliver calves.

In cattle ranching, good pasture management is critical. Six pasture sections are used in regular rotation approximately every 5 to 7 days. These pastures are planted with grasses having high nutritional content, but the pastures are not irrigated. The pastures must be mowed and cleared regularly to control the weeds and invasive trees and bushes. The Ranch coordinates with the NRCS to eradicate Java plum trees and bush beard grass.

Cattle ranching on Kauai's North Shore comes with its challenges: keeping track of 500 animals spread over the Ranch's 3,000 acres is a daunting task: cattle must be transported by truck when being rotated among the mauka, makai and Hanalei pastures; the weather can be unpredictable; feral pigs dig up pastures creating dangerous holes that can injure cows and horses, as well as destroy the pasture grasses; feral pigs have even confronted some of the horses and gored them; fences

are occasionally destroyed by impaired drivers, usually requiring repairs in the middle of the night; cattle get loose because of broken fences or from being chased by dogs owned by uninvited hunters; and the Ranch has faced cattle poaching and cattle rustling. Also, the poor soils, low solar radiation, and heavy rainfall on portions of the Ranch adversely affects the production of grass for feeding cattle;

The gross annual farm value of the Ranch's cattle operation averages less than \$100,000 per year. In recent years, the economic viability of raising cattle has become a difficult challenge for the Ranch as well as for cattle ranches throughout the state due to recent and substantial increases in shipping, feed, insurance, and a variety of other costs. Shipping costs are higher because of higher fuel costs, and feed costs are higher because much of the mainland grain supply has been diverted to produce ethanol. Because of the economic difficulties, a number of ranches in Hawai'i are exploring ways to transform ranching in Hawai'i so as to restore its profitability. In the meantime, many Hawai'i ranches remain in operation because cattle grazing is a cost-effective approach to land management in terms of controlling weeds, reducing the risk of fire, reducing illegal dumping, and reducing property taxes to affordable levels. Ranching also contributes to scenic open space and a desirable lifestyle for ranchers and cowboys. For Princeville Ranch, ranching also offers a pleasant environment and ambiance for visitor horseback riding and adventure activities.

Equestrian and Adventure Activities

In addition to its cattle operations, the Ranch maintains about 80 horses at Po'oku Stables. Some of the horses are used for the cattle operations; others are used for visitor horseback rides; and about 7 to 10 horses are owned by others and boarded at the stables.

On pasture-rotation days, visitors are offered an opportunity to join paniolo cattle drives. Horseback rides are also offered to the ocean bluffs for visitors who want to view the coastline and ocean, and to the scenic five-tiered Kalihiwai Waterfall. The rides last from 2 to 4 hours, depending on the route. Visitors enjoy the experience of riding amidst an authentic working cattle ranch. The Ranch also offers riding lessons to children and adults, as well as horse-training clinics.

Some guests prefer a softer outdoor experience, and opt for hiking mauka trails, while others enjoy the excitement of kayaking on Ranch streams, or using the ziplines that stretch across mauka gullies. The horseback rides and adventure activities supplement the cattle operation, and contribute to the economic viability of the Ranch.

b. Taro Farms ^[10,13]

Princeville Associates LLC leases out about 75 acres of the Hanalei Lands to seven taro farmers. This acreage amounts to about 21% of the 360 acres planted in poi taro throughout Hawai'i. Combined with the 120 acres that the taro farmers lease from the adjacent Hanalei National Wildlife Refuge, the taro operations in Hanalei comprise over half the poi-taro acreage in the state.

The fertile Hanalei lands are renowned for their ability to produce this culturally significant crop. Nevertheless, taro farming in Hawai'i is marginally profitable, with recent trends showing declining acreage across the state.

7. DEVELOPMENT OPTIONS

As the Ranch is currently structured, the future of its 177-year heritage of cattle operations has become challenging due to increased operating costs and the marginal profitability of ranching. Future economic viability of the Ranch, will require ongoing improvements to maintain the existing assets, improve productivity, reduce operating costs, etc. However, only modest investment in Ranch improvements can be justified given the low income from ranch operations.

A financially viable alternative would be to expand the resort and develop over 2,200 resort/residential and residential units on Ranch lands as allowed under the 2000 County General Plan. A second viable alternative that is common on Kaua'i would be to subdivide most or all of the Ranch lands into smaller lots, then sell the lots for residential use, subject to the condition that agricultural activities must take place on a portion of each lot. Both alternatives would greatly reduce and fragment the Princeville pasture lands, and bring an end to the 177-year heritage of the Princeville Ranch cattle operations.

8. PRINCEVILLE RANCH AGRICULTURAL MASTER PLAN ^[10,14]

a. Overview

In coordination with Princeville Ranch, Princeville Associates LLC developed this Agricultural Master Plan to address the future of agriculture on the North Shore lands owned by Princeville Associates LLC and its subsidiaries. Building on innovative concepts, this Plan has been designed to (1) ensure the long-term economic viability of the Ranch's cattle operation at Princeville; (2) continue grazing and equestrian activities by protecting pasture lands from height density development; (3) preserve the Ranch's open space and the scenic beauty of the North Shore; and (4) ensure that future uses of

the agricultural lands comply with HRS, Chapter 205.

- On the Makai Lands, an agricultural subdivision whereby much of the existing land within each lot designated as Agricultural Areas will remain available to the Ranch for grazing livestock and related Ranch operations. Portions of 17 lots will also be used for farm dwellings located within Homesites. This differs from typical agricultural subdivisions where an entire lot is designated for the exclusive use of the landowner.
- The buyers of lots in Subdivision will be required to make portions of their land not used for their Homesites or private agricultural activity, available to the Ranch operators for the Ranch's agricultural operations.
- The Ranch use of lands in the subdivision will be managed by a newly established Princeville Ranch Master Association ("Master Association") pursuant to a Master Declaration Of Covenants, Conditions And Restrictions for The Princeville Ranch Subdivision ("Master Declaration").

The new lot owners will be families who enjoy the ranching lifestyle, and who commit to perpetuate the Ranch.

Although the details of this approach are subject to refinement, specific elements of the Plan are addressed in the following subsections.

b. Ranch and Related Operations

Land Ownership and Use

The Plan calls for Princeville Associates LLC to subdivide most of their Makai Lands. Use of the subdivided lots by future owners will be subject to the condition that much of the pasture land in each lot will remain available to Princeville Ranch for grazing livestock and for related Ranch operations. A limited portion of each lot will be for the exclusive use of the lot owner.

Agricultural Subdivision Land Ownership

The Makai subdivision lands will be owned by the new lot owners and the Agricultural Areas will continue to be leased and operated by Princeville Ranch. Management of the land will be between the Ranch and the Master Association.

Ranch Management

The Master Association will lease the Agricultural Areas under a license or lease.

The Ranch Manager will be responsible for maintaining the livestock, facilities and other assets; grazing the cattle; hiring and managing Ranch employees; marketing the beef produced by the Ranch and maintaining financial and other records related to Ranch activities on the agricultural subdivision lands.

Given the Carswell Family's long history with the Ranch and their knowledge of Ranch operations, it is envisioned that, for the foreseeable future, the company organized and owned by the Carswell Family will continue operating the Ranch as Ranch Manager.

Pasture Lands within the Agricultural Subdivision

Within each lot, much of the Ranch's existing land will remain available to the Ranch to graze their cattle and horses. In addition, common areas and gullies will be preserved and will continue to be used for grazing.

Over several years, there could be a reduction of 87 acres or more of pasture on the Makai Lands since new lot owners will be allowed to build one or more ranch houses on a portion of their agricultural lots (based on a potential of 75 homes x an estimated average of one acre per ranch house, plus 12 acres for an access road). Also, some lot owners may choose to keep their personal horses or other livestock on their own lots or some other agricultural use, which could reduce slightly the supply of pasture grasses available for the Ranch's livestock.

Increase in the Supply of Grass-fed Beef

The objective is to improve the quality of the pasture lands by (1) maintaining or increasing the size of the herd, and (2) increasing the number of calves finished at the Ranch instead of shipping them to the mainland for finishing. Thus, a significant increase in the Ranch's "Princeville Pride" grass-fed beef could be sold locally, with a concomitant increase in Ranch revenues.

Marketing of Beef

As discussed in Section 6.a, the Ranch's mainland-finished beef ("Country Natural Beef featuring Hawai'i Ranchers") is marketed through Oregon Country Beef to restaurants on the West Coast and to Whole Foods markets. This mainland-finished beef can also be found in selected grocery stores in Hawai'i. In addition, the Ranch's grass-fed beef is sold locally under the "Princeville Pride" brand name.

No significant changes are anticipated in the current approach used to market the Ranch's beef, except that "Princeville Pride" is likely to be sold to the new Whole Foods Markets opening in Hawai'i.

Equestrian and Adventure Activities

The number of horses kept at the Ranch for cattle operations and commercial horseback rides is expected to remain about the same (about 70 head). However, the number of horses boarded at the Ranch (about 10) could increase slightly. In addition, some of the lot/Ranch residents may pasture their personal horses on their lots. A Ranch-operated on-call horse trailering service for these equestrians will allow them efficient and safe transit of their horses across Kuhio Highway so residents can ride the mauka trails and use the equestrian facilities and other Ranch services discussed below.

Open areas and gullies will be conserved and will continue to be used for adventure activities. However, some trails may have to be rerouted to skirt ranch houses and Savory cells.

An equestrian center might be built on the Mauka Lands, depending upon cost, potential returns. Such a center could include a covered arena and additional boarding facilities. Hosted events could include rodeos, horse shows, and expanded riding lessons and horse-training clinics. A feed/tack store could be included to provide North Shore residents with equestrian feed, nutrients, saddles, bridles, and related products.

The commercial horseback rides and adventure activities will operate under separate management, and will pay rents and license fees to use the Ranch lands and equestrian facilities.

Anticipated Costs and Financial Benefits, Cattle Operations

As mentioned above, improvements to the Ranch's pastures could include various improvements, such as fencing to further implement a modified version of the Savory Cell Grazing method.

After implementing the Ranch improvements, the gross annual farm value of the cattle operation could increase by about \$350 for each additional grass-fed animal. More significantly, net income from cattle operations will be greatly improved due to the higher returns from grass-fed beef sold locally (e.g., at the Whole Foods Markets new to Hawai'i), reduced cost of shipping calves to the mainland, reduced feed costs, and the reduction of rent for the cattle operations.

Thus, the pasture improvements and planned changes in ownership will contribute to the preservation, viability and stability of the Ranch operation.

c. Potential Future Crops

As indicated by the agronomic conditions of the Makai, Mauka and Hanalei Lands and their past history (Sections 4 and 5), they have limited crop-farming potential. This is due largely to the comparatively low solar radiation in the area, the lack of developed irrigation systems for the Makai and Mauka Lands, and the long trucking distance to markets and shipping terminals. Furthermore, better farm lands are available in other areas of Kaua'i and on O'ahu.

Nevertheless, in order to retain the character, beauty, and historic significance of Princeville and Hanalei, the Plan preserves most of the agricultural land. If crop-farming opportunities arise and are feasible in the future, then some of the Agricultural land can be reallocated to cultivate one or more high-value commercial crops.

Also, some of the lot/Ranch owners may fence off portions of their agricultural lots for farming. In such cases, they are likely to farm a limited amount of land more for the lifestyle than for commercial gain. Revenues earned from this type of farming may cover most or all of the operating expenses, but are not likely to recover the full cost of the land, farm improvements and labor. In any event, agricultural lands will be preserved.

d. Agricultural Subdivision

Agriculture Lots

A key component of ensuring the preservation and viability of the Ranch is to create an Agricultural Subdivision involving about 944 acres of the Makai Lands, with much of the existing land being retained for grazing Ranch livestock. The land is currently owned by Princeville Prince Golf Course LLC, a subsidiary of Princeville Associates LLC.

This Subdivision, which is shown in Figure 14, will include the following lots:

- Seventeen Ranch Lots with up to 75 farm dwellings built on them will be sold to buyers who commit to preserving the Ranch. A ranch house or houses will be allowed on a portion of each of these lots. Ten of the lots will be located primarily in the County's Agricultural District, and seven will be located primarily in the Open District.
- Two Golf Course Lots will be retained by Princeville Associates for continued use as part of the existing Prince Golf Course.
- A large remnant lot located within the Special Management Area will be retained by Princeville Associates.
- A Roadway Lot will provide access to the Subdivision.

Ranch Houses^[18]

The County of Kaua'i Comprehensive Zoning Ordinance would allow up to 179 farm dwellings to be built on the 17 Lots planned for the Makai Lands. However, Princeville Associates will adopt a Master Declaration of Covenants, Conditions and Restrictions for the Princeville Ranch Subdivision that will limit the maximum number of farm dwellings to 75. See Figure 15.

Areas for Ranch Homes

Developed house sites will be limited to about 75 acres (based on a potential of 75 homes x an estimated average of one of an acre per farm dwelling). In practice, this acreage is likely to be less, since a number of the lot/Ranch owners will not pursue maximum development of their lots. The purpose of the limited development on the Makai Lands is to maintain the viability of livestock grazing on the remaining lands.

Pastures and Open Space

At full development of the agricultural subdivision, there could be a reduction of as much as 87 acres of pasture land and open space (75 acres for ranch houses and 12 acres for the access road). Thus, approximately 516 acres (86%) of the existing pasture land and open space will remain on the Makai Lands (603 acres minus 87 acres).

Prince Golf Course and Clubhouse

The existing Prince Golf Course and Clubhouse is located on Lots 18 and 20 of the proposed subdivision. The combined area of these two lots is approximately 328 acres, of which about 251 acres are in the State Urban District. The Urban designation was granted in 1985, subject to the condition that the land be used for a golf course and a related clubhouse (State Land Use Commission Docket A8-557). The Clubhouse was permitted in 1989 through Use Permit U-89-19 and Class IV 89-16.

Even though Lots 18 and 20 will be in the new subdivision, the Prince Golf Course and Clubhouse will be retained by Princeville Associates and will not be part of Princeville Ranch or the Owners' Association. And, because the existing use is already permitted, the Golf Course and Clubhouse will not be subject to the restrictions given in the next subsection.

Deed Covenants, Conditions and Restrictions

In addition to restricting development to 75 ranch houses, the Master Declaration and deeds to the 17 subdivided Ranch Lots on the Makai Lands will contain the following covenants, conditions and restrictions related to agriculture:

- Each lot owner shall be a member of the Master Association.
- The Master Association shall have the power and duty to enforce the Master Declaration and to obtain legal remedies against any lot owner who violates the Master Declaration.
- Each lot owner shall comply with the Agricultural Master Plan and with the provisions of HRS Chapter 205.

All structures and landscaping shall comply with architectural design guidelines that maintain the rural character of the community.

The intent of the Master Declaration is to protect and preserve agricultural resources and to encourage agricultural activities on the subdivided Makai Lands.

Agricultural Subdivision Agreement

A unilateral Agricultural Subdivision Agreement will be recorded with the State Bureau of Conveyances, and will encumber agricultural uses on each lot in the subdivision. This Agreement shall require each lot owner to indemnify, defend and hold the County harmless from any claims arising out of the failure of the lot owner to comply with the Agricultural Master Plan and/or HRS Chapter 205.

If the County Planning Department determines that a lot owner is not complying with this Agricultural Master Plan and/or HRS Chapter 205, the County and the State of Hawai'i may refuse permits or approvals until the Planning Department determines that the noncompliance has been remedied.

9. BENEFITS OF THE AGRICULTURAL MASTER PLAN

The implementation of the Agricultural Master Plan will provide the following benefits:

- Preservation of Princeville Ranch Cattle Operations
The Plan will enable cattle ranching to continue while also transforming it to a viable and sustainable operation.
Thus, the Plan will help perpetuate the 177-year-old ranching tradition on the North Shore of Kaua'i
- Preservation of Agricultural Resources
Most of the agricultural lands and other resources will be preserved in case portions of them are needed in the future for agricultural activities that provide greater benefits than the current agricultural activities.
- Reduced Development
Residential development on the Makai and Mauka Lands will be greatly reduced from that allowed by the County General Plan. At most, 75 ranch houses will be built compared to over 1,450 homes allowed by the General Plan.
- Continuation of the Rural Character and Lifestyle

The reduced development and the architectural design guidelines will contribute greatly to continuing the rural character and lifestyle of the North Shore.

- Preservation of Open Space, Scenic Beauty and Flora and Fauna
The reduced development, combined with the continuation of Ranch operations and taro farming, will help preserve the open space, scenic beauty, and flora and fauna of the North Shore.
- Contribution to the Visitor Industry
The Plan will contribute to the economic health of the visitor industry due to the preservation of the scenic beauty and rural character of the North Shore, and by continuing to allow activities for visitors. The horseback riding and adventure activities currently offered at the Ranch fall into such categories as agricultural, educational, historic, cultural, and adventure tourism.
- Contribution to Employment
Preserving Ranch operations, taro farming, and commercial horseback riding and adventure activities will ensure continuation of the jobs that they provide, along with jobs that depend on the purchases of goods and services by these operations, their employees, and their families.
Also continuing will be the jobs in the visitor industry that are indirectly supported by (1) the attractive scenery and rural character made possible by the Ranch and (2) visitor activities offered at the Ranch.
Additional jobs will be generated by the purchases of goods and services by the residents who will occupy the ranch houses.