

**Miki Basin Industrial Park  
Environmental Assessment**

**Exhibit C**

**Impacts on Agriculture**

***PROPOSED MIKI BASIN INDUSTRIAL PARK:  
IMPACTS ON AGRICULTURE***

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## CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. PROJECT INFORMATION .....</b>	<b>1</b>
a. Project Location and TMK .....	1
b. Project Description .....	1
c. Land Classifications and Required Approvals .....	1
<b>3. AGRICULTURAL CONDITIONS.....</b>	<b>2</b>
a. Soil Types.....	2
b. Soil Characteristics.....	3
c. Soil Ratings.....	4
d. Slopes.....	5
e. Climatic Conditions.....	5
f. Irrigation Water .....	6
g. Local Advantages and Disadvantages .....	6
h. Summary of Agricultural Conditions .....	7
<b>4. PAST AGRICULTURAL USES .....</b>	<b>7</b>
<b>5. EXISTING AND FUTURE COMMERCIAL FARMING ON LĀNA‘Ī.....</b>	<b>8</b>
a. Existing Farms.....	8
b. Agricultural Park .....	8
c. Hydroponic Farm.....	8
<b>6. IMPACT ON AGRICULTURAL OPERATIONS IN THE PROJECT AREA.....</b>	<b>9</b>
<b>7. IMPACT ON THE GROWTH OF AGRICULTURE.....</b>	<b>9</b>
<b>8. OFFSETTING BENEFITS.....</b>	<b>9</b>
<b>9. CONSISTENCY WITH STATE AND COUNTY POLICIES.....</b>	<b>10</b>
a. Availability of Lands for Agriculture.....	10
b. Conservation of Agricultural Lands .....	10
c. State and County of Maui Land Use Plans.....	11
<b>10. REFERENCES .....</b>	<b>11</b>

### REFERENCES

### CONTENTS

#### TABLES

1. Miki Basin Industrial Park: Soil Types and NRCS Ratings.....	3
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#### FIGURES

1. Regional Location Map
2. Project Location Map
3. Site Plan
4. State Land Use District Classification Map for Island of Lāna‘i
5. State Land Use District Classification Map for Project Area
6. Lāna‘i Community Plan Map
7. Soil Classification Map
8. ALISH Map
9. Land Study Bureau Map
10. Lāna‘i Water System
11. Acreage in Crop, Hawaii: 1960 to 2017

#### APPENDIX

State and County Goals, Objectives, Policies, and Guidelines Related to Agricultural Lands

## EXECUTIVE SUMMARY

### 1. PROPOSED DEVELOPMENT

Pūlama Lānaʻi proposes to develop the Miki Basin Industrial Park (the Project) on an approximately 200-acre site (the Project Area) in the Miki Basin area on the island of Lānaʻi, Hawaiʻi. The Project will include 100 acres of light industrial and 100 acres of heavy industrial zoned lands.

### 2. AGRICULTURAL CONDITIONS

The Project Area has agronomic conditions that are unsuitable for field farming to supply crops to Lānaʻi markets, or for export to Oʻahu or the mainland. The problem is a lack of irrigation water.

Except for water, the Project Area has favorable agronomic conditions: soils are good; solar radiation is moderate; and the trucking distances to Lānaʻi City and Mānele Resort are short. However, Lānaʻi farmers are at a competitive disadvantage in supplying the Oʻahu and mainland markets because of shipping costs.

### 3. PAST AGRICULTURAL USES

The Project Area and surrounding fields were used for a pineapple plantation from the 1920s to 1992. Since then, the Project Area and the surrounding fields have been fallow.

### 4. EXISTING AND FUTURE COMMERCIAL FARMING ON LĀNAʻI

Only one commercial farmer operates on Lānaʻi.

There is a plan for a 100-acre agricultural park on the island of Lānaʻi. In 1992, the Land Use Commission required Castle & Cooke's Lānaʻi Resort to set aside 100 acres for the development and operation of an agricultural park by the State Department of Agriculture and County of Maui for the residents of Lānaʻi. This was a condition for approving the Manele Golf Course. However, there has not been any progress on developing the park due to a lack of interest.

Sensei Farms Lānaʻi is developing a hydroponic farm to supply fresh produce to local markets, and possibly to off-island markets. Ten (10) greenhouses are planned, which will be powered by an off-grid photovoltaic system. One of the major advantages of hydroponic farming is that it requires relatively little water compared to field farming.

### 5. IMPACT ON AGRICULTURAL OPERATIONS WITHIN THE PROJECT AREA

The Project will not have any adverse effects on any existing onsite agricultural operations since the land has not been cultivated since the pineapple plantation closed in 1992.

### 6. IMPACT ON THE GROWTH OF AGRICULTURE

The development of the Project will result in a loss of 200 acres of fallow agricultural lands on Lānaʻi. However, there are approximately 18,000 acres of former plantation lands on Lanai which remain available for agricultural use, and over 200,000 acres statewide. The loss of 200 acres of agriculture land on Lānaʻi, plus the loss of agricultural land due to other projects (i.e., the cumulative impact), is too small to affect the growth of diversified agriculture on Lānaʻi or Statewide.

### 7. OFFSETTING BENEFITS

The loss of 200 acres of agricultural land will be offset by the benefits of the Project, including: (1) employment generated by construction activity and onsite commercial and industrial activity; (2) offsite economic activity generated by the purchases of goods and services by construction companies and the families of construction workers; (3) tax revenues derived from County property taxes and State taxes (excise, personal income, and corporate income); and (4) goods and services provided by businesses of the Project.

### 8. CONSISTENCY WITH STATE AND CITY POLICIES

#### a. Availability of Lands for Agriculture

The Hawaiʻi State Constitution, the Hawaiʻi State Plan, the State Agriculture Functional Plan, the County of Maui 2030 General Plan, and the County's Lānaʻi Community Plan call directly or implicitly for preserving the economic viability of plantation agriculture and promoting the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

With regard to plantation agriculture, the Project Area is no longer part of a pineapple plantation. The last pineapple harvest was in 1992.

With regard to diversified agriculture, the Project will not result in the loss of any existing agricultural operation since the Project Area is not currently being cultivated and has not been cultivated since 1992.

Although the Project will reduce the availability of agricultural land by about 200 acres, the Project will not limit the growth of diversified agriculture statewide or on Lānaʻi since ample agricultural land is available due to the loss of nearly all plantations in Hawaiʻi.

**b. Conservation of Agricultural Lands**

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

It should be noted that many of the State agricultural policies were written before the major contraction of plantation agriculture (from 1981 to 2016), and assume implicitly that profitable agricultural activities eventually will be available to utilize all available agricultural lands. This has proven to be a questionable assumption in view of the enormity of the contraction of plantation agriculture, the abundant supply of farmland that came available for diversified agriculture, and the slow growth in the amount of land being utilized for diversified agriculture.

Furthermore, discussions in the State Agriculture Functional Plan recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed “... upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in ...agriculture;” that is, when an “overriding public interest exists.” The enormous contraction of plantation agriculture, which resulted in the supply of agricultural land far exceeding demand, constitutes a major change in economic conditions. Moreover, the Project will provide community benefits (jobs, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture. In practice, the Project is expected to have no significant impact on agricultural activity since ample land is available statewide to accommodate the anticipated growth of diversified agriculture.

**c. State and County of Maui Land and Use Plans**

The Lānaʻi Community Plan currently designates the Project Area for Light/Heavy Industrial use. However, the entire Project Area is designated “Agricultural” under the State Land Use District and the Maui County Zoning. Because the Project Area is intended for transition to industrial type uses as evidenced by the Lānaʻi Community Plan, Pūlama Lānaʻi will request an amendment to the State Land Use District and the County zoning for the Project Area to be consistent with the Community Plan.

**MIKI BASIN INDUSTRIAL PARK:  
IMPACTS ON AGRICULTURE**

**1. INTRODUCTION**

Pūlama Lānaʻi proposes to develop the Miki Basin Industrial Park (the Project) on an approximately 200-acre site (the Project Area), located east of the Lānaʻi Airport in the Miki Basin area, Lānaʻi, Hawaiiʻi.

This report addresses the impacts of the Project on agriculture. The material below gives information about the Project, the agricultural conditions of the Project Area, past agricultural uses of the land, the impact of the Project on existing agricultural operations in and near the Project Area, the impact of the Project on the growth of diversified-crop farming, benefits of the Project that would offset adverse agricultural impacts, and consistency of the Project with State and County agricultural policies. The Appendix provides a summary of State and County goals, objectives, policies, and guidelines related to agricultural lands.

**2. PROJECT INFORMATION**

**a. Project Location and TMK**

As shown in Figure 1 (all Figures follow the body of the report), the Project Area is situated approximately 3.2 miles southwest of Lānaʻi City. The Project Area is bordered on the west by the Lānaʻi Airport and on the north, east, and south by open lands which were historically utilized for pineapple plantation (see Figure 2). The Tax Map Key (TMK) for the Project Area is (2)4-9-002:061 (por.).

**b. Project Description**

Pūlama Lānaʻi proposes the Miki Basin Industrial Park which will include 100 acres of light industrial and 100 acres of heavy industrial zoned lands (see Figure 3).

**c. Land Classifications and Required Approvals**

Current land classifications of the Project Area and proposed changes are as follows:

State Districts

- Current: Agricultural (See Figures 4 and 5)
- Proposed: Urban

#### County Designations

- Lāna'i Community Plan
  - Current: Heavy Industrial and Light Industrial Area (see Figure 6)
- Maui County Zoning
  - Current: Agricultural
  - Proposed: M-1, Light Industrial (100 acres)  
M-2, Heavy Industrial (100 acres)

### 3. AGRICULTURAL CONDITIONS

#### a. Soil Types

As shown in Figure 7, the Project Area contains six (6) soil types. Their acreages are shown in Table 1 by their quality as rated by the Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service.

For each of the six (6) soil types, the complete name, the range of slopes, and soil descriptions are:

- **MuA: Moloka'i silty clay loam, 0 to 3 percent slopes.**

The Moloka'i series consists of well drained soils on uplands on the islands of Maui, Lāna'i, Moloka'i, and O'ahu. The MuA soils are on smooth slopes and the surface layer is dark reddish-brown silty clay loam about 15 inches thick. The subsoil, about 57 inches thick, is dark reddish brown silty clay loam that has prismatic structure. The material at depths between 35 and 64 inches is moderately compact in place. The soils that are used for pineapple are commonly very strongly acid in the surface layer. Runoff is slow and the erosion hazard is slight.

- **MuB: Moloka'i silty clay loam, 3 to 7 percent slopes.**

The MuB soils are characterized by 3 to 7 percent slopes. Included in mapping were a few small areas that are eroded to soft, weathered rock. Runoff is slow to medium and the erosion hazard is slight to moderate. This soil is used for sugar cane, pineapple, pasture, wildlife habitat, and homesites.

- **MuC: Molokai silty clay loam, 7 to 15 percent slopes.**

The MuC soils are characterized by 7 to 15 percent slopes. The soils occur on knolls and sharp slope breaks. Runoff is medium and the erosion hazard is moderate. This soil is used for sugar cane, pineapple, pasture, wildlife habitat, and homesites.

- **UwB: Uwala silty clay loam, 2 to 7 percent slopes.**

The Uwala Series consists of well drained soils on uplands on the island of

Lāna'i. The UwB soils have smooth slopes and included in mapping were small, severely eroded areas. Runoff is slow to medium, and the erosion hazard is slight to moderate. The soils are strongly acid in the surface layer and medium acid in the subsoil.

- **UwC: Uwala silty clay loam, 7 to 15 percent slopes.**

The UwC soils are characterized by 7 to 15 percent slopes. Runoff is medium and the erosion hazard is moderate. Workability is slightly difficult because of the slope. This soil is used primarily for pineapple and small areas are used for wildlife habitat.

- **WrA: Waikapu silty clay loam, 0 to 3 percent slopes.**

The Waikapu series consist of well drained soils in uplands on the islands of Lāna'i and Moloka'i. The WrA soils are characterized by 0 to 3 percent slopes and found on uplands in depressions on old alluvial fans. The soil is typically slightly acid to neutral but is strongly acid to very strongly acid in the surface layer in areas where pineapple is grown. There are a few stones on the surface and a few shallow gullies. Runoff is slow and the erosion hazard is slight.

**Table 1. Miki Basin Industrial Park:  
Soil Types and NRCS Ratings**

Soil Types	Acrees	NRCS Rating
MuA	44.9	22.5%
MuB	88.4	44.2%
MuC	1.5	0.7%
UwB	27.0	13.5%
UwC	19.5	9.7%
WrA	18.7	9.4%
<b>Total</b>	<b>200.0</b>	<b>100%</b>

#### b. Soil Characteristics

Land in the Project Area exhibits a number of favorable characteristics for farming, including gentle sloping (and well drained soils). However, due to lack of available irrigation water, the Project Area is not suitable for intensive field farming. The Project Area and the surrounding areas were historically used for pineapple production, which only requires relatively little water. Also, soils in the Project Area are acidic on the surface layer.

### c. Soil Ratings

Three (3) classification systems are commonly used to rate Hawai'i soils: (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 U.S. Department of Agriculture, NRCS rates soils according to eight (8) levels, ranging from the highest classification level "I" to the lowest "VIII".

Assuming irrigation, approximately 63.7 acres (31.8%) of the Project Area have soils that are rated in Class I, which have few limitations that restrict their use (see Table 1). Approximately 115.4 acres (57.7%) of the Project Area have soils that are rated in Class IIe. Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices. The subclassification "e" indicates that the limitations are due to erosion. The remainder of the Project Area, approximately 21.0 acres (10.5%), is characterized as having soils that are rated Class IIIe. Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

These ratings ignore the lack of irrigation water for the Project Area.

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

ALISH ratings were developed in 1977 by the NRCS, UH College of Tropical Agriculture and Human Resources, and the State of Hawai'i, Department of Agriculture. This system classifies land into three (3) broad categories: (a) "Prime" agricultural land which is land that is best suited for the production of crops because of its availability 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.

The entire Project Area has soils that are rated "Unique" (see Figure 8). This rating reflects the past use of the land for growing pineapple.

#### Overall Productivity Rating (LSB Rating)

In 1967, the UH Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five (5) levels, with "A" representing the class of highest productivity and "E" the lowest.

The majority of the Project Area has soils rated D, with a small area rated E (see Figure 9). The low rating reflects the lack of irrigation water for the Project Area.

#### Summary Evaluation of Soil Quality

The Project Area has lands that are considered good farmland based on the soil quality. The land is characterized as "Unique" farmland by ALISH and 89.5 percent of the Project Area is rated I or II by NRCS, indicating that it has few or moderate limitations for farming. The Project Area is relatively flat with well drained soils that are able to sustain high yields, as is evidenced by decades of pineapple cultivation.

However, this evaluation ignores the lack of irrigation water.

### d. Slopes

Most of the Project Area has slopes of less than 4%.

### e. Climatic Conditions

Like other areas in Hawai'i, the island of Lāna'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 surrounding warm ocean waters that vary little in temperature between the winter and summer seasons, and (3) the prevailing northeasterly tradewinds that bring air having temperatures which are close to those of the surrounding waters.

#### Solar Radiation

The Project Area receives a moderate level of sunshine, with average daily insolation of about 420 calories per square centimeter per day.

#### Rainfall

Average annual rainfall at the Project Area is approximately 20 inches. Most of this rainfall occurs during the winter rainy season (October through April), while the summer months (May through September) are hot and dry.

#### Temperatures

Average temperatures range from the mid-60s in the winter to the low 70s in the summer.

#### Winds

The prevailing surface winds are tradewinds that blow between the islands of Maui and Moloka'i. This wind increases evaporation and soil erosion on the north and east sides of Lāna'i. Occasional strong winds can cause crop damage if unprotected by windbreaks.



#### f. Irrigation Water

Lānaʻi has five (5) water systems, including two (2) drinking water systems, one (1) brackish water system used for irrigation, and two (2) reclaimed water systems, also used for irrigation. Historically, fields on the island of Lānaʻi were irrigated with a combination of surface water from Maunalei Valley and groundwater from wells once used for pineapple cultivation. Figure 10 presents the existing water system on Lānaʻi. All waterlines near the Project Area convey chlorinated water, or they have been abandoned.

Due to a limited amount of potable water on Lānaʻi, brackish groundwater and treated wastewater are used to irrigate the golf courses and resort landscaping. Water is not available to support extensive diversified crop farming on the Lānaʻi fields.

#### g. Local Advantages and Disadvantages

##### Lānaʻi Island Market

The Project Area is well-located for supplying the Lānaʻi Island market because of the relatively short distance from the Project Area to Lānaʻi City (the island's commercial and population center) and to Mānele Resort.

The Lānaʻi Island market is relatively small: according to the U.S. Census American Community Survey (ACS) 5-Year Estimate, the resident population of Lānaʻi between 2013 and 2017 was estimated to be 3,203.

##### Maui Island Market

Lānaʻi farmers are at a disadvantage when competing against Maui farmers because of inter-island shipping costs, delays, and extra handling. There is no regular barge service between Lānaʻi and Maui Island.

The Maui County market is significant, with about 166,260 residents in 2017.

##### Oʻahu Market

All neighbor island farmers are at a disadvantage when competing against Oʻahu farmers in supplying the Honolulu market due to inter-island shipping costs, delays, and extra handling. In comparing barge and air-cargo services, shipping by barge is less expensive and larger loads can be shipped, but the shipments are slow and infrequent. Air service is faster and frequent, but it is far more expensive, and capacities are limited.

In 2017, Oʻahu's population was estimated to be about 988,650 residents.

##### Mainland Market

Compared to Hawaiʻi, the mainland market is enormous: in 2017, the U.S. population was estimated to be 325.7 million. In supplying this market with products that can be

carried by container ship—i.e., products having long shelf-lives such as coffee, nuts, and canned fruit—most neighbor-island farmers are competitive with farmers on Oʻahu. Even though freight from must first be barged to Honolulu then transferred onto a container ship, Matson's overseas shipping service includes inter-island barge service at no additional fee: except for some minor port charges, Matson charges a common fare for all islands. However, Matson does not service Lānaʻi, so additional shipping fees are required when exporting to the mainland.

In the case of fresh products that must be shipped by air to the mainland—i.e., products having short shelf-lives such as fresh vegetables, fruits, and flowers—farmers on Lānaʻi are at a disadvantage compared to Oʻahu farmers because most mainland air cargo is shipped via Honolulu International Airport. Compared to farmers on Oʻahu, Lānaʻi farmers encounter additional costs, delays, and handling to cover inter-island air-cargo service and transferring the fresh produce from small inter-island aircraft to large overseas aircraft.

In the U.S. mainland market, Hawaiʻi farmers must also compete against farmers on the mainland and in Mexico, Central and South America, Southeast Asia, etc. Most of the competing farm areas have lower production and delivery costs than Hawaiʻi does. Competing against Mexico is particularly difficult given existing trade agreements and Mexico's proximity to major U.S. markets.

##### Summary of Locational Advantages

In terms of location, farmers on the island are relatively well-situated to supply the small Lānaʻi Island market.

However, compared to farmers on Oʻahu and the other islands, they are at a disadvantage in supplying the Honolulu and mainland markets.

#### h. Summary of Agricultural Conditions

The Project Area has agronomic conditions that are unsuitable for field farming to supply crops to Lānaʻi markets, or for export to Oʻahu or the mainland. The problem is a lack of irrigation water.

Except for water, the Project Area has favorable agronomic conditions: soils are good; solar radiation is moderate; and the trucking distances to Lānaʻi City and Mānele Resort are short. However, Lānaʻi farmers are at a competitive disadvantage in supplying the Oʻahu and mainland markets because of shipping costs.

#### 4. PAST AGRICULTURAL USES

In 1922, James Dole purchased nearly the entire island of Lānaʻi and began developing a plantation for his Hawaiian Pineapple Company, Ltd. (HAPCo). Pineapple was suitable for



Lānaʻi's agricultural conditions because Lānaʻi has fertile soils and pineapple requires relatively little water. For almost 70 years, the island of Lānaʻi was the world's largest pineapple plantation with more than 18,000 acres of cultivated lands.

In 1931, Castle & Cooke purchased 21% of the shares of HAPCo, and by 1961 owned the entire company which by then had been renamed Dole Food Company.

In 1980s and 1990s, stiff competition from plantations in Latin America and the Philippines brought declining profitability to the Hawaiʻi pineapple industry.

In 1985, David H. Murdock purchased Castle & Cooke, which owned approximately 98% of the island of Lānaʻi. Pineapple cultivation was slowly phased out, with the final harvest in 1992. By then, the island's economy was shifting from agriculture to tourism.

Since the end of pineapple cultivation on Lānaʻi, the Project Area and the surrounding former pineapple plantation lands have been fallow.

## 5. EXISTING AND FUTURE COMMERCIAL FARMING ON LĀNAʻI

### a. Existing Farms

Only one commercial farmer operates on Lānaʻi, and he sells fresh produce to local grocery stores and the hotels. In addition, some part-time farmers grow crops for personal consumption, and some sell to the grocery stores.

### b. Agricultural Park

There is a plan for a 100-acre agricultural park on the island of Lānaʻi. In 1992, the Land Use Commission required Castle & Cooke's Lānaʻi Resort to set aside 100 acres for the development and operation of an agricultural park by the State Department of Agriculture and County of Maui for the residents of Lānaʻi. This was a condition for approving the Manele Golf Course. However, there has not been any progress on developing the park due to a lack of interest.

### c. Hydroponic Farm

Sensei Farms Lānaʻi is developing a hydroponic farm to supply fresh produce to local markets, and possibly to off-island markets. Ten (10) greenhouses are being planned, each of which will cover nearly a half acre (160 feet by 124 feet). One of the major advantages of hydroponic farming is that it requires relatively little water compared to field farming. The greenhouses will be powered by an off-grid photovoltaic system.

A Head House building is also planned, which will include a lab, conference rooms, a dining room for employees, offices, a locker room, multi-function space, and a kitchen. The kitchen will be used for cooking demonstrations and meal preparation using produce from the hydroponic farm.

## 6. IMPACT ON AGRICULTURAL OPERATIONS IN THE PROJECT AREA

There are no existing agricultural operations at the Project Area. As such, there will be no adverse impacts to existing agricultural operations.

## 7. IMPACT ON THE GROWTH OF AGRICULTURE

The development of the Project will result in a loss of 200 acres of fallow agricultural lands on Lānaʻi. However, there are approximately 18,000 acres of former plantation lands on Lānaʻi which remain available for agricultural use.

Statewide, the remaining supply of available farmland released by plantation agriculture exceeds 200,000 acres. This is about 3.7 times the amount of land in crop—about 54,000 acres. About 15,000 acres of the 54,000 acres are used for food crops grown primarily for the Hawaiʻi market, while about 39,000 acres are used primarily for export crops (pineapple, macadamia nuts, coffee, seeds, flowers, etc.)

The supply of available farmland is vast because of the statewide contraction and closure of many sugarcane and pineapple plantations during the past four decades, combined with the subsequent slow growth of diversified-crop farming (i.e., all crops other than sugarcane and pineapple)—see Figure 11.

Figure 11 also shows the growth of diversified-crop acreage. Even though Hawaiʻi has a long history of strong support for its agriculture industry, little growth in diversified-crop acreage has occurred since 1983, with the single exception being seed crops. However, seed acreage has declined in recent years, and the seed-crop industry faces public opposition over their development of genetically modified organisms (GMO) crops.

The lack of significant growth of diversified crops reflects increased competition from overseas resulting from technology and other advances that have improved the delivery of fresh produce (faster, less spoilage, better coordination of supply to demand), along with trade agreements which increased food exports to the U.S. from low-cost producers in Mexico, Central America, South America, and elsewhere.

Following the plantation closures on Oʻahu, vegetable and melon acreage expanded on the capital island, but this was followed by declines on the Neighbor Islands for the farmers who exported to Oʻahu.

In summary, the loss of 200 acres of agriculture land on Lānaʻi, plus the loss of agricultural land due to other projects (i.e., the cumulative impact), is too small to affect the growth of diversified agriculture on Lānaʻi or Statewide.

## 8. OFFSETTING BENEFITS

The loss of 200 acres of agricultural land will be offset by the following benefits of the Project:

### Construction Activity

- Construction jobs and income associated with Project development.

- Indirect jobs and income generated by purchases of goods and services by construction companies and families of construction workers.
- State tax revenues (excise taxes, personal income taxes, corporate income taxes, etc.) paid by construction companies and workers, and by companies and families that are supported by construction activity.

#### Operations, Full Development

- Goods and services provided by businesses of the Projects.
- Employment and income generated by onsite industrial activity.
- Tax revenues derived from County property taxes and State taxes (excise, personal income, and cooperate income).

## 9. CONSISTENCY WITH STATE AND COUNTY POLICIES

### a. Availability of Lands for Agriculture

The Hawai'i State Constitution, the Hawai'i State Plan, the State Agriculture Functional Plan, the County of Maui 2030 General Plan, and the County's Lāna'i Community Plan call directly or implicitly for preserving the economic viability of plantation agriculture and promoting the growth of diversified agriculture. To accomplish this, an adequate supply of agriculturally suitable lands and water must be assured.

With regard to plantation agriculture, the Project Area is no longer part of a pineapple plantation. The last pineapple harvest was in 1992.

With regard to diversified agriculture, the Project will not result in the loss of any existing agricultural operation since the Project Area is not currently being cultivated and has not been cultivated since 1992.

Although the Project will reduce the availability of agricultural land by about 200 acres, the Project will not limit the growth of diversified agriculture statewide or on Lāna'i since ample agricultural land is available due to the loss of nearly all plantations in Hawai'i.

### b. Conservation of Agricultural Lands

In addition to the above, State and County policies call for conserving and protecting prime agricultural lands, including protecting farmland from urban development.

It should be noted that many of the State agricultural policies were written before the major contraction of plantation agriculture (from 1981 to 2016), and assume implicitly that profitable agricultural activities eventually will be available to utilize all available agricultural lands. This has proven to be a questionable assumption in view of the enormity of the contraction of plantation agriculture, the abundant supply of farmland that came available for diversified agriculture, and the slow growth in the amount of land being utilized for diversified agriculture.

Furthermore, discussions in the State Agriculture Functional Plan recognize that redesignation of lands from Agricultural to Urban and/or Rural should be allowed "... upon a demonstrated change in economic or social conditions, and where the requested redesignation will provide greater benefits to the general public than its retention in ... agriculture;" that is, when an "overriding public interest exists." The enormous contraction of plantation agriculture, which resulted in the supply of agricultural land far exceeding demand, constitutes a major change in economic conditions. Moreover, the Project will provide community benefits (jobs, tax revenues, etc.) that far exceed the benefits of leaving the land in agriculture. In practice, the Project is expected to have no significant impact on agricultural activity since ample land is available statewide to accommodate the anticipated growth of diversified agriculture.

### c. State and County of Maui Land Use Plans

The Lāna'i Community Plan currently designates the Project Area for Light/Heavy Industrial use. However, the entire Project Area is designated "Agricultural" under the State Land Use District and the Maui County Zoning. Because the Project Area is intended for transition to industrial type uses as evidenced by the Lāna'i Community Plan, Pūlama Lāna'i will request an amendment to the State Land Use District and the County zoning for the Project Area to be consistent with the Community Plan.

## 10. REFERENCES

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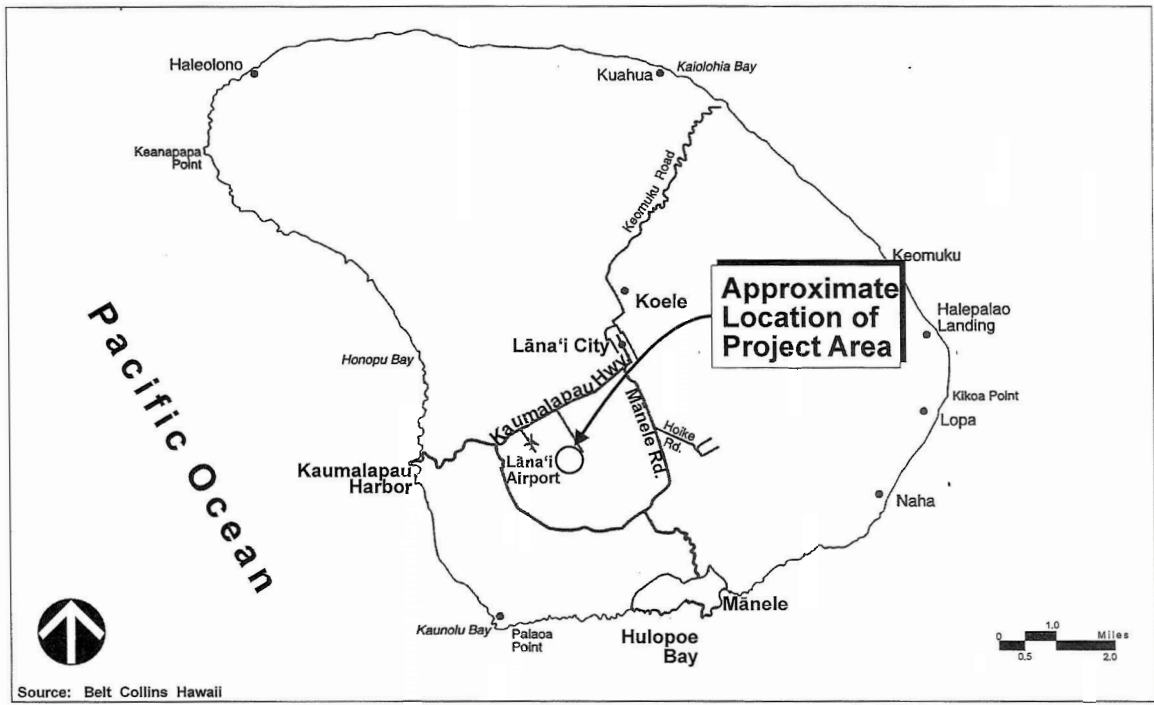
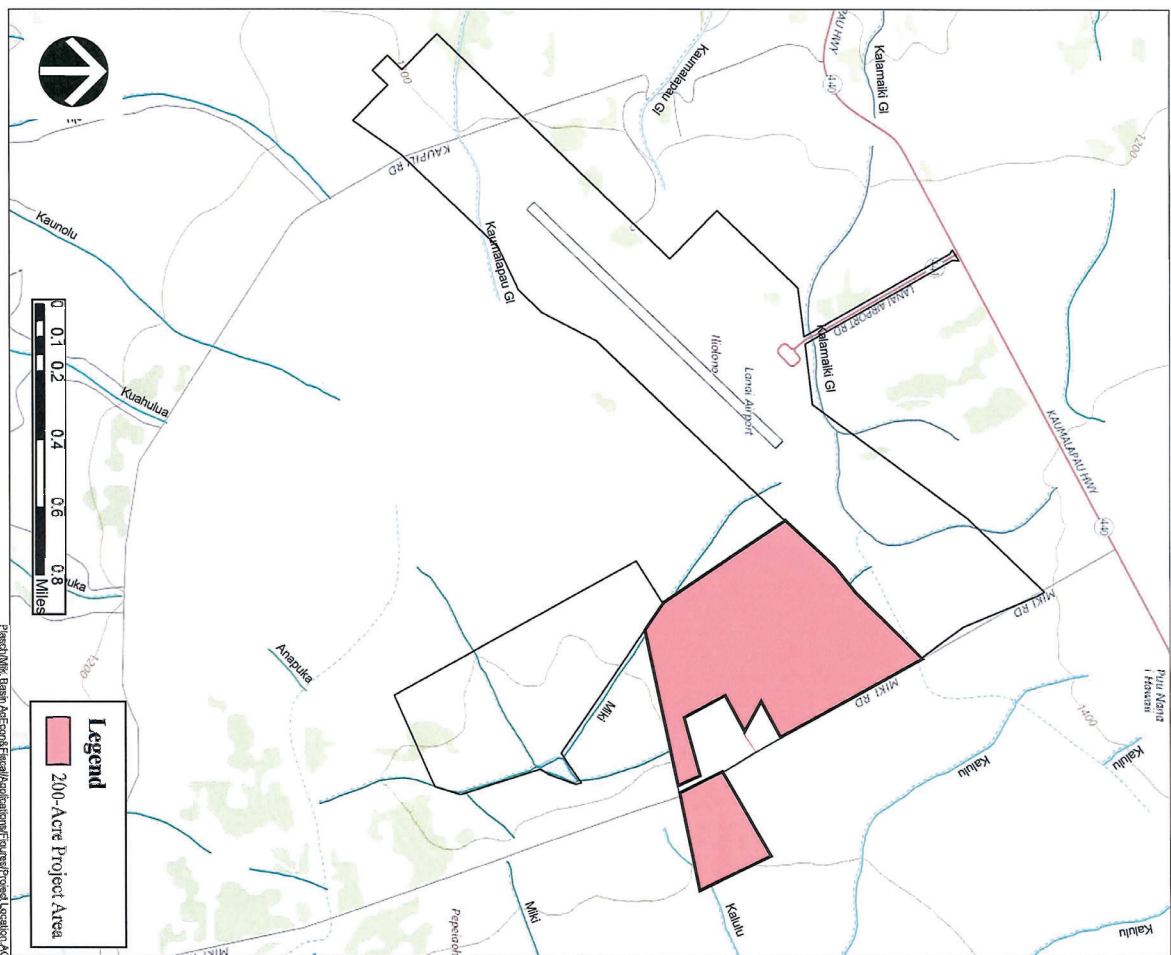
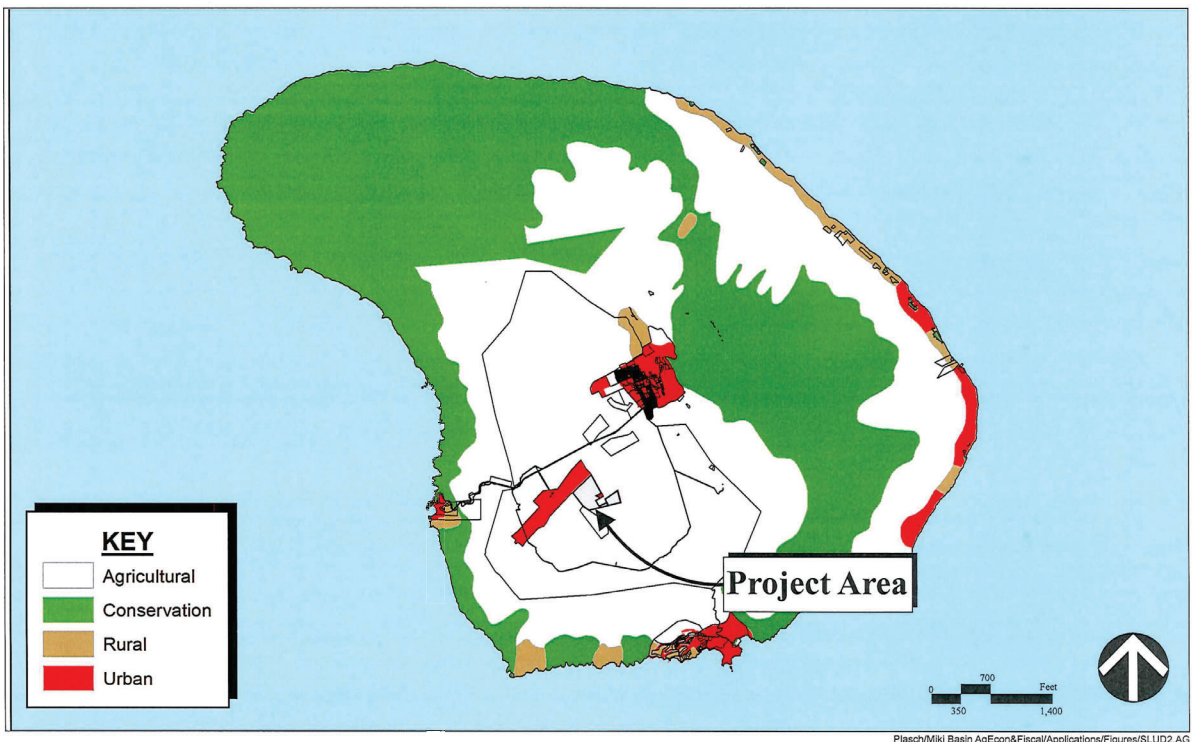
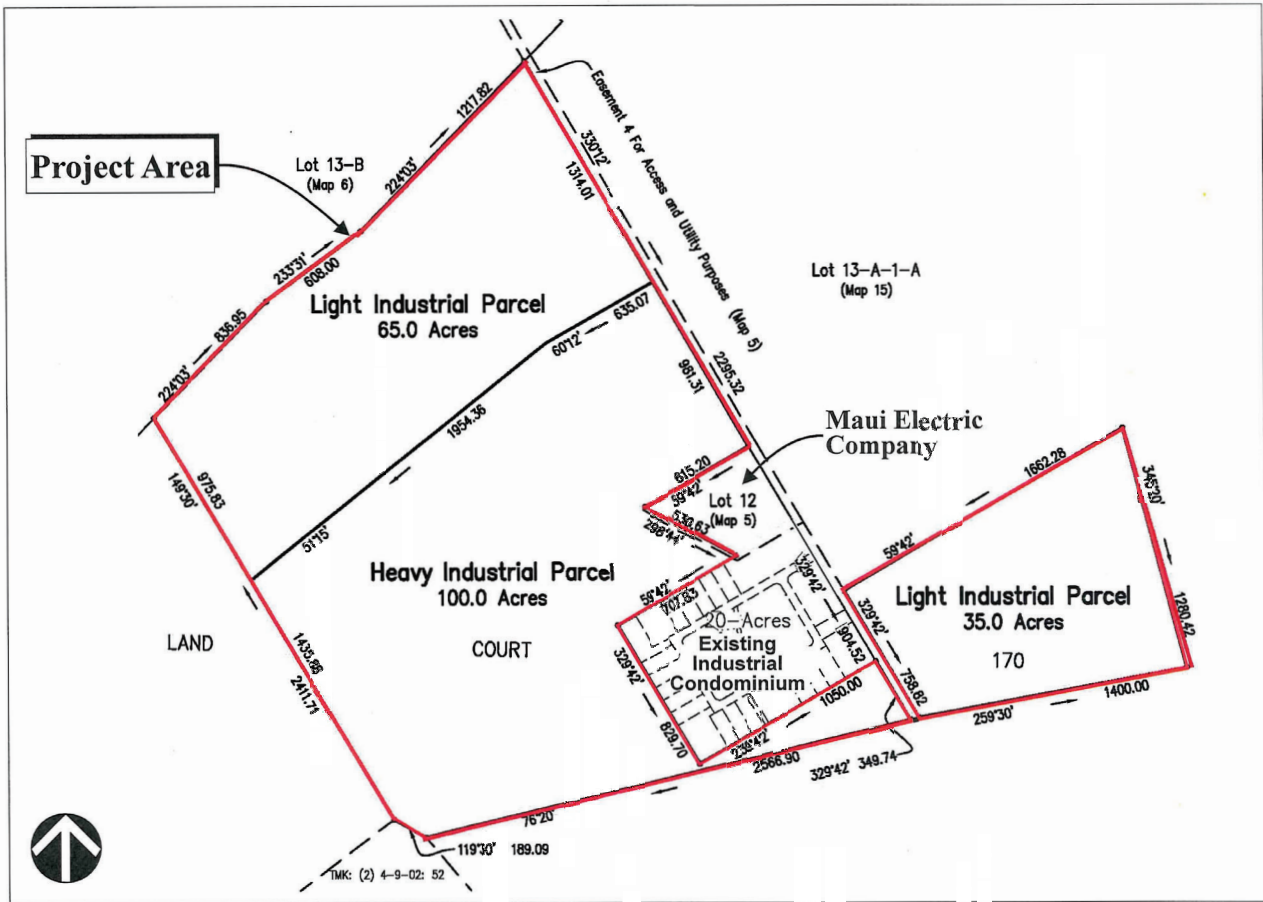


Figure 1. Regional Location Map

Figure 2. Project Location Map







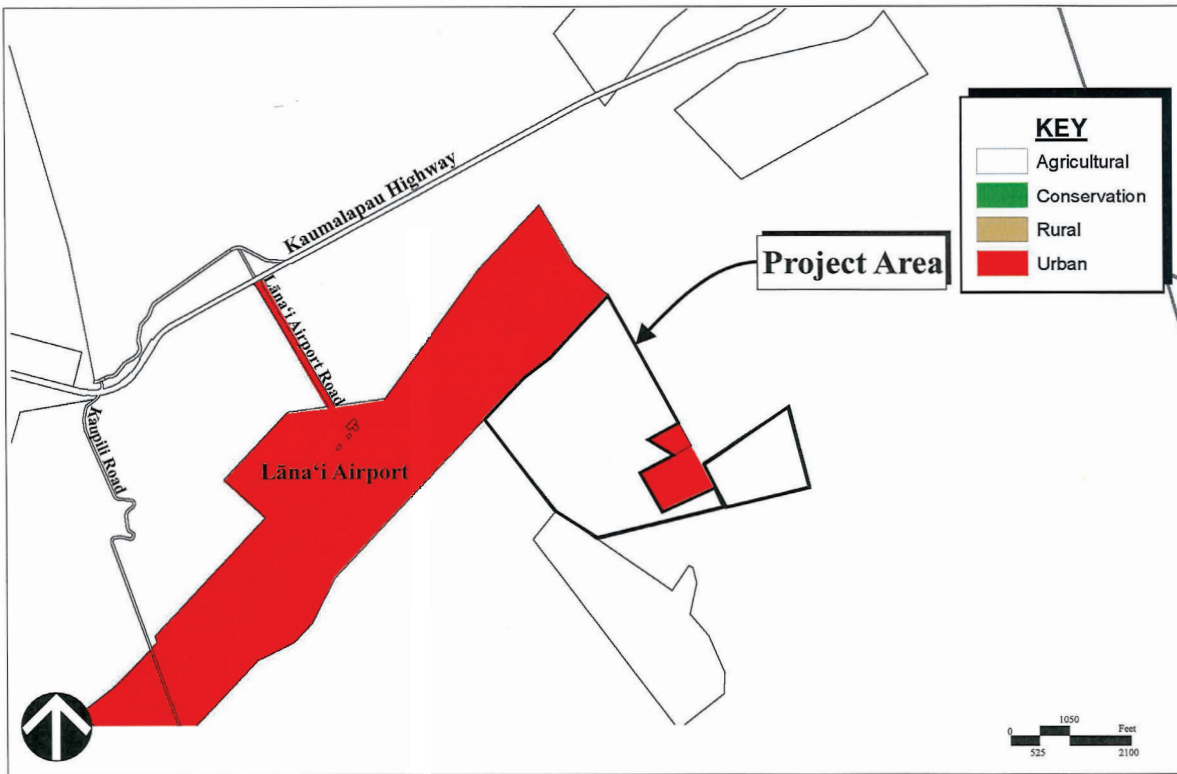


Figure 5. State Land Use District Classification Map for Project Area

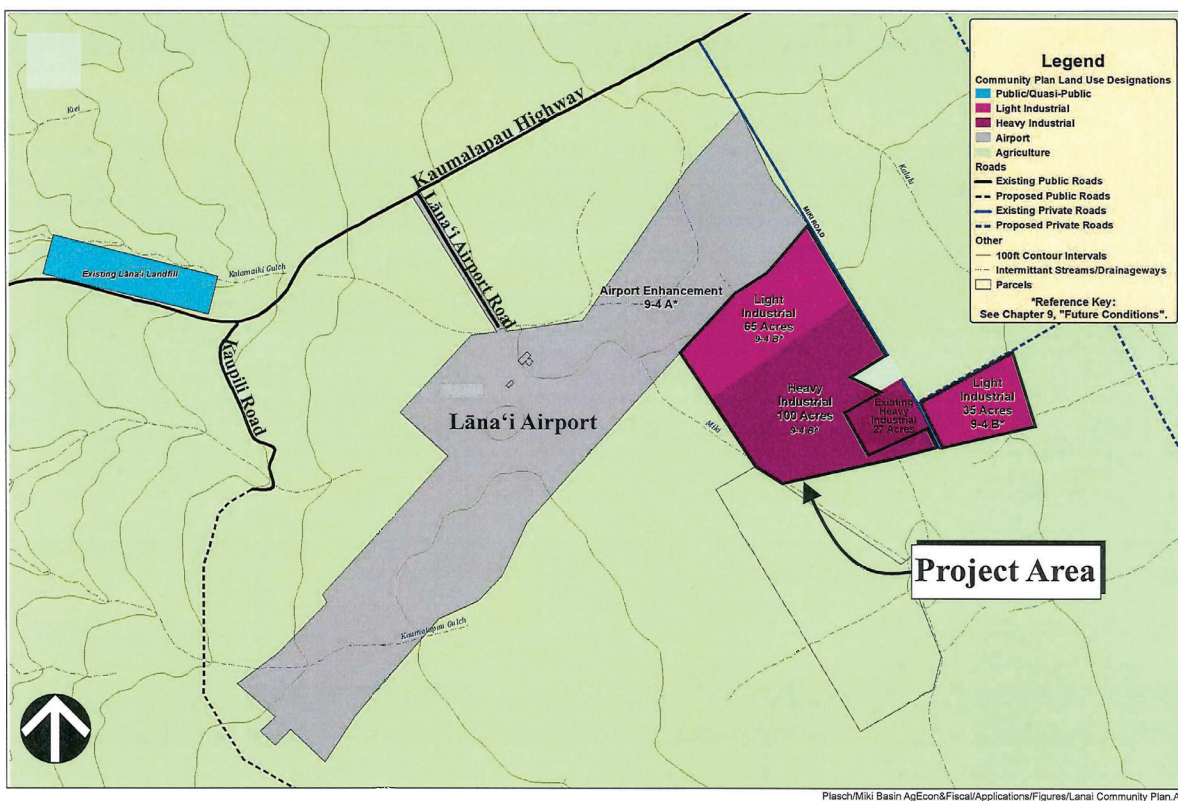


Figure 6. Lāna'i Community Plan Map



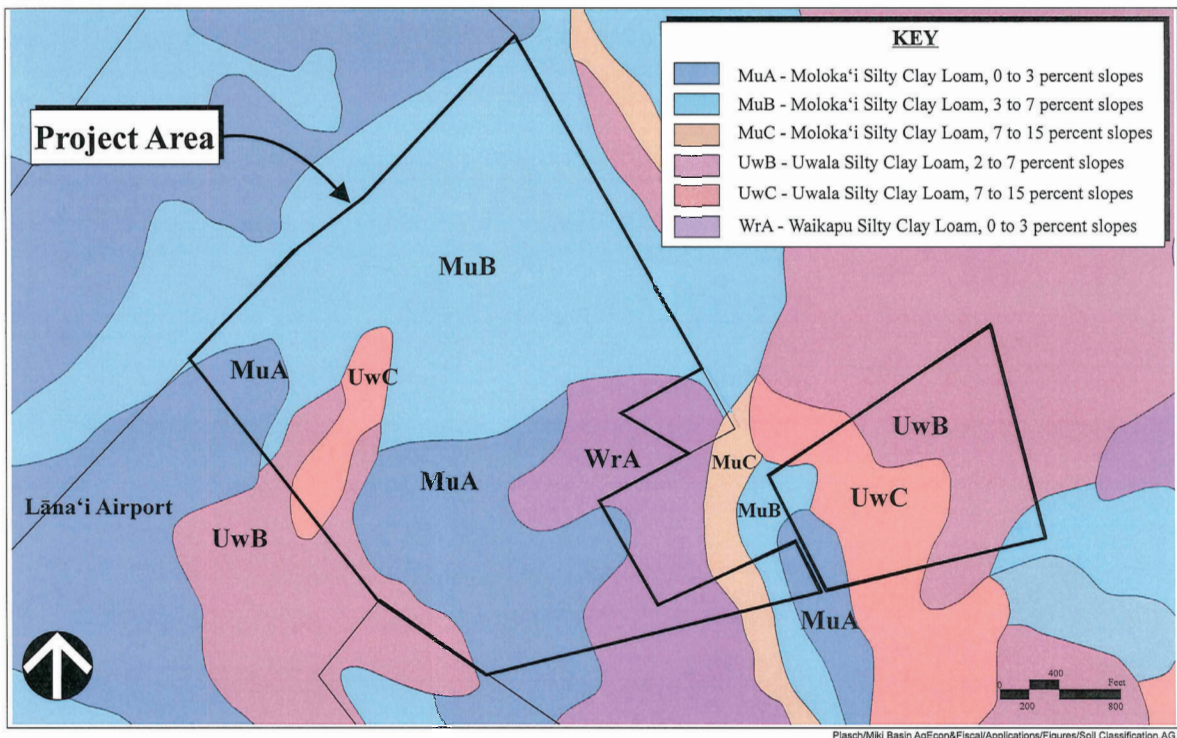


Figure 7. Soil Classification Map

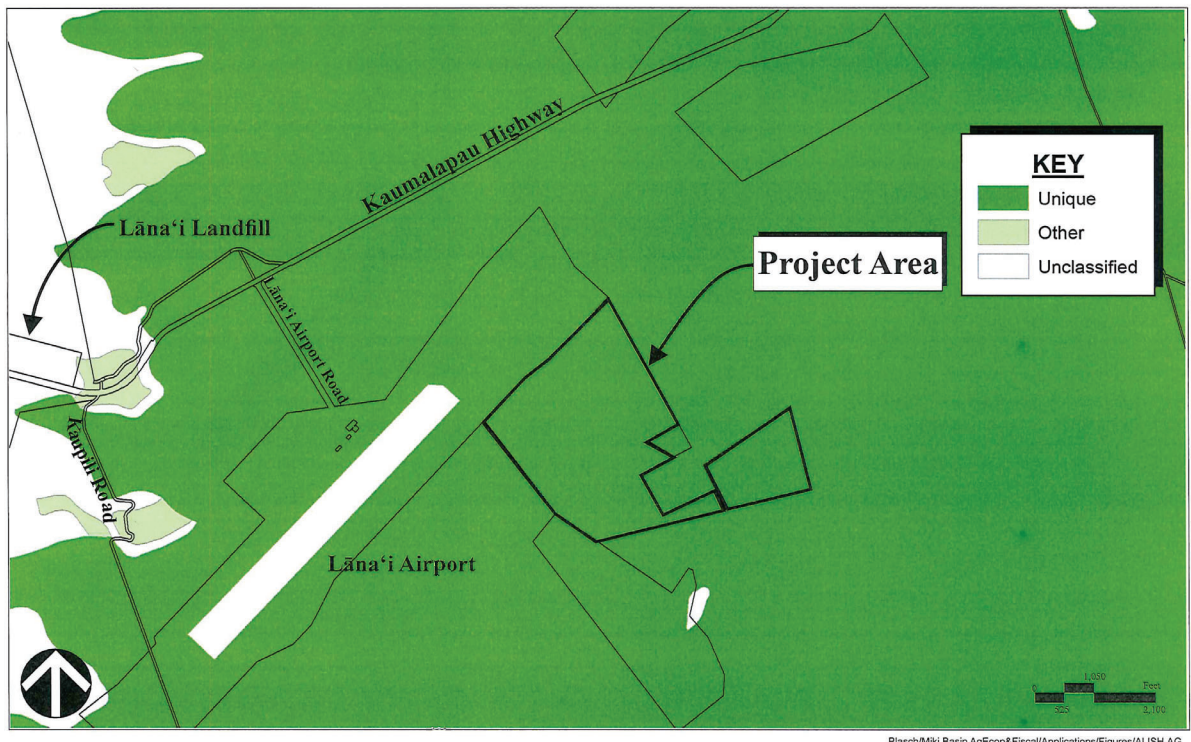
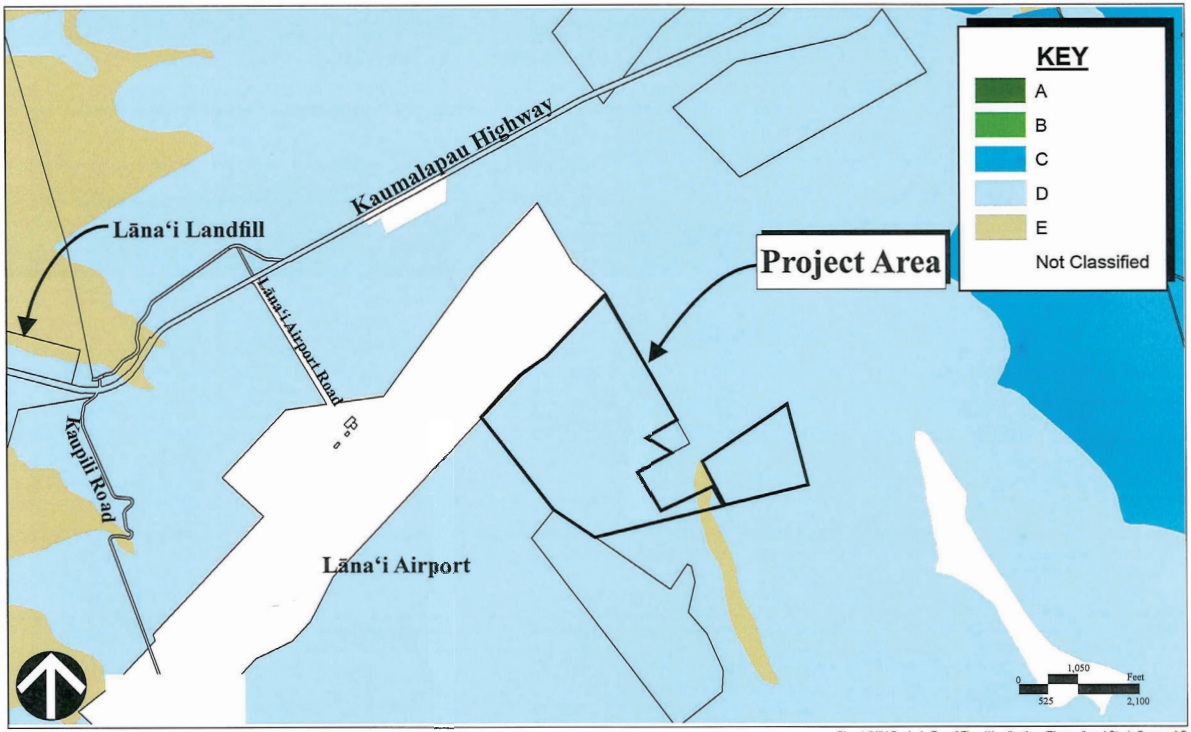


Figure 8. ALISH Map





Piasch/MKI Basin Ag/Econ&Fiscal/Applications/figures/Land Study Bureau.AG

Figure 9. Land Study Bureau Map

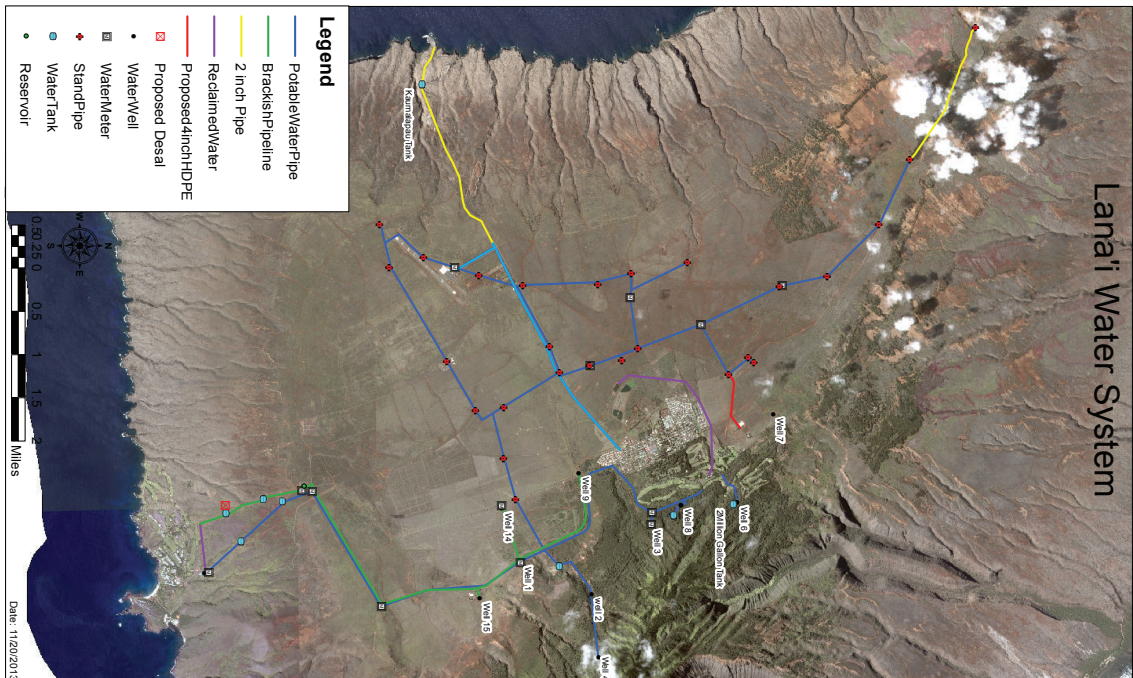


Figure 10. Lanai Water System

Date: 11/20/2013

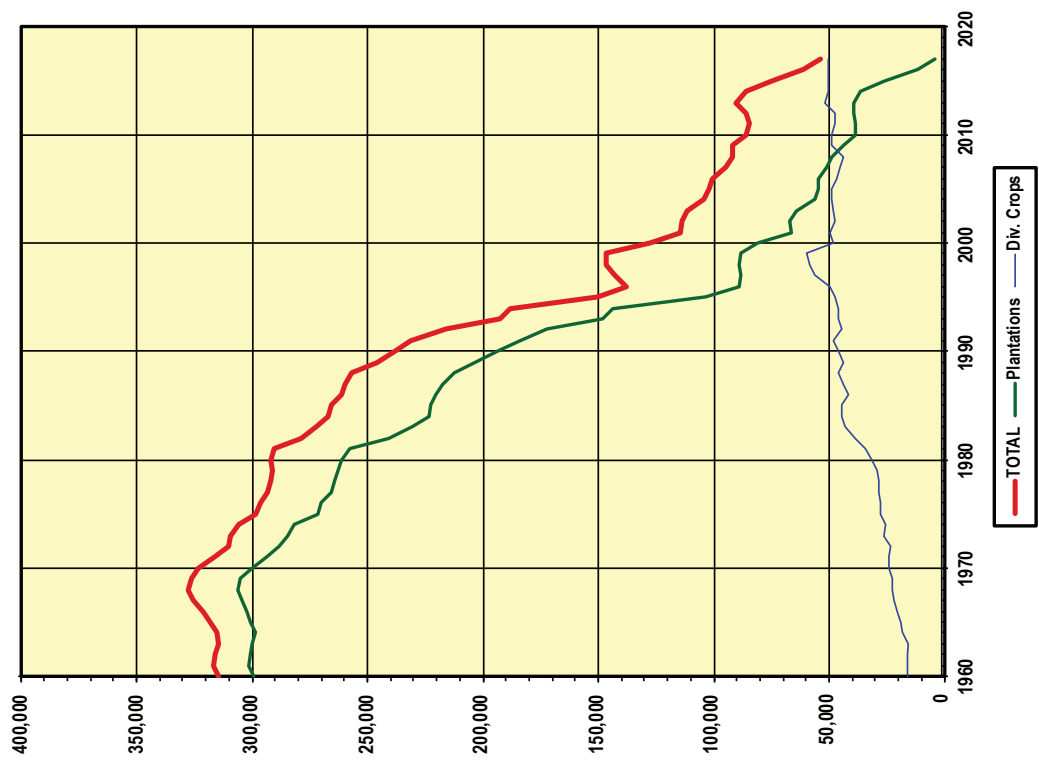


Figure 11. Acreage in Crop, Hawaii: 1960 to 2017

## APPENDIX

### STATE AND COUNTY GOALS, OBJECTIVES, POLICIES AND GUIDELINES RELATED TO AGRICULTURAL LANDS

#### 1. HAWAII STATE CONSTITUTION (Article XI, Section 3):

*...to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands...*

#### 2. HAWAII STATE PLAN (Chapter 226, Hawaii Revised Statutes, as amended):

##### Section 226-7 Objectives and policies for the economy--agriculture.

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

- (1) Viability in Hawaii's sugar and pineapple industries.
  - (2) Growth and development of diversified agriculture throughout the State.
  - (3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.
- (b) To achieve the agricultural objectives, it shall be the policy of the State to:
- (2) Encourage agriculture by making best use of natural resources.
  - (10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.
  - (16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

##### Section 226-103 Economic priority guidelines.

(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:

- (1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.
- (d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:

- (1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.
- (10) Support the continuation of land currently in use for diversified agriculture.

##### Section 226-104 Population growth and land resources priority guidelines.

- (b) Priority guidelines for regional growth distribution and land resource utilization:

- (2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

#### 3. AGRICULTURAL STATE FUNCTIONAL PLAN (1991)

(Functional plans are guidelines for implementing the State Plan. They are approved by the Governor, but not adopted by the State Legislature.)

Objective H: Achievement of Productive Agricultural Use of Lands Most Suitable and Needed for Agriculture.

Policy H(2): Conserve and protect important agricultural lands in accordance with the Hawaii State Constitution.

Action H(2)(a): Propose enactment of standards and criteria to identify, conserve, and protect important agricultural lands and lands in agricultural use.

Action H(2)(c): Administer land use district boundary amendments, permitted land uses, infrastructure standards, and other planning and regulatory functions on important agricultural lands and lands in agricultural use, so as to ensure the availability of agriculturally suitable lands and promote diversified agriculture.

#### 4. COUNTY OF MAUI 2030 GENERAL PLAN, COUNTYWIDE POLICY PLAN (2010)

##### Countywide goals, objectives, policies and actions

##### F. Strengthen the Local Economy

###### Objective

2. Diversify and expand sustainable forms of agriculture and aquaculture.

###### Policies

- b. Prioritize the use of agricultural land to feed the local population, and promote the use of agriculture lands for sustainable and diversified agricultural activities.
- c. Support ordinances, programs, and policies that keep agricultural land and water available and affordable to farmers.

###### Implementing Actions

- c. Create agricultural parks in areas distant from genetically modified crops.

##### J. Promote Sustainable Land Use and Growth Management

###### Objective

2. Improve planning for and management of agricultural lands and rural areas.

###### Policies

- a. Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.

- c. Discourage developing or subdividing agriculturally designated lands when non-agricultural activities would be primary uses.

**Implementing Actions**

- a. Inventory and protect prime, productive, and potentially productive agricultural lands from competing non-agricultural land uses.

**5. COUNTY OF MAUI, LĀNA'I COMMUNITY PLAN (2016)**

**C. ENVIRONMENT AND NATURAL RESOURCES**

**3. Goals, Policies, Actions**

**Policies**

- 4. Recognize and support agricultural forestry and game BMPs as key elements to maintain preserve and protect Lana island water and marine resources

**6. REFERENCES**

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