

Chapter 343 Environmental Assessment /
Environmental Impact Statement
Preparation Notice

Waikapū Country Town

Applicant:

Waikapū Properties, LLC
1670 Honoapiilani Highway
Waikapu, Maui, Hawaii

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Planning
Consultants
Hawaii, LLC

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Table of Contents

I. PROJECT INFORMATION.....	1
A. PROPERTY LOCATION.....	1
B. LAND OWNERSHIP AND PROJECT APPLICANT	1
C. HISTORICAL LAND USE.....	9
D. EXISTING LAND USE.....	12
E. BACKGROUND.....	13
F. PROJECT OBJECTIVES.....	33
G. PROPOSED ACTION	39
H. AGENCY AND COMMUNITY PRECONSULTATION	46
I. ALTERNATIVES	48
J. ENTITLEMENTS AND APPROVALS	48
1. State Land Use District Boundary Amendment (DBA)	48
2. Community Plan Amendment (CPA)	49
3. Change in Zoning (CIZ)	50
4. Environmental Impact Statement (EIS)	50
II. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES.....	54
A. PHYSICAL ENVIRONMENT	54
1. Surrounding Land Uses	54
2. Topography and Soils	55
3. Natural Hazards	60
4. Flora and Fauna	68
5. Air Quality	69
6. Noise Quality	71
WAIKAPŪ COUNTRY TOWN EISPN	i

7. Historical and Archaeological Resources	71
8. Cultural Impact Assessment	72
9. Visual Resources	72
10. Agricultural Resources	78
B. SOCIO-ECONOMIC ENVIRONMENT	84
1. Population	84
2. Housing	86
3. Economy	87
C. PUBLIC SERVICES	89
1. Recreational Resources	89
2. Medical Facilities	90
3. Police Protection	91
4. Fire Protection	92
5. Schools	93
6. Solid Waste	94
D. INFRASTRUCTURE	95
1. Roadways	95
2. Utilities	96
3. Drainage	96
4. Water	96
5. Wastewater	97
E. CUMULATIVE AND SECONDARY IMPACTS	97
F. SUMMARY OF UNAVOIDABLE IMPACTS ON THE ENVIRONMENT AND RESOURCES	97

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS ..98

A. STATE LAND USE	98
B. HAWAII STATE PLAN	100
C. MAUI COUNTY GENERAL PLAN	101

D. WAILUKU-KAHULUI COMMUNITY PLAN.....	103
E. COUNTY ZONING	103
F. COASTAL ZONE MANAGEMENT	104
1. Recreational Resources	104
2. Historical/Cultural Resources	105
3. Scenic and Open Space Resources	106
4. Coastal Ecosystems	106
5. Economic Use	107
6. Coastal Hazards	107
7. Managing Development	108
8. Public Participation	108
9. Beach Protection	108
10. Marine Resources	109
 IV. FINDINGS AND CONCLUSIONS.....	 110
 V. REFERENCES.....	 112

LIST OF FIGURES

FIGURE 1: REGIONAL LOCATION MAP	3
FIGURE 2: AERIAL PHOTOGRAPH	4
FIGURE 3A-D, TMK MAPS	5
FIGURE 4 A-O, SITE PHOTOGRAPHS	15
FIGURE 5: MAUI ISLAND PLAN DIRECTED GROWTH MAP	30
FIGURE 6: MAUI ISLAND PLAN WAILUKU/KAHULUI PLANNED GROWTH AREAS.....	31
FIGURE 7: STATE LAND USE DESIGNATIONS	40
FIGURE 8: ILLUSTRATIVE LAND PLAN	44
FIGURE 9: CONCEPTUAL PHASING PLAN	45
FIGURE 10: WAILUKU-KAHULUI COMMUNITY PLAN MAP	52
FIGURE 11: MTP LAND ZONING MAP 412	53

FIGURE 12: USDA SOILS MAP	58
FIGURE 13 A-E, FLOOD HAZARD ASSESSMENT MAPS	63
FIGURE 14, MAUI ISLAND PLAN, CONTEXT AND CHARACTER MAP	74
FIGURE 15: LAND STUDY BUREAU MAP	81
FIGURE 16: ALISH MAP	82

LIST OF TABLES

TABLE 1: WCT LAND OWNERSHIP	2
TABLE 2: STATE AGRICULTURAL DISTRICT DESIGNATED LANDS	12
TABLE 3: PHASE I CONCEPTUAL LAND USE PROGRAM FOR 2017 THROUGH 2021	41
TABLE 4: PHASE II CONCEPTUAL LAND USE PROGRAM FOR 2022 THROUGH 2026	42
TABLE 5: CONCEPTUAL DEVELOPMENT PROGRAM FOR 2017 - 2026	43
TABLE 6: NEIGHBORHOOD AND AGENCY PRE-CONSULTATION ACTIVITIES	46
TABLE 7: TMK PARCELS REQUIRING A STATE LAND USE DISTRICT BOUNDARY AMENDMENT	48
TABLE 8: TMK PARCELS REQUIRING A COMMUNITY PLAN AMENDMENT	49
TABLE 9: TMK PARCELS REQUIRING A CHANGE IN ZONING	50
TABLE 10: WAIKAPŪ COUNTRY TOWN SOIL TYPES	56
TABLE 11: DOE SCHOOL ENROLLMENT & CAPACITY	94

LIST OF APPENDICIES

APPENDIX A	A HISTORY OF WAIKAPŪ
APPENDIX B	BOTANICAL AND FAUNAL SURVEYS
APPENDIX C	AGRICULTURAL IMPACT ASSESSMENT

I. PROJECT INFORMATION

A. PROPERTY INFORMATION

Waikapū Country Town (hereafter “WCT” or the “Project”) is located in Central Maui at Waikapū, which is approximately two (2) miles south of Wailuku, Maui, Hawai‘i (**See**: Figure 1, “Regional Location Map” and Figure 2, “Aerial Photograph”). The urbanized portion of the property, which is the site of the existing Maui Tropical Plantation (MTP), is approximately 2,000 feet south of the intersection of Waiko Road and Honoapi‘ilani Highway. The Project will be built on each side of Honoapi‘ilani Highway. The entire property, including the land to remain in agricultural use, is identified by Tax Map Key Numbers (TMKs) (2) 3-6-005:007; (2) 3-6-002:001 and 003; (2) 3-6-006:036; (2) 3-6-004:003 and 006 (**See**: Figure 3a-e, “TMK Maps”). This area encompasses approximately 1,576 acres, of which 1562 acres is within the State Agricultural District and 14 acres is within the State urban District.

The property proposed for urban and rural development encompasses approximately 499 acres of the 1,576 acres. The TMKs that are proposed for urban and or rural development include:

- (2) 3-6-004: Portion of 003;
- (2) 3-6-005: Portion of 7;
- (2) 3-6-002: Portion of 3;
- (2) 3-6-004:006; and
- (2) 3-6-005:007.

Lands not proposed for urban or rural development will remain within the State Agricultural District.

B. LAND OWNERSHIP AND PROJECT APPLICANT

WCT land is owned in fee simple by various ownership entities.

Table 1: WCT Land Ownership

Ownership Group	Parcel(s)	Acres
Waikapū Properties LLC	(2) 3-6-004:003	657.195
	(2) 3-6-006:036	0.72
	(2) 3-6-004:006	52.976
MTP Land Partners LLC and the Filios, William Separate Property Trust	(2) 3-6-005:007	59.054
Wai'ale 905 Partners LLC	(2) 3-6-002:003	521.40
	(2) 3-6-002:001	284.826
TOTAL		1576.171

The Project Applicant is Waikapū Properties LLC.

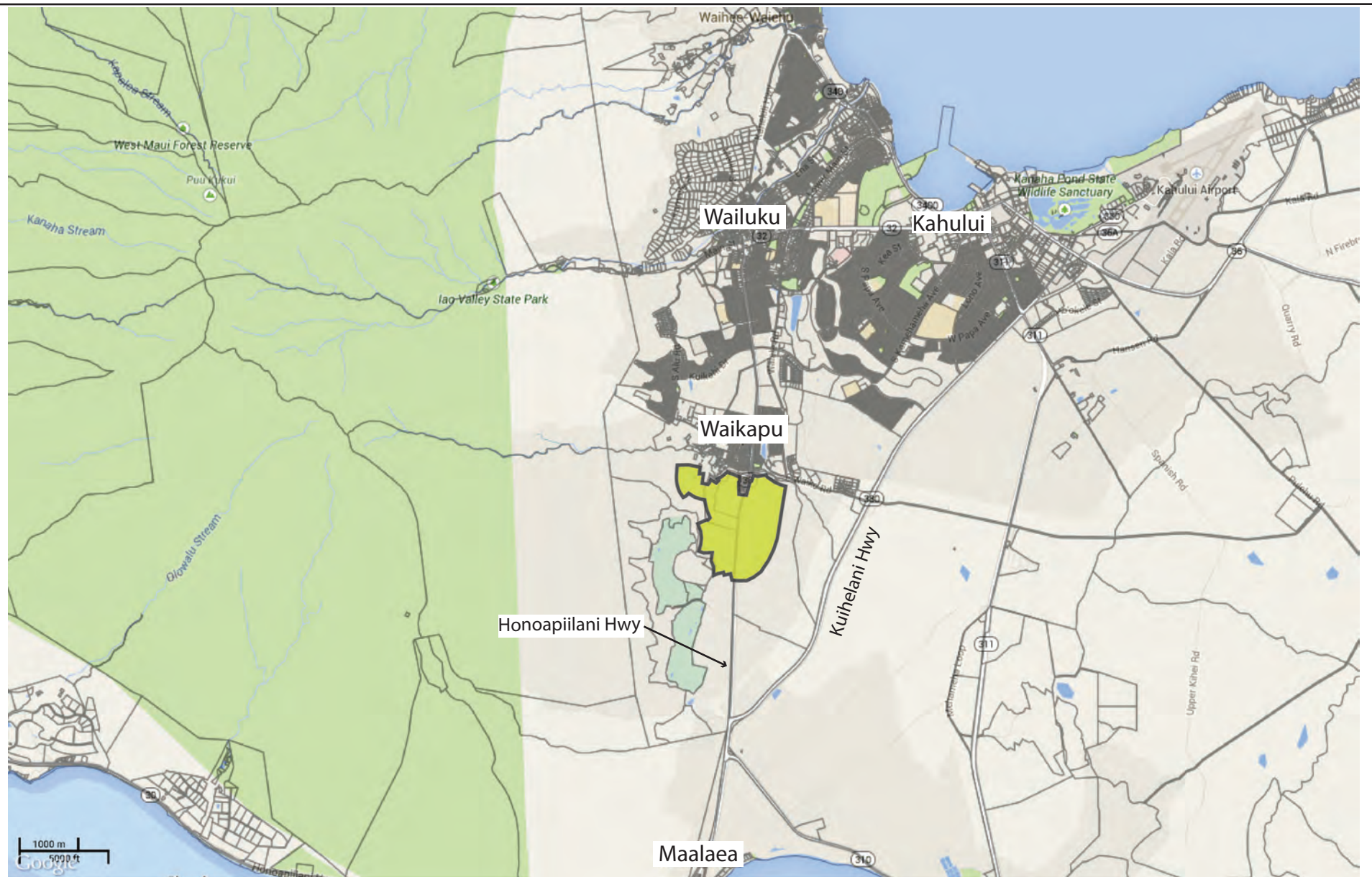


Figure 1
Regional Location



Not to Scale

WAIKAPŪ COUNTRY TOWN



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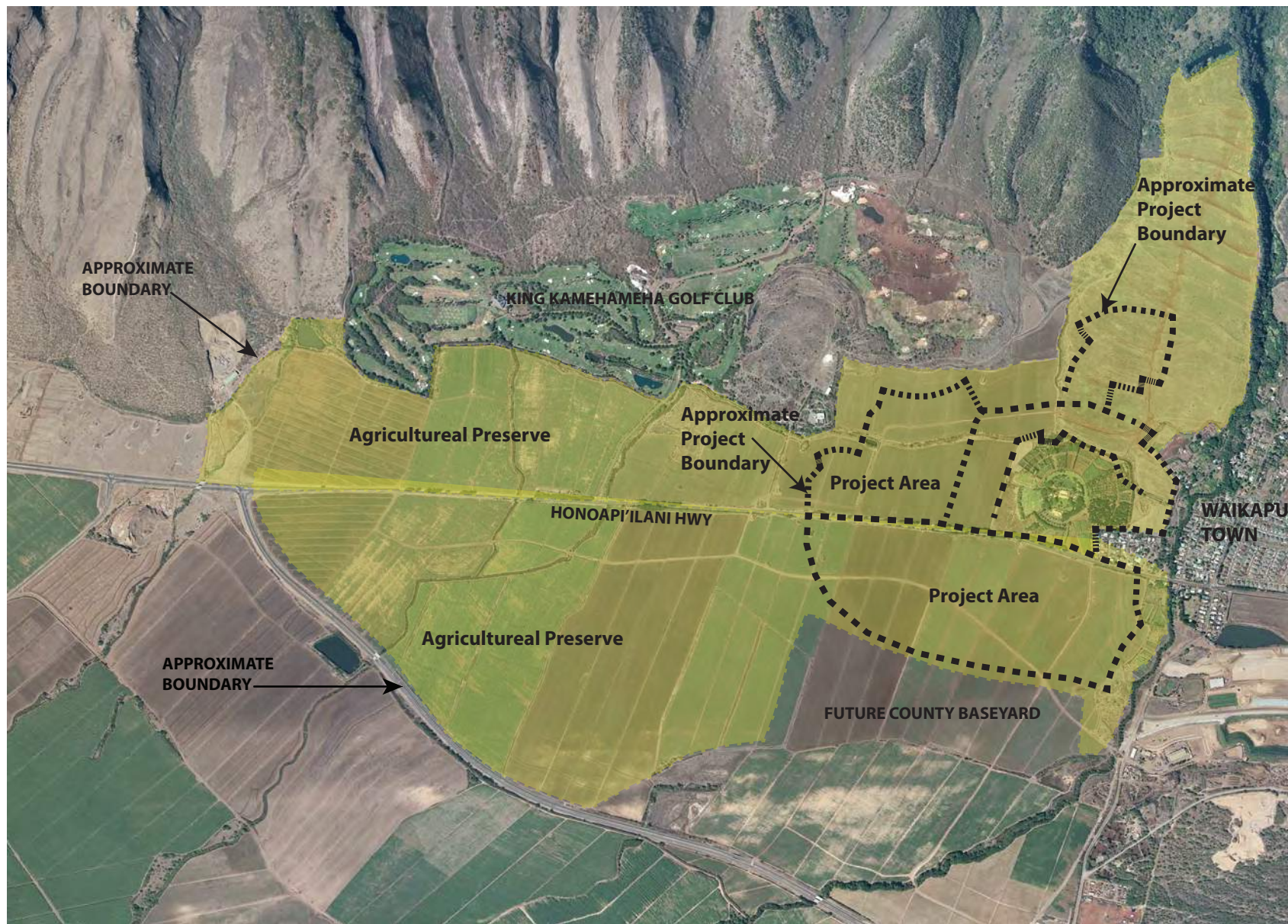


FIGURE 2

AERIAL LOCATION

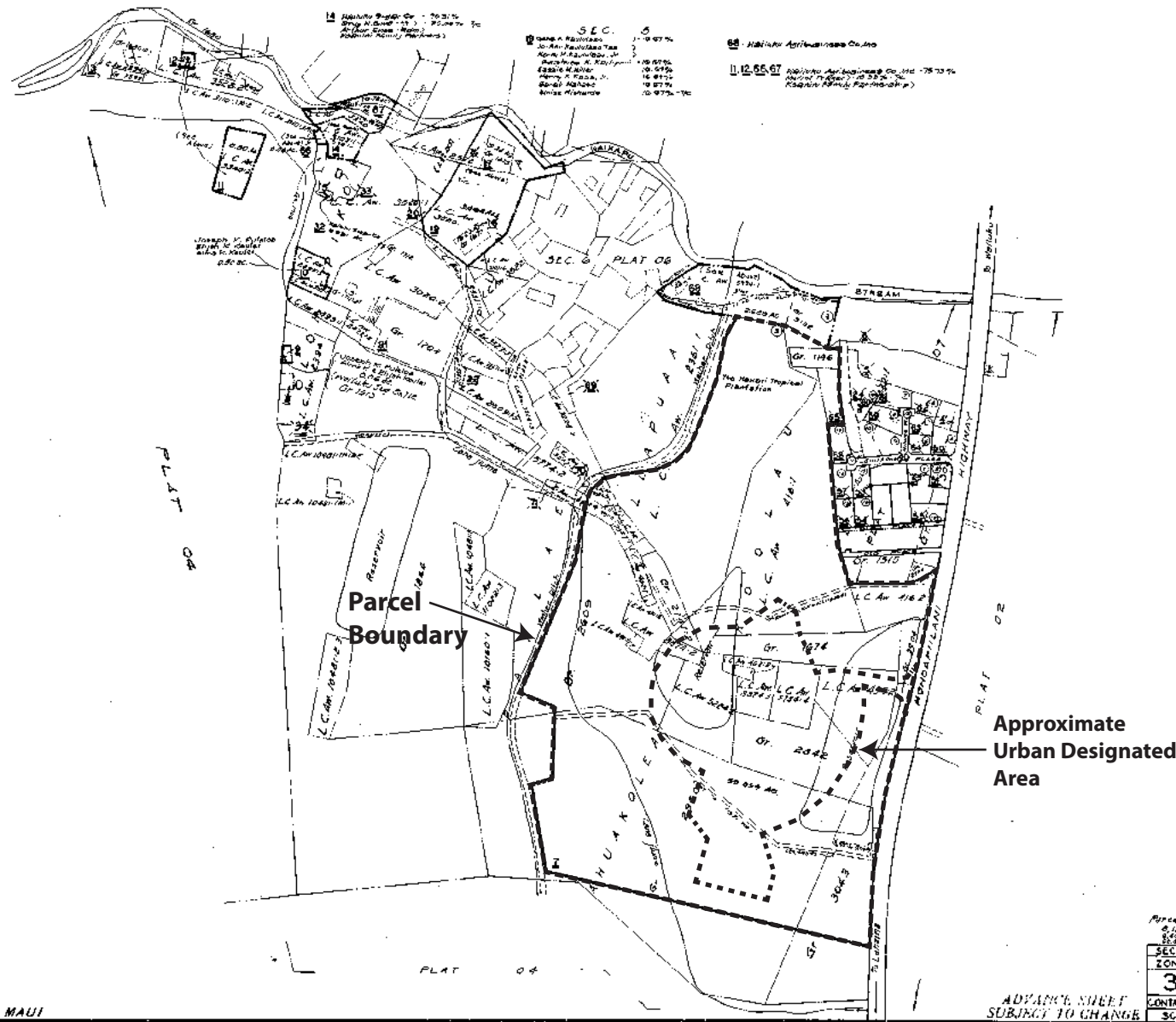


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WAIKAPŪ COUNTRY TOWN



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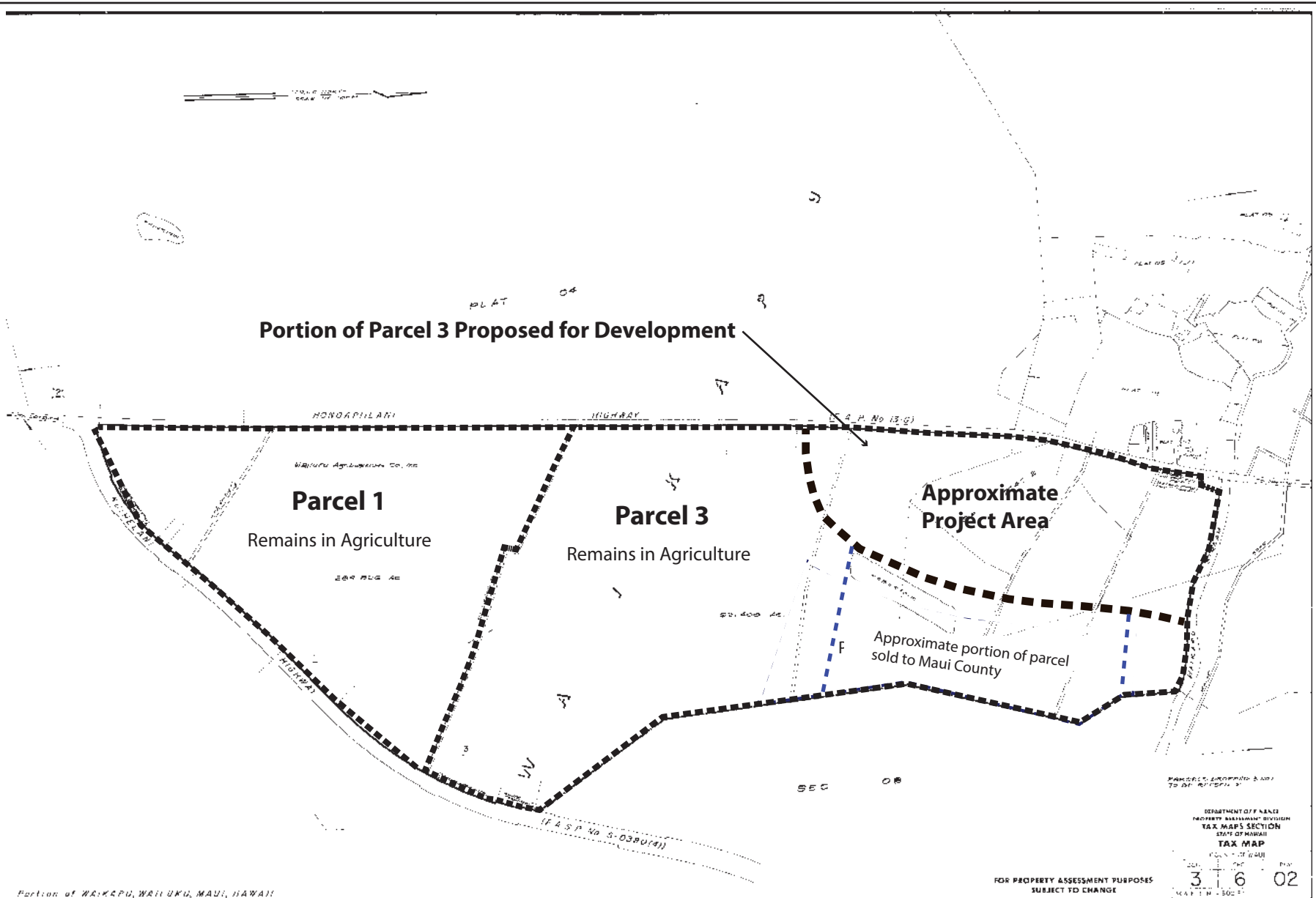


Figure 3b

TMK MAP

TMK No. (2) 3-6-002: 001 and 003



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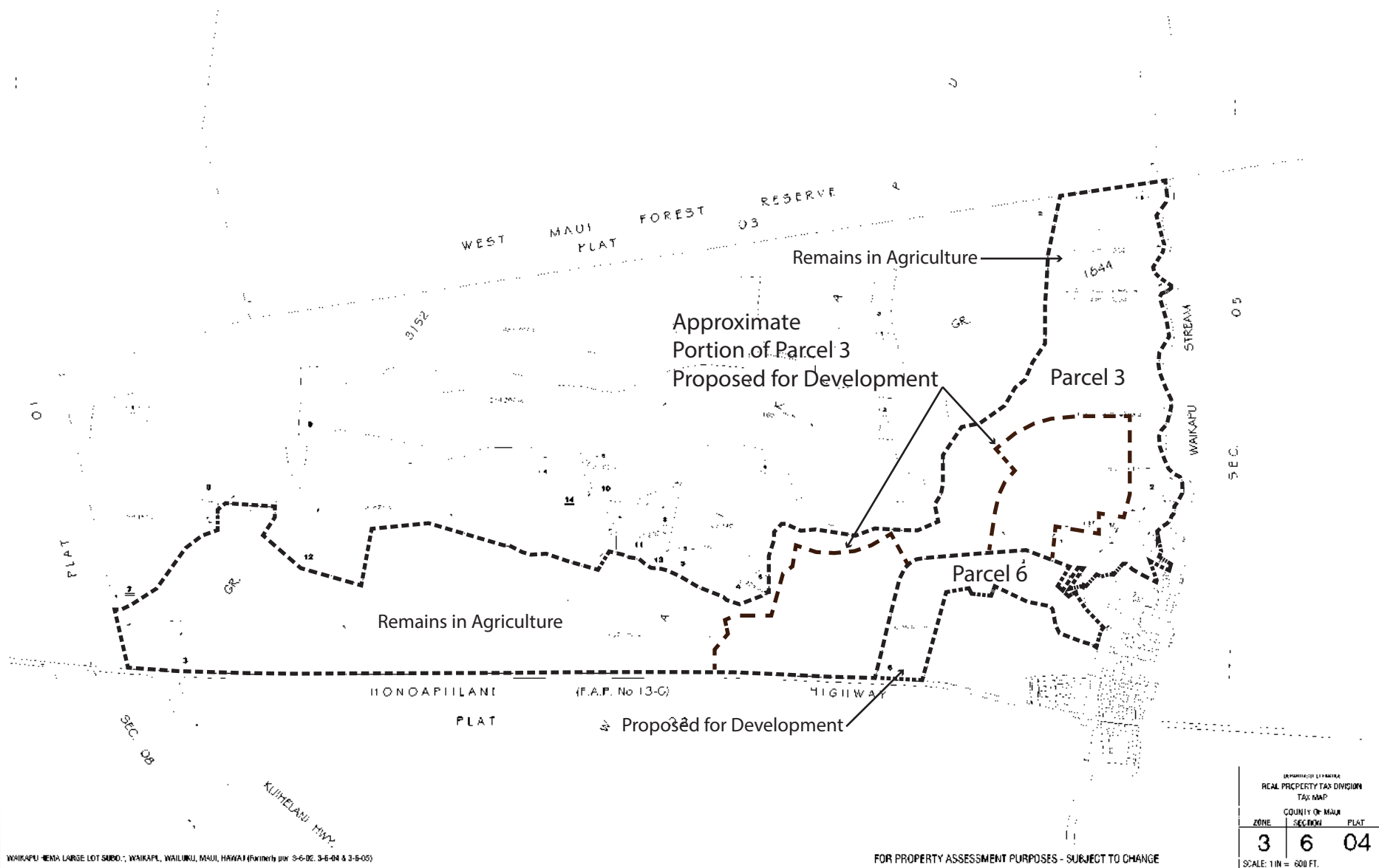


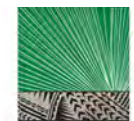
Figure 3c

TMK MAP

TMK No. (2) 3-6-004: 003 and 6



WAIKAPŪ COUNTRY TOWN



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C. HISTORICAL LAND USE

A history report prepared by Jill Engledow for Mike Atherton (August, 2009) describes the history of Waikapū, including the Applicant's property (See: Appendix A, "A History of Waikapū"). Engledow's report is briefly summarized here.

The Waikapū land division originates from the valley created by the Waikapū Stream, which is one of four streams that comprise what is known as the Nā Wai 'Ehā. The other three valleys are called Īao, Waiehu and Waihe'e. The Nā Wai 'Ehā streams are culturally and economically significant. For generations these streams have provided a fresh water source vital for the cultivation of crops throughout the Central Maui isthmus. From the base of each of these valleys, native Hawaiian settlements arose to take advantage of the abundant natural resources that formed the traditional Hawaiian ahupua'a from mountain to sea.

According to early censuses conducted by Christian missionaries in 1832 and 1836, there were 733 persons living in Waikapū in 1832 and 709 persons in 1836. A report from 1834 counts students attending two schools in Waikapū, one with 170 boys and 155 girls and the other with 84 boys and 54 girls. Thus, prior to the large-scale cultivation of sugarcane in Central Maui, there was a sizable native Hawaiian population in and around Waikapū.

Prior to land extensive sugarcane cultivation, kalo was cultivated along the Waikapū stream along with other vegetable crops. As documented by Engledow, E.S.C. Handy wrote the following in 1934:

Spreading north and south from the base of Waikapū to a considerable distance below the valley are the vestiges of extensive wet plantations, now almost obliterated by sugarcane cultivation . . . Far on the north side, just above the main road and at least half a mile below the entrance to the canyon, an extensive truck garden on old terrace ground showed the large area and the distance below and away from the valley that was anciently developed in

terraced taro culture. On the south side there are likewise several sizable kuleana where, in 1934, old terraces were used for truck gardening. . . There were probably once a few small terraces on the narrow level strips of valley bottom in the lower canyon.ⁱ

Engledow further documents that small scale sugarcane growing was occurring in Waikapū by the 1840s. However, it wasn't until 1962, when James Louzada founded Waikapū Plantation, that larger scale sugar cultivation took root in the area. An early depiction of the plantation is provided in an article from the April 9, 1864, edition of the *Pacific Commercial Advisor*.ⁱⁱ

The capacity of the mill is about four thousand pounds of sugar per day, though, by working nights, which is sometimes done, five thousand pounds can be got off. To obtain this product, Messrs. Louzada and Cornwell employ about seventy field and mill laborers, of whom forty are females, who are engaged on account of the scarcity of men. . . . The land at Waikapū consisting of a gentle slope from the base of the mountain to the road, irrigated by the Waikapū river, is admirably adapted to sugar culture, producing, when well cared for, very heavy crops. The extent of land suitable for cane is limited only by the amount of water obtainable for irrigation. The proprietors of the mill have purchased land largely since they began operations and have now some 200 acres. They purchase cane from the natives, paying generally about one hundred dollars an acre for the standing crop, taking it off at their own expense.

By the mid-1870s, sugar cane production in the Central Valley was thriving. Between 1867 and 1880, land in cane cultivation on Maui increased by 136%, from 5,080 acres to 12,000 acres.ⁱⁱⁱ In 1889 and 1890, Wailuku Sugar Company, owned by famed sugar baron Claus Spreckels, purchased all of the shares of the Waikapū Plantation from James Louzada and Henry Cornwell. Wailuku Sugar Company, under different ownership groups, continued sugar cultivation on the Waikapū lands until 1988. Thereafter, the Maui Land & Pineapple Company leased land for

pineapple production and HC&S leased land both mauka and makai of Honoapiʻilani Highway to supplement its sugar production. Pineapple ceased to be farmed on Waikapū lands in about 1997. HC&S continues to lease approximately 1,230 acres for sugarcane cultivation from the Project Applicants.

In 1982, Wailuku Sugar Company petitioned the State Land Use Commission for a Special Use Permit to develop the “Hawaiʻi Tropical Plantation” on 8.92 acres of the approximate 59 acres that comprise TMK: (2) 3-6-5:007. The purpose of the project, as described in 1982, was to develop a visitor-oriented destination where a variety of tropical agricultural products could be showcased. The agricultural component of the project included the growing, harvesting and processing of tropical fruits, plants and flowers. In addition, tours were offered so that visitors could experience the agricultural activities. Of the 8.92 acres subject to the Special Use Permit, 5.25 acres was proposed for a plantation center, 2.64 acres for parking, and 1.03 acres for an agricultural tour route. Agricultural activities were to occur on the remaining agricultural lands that encircle the facilities. On July 21, 1982, the Maui Planning Commission granted the Special Use Permit, subject to conditions. The Tropical Plantation Market was constructed in 1984 and the restaurant in 1986. By 1988, the Plantation was expected to draw approximately 450,000 visitors.

By the late 1980s the Maui Tropical Plantation’s management determined that greater regulatory flexibility was needed so that the facility could be expanded to better serve its customers. In 1988, Maui Tropical Plantation filed a Hawaiʻi Revised Statutes (HRS) Chapter 343 Environmental Assessment to support a State Land Use Commission District Boundary Amendment from Agricultural to Urban and a Change in Zoning and Community Plan Amendment from Agriculture to Wailuku/Kahului Project District 5. In October 1992, the Maui County Council granted the request. The Project District Zoning Ordinance zoned 14 acres for commercial uses and approximately 45 acres for agricultural uses (See: Figure Nos. 10 and 11, “Community Plan Map” and “Zoning Map”).

D. EXISTING LAND USE

The Applicant purchased the bulk of the property from Wailuku Agribusiness Company between 2004 and 2006. Today, the Applicant's 1,562 acres of State Agricultural District lands are used for sugarcane cultivation, cattle grazing, and diversified agriculture. These include the following TMK's:

Table 2: State Agricultural District Designated Lands

TMK Number	Acres
(2) 3-6-005:007 (Portion)	45.054
(2) 3-6-004:003	657.195
(2) 3-6-004:006	52.976
(2) 3-6-006:036	0.72
(2) 3-6-002:003	521.40
(2) 3-6-002:001	284.826
TOTAL	1,562.171

The commercial component of the MTP, located on a 14-acre portion of TMK (2) 3-6-005:007, continues to be a visitor destination that is based on a tropical agricultural theme. As in previous years, the facility integrates ongoing agricultural activities with daily tours, restaurants, gift shops, farm stands, and adventure tours. Surrounding the MTP is sugarcane stretching to the south and east and the diversified farming operations of Kumu Farms and Hawaiian Taro to the west and north. The existing town of Waikapū, Census Designated Place population of 2,965 (Maui County Data Book, 2012), abuts the northern boundary. MTP facilities include a 9,389 square feet country store and a 15,821 square feet restaurant / special events hall with seating for up to 500. There are also a number of smaller structures that serve as artist studios and gift shops. The most popular attraction at the MTP is a daily tram ride, which offers a guided tour of the abutting agricultural fields and tropical lagoon and gardens. The special events hall is

popular for weddings, fund raising campaigns, parties and performances. In recent years the facility has attracted approximately 100,000 visitors per year.

Kumu Farms and Hawaiian Taro farm along the northern and western perimeter of the MTP. Kumu Farms specializes in organically grown fruits, vegetables and herbs and is well-known for its Molokai farm, which sells organic strawberry papayas throughout Hawai'i and on the U.S. Mainland. Hawaiian Taro is owned by farmer and University of Hawai'i taro researcher Bobby Pahia. Hawaiian Taro grows dry land taro, banana and sweet potato. MTP owner, Mike Atherton, is raising a small herd of Texas Longhorn cattle on the mauka fields at the base of the West Maui Mountains. HC&S is leasing approximately 1,230 acres for sugarcane on parcels to the south and east (See: Figure No. 4 A-O, "Site Photographs").

E. BACKGROUND

In December, 2012, the County of Maui adopted the Maui Island Plan (MIP). The MIP establishes goals, objectives, policies and actions to direct growth and development on Maui through the year 2030. The MIP was based upon a comprehensive analysis of population growth, economic conditions, development capacity of existing entitled lands, and extensive community outreach.

To guide development of future urban lands, the MIP sets forth policies requiring higher urban densities, a greater balance between single- and multi-family housing types, mixed-use development, vehicular and pedestrian connectivity between land uses, and the incorporation of parks, schools, open space and affordable housing into future developments.

The MIP's Directed Growth Plan places approximately 502 acres of Waikapū Country Town's (WCT's) 1,576 acres into urban (small town) and rural growth boundaries. The MIP maintains the remaining 1,074 acres within the State's Agricultural District. Of the Project's agricultural lands, approximately 800 acres are preserved in perpetuity for agricultural use through a conservation easement. The remaining lands may be subdivided in the future into several large

agricultural lots (See: Figure No. 5 and 6, “Maui Island Plan Directed Growth Map” and “Maui Island Plan Wailuku/Kahului Planned Growth Areas”).

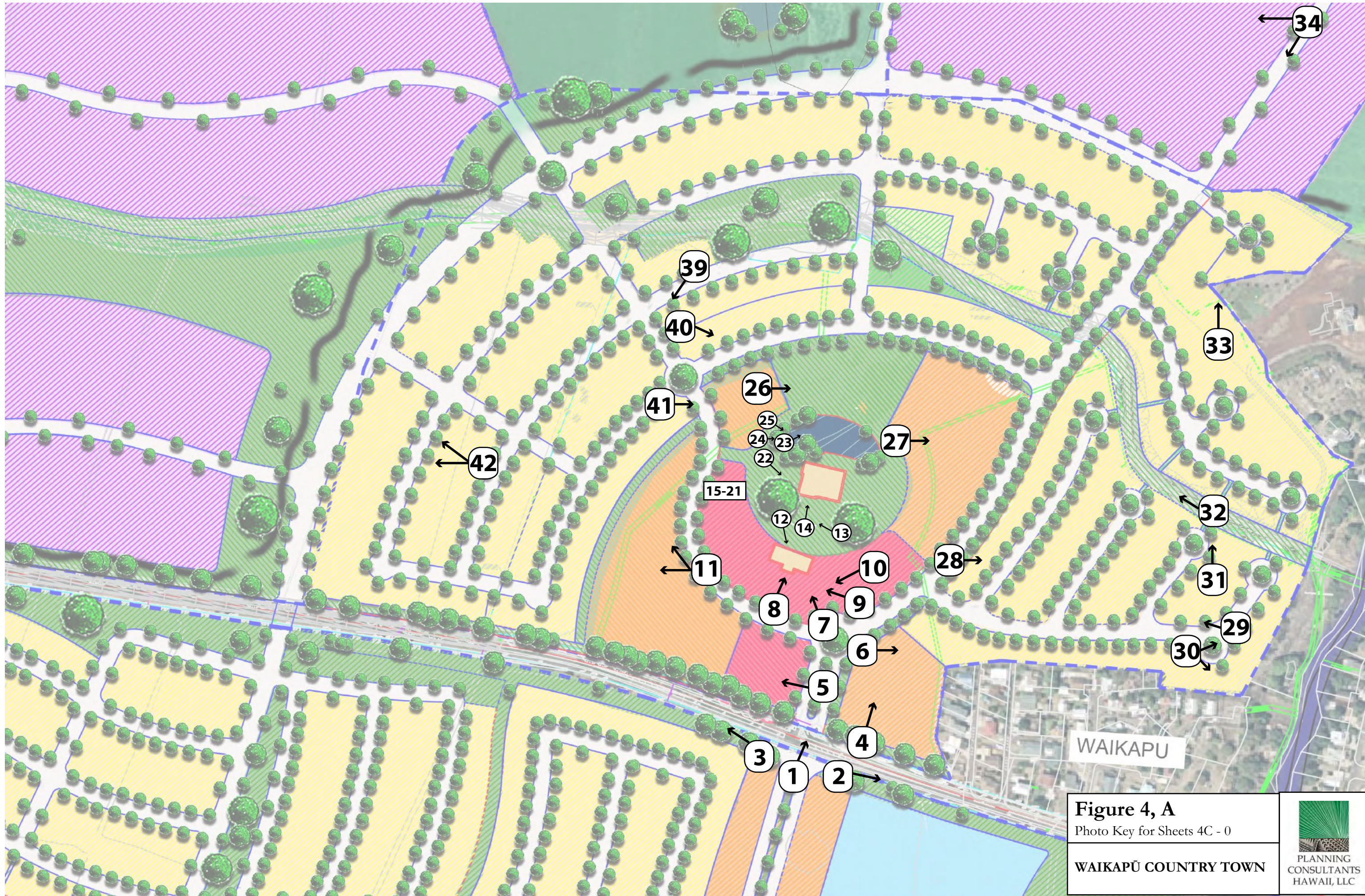


Figure 4, A
Photo Key for Sheets 4C - 0












WAIKAPŪ COUNTRY TOWN



Waikapū

COUNTRY TOWN

LEGEND

-  MULTI-USE TRAILS
-  WELL SITE
-  PV PANELS
-  RURAL LOTS
-  SINGLE FAMILY
-  COTTAGE TOWN HOME
-  COUNTRY TOWN MIXED USE
-  COMMERCIAL
-  PARKS AND OPEN SPACE
-  SCHOOL
-  AGRICULTURAL LANDS

ILLUSTRATIVE LAND PLAN



DATE: 2/17/15

Figure 4, b

Site Photographs

WAIKAPŪ COUNTRY TOWN



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1. Looking west (mauka) from Honoapi'ilani Highway into the project site.



2. Looking north along Honoapi'ilani Highway towards Waikapū Town fronting the project.



3. Looking south along Honoapi'ilani Highway fronting the project site.



4. Looking northwest across the subject property from Honoapi'ilani Highway.



5. Looking south from the project driveway across the subject property.



6. The existing Kumu Farms agricultural products stand.

Figure 4, C
Site Photographs

WAIKAPŪ COUNTRY TOWN



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7. Existing electric vehicle recharging stations installed by JumpSmart Maui.



8. Looking west at the entrance to the existing Maui Tropical Plantation Visitor Store.



9. Looking south at the frontage of the Maui Tropical Plantation Visitor Store.



10. Panning from the southeast to the south across the existing Maui Tropical Plantation parking lot.

Figure 4, D

Site Photographs

WAIKAPŪ COUNTRY TOWN



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11. Looking from south to west across the project site.



12. Looking east (makai) at the rear of the Maui Tropical Plantation Visitor Store from the village green.



13. Looking across the existing village green.



14. Looking west (mauka) at the restaurant / special events hall from the village green.



15. Ron L. Designs Jewlery Manufacturing Company.



16. History of Waikapu pavilion.



17. Flyin Hawaiian Zipline.



18. Maui Zipline.



19. Hawaiian Edible Islands.



20. Sweet Paradise Chocolatier.

Figure 4, F
Site Photographs

WAIKAPŪ COUNTRY TOWN





21. Typical retail shop at the Maui Tropical Plantation.



22. Current improvements to the lagoon to recognize Waikapu's sugar legacy.



23. Looking across the lagoon towards areas proposed for future multi-family residential.



24. View of the lagoon with new improvements.



25. Looking across the lagoon at the renovated restaurant and bar.



26. Looking north across the village green behind the lagoon.

Figure 4, G
Site Photographs

WAIKAPŪ COUNTRY TOWN





27. Wedding gazebo at the northern end of the lagoon.



28. Looking north at Kumu Farm's farming operation.



29. Looking south across Kumu Farm's farming operations.



30. Looking along the northern and eastern property lines from the northeast corner of the property.

Figure 4, H
Site Photographs

WAIKAPŪ COUNTRY TOWN





31. Looking west (mauka) towards proposed rural and agricultural lands.



32. Looking southwest at the existing Waihe`e irrigation ditch that lies north to south across the property.



33. Looking west (mauka) towards the proposed rural and agricultural lands.



34. Looking east (makai) towards proposed rural and residential lands.



35. Looking east (makai) at Kumu Farms agricultural lands.



36. Looking east (makai) at Kumu Farms agricultural lands towards the MTP.



37. Looking east (makai) at Kumu Farms agricultural lands towards the MTP.



38. Panning southeast towards lands being farmed by Hawaii Taro, LLC.



39. Looking northeast at agricultural lands near the MTP.



40. The existing Maui Zipline within the MTP.



41. Looking north across the MTP.



42. Looking south across proposed single-family and rural lands and agricultural lands beyond.

Figure 4, K
Site Photographs

WAIKAPŪ COUNTRY TOWN



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43. Looking north across the proposed agricultural park in the agricultural preserve.



44. Looking southwest across the agricultural preserve.



45. Looking east at lands proposed for urban development, (makai) at lands makai of Honoapi'ilani Highway.



46. Looking south across agricultural lands makai of Honoapiʻilani Highway.



47. Looking west (mauka) from the location of the proposed Waiʻale Bypass Road across lands proposed for urban development.



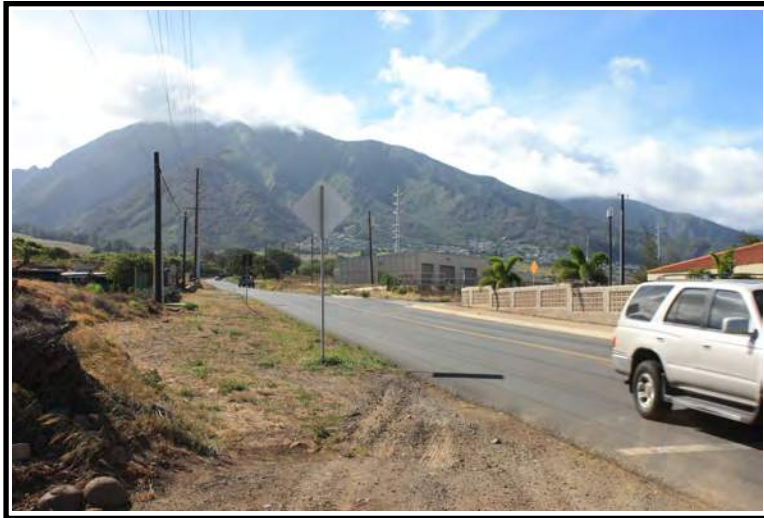
48. Looking south along an existing cane haul road in the vicinity of proposed Wai'ale Bypass.



49. Looking north along existing cane haul road in the vicinity of the proposed Wai'ale Bypass.



50. Looking in the direction of the cane haul road from Waiko Road.



51. Looking northwest up Waiko Road.



52. Looking north along Wai'ale Road from Waiko Road.

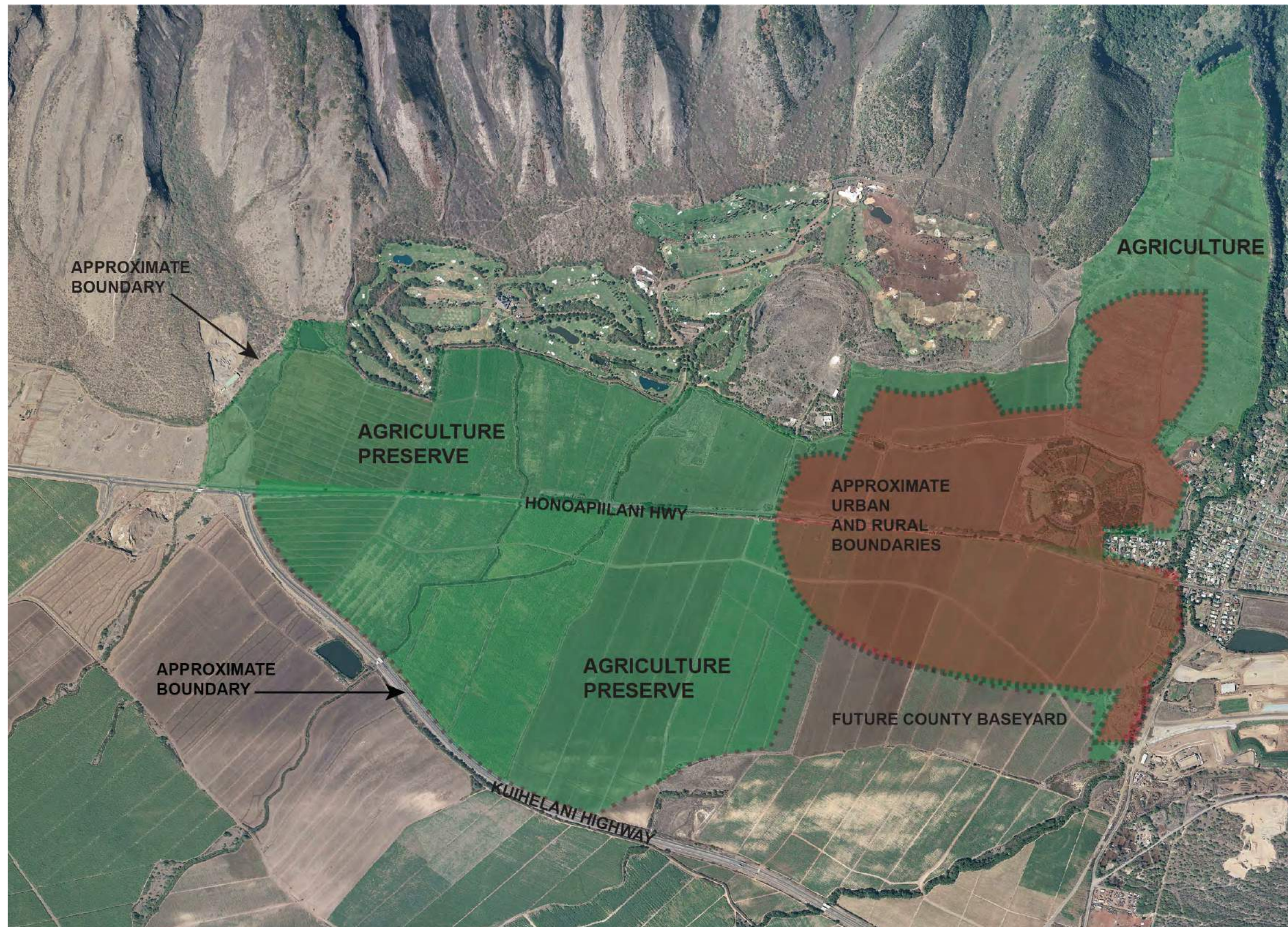


53. Looking at the existing Waikapū Stream bed.

Figure 4, N
Site Photographs

WAIKAPŪ COUNTRY TOWN





54. Proposed urban and rural areas and agricultural preserve.

Figure 4, O

Site Photographs

WAIKAPŪ COUNTRY TOWN



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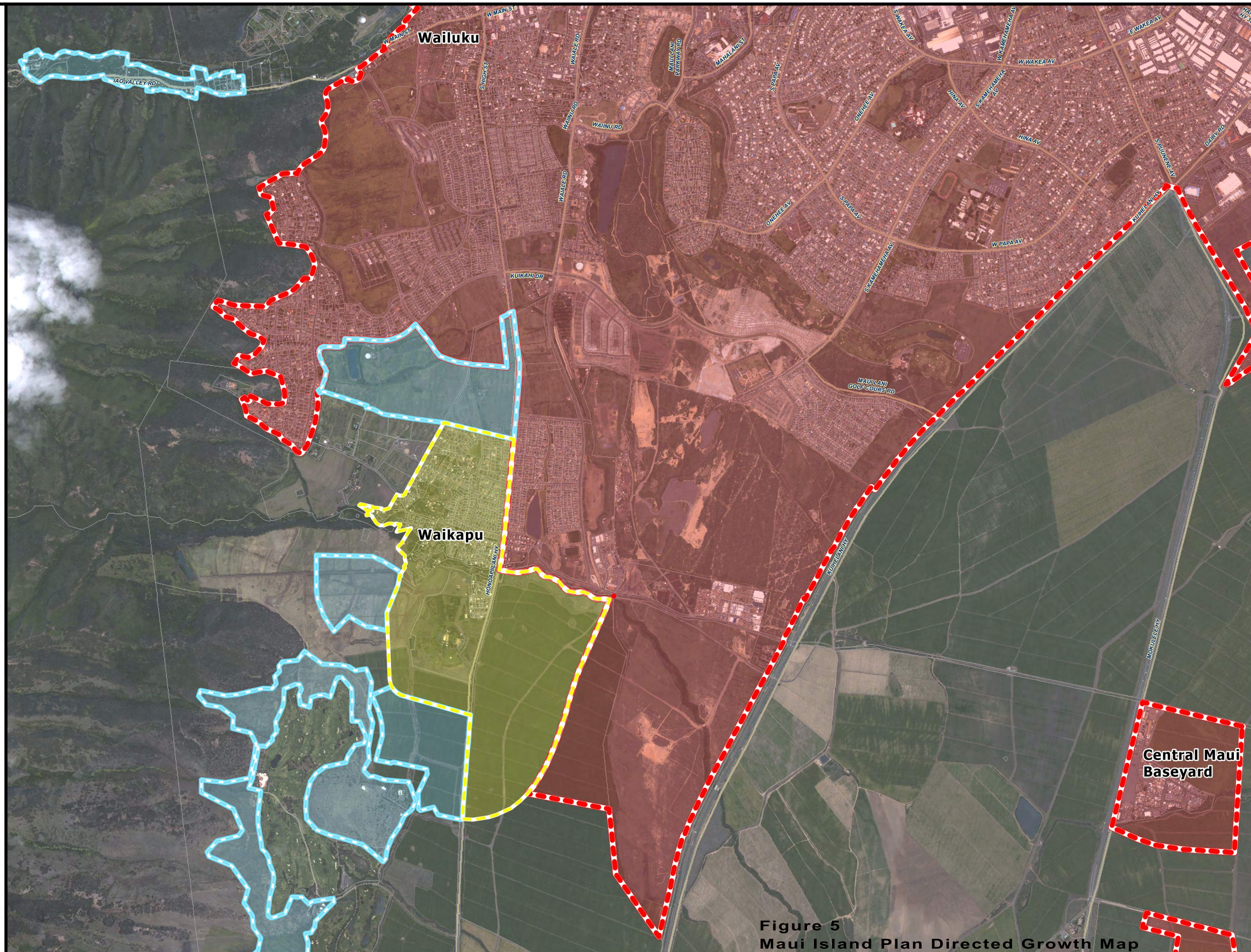


Figure 5
Maui Island Plan Directed Growth Map

Maui Island Plan Directed Growth Map

Waikapu / Kahului
C3

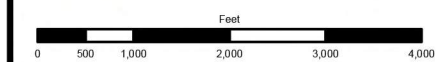
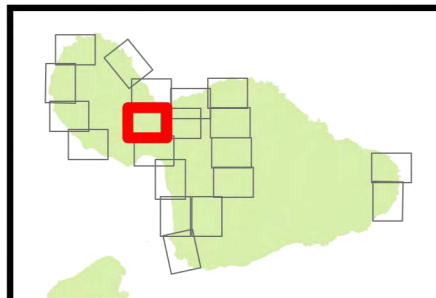
Legend

Growth Boundaries

- Urban
Small Town
Rural

Reference

-  2011 Parcels
 Primary Roads



Product Code: M-CET_20121210-D2
Copyright © December 10, 2012

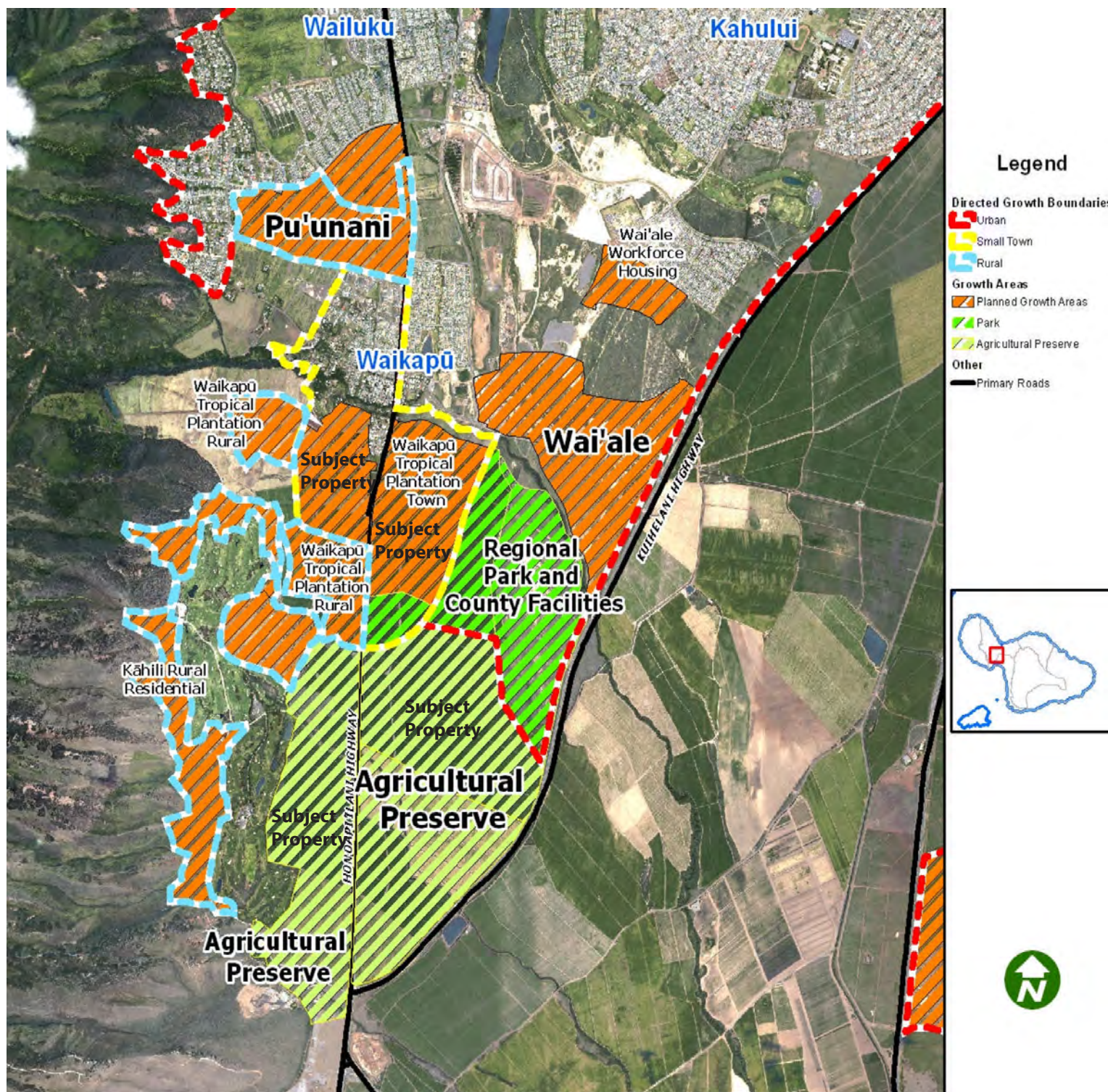
Background Image: Worldview 2 - 2010

This is not a zoning map. Please contact the Planning Department for Zoning confirmation.

PREPARED BY:

**Long Range Planning Division
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793**





Source: Maui Island Plan, Department of Planning, Long-range Planning Division, December 2012

Figure 6

Maui Island Plan
Wailuku-Kahului Planned Growth Areas



Not to Scale

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The MIP describes the purpose and intent of the WCT “Planned Growth Area” as follows:

The Waikapū Tropical Plantation Town planned growth area is situated in the vicinity of the Maui Tropical Plantation, and includes lands on both the mauka and makai sides of Honoapi'ilani Highway. Providing the urban character of a traditional small town, this area will have a mix of single-family and multifamily rural residences, park land, open space, commercial uses, and an elementary or intermediate school developed in coordination with the Wai'ale project. The area is located south of Waikapū along Honoapi'ilani Highway, and it will incorporate the integrated agricultural and commercial uses of the existing tropical plantation complex. This area is proximate to the Wai'ale planned growth area, providing additional housing in central Maui within the Wailuku-Kahului Community plan region. As part of this project, parcels to the south of the project (identified as Agricultural Preserve on Figure 8-1) shall be protected in perpetuity for agricultural use through a conservation easement. A portion of this area may be dedicated to the County as an agricultural park administered pursuant to County regulations. Alternatively, this area can be developed as a private agricultural park available to Maui farmers, and executed through a unilateral agreement between the landowner and Maui County. The rural lots mauka of Honoapi'ilani Highway are intended to be developed using a CSD plan. The CSD plan shall provide access to uninterrupted walking and bicycling trails and will preserve mauka and makai views while protecting environmentally sensitive lands both along Waikapū stream and mauka of the subdivision.

Planned Growth Area Rationale:

Keeping the Waikapū Tropical Plantation as its town core, this area will become a self-sufficient small town with a mix of single-family and multifamily housing units in a walkable community that includes affordable housing in close proximity to Wailuku's employment centers. Schools, parks, police and fire facilities, transit infrastructure, wastewater, water supply resources, and other infrastructure should be developed efficiently, in coordination with neighboring developments including Maui Lani, Kehalani, Pu'unani and Wai'ale. The Waikapū Tropical Plantation Town planned growth area is located on Directed Growth Map #C3 .^{iv}

F. PROJECT OBJECTIVES

The primary mission of the WCT Master Plan is to create a new mixed-use residential community that embodies the principles and policies of the MIP and that respects and implements the Statement of Values of the Waikapū Community Association. Key guiding principles in the MIP that have guided the development of the WCT Master Plan include:

1. *Respect and encourage island lifestyles, cultures, and Hawaiian*

traditions: *The culture and lifestyle of Maui's residents is closely tied to the island's beauty and natural resources. Maintaining access to shoreline and mountain resources and protecting culturally significant sites and regions perpetuates the island lifestyle and protects Maui's unique identity. One of the most vital components of the island lifestyle and culture is Maui's people. In an island environment where resources are finite, future growth must give*

priority to the needs of residents in a way that perpetuates island lifestyles.

2. *Promote sustainable land use planning and livable communities:*

Managing and directing future growth on Maui should promote the concept of sustainability, and the establishment of livable communities. Sustainable practices include: 1) Focusing growth into existing communities; 2) Taking advantage of infill and redevelopment opportunities; 3) Promoting compact, walkable, mixed-use development; 4) Revitalizing urban and town centers; 5) Providing transportation connectivity and multimodal opportunities; 6) Protecting and enhancing natural and environmental resources; 7) Protecting, enhancing, and expanding communities and small towns, where appropriate; and 8) Encouraging energy and water-efficient design and renewable energy technology.

3. *Keep “urban-urban” and keep “country-country”:* *Given the high cost of developing public infrastructure and facilities to service remote areas, the significant environmental and social impacts associated with long vehicle commutes, and the desire to “keep the country-side country” it is preferable to develop compact communities and to locate development within or as close as possible to existing urban areas and employment centers.*

4. *Protect traditional small towns:* *Development within and adjacent to Maui’s traditional towns should be compatible with and perpetuate their unique character. Hard edges should be maintained around new and existing communities through the use of greenbelts and significant open space.*

5. ***Protect open space and working agricultural landscapes:*** *In light of continuing urbanization, the protection of agricultural and open-space resources will depend on a healthy agricultural industry and progressive planning and regulation. Planning should utilize agricultural lands as a tool to define the edges of existing and planned urban communities, apply innovative site design, create buffers along roadways, provide visual relief, and preserve scenic views.*

6. ***Protect environmentally sensitive lands and natural resources:*** *Environmentally sensitive lands, natural areas, and valued open spaces should be preserved. Native habitat, floodways, and steep slopes should be identified so future growth can be directed away from these areas. It will be important to plan growth on Maui in a manner that preserves habitat connectivity, watersheds, undeveloped shoreline areas, and other environmentally sensitive lands.*

7. ***Promote equitable development that meets the needs of each community:*** *Each region of the island should have a mix of housing types, convenient public transit, and employment centers. Where appropriate, all neighborhoods should have adequate parks, community centers, greenways, libraries, and other public facilities. No community should have a disproportionate share of noxious activities. Additionally, a fair, efficient, and predictable planning and regulatory process must be provided. A cornerstone of equitable development should reflect a focus on providing affordable housing for all of Maui's residents over developing nonresident housing.*

8. ***Plan for and provide efficient and effective public facilities and infrastructure:*** *Many of Maui’s public infrastructure systems and facilities were constructed decades ago and are in need of repairs and upgrades to meet current and future demand. Growth should be planned for areas with existing infrastructure, or where infrastructure can be expanded with minimal financial burden to the public. Transportation infrastructure should be designed to be in harmony with the surrounding area.*
9. ***Support sustainable economic development and the needs of small business:*** *Land use decisions should promote and support sustainable business activities.*
10. ***Promote community responsibility, empowerment, and uniqueness:*** *The development of community plans should be a broad-based, inclusive process. The community plans shall be reviewed by the Community Plan Advisory Committees, the planning commissions, and approved by the Council. The MIP shall provide a framework for the updated community plans. Subsequent proposed community plan amendments should be subject, as much as possible, to local community input.^v*

The WCT Master Plan also seeks to embody the values of the existing residents of Waikapū. Waikapū Community Association Statement of Values and Supplemental Statements that have helped shape the WCT Master Plan include:

- *“Respect the principals and values of traditional Maui rural towns and sustainable communities.*

- *Incorporate employment uses into the project to reduce commuting.*
- *Maintain a physical and visual separation between communities.*
- *Prohibit gated neighborhoods.*
- *Preserve prime and productive agricultural lands in perpetuity.*
- *Establish an identifiable public town center.*
- *Preserve and enhance the property's natural and ecological systems, especially Waikapū Stream.*
- *Encourage mixed use development within a defined commercial/business core. Establish opportunities for easily accessible 'mom and pop' stores.*
- *Protect public view corridors of Waikapū Valley, the West Maui Mountains, the ocean, and the plains of Central Maui through the careful placement and massing of buildings and creative use of open space throughout the project.*
- *Incorporate 'green' and 'sustainable' development practices.*
- *Identify, evaluate and preserve historic and cultural landmarks on the property.*
- *Create a tiered and separated transportation network comprised of various modes, including vehicular, transit, walking and biking.*
- *Create pedestrian-friendly neighborhood roadways.*
- *Preserve the integrity of the Waikapū Ahupua'a by working with knowledgeable Kūpuna and Waikapū residents to ensure the conservation and sustainable use of the upland watershed, Waikapū stream and fertile kula agricultural lands.*
- *Provide a variety of recreational opportunities to facilitate good physical health.*
- *Encourage community input and participation in the formulation and execution of the Plan in accordance with the Plan's guiding principles and Statement of Values.*

- *Create a ‘Garden Town’ by dedicating a permanent agricultural buffer around the town, protecting view corridors, and incorporating a mixture of greenways, parks, open space, and tree-lined streets and landscaped public spaces throughout the project.”*

In addition to the above-referenced guiding principles from the MIP and Waikapū Community Association Statement of Values, the desire of the Applicant, Waikapū Properties LLC, is to accomplish the following objectives:

- Be a profitable development for the project’s entrepreneurial developers, the County and State;
- Provide a diverse range of market and affordably priced housing;
- Develop a “complete community” with a diversity of housing, retail, and civic uses to support residents;
- Protect the environment by directing development away from sensitive lands and by incorporating sustainability practices into the design, development and operation of the project;
- Reduce automobile dependence;
- Provide a jobs and housing balance within the development;
- Create the opportunity for more active and healthy lifestyles;
- Reduce the project’s energy demand through conservation, energy efficient design and development of on-site renewables;
- Respect traditional Hawaiian lifestyles and existing cultural practices;
- Facilitate agricultural development within the project’s protected agricultural lands;
- Maintain a sense of community where Maui residents feel comfortable visiting, living, working and playing.

G. PROPOSED ACTION

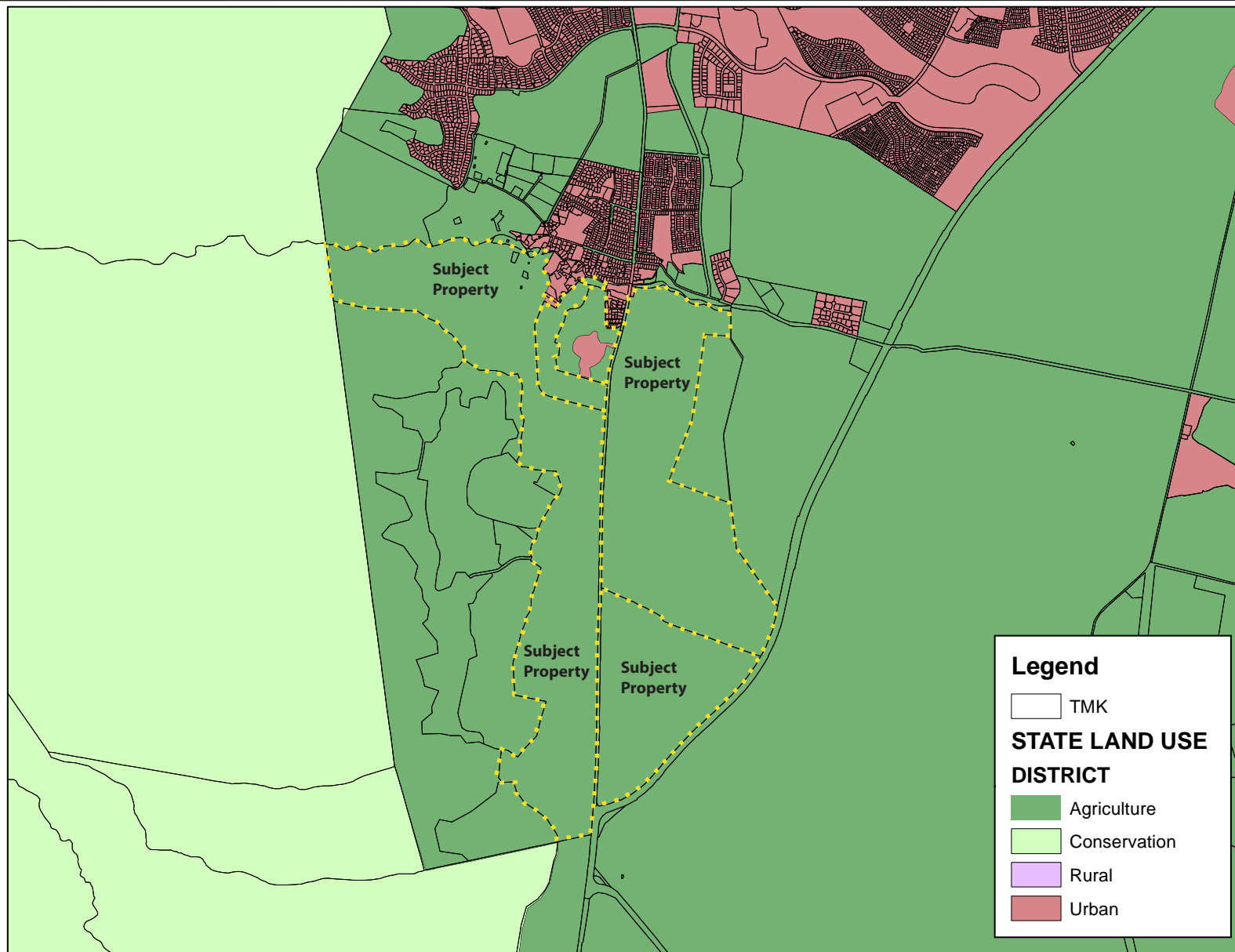
The project area encompasses approximately 14 acres of State Urban District land and 1,562 acres of State Agricultural District land (See: Figure No. 7, “State Land Use Designation”). The existing MTP retail shops, restaurant, convention hall, tropical gardens and lagoon are on the State Land Use Urban designated land, which is a portion of TMK No. (2) 3-6-005:007.

The Applicant is proposing to redistrict approximately 485 acres of State Agricultural District land to the State Urban and Rural Districts. Approximately 1,077 acres of the Applicant’s holdings will remain within the State Agricultural District. Much of this land, approximately 800 acres, will be permanently protected by the Applicant through an agricultural easement, or similar mechanism, to facilitate long-term farming on these lands.

The Project, which will be situated on approximately 499 acres, is a “complete community,” encompassing a mixture of single- and multi-family residential units, commercial, and civic uses. In accordance with the MIP’s Directed Growth Area Guidelines, it will include 1,433 residential units, plus about 146 Ohana units, together with neighborhood retail, commercial, a school, parks and open space. The Project will be bound by agricultural land that will be preserved in perpetuity through a conservation easement. The utilization of conservation subdivision design (CSD) practices will preserve additional rural land for farming, open space, and open land recreation.

WCT will be built in two five year phases, both mauka and makai of Honoapi’ilani Highway. Development mauka of the highway will focus inward onto a “village center,” incorporating the existing buildings and grounds of the MTP. The WCT Master Plan calls for a diverse mixture of affordable and market priced housing, along with commercial, entertainment, and civic uses within and around the village center.

Development makai of the highway will focus onto a pedestrian-oriented “main street,” a nearby elementary school, and parks. The makai development is bound to the east by the



Legend







 TMK
STATE LAND USE DISTRICT
 Agriculture
 Conservation
 Rural
 Urban

FIGURE 7
 STATE LAND USE
 DISTRICT BOUNDARIES


 Not to Scale

WAIKAPŪ COUNTRY TOWN



planned extension of the Wai'ale Road, which will intersect with Honoapi'ilani Highway. A primary objective of the project is to develop a community where walking and biking are the preferred modes of transportation and recreation for short commutes. Therefore, in addition to proposing mixed-uses and more compact development patterns, approximately eight miles of hiking, biking and walking trails will be incorporated into the project. Public transit will also be accommodated in strategic locations to facilitate the use of transit to job-rich areas in Wailuku/Kahului and South and West Maui (See: Figure 8: "Illustrative Land Plan"). For the purpose of assessing the Project's development impacts, the WCT Master Plan and development program is consistent with the MIP's allocation of 1,433 units, plus Ohana units. The MIP has an allowance for affordable housing and Ohana units. Affordable housing and Ohana units are not counted towards the total number of units allocated in the MIP.

The Applicant understands that local market conditions will ultimately determine the types of units sold and density of development within the project. It is intended that at full build-out the overall character of development, mix of uses and development pattern will be consistent with the master plan vision, design guidelines, and zoning ordinances. However, should future market demand warrant additional residential units, and/or a higher density of development within the WCT Planned Growth Area, then a future amendment to the MIP may be required together with an analysis of the impact of the additional units upon infrastructure and public facility systems. The Project will be implemented in two five year phases through 2026. Figure No. 9, "Conceptual Phasing Plan" and Tables 2, 3 and 4 show the Project's conceptual land use program for Phase I - 2017 through 2021 - and for Phase II - 2022 through 2026.

Table 3: Phase I Conceptual Land Use Program for 2017 through 2021

Land Use	Net Acres	Gross Acres	Residential Units	Net Residential Density	FAR	Sq. Ft. Commercial
Single Family	45.51		332	7.30		

Land Use	Net Acres	Gross Acres	Residential Units	Net Residential Density	FAR	Sq. Ft. Commercial
Multi-Family/Town Home	17.213	24.59	216	12.55		
Rural	22.35		15	0.67		
Country Town Mixed-Use	16.168	20.21	127		0.25	58,475
Commercial / Employment		12.89			0.25	140,372
Existing Town Center / Lagoon		4.88				
School		12.00				
Active & Passive Parks		26.66				
Total Residential Units	690					
Total Ohana Units	41					
Total Residential Units	731					
Total Commercial / Employment	198,847					

Table 4: Phase II Conceptual Land Use Program for 2022 through 2026

Land Use	Net Acres	Gross Acres	Residential Units	Net Residential Density	FAR	Sq. Ft. Commercial
Single Family	85.54		638	7.46		
Multi-Family / Town Home	3.99	5.7	40	10.00		
Rural	102.47		65	0.63		
Active / Passive Parks		5.78				
Total Residential Units	743					
Total Ohana Units	105					
Total Residential Units	848					

Table 5: Conceptual Development Program for 2017 - 2026











Land Use	Net Acres	Gross Acres	Residential Units	Net Residential Density	FAR	Sq. Ft Commercial
Single Family	131.05		970	7.40		
Multi-Family / Town Home	21.203	30.29	256	12.07		
Rural	124.82		80	0.64		
Country Town Mixed-Use	16.168	20.21	127		0.25	58,475
Commercial / Employment		12.89			0.25	140,372
Existing Town Center / Lagoon		4.48				
School		12				
Active/Passive Park	32.44					
Greenways / Open Space	49.66					
Roads	81.03					
Acres	498.87					
Residential Units	1433					
Ohana Units	146					
Total Residential Units	1579¹					
Commercial Employment	198,847					

¹ Includes Ohana units. The number of Ohana units may increase or decrease.

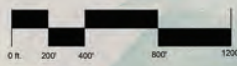
Waikapū

COUNTRY TOWN

LEGEND

-  MULTI-USE TRAILS
-  WELL SITE
-  PV PANELS
-  RURAL LOTS
-  SINGLE FAMILY
-  COTTAGE TOWN HOME
-  COUNTRY TOWN MIXED USE
-  COMMERCIAL
-  PARKS AND OPEN SPACE
-  SCHOOL
-  AGRICULTURAL LANDS

ILLUSTRATIVE LAND PLAN



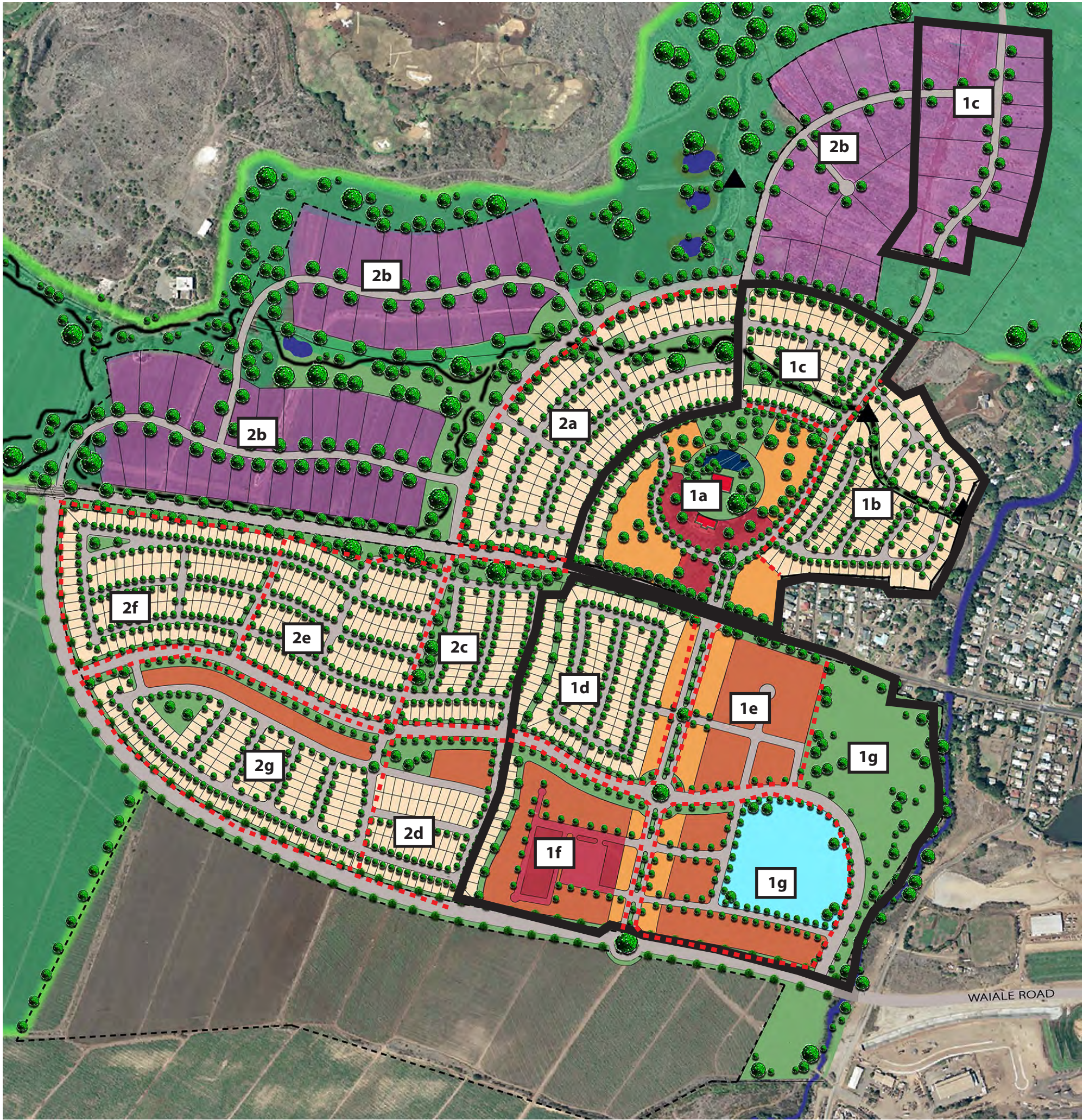
DATE: 2/17/15

COUNTY OF MAUI

WAI'ALE ROAD

KUIHELANI HIGHWAY

HONOAPI'LANI HIGHWAY



Hallstrom Absorption:

Phase 1: 2017-2021: 690 Units
Phase II: 2022-2026: 743 Units

Phase 1: 2017-2021

	Units	Sq. Ft.	Acres
Single Family	332		
Rural	15		
Multi-Family	216		
Ohana	41		
Country Town Mixed-Use	127	58,475	
Existing Commercial		29,250	
New Commercial/Employment		111,122	
Elementary School			12.00
Active/Passive Park			26.66

Phase II: 2022-2026

	Units	Sq. Ft.	Acres
Single Family	638		
Rural	65		
Multi-Family	40		
Ohana	105		
Active/Passive Park			5.78

H. AGENCY AND COMMUNITY PRECONSULTATION

Master planning for the project was initiated in January 2009, nearly six years ago. Since 2009, the Applicant has consulted with State and County agencies and the Waikapū community regarding its development plans. Meetings have been conducted with the County of Maui's Department of Planning, Department of Public Works, Department of Environmental Management, Department of Parks and Recreation, and Department of Water Supply. Meetings have also been conducted with the State Department of Education, State Department of Transportation, State Office of Planning, and State Land Use Commission. In addition, the Applicant has consulted with the Waikapū Community Association, the General Plan Advisory Committee, the Maui Planning Commission, and the Maui County Council. Table No. 6 documents community meetings conducted through September 2014.

Table 6: Neighborhood and Agency Pre-consultation Activities

Date	Organization / Group	Purpose
February 19, 2009	General Plan Advisory Committee (GPAC)	Present the preliminary master plan report and conceptual development plan to the GPAC for inclusion into the MIP's Directed Growth Plan.
March 26, 2009	Waikapū Community Leaders	Present the preliminary master plan report and conceptual development plan to the group for comment and further discussion.
July 21, 2009	Maui Planning Commission	Present the preliminary master plan report and conceptual development plan to the Commission for consideration of its inclusion into the MIP's Urban and Rural Growth Boundaries.

Date	Organization / Group	Purpose
September 14, 2009	Waikapū Community	<p>Present the preliminary master plan report and conceptual development plan to the Community for discussion and comment.</p> <p>The meeting was attended by 158 persons. A community survey was administered at the conclusion of the presentation / discussion. (<u>See:</u> Appendix B, “September 14, 2009, Community Survey Results”).</p>
March 14, 2011	Waikapū Community Association	Present the Master Plan to the Waikapū Community Association for discussion and comment.
March 1, 2012	Maui County Council	Present the preliminary master plan report and conceptual development plan to the Committee for inclusion into the MIP’s Urban and Rural Growth Boundaries.
March 25, 2012	Maui County Council	Present the preliminary master plan report and conceptual development plan to the Committee for inclusion into the MIP’s Urban and Rural Growth Boundaries.
August 2013	Waikapū Community Association: “Waikapū Country Town Review Committee”	Working with the Waikapū Community Association, a committee of WCA members was

Date	Organization / Group	Purpose
		established to provide community input into the project.
February 2014	Waikapū Project Review Committee	Present the revisions to the Master Plan, discuss the project schedule, and address questions and concerns.

I. ALTERNATIVES

The Draft EIS will analyze the potential impacts of various, alternative Master Plans, as well as keeping the property in its current condition.

J. ENTITLEMENTS AND APPROVALS

1. State Land Use District Boundary Amendment (DBA)

The WCT Master Plan will require a State Land Use District Boundary Amendment in order to bring 485 acres of State Agricultural District land into the State Land Use Urban and Rural districts. Table No. 7 identifies the parcels requiring a State Land Use Commission District Boundary Amendment for all or a portion of the property.

Table 7: TMK Parcels Requiring a State Land Use District Boundary Amendment

Ownership	Parcel	Acres	Existing State Land Use	Acres Subject to DBA	Proposed State Land Use
Waikapū Properties LLC	(2) 3-6-004:003	657.195	Agriculture	149.848	Rural
	(2) 3-6-004:006	52.976 ²	Agriculture	53.775 ³	Urban
MTP Land Partners LLC and the Filios, William	(2) 3-6-005:007	59.054	Agriculture	45.054	Urban

² Acreage identified on TMK Map.

³ Acreage identified by survey.

Ownership	Parcel	Acres	Existing State Land Use	Acres Subject to DBA	Proposed State Land Use
Separate Property Trust					
Waiale 905 Partners LLC	(2) 3-6-002:003	521.40	Agriculture	236.236	Urban

2. Community Plan Amendment (CPA)

Community Plan Amendments are required for the approximate 499 acres of land that are proposed for development. Of this land, approximately 349 acres will require a community plan amendment from Agricultural to Project District and about 150 acres to Rural. The existing MTP properties, TMK Nos. (2) 3-6-005:007 and (2) 3-6-004:006, will require amendments from Wailuku-Kahului Project District No. 5 (Maui Tropical Plantation) to a new Project District. The new Project District designation will reflect the character and uses proposed in the WCT Master Plan vision (See: Figure 10, “Wailuku-Kahului Community Plan Map”). Table No. 8, identifies parcels requiring a Community Plan Amendment for all, or a portion of the property.

Table 8: TMK Parcels Requiring a Community Plan Amendment

Ownership	Parcel	Acres	Existing Community Plan Designation	Acres Subject to CPA	Proposed Community Plan Designation
Waikapū Properties LLC	(2) 3-6-004:003	657.195	Agriculture	149.848	Rural
	(2) 3-6-004:006	52.976	Agriculture	53.775	Project District
MTP Land Partners LLC and the Filios, William Separate Property Trust	(2) 3-6-005:007	59.054	Agriculture	45.054	Project District
Waiale 905 Partners LLC	(2) 3-6-002:003	521.40	Agriculture	236.236	Project District

3. Change in Zoning (CIZ)

The WCT Master Plan will similarly require a Change in Zoning for all lands proposed for development (See: Figure 11, “MTP Land Zoning Map 412”). A new project district zoning ordinance will be created to implement the vision and mix of uses proposed in the WCT Master Plan. Table No. 9, identifies the parcels subject to a Change in Zoning for all, or a portion of the property.

Table 9: TMK Parcels Requiring a Change in Zoning

Ownership	Parcel	Acres	Existing Zoning	Acres Subject to CIZ	Proposed Zoning
Waikapū Properties LLC	(2) 3-6-004:003	657.195	Agriculture	149.848	Rural
	(2) 3-6-004:006	52.976	Agriculture	53.775	Project District
MTP Land Partners LLC and the Filios, William Separate Property Trust	(2) 3-6-005:007	59.054	Agriculture	45.054	Project District
Waiale 905 Partners LLC	(2) 3-6-002:003	521.40	Agriculture	236.236	Project District

4. Environmental Impact Statement (EIS)

The Community Plan Amendment is a “trigger” action for Hawai‘i’s Environmental Impact Statement law, Chapter 343, Hawai‘i Revised Statutes. Additionally, off-site infrastructure work affecting State and County rights-of-way are anticipated, which may also act as triggers. Because of the overall scope of the project, which will induce significant population growth and require new infrastructure and public facility systems, it is anticipated that the project might generate environmental impacts. As such, an Environmental Impact Statement will be prepared to examine potential impacts and mitigation measures resulting from implementation of the proposed WCT Master Plan. The State Land Use Commission will serve as the Approving Agency for the EIS. This EIS Preparation Notice serves as official notice that the Approving Agency has

determined that the project may have significant effect and that an EIS is required. Upon publication of this Notice in the Environmental Bulletin, the public has 30 days to request to become a consulted party and make written comment upon the proposed action.

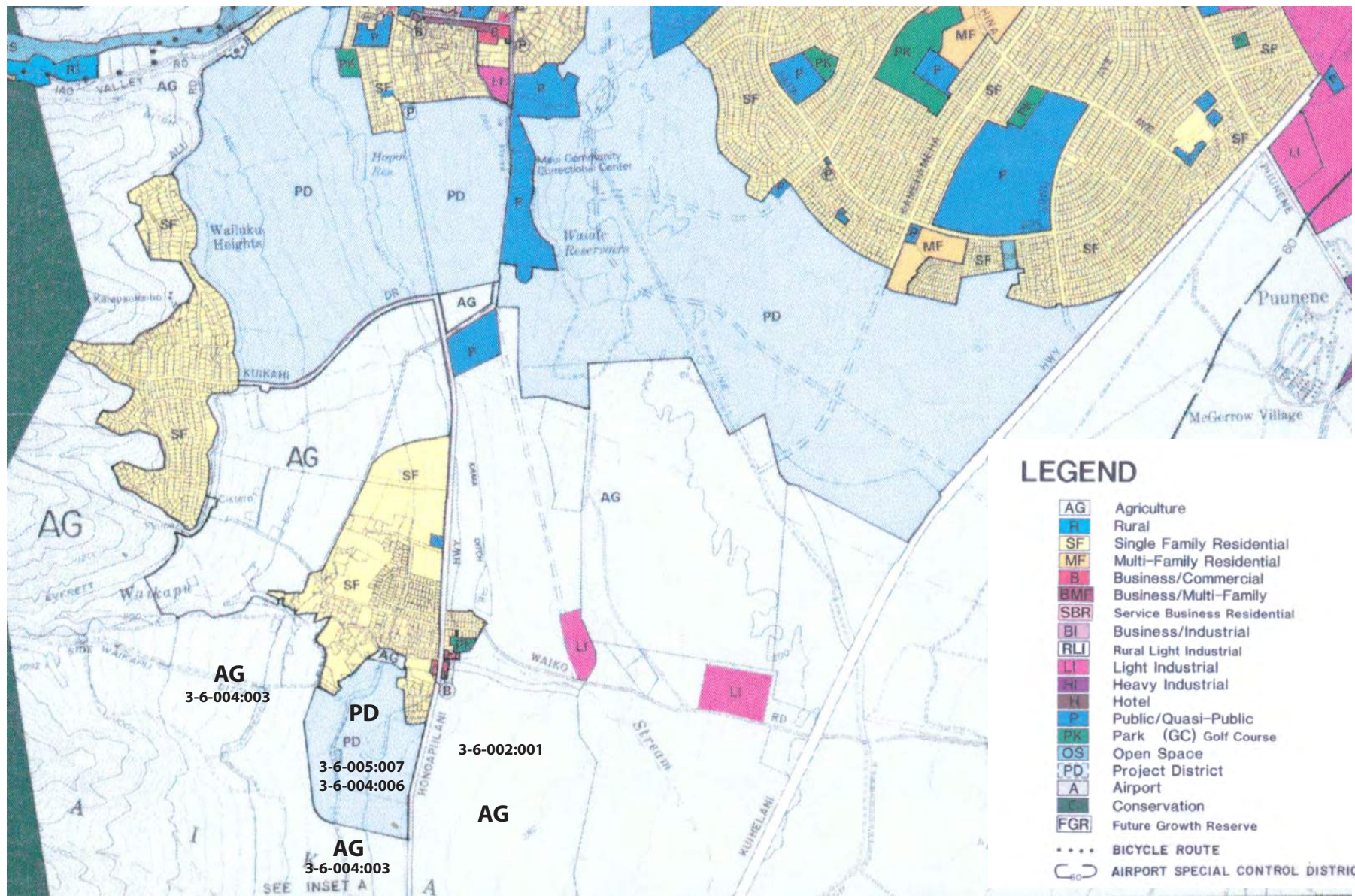


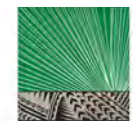
FIGURE 10

COMMUNITY PLAN MAP
(2) 3-6-005:007

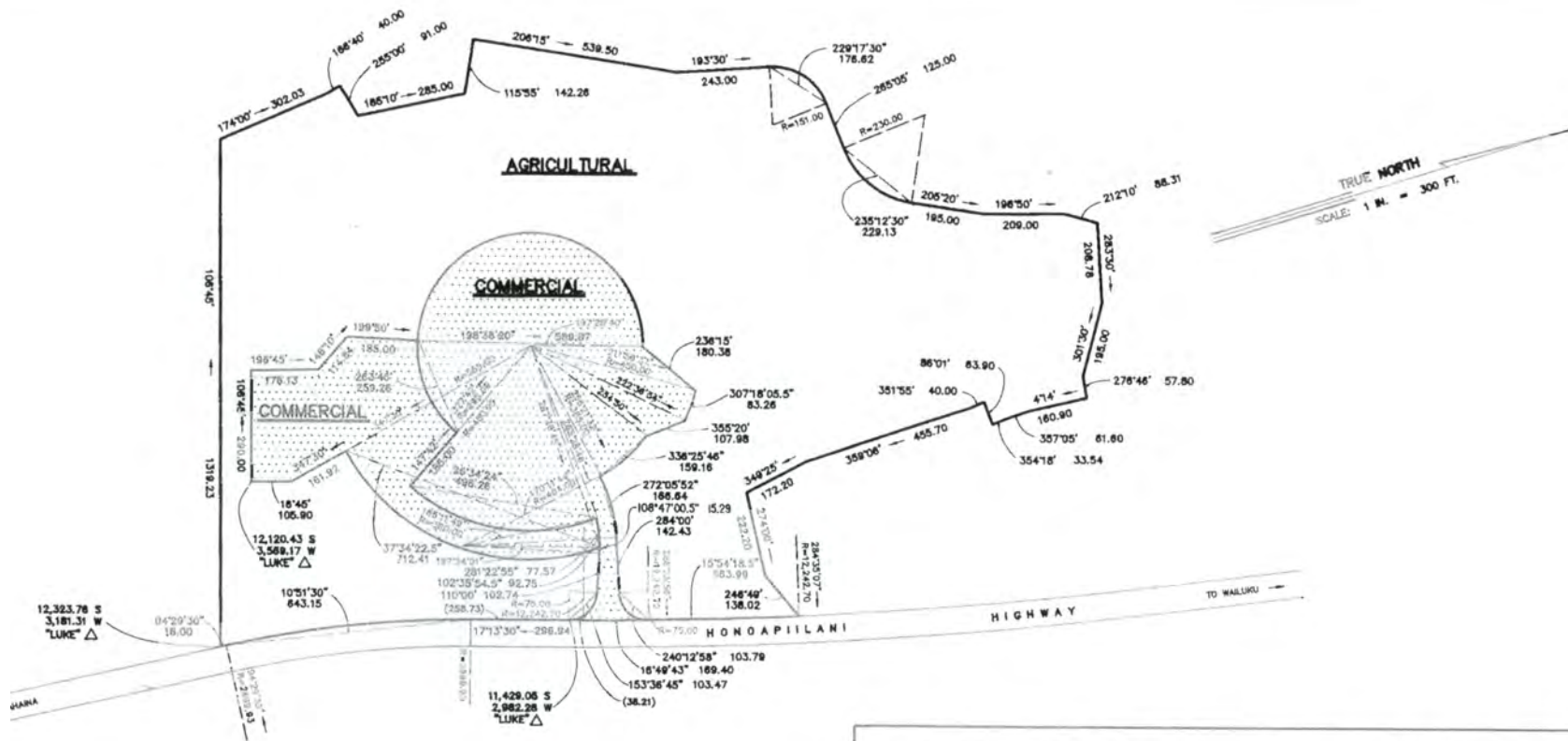


Not to Scale

WAIKAPŪ COUNTRY TOWN



PLANNING
CONSULTANTS
HAWAII, LLC



LAND:

AGRICULTURAL
COMMERCIAL

AREA:

45.054 ACRES
14.000 ACRES

TOTAL = 59.054 ACRES

X MAP KEY: 3-6-05 : PORTION OF 7

LAND ZONING MAP NO. 412

CHANGE IN ZONING - WAILUKU, MAUI
FROM COUNTY AGRICULTURAL DISTRICT TO WAILUKU /KAHULUI
PROJECT DISTRICT PD-WK/5

APPROVAL:

County Clerk

APPROVAL:

Planning Director

PUBLIC HEARING DATE: 11-05-91

ADOPTED BY COUNTY COUNCIL: 10-2-92

ADOPTED BY MAYOR: 10-5-92

ORDINANCE NO.: 2159 (BILL No 69(1992))

DATE:

SCALE: 1" = 300'

OFFICE OF THE COUNTY CLERK

200 SO. HIGH ST., WAILUKU, MAUI, HAWAII, 96793

L-412

FIGURE 11

MTP ZONING MAP
(2) 3-6-005:007



Not to Scale

WAIKAPŪ COUNTRY TOWN



PLANNING
CONSULTANTS
HAWAII, LLC

II. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

Existing Conditions. The project site is bound to the south by agricultural lands that are owned by the Applicant. These lands are leased by HC&S for sugar cane cultivation. To the west are agricultural lands that rise to the base of the West Maui Mountains. These lands are used for diversified agriculture and grazing cattle. To the east are agricultural lands that were recently acquired by the County of Maui for a County baseyard and regional park complex. Beyond the County owned property is agricultural land that A&B Properties proposes to develop. The proposed A&B development, known as Waiale, may include up to 2,550 residential units together with civic and commercial uses. In 2014 A&B Properties obtained a State Land Use Commission District Boundary Amendment from Agriculture to Urban to support the Waiale Development. To the north is the Waikapū Stream, which separates the proposed development from Waikapū Town. Waikapū Town is comprised mostly of single-family residences. Many of these residences were constructed from the early 1900s through the 1950s for workers of the Wailuku Sugar Company. The older neighborhoods are located along East and West Waiko Roads and are bound by the Waikapū Cemetery to the east, the Waikapū Stream to the south, and the mauka reaches of West Waiko Road. In recent years development has begun to stretch north, towards Wailuku, both mauka and makai of Honoapi'ilani Highway.

Potential Impacts and Mitigation Measures. The project area is located within the MIP's Small Town Growth Boundary. The MIP describes Waikapū Country Town as a "self-sufficient small town with a mix of single-family and multi-family housing units in a walkable community that includes affordable housing in close proximity to Wailuku's employment centers" The Draft EIS will thoroughly evaluate the potential impact of the Project on surrounding land uses.

2. Topography and Soils

Existing Conditions. Maui, like the rest of the Hawaiian Islands, was formed as the Pacific Plate moved over a “hot spot,” where the release of magma over thousands of years formed large volcanic islands. The process created two distinct shield volcanoes, Mauna Kahalawai (West Maui Mountains) in the west, and Haleakalā to the east, which together create the island of Maui. The West Maui Mountains comprise 25% of Maui’s land area. These mountains are steep and jagged, rising to 5,788 feet at Pu’u Kukui, with deep cut valleys formed by erosion from wind, rain and streams. Haleakalā, the larger eastern volcano, forms 75% of Maui’s land area. It rises to 10,023 feet at Pu’u ‘Ula’ula (Red Hill). As each volcano erupted they released lava and ash and, together with alluvium deposits, created the Central Maui isthmus, which joins the volcanoes together forming the island of Maui.

The project site lies within the fertile Central Maui isthmus, between the town of Wailuku to the north and Mā‘alaea to the south. The elevation on the mauka development site ranges from approximately 350 feet above mean sea level at its southeasterly corner to approximately 710 feet above mean sea level at its northwesterly corner, with a slope averaging approximately 8%. The elevation on the makai development site ranges from approximately 256 feet above mean sea level at a low point along the southerly border to approximately 408 feet above mean sea level at the northwesterly corner, with a slope averaging approximately 4%. The land within the agriculture preserve areas will remain undeveloped.

There are three soil series and seven soil types within the area proposed for development. The soil series are Pulehu Series, ‘Īao Series and the Wailuku Series. Each series consists of well-drained soils that are on alluvium fans formed from weathered basic igneous rock. The topography is gentle to moderately sloping, and the soil series are highly suited for both agriculture and urban development. The specific soil types are shown in Figure No. 12, “USDA Soils Map” and Table 10, “Waikapū Country Town Soil Types”.

Table 10: Waikapū Country Town Soil Types

Waikapū Country Town Soil Types	
Īao clay, 3 to 7 percent slopes (IcB)	
This soil occurs at elevations of 100 to 500 feet with slopes that range from 3 to 7 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 15 inches of clay, 15 to 48 inches of clay, and 48 to 60 inches of silty lay. The available water capacity is moderate at about 8.4 inches. Permeability is moderately slow. Runoff is medium and the erosion hazard is slight to moderate.	
Pulehu silt loam, 0 to 3 percent slopes (PpA)	
This soil occurs at elevations of 0 to 300 feet with slopes that range from 0 to 3 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of silt loam and 21 to 60 inches of silty clay loam. The available water capacity is moderate at about 8.4 inches. Permeability is moderately moderate. Runoff is slow and the erosion hazard is no more than slight.	
Pulehu cobbly clay loam, 3 to 7 percent slopes (PtB)	
This soil occurs at elevations of 0 to 300 feet with slopes that range from 3 to 7 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of cobbly clay loam and 21 to 60 inches of silty clay loam. The available water capacity is moderate at about 7.5 inches. Runoff is slow and the erosion hazard slight.	
Water > 40 acres (W)	
Water bodies greater than 40 acres.	
Wailuku silty clay, 3 to 7 percent slopes (WvC and WvB)	
This soil occurs at elevations of 50 to 1000 feet with slopes that range from 3 to 7 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 12 inches of silty clay and 12 to 60 inches of silty clay. The available water capacity is moderate at about 8.4 inches. Runoff is slow and the erosion hazard slight.	

Wailuku silty clay, 7 to 15 percent slopes (WvC and WvB)

<p>This soil occurs at elevations of 50 to 1000 feet with slopes that range from 7 to 15 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 12 inches of silty clay and 12 to 60 inches of silty clay. The available water capacity is moderate at about 8.4 inches. Runoff is slow and the erosion hazard slight.</p>



Potential Impacts and Mitigation Measures. Implementation of the WCT Master Plan will require grading for roads, parks, and buildings upon development.

A National Pollutant Discharge Elimination System (NPDES) permit will be required from the State of Hawai'i, Department of Health (DOH) prior to grading activities. During site preparation, storm runoff from the project area will be controlled in compliance with the County's "Soil Erosion and Sediment Control Standards." Typical mitigation measures include appropriately stockpiling materials on-site to prevent runoff and building over or establishing landscaping as early as possible on disturbed soils to minimize length of exposure.

Impacts to the soils include the potential for soil erosion and the generation of dust during construction. Clearing and grubbing activities will temporarily disturb the soil retention values of the existing vegetation and expose soils to erosion forces. Some wind erosion of soils could occur without a proper watering and revegetation program. Heavy rainfall could also cause erosion of soils within disturbed areas of land.

To the extent possible, improvements will conform to the contours of the land, further limiting the need for extensive grading of the site. In addition, graded areas will be limited to specific areas for short periods of time. Measures taken to control erosion during the site development period may include

- Minimizing the time of construction;
- Retaining existing ground cover as long as possible;
- Constructing drainage control features early;
- Using temporary area sprinklers in non-active construction areas when ground cover is removed;
- Providing a water truck on-site during the construction period to provide for immediate sprinkling as needed;
- Using temporary berms and cut-off ditches, where needed, for control of erosion;

- Watering graded areas when construction activity for each day has ceased;
- Grassing or planting all cut-and-fill slopes immediately after grading work has been completed; and
- Installing silt screens where appropriate.

Construction activities on the property will comply with all applicable Federal, State and County regulations and rules for erosion control. Before issuance of a grading permit by the County of Maui, the final erosion control plan and best management practices required for the NPDES permit will be completed. All construction activities will also comply with the provisions of Chapter 11-60.1, Hawai'i Administrative Rules (HAR), Section 11-60.1-33, pertaining to Fugitive Dust. After construction, the establishment of permanent landscaping will provide long-term erosion control.

3. Natural Hazards

Existing Conditions. Natural hazards impacting the Hawaiian Islands include hurricanes, tsunamis, volcanic eruptions, earthquakes, stream flooding, and coastal flooding.

Seismic hazards are those related to ground shaking. Landslides, ground cracks, rock falls and tsunamis are all seismic hazards. Engineers and other professionals have created a system of classifying seismic hazards on the basis of the expected strength of ground shaking and the probability of the shaking actually occurring within a specified time. The results are included in the Uniform Building Code (UBC) seismic provisions.

The UBC seismic provisions contain six seismic zones, ranging from 0 (no chance of severe ground shaking) to 4 (10% chance of severe shaking in a 50-year interval). Kauai County is located in Zone 1, County of Honolulu is Zone 2A, County of Maui is Zone 2B and County of Hawai'i is Zone 4.

In addition to seismic hazards, devastating hurricanes do occur and have impacted Hawai'i twice since 1980: Hurricane Iwa in 1982 and Hurricane Iniki in 1992. While it is difficult to predict these natural occurrences, it is reasonable to assume that future events could be likely, given the recent record.

Tsunamis are large, rapidly moving ocean waves triggered by a major disturbance of the ocean floor, which is usually caused by an earthquake but sometimes can be produced by a submarine landslide or a volcanic eruption. About 50 tsunamis have been reported in the Hawaiian Islands since the early 1800s, including the most recent Tsunami as a result of the March 2011 earthquake in Japan. The Waikapū Country Town is outside of the Civil Defense Tsunami Evacuation Zone.

Volcanic hazards are not a concern in the Central Maui area due to the dormant status of Haleakalā. In Hawai'i most earthquakes are linked to volcanic activity, unlike other areas where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawai'i, the vast majority of them so small they are detectable only with highly sensitive instruments. However, moderate and disastrous earthquakes have also occurred.

The 1938 Maui Earthquake, with a magnitude of 6.7-6.9 on the Richter scale and an epicenter six (6) miles north of Maui, created landslides and forced the closure of the road to Hana. Damaged water pipes and ground fractures also were reported in Lāhainā. More recently, on October 16, 2006, a 6.7 magnitude earthquake struck on the underwater segment of the major rift zone of the Hualalai volcano on the northwest side of the Island of Hawai'i. The earthquake caused rockslides and some damage to roadways on Maui.

Flood hazards are primarily identified by the Flood Insurance Rate Map (FIRM) prepared by the United States Department of Homeland Security Federal Emergency Management Agency (FEMA), National Flood Insurance Program. Flood zone designation can also be identified by using the Hawai'i National Flood Insurance Program, Flood Hazard Assessment Tool. A portion

of TMK Parcel Nos. 3-6-002:003 and 3-6-004:003, paralleling the Waikapū Stream, are located in Zones AEF and AE and XS. Zones AEF and AE are Special Flood Hazard Areas subject to inundation by the 1% annual chance flood. These areas have a 1% chance of being subjected to the 100-year flood each year. Mandatory Flood Insurance must be carried within Special Flood Hazard Areas. Zone AEF is defined as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE. Zone AE is an area where the base flood elevation has been determined. Zone XS is an area of Non-Special Flood Hazard Area, which is an area considered to be of low to moderate risk. Mandatory flood insurance is not required in the Non-Special Flood Hazard Area. Zone XS is defined as an area of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood (**See:** Figure 13 A-E, “Flood Hazard Assessment Maps”).

Potential Impacts and Mitigation Measures. Any structures built within the WCT site will be constructed for protection from earthquakes and the destructive winds and torrential rainfall of tropical hurricanes, in accordance with the Building Code adopted by the County of Maui. All work will comply with applicable flood zone standards, such as those set forth in Chapter 19.62, “Flood Hazard Areas”, Maui County Code.

The project area located adjacent to the Waikapū Stream, within the Special Flood Hazard Area, is proposed to be set aside for parks, open space and agriculture. No structures will be will be located within Zone AEF.

The WCT project site is located approximately 3.5 miles inland of Kahului Harbor and about 4 miles inland of Mā‘alaea Harbor and should therefore not be impacted by tsunami or coastal flooding. In addition, the proposed development will be designed with a drainage system, including detention basins, to mitigate any increase in runoff that could negatively impact neighboring properties.

FLOOD HAZARD ASSESSMENT REPORT

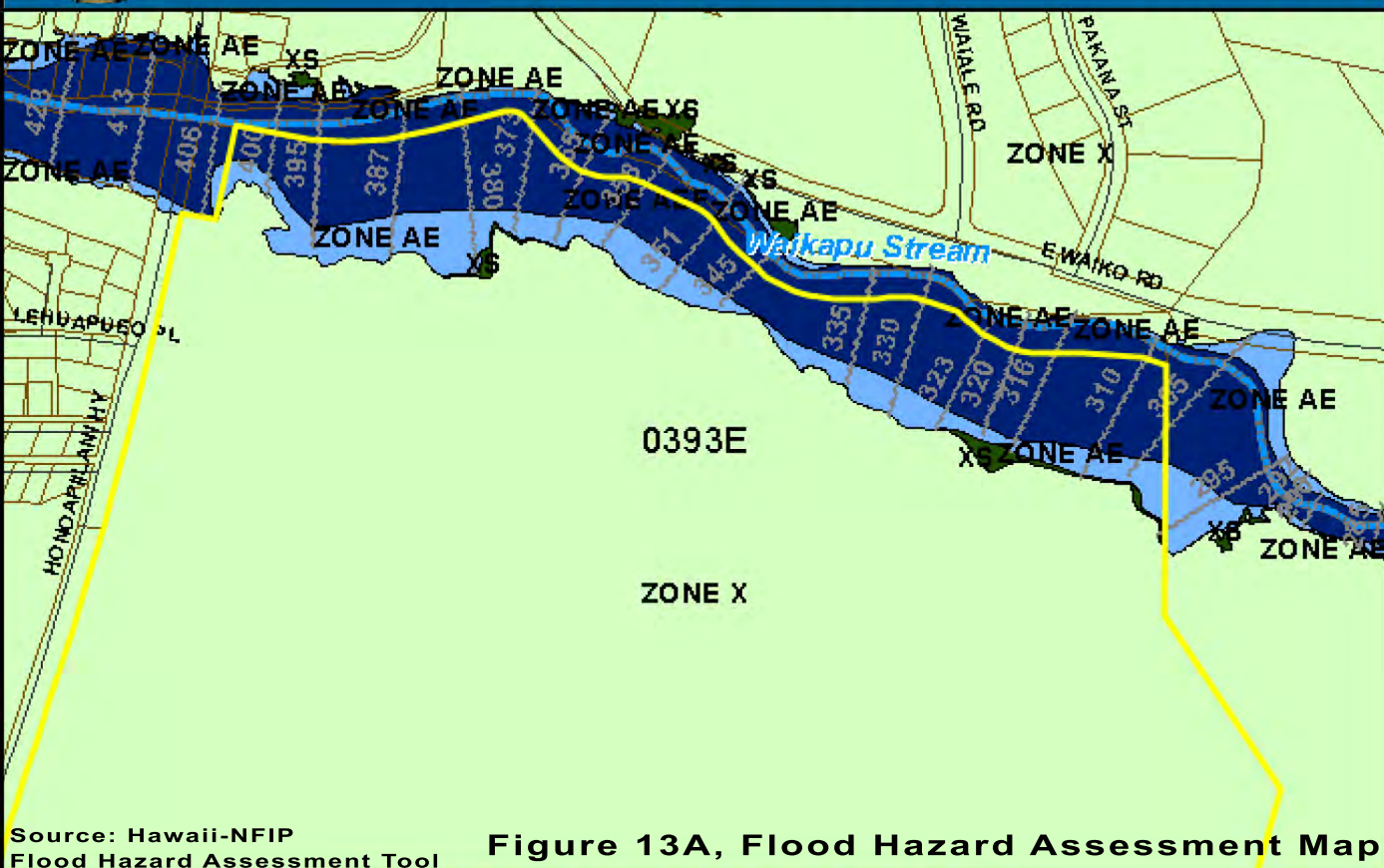









Figure 13A, Flood Hazard Assessment Map

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- | | |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Zone A: No BFE determined. |
|  | Zone AE: BFE determined. |
|  | Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined. |
|  | Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. |
|  | Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined. |
|  | Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined. |
|  | Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE. |

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	MAUI
TMK NO:	(2) 3-6-002-003
PARCEL ADDRESS:	HONOAPIILANI HWY WAILUKU, HI 96793
FIRM INDEX DATE:	SEPTEMBER 19, 2012
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	1500030393E-SEPTEMBER 25, 2009 1500030556E-SEPTEMBER 19, 2012

PARCEL DATA FROM: JULY 2013
IMAGERY DATA FROM: MAY 2005

IMPORTANT PHONE NUMBERS

County NFIP Coordinator
County of Maui
Carolyn Cortez (808) 270-7253

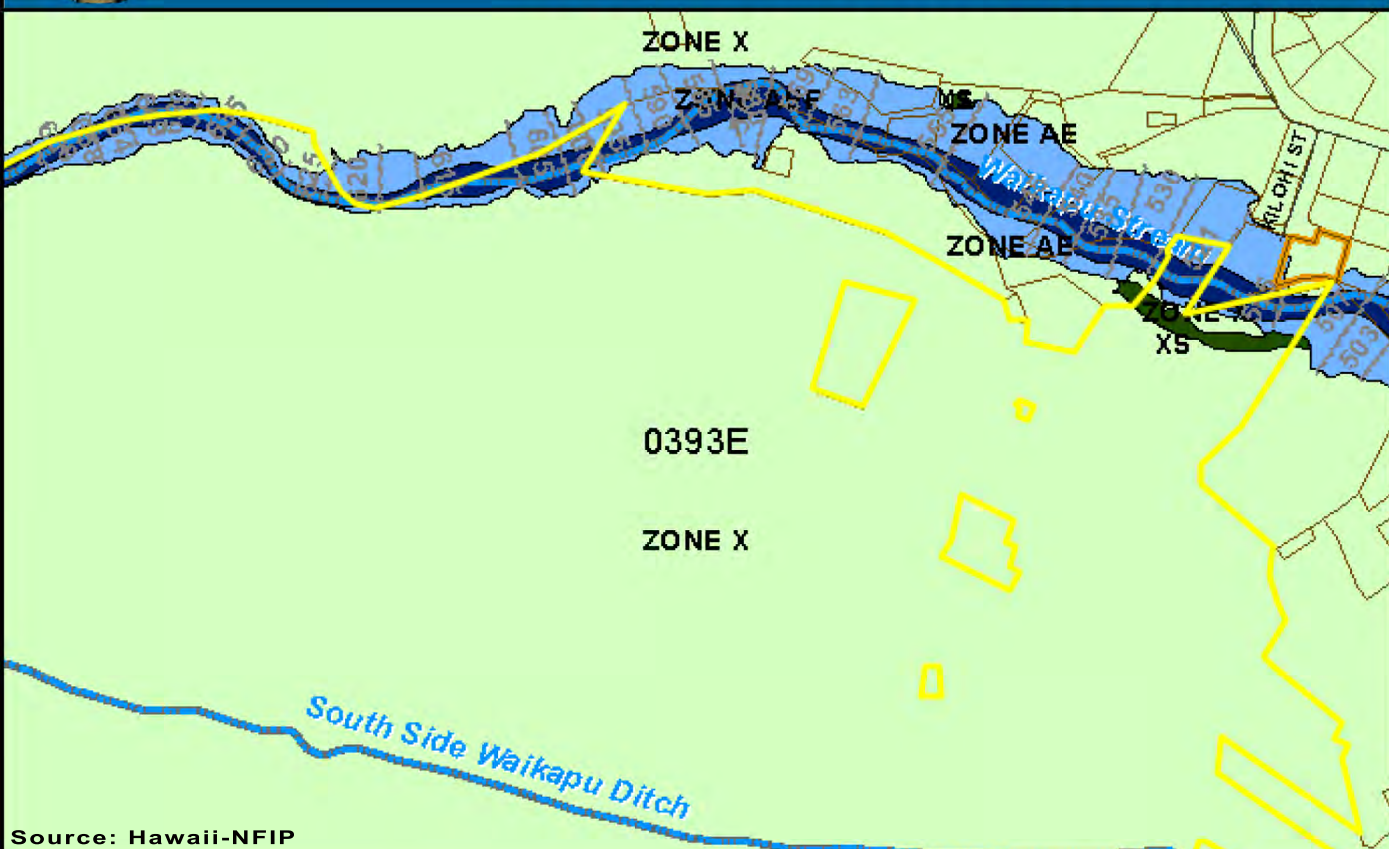
State NFIP Coordinator
Carol Tyau-Beam, P.E., CFM (808) 587-0267

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FLOOD HAZARD ASSESSMENT REPORT



Source: Hawaii-NFIP

Flood Hazard Assessment Tool

Figure 13B, Flood Hazard Assessment Map

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY: MAUI
TMK NO: (2) 3-6-004-003
PARCEL ADDRESS: HONOAIIILANI HWY
WAILUKU, HI 96793
FIRM INDEX DATE: SEPTEMBER 19, 2012
LETTER OF MAP CHANGE(S): NONE
FEMA FIRM PANEL(S):
1500030389E-SEPTEMBER 25, 2009
1500030393E-SEPTEMBER 25, 2009
1500030556F-SEPTEMBER 19, 2012

PARCEL DATA FROM: JULY 2013
IMAGERY DATA FROM: MAY 2005

IMPORTANT PHONE NUMBERS

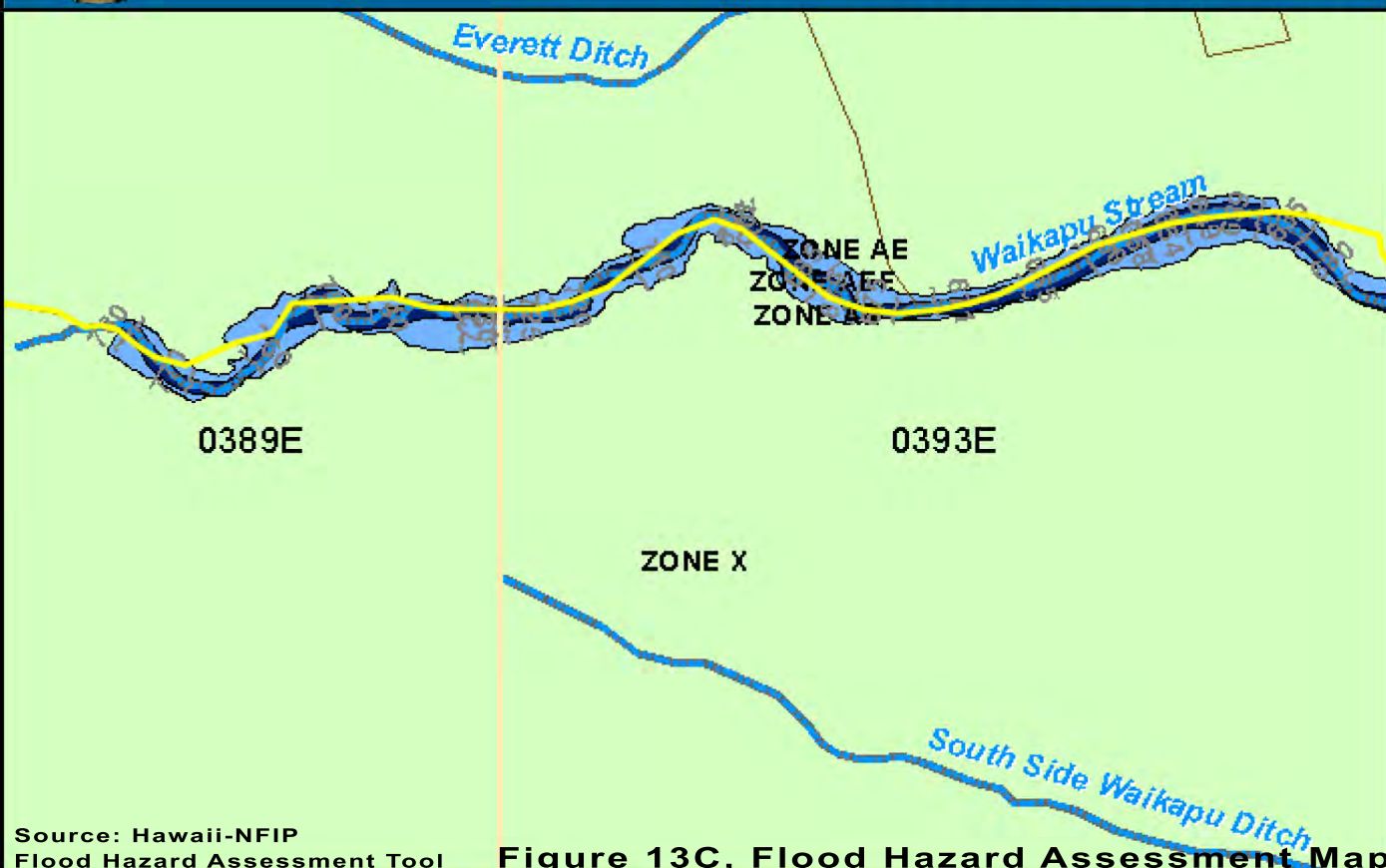
County NFIP Coordinator
County of Maui
Carolyn Cortez (808) 270-7253
State NFIP Coordinator
Carol Tyau-Beam, P.E., CFM (808) 587-0267

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FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY: MAUI
TMK NO: (2) 3-6-004-003
PARCEL ADDRESS: HONOAPIILANI HWY
WAILUKU, HI 96793
FIRM INDEX DATE: SEPTEMBER 19, 2012
LETTER OF MAP CHANGE(S): NONE
FEMA FIRM PANEL(S):
1500030389E-SEPTEMBER 25, 2009
1500030393E-SEPTEMBER 25, 2009
1500030556F-SEPTEMBER 19, 2012

PARCEL DATA FROM: JULY 2013
IMAGERY DATA FROM: MAY 2005

IMPORTANT PHONE NUMBERS

County NFIP Coordinator
County of Maui
Carolyn Cortez (808) 270-7253
State NFIP Coordinator
Carol Tyau-Beam, P.E., CFM (808) 587-0267

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FLOOD HAZARD ASSESSMENT REPORT

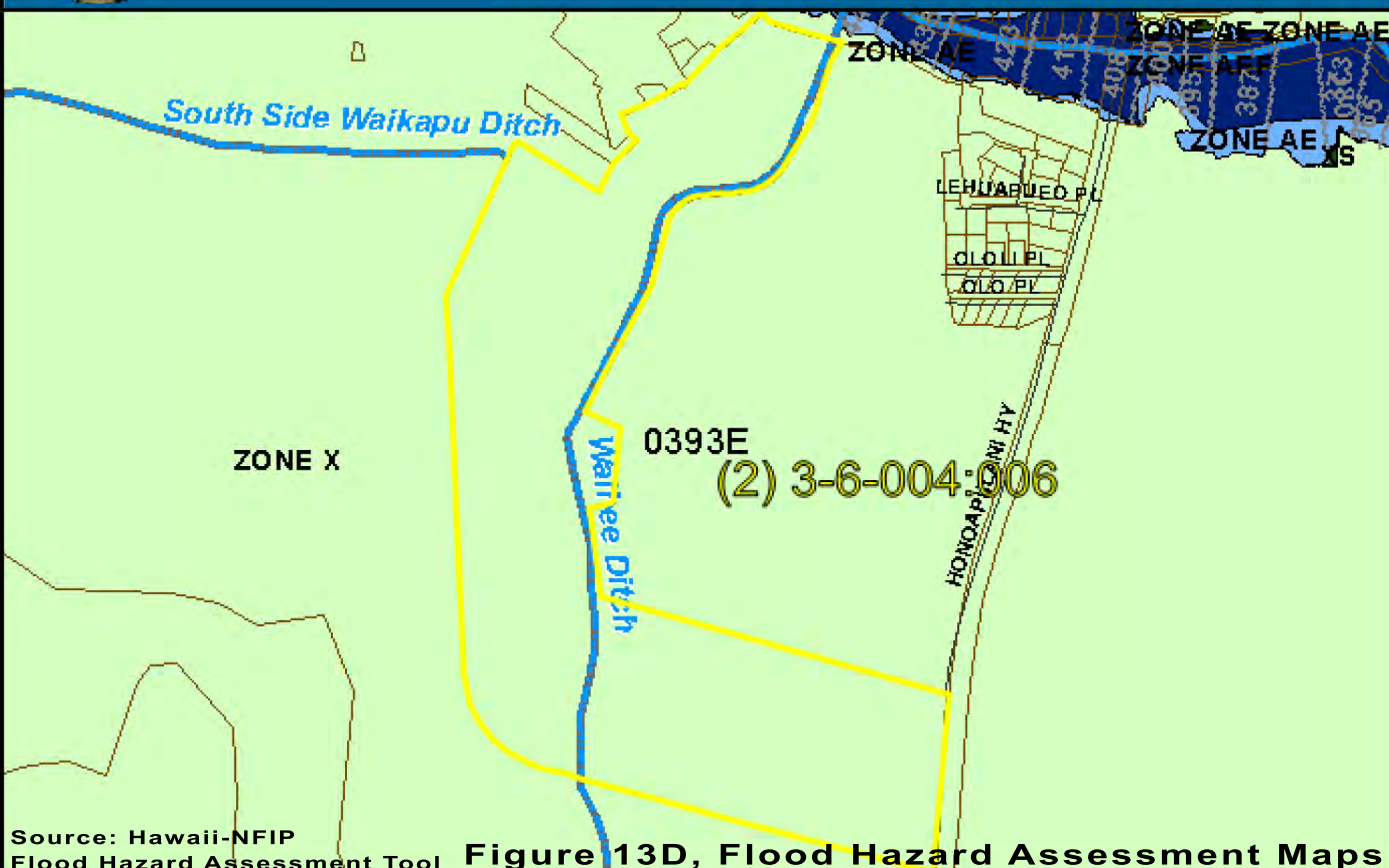


Figure 13D, Flood Hazard Assessment Maps

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY: MAUI
TMK NO: (2) 3-6-004-006
PARCEL ADDRESS: 2000 HONOAPIILANI HWY
WAILUKU, HI 96793
FIRM INDEX DATE: SEPTEMBER 19, 2012
LETTER OF MAP CHANGE(S): NONE
FEMA FIRM PANEL(S): 1500030393E
PANEL EFFECTIVE DATE: SEPTEMBER 25, 2009

PARCEL DATA FROM: JULY 2013
IMAGERY DATA FROM: MAY 2005

IMPORTANT PHONE NUMBERS

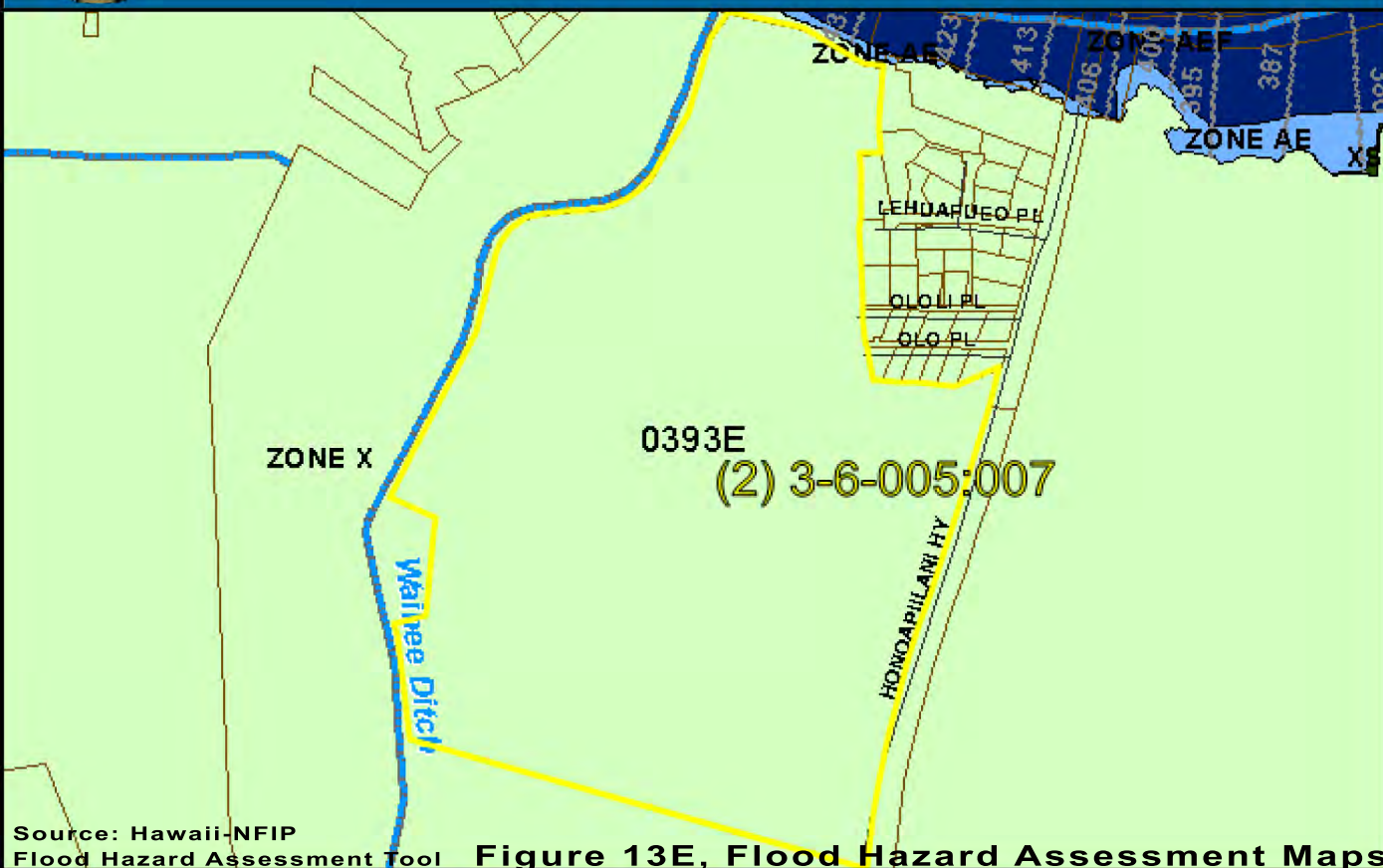
County NFIP Coordinator
County of Maui
Carolyn Cortez (808) 270-7253
State NFIP Coordinator
Carol Tyau-Beam, P.E., CFM (808) 587-0267

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FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

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- Zone A:** No BFE determined.
- Zone AE:** BFE determined.
- Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY: MAUI
TMK NO: (2) 3-6-005-007
PARCEL ADDRESS: 1670 HONOAPIILANI HWY
WAILUKU, HI 96793
FIRM INDEX DATE: SEPTEMBER 19, 2012
LETTER OF MAP CHANGE(S): NONE
FEMA FIRM PANEL(S): 1500030393E
PANEL EFFECTIVE DATE: SEPTEMBER 25, 2009

PARCEL DATA FROM: JULY 2013
IMAGERY DATA FROM: MAY 2005

IMPORTANT PHONE NUMBERS

County NFIP Coordinator
County of Maui
Carolyn Cortez (808) 270-7253
State NFIP Coordinator
Carol Tyau-Beam, P.E., CFM (808) 587-0267

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4. Flora and Fauna

Existing Conditions. Botanical and Faunal Surveys were conducted by Robert W. Hobdy, Environmental Consultant, in February 2013 for the 494 acres proposed for development (See: Appendix B, “Botanical and Faunal Surveys”).

A total of 130 plant species were recorded during the survey. Seven species were found to be common within the project area: buffelgrass (*Cenchrus ciliaris*), Guinea grass (*Megathyrsus maximus*), sugar cane (*Saccharum officinarum*), smooth rattlepod (*Crotalaria pallida*), cheeseweed (*Malva parviflora*), ‘uhaloa (*Waltheria indica*) and Java plum (*Syzygium cumini*). These species are found naturally in Hawai‘i as well as throughout the tropics nearly worldwide and are common.

Just 3 native species were found within the project area: ‘uhaloa, koali awahia (*Ipomoea indica*) and popolo (*Solanum americanum*). These species are found naturally in Hawai‘i as well as throughout the tropics nearly worldwide and are common. Four plant species found during the survey were introduced over a thousand years ago by Polynesian voyagers: kukui (*Aleurites moluccana*), niu (*Cocos nucifera*), hau (*Talipariti tileaceum*) and ‘ihi‘ai (*Oxalis corniculata*). The remaining 123 species were non-native plants, including some useful forage grasses, but many are considered to be agricultural or roadside weeds.

All of the mammals recorded are common non-native species of no particular concern. None of the endangered Hawaiian hoary bats were detected during the survey. Birdlife is dominated by widespread introduced species. While no protected seabirds were found on the property, the ‘ua‘u and ‘a‘o are known to overfly the area between the months of March and November.

Three native insects were recorded during the survey. The indigenous dragonflies, the globe skimmer and the green darner are both widespread and common, both in Hawai‘i and elsewhere, and are of no particular conservation concern. The Blackburn’s sphinx moth, however, is an endangered species and is of special concern. Just two individuals of its preferred

host plants, the tree tobacco, were found on the northern end of the sugar cane fields at the base of a stockpiled sand pile. These two plants were carefully examined for eggs, larvae or signs of feeding. One plant was found to have two mature eggs on separate leaves. The eggs had turned brown, indicating they were ready to hatch out young larvae. Tree tobacco plants are not native to Hawai'i, but fall under the protection of the Endangered Species Act (1973) during the period of their association with the Endangered Blackburn's sphinx moth. The occurrences of the non-native amphibians, reptiles and mollusks are of no particular interest or concern.

Potential Impacts and Mitigation Measures. As a result of the above findings it is determined that there is little of botanical concern and that the proposed project is not expected to have a significant negative impact on the botanical resources in this part of Maui. No recommendations with regard to plants are deemed appropriate or necessary.

With respect to the 'ua'u and 'a'o which are known to overfly the property, it is recommended that any significant outdoor lighting be shielded to direct the light downward so that it is not visible from above. This is because the 'ua'u and 'a'o are easily confused and distracted by bright lights and often crash to the ground, where they are particularly vulnerable to being run over by vehicles or killed by predators.

As for the presence of the two tree tobacco plants, one of which was host to two mature Blackburn's sphinx moth eggs, it is recommended that this occurrence be reported to the U.S. Fish and Wildlife Service so that the required protections and management actions can be clarified.

5. Air Quality

Existing Conditions. The air quality in the Central Maui area is generally good. Existing impacts to air quality include periodic impacts from distant volcanic emissions (VOG) and possibly occasional localized impacts from traffic congestion or agricultural activities.

Both Federal and State standards have been established to maintain ambient air quality. Seven parameters are regulated: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone, and lead. State of Hawai'i air quality standards are either equally or more stringent than the comparable national standards.

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 Central Maui area is very much affected by its location on the isthmus, between the western side of Haleakalā and the West Maui Mountains, which gusty northeast tradewinds funnel through. The project site experiences relatively strong trade winds that blow from north to south across the isthmus and out to sea. At 30-feet above the ground, wind speeds across the site range from about 5.5 meters per second to 7.5 meters per second, which is approximately 12 to 17 miles per hour.^{vi}

A generally semi-arid climate pertains. The project site receives its highest rainfall during the winter and lowest rainfall during the summer. Throughout the year rainfall is relatively low, averaging approximately 20- to 30-inches per year, with the monthly average ranging from 0.25 inches in August to approximately 5-inches in January.^{vii}

Potential Impacts and Mitigation Measures. During development, grading and construction-related activities will result in short-term impacts to air quality. Best Management Practices (BMPs) will help to mitigate such impacts. Adequate dust control measures, in compliance with Section 11-60-1-33, "Fugitive Dust", of the Hawai'i Administrative Rules will be implemented during all phases of construction. Mitigation measures will be implemented to minimize potential air quality impacts, as listed below.

Short-Term Construction Activities. All construction activities will comply with the provisions of HAR, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust. In compliance with these provisions a dust control plan will be implemented during all phases of construction. Fugitive dust emissions will be controlled to a large extent by watering of active work areas,

using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures that may be implemented include limiting the area disturbed at any given time and/or mulching or stabilizing inactive areas that have been worked. Paving and landscaping early in the construction schedule will also reduce dust emissions. Exhaust emissions from construction equipment can be mitigated by moving equipment and workers to and from the site during off-peak traffic hours. The Draft EIS will include an Air Quality Impact Assessment prepared by B.D. Neal & Associates that will further document the project's potential short- and long-term impacts to air quality along with mitigation measures, if necessary, to reduce those impacts.

6. Noise Quality

Existing Conditions. The dominant noise sources in the vicinity of the project are from vehicles using Honoapi'ilani Highway and from the seasonal use of harvesting equipment used by HC&S. There are currently no significant noise generators within or in close proximity to the property.

Potential Impacts and Mitigation Measures. The Draft EIS will include a Noise Impact Assessment prepared by DL Adams & Associates that will further document the project's potential short- and long-term impacts to noise levels along with mitigation measures, if necessary, to reduce those impacts.

7. Historical and Archaeological Resources

Existing Conditions. An Archaeological Inventory Survey (AIS) is being prepared by Archaeological Services Hawai'i, LLC for the 499 acres of the project that are proposed for development. The purpose of the inventory survey is to determine the presence/absence, extent, and significance of historic properties within the project area and to formulate future mitigation measures for these remains within the project area.

Potential Impacts and Mitigation Measures. Potential impacts and mitigation measures to archaeological resources will be assessed during the preparation of the AIS and will be thoroughly documented in the DEIS.

8. Cultural Impact Assessment

Existing Conditions. A Cultural Impact Assessment (CIA) is being prepared by Hana Pono, LLC to describe existing Native Hawaiian cultural activities, practices and resources that occur on the property, potential impacts from the project, and mitigation, if necessary, to address these impacts.

The WCT project site has been used for agricultural purposes, primarily for sugarcane, since the 1870s. Prior to sugarcane, the lands along the Waikapū Stream, and in and around the existing Waikapū Town, were settled by native Hawaiians who cultivated taro and other diversified crops in terraced lo'i . The Waikapū Stream, one of four streams that comprise the Nā Wai 'Ehā, is an important cultural resource to native Hawaiians, who continue to have riparian rights for agricultural purposes. There are many Kuleana lots, many still owned by native Hawaiian and kama'āina families, within Waikapū and in close proximity to the Waikapū Stream. The Waikapū Stream corridor provides access to the Waikapū Valley, where native Hawaiian groups are currently reintroducing indigenous plants and trees into the valley.

Potential Impacts and Mitigation Measures. The CIA, which is currently being prepared, will further document the history of the site and will identify and document any potential cultural impacts resulting from the project. The CIA will be incorporated into the Draft EIS.

9. Visual Resources

Existing Conditions. The WCT project area is located between the town of Wailuku to the north and Mā'alaea to the south along the Honoapi'ilani Highway. The project site generally slopes from west to east with a high elevation of approximately 710 feet msl at the northwesterly

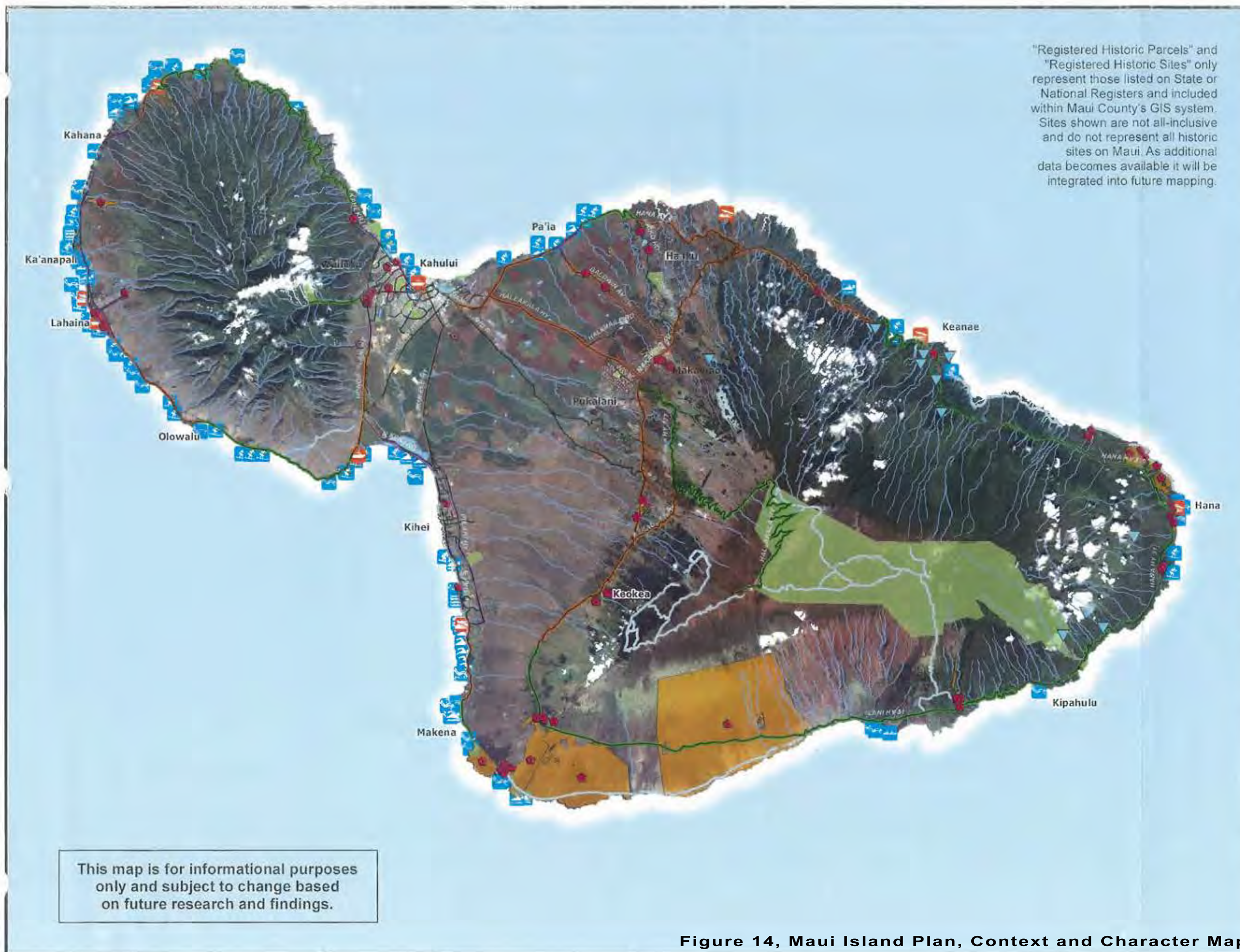
corner and a low elevation of about 256 feet above msl at the southerly corner, within the fertile Central Maui isthmus.

Views from within the project site are both diverse and dramatic. Largely unobstructed views of Haleakalā, the West Maui Mountains, the Central Maui isthmus and the Pacific Ocean are available at the mid and upper elevations. At the higher elevations Wailuku and Kahului, East Maui and South Maui are all visible. From the lower elevations largely unobstructed views are available of the West Maui Mountains, Haleakalā, and sugar cane lands that stretch from Honoapiʻilani Highway to Māʻala and Kihei.

These same lower elevation views are presently available from Honoapiʻilani Highway looking into the project site. The existing mauka view from Honoapiʻilani Highway into the project site is of agricultural fields planted in sugar and diversified crops, the MTP, and the rugged West Maui Mountains. The makai view from the highway is of the existing sugarcane fields and Haleakalā. When the sugarcane is cut there are intermittent views of the ocean horizon (**See:** Figure 4 A-O, “Existing Photographs”).

Potential Impacts and Mitigation Measures. Chris Hart & Partners, Inc. prepared an island-wide Scenic Resources Inventory Study for the County of Maui, Department of Planning, in July 2006 in support of the General Plan 2030 Update. The purpose of the study was to inventory and rate the island’s scenic resources so that appropriate advanced planning and mitigation strategies could be employed to protect these resources. The MIP incorporates the study’s scenic roadway corridor recommendations into its “Context and Character Map” and references the corridors in policies within Chapter 3, Heritage Resources (**See:** Figure No. 14, “Maui Island Plan, Context and Character Map”).

The Scenic Resources Inventory Study identifies the area along Honoapiʻilani Highway, fronting the project site, as an area of “High” scenic resource value. In the study, areas of “Exceptional” and “High” resource value are described as having “dramatic and diverse resource values



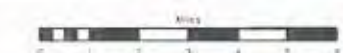
Character & Context Map

Island of Maui

Background Map
For Informational Purposes Only

Legend

- Primary Road
- Na Ala Hele or Other Trail
- Stream
- Wetland, Pond or Reservoir
- Waterfall
- Registered Historic Site
- Registered Historic Parcel
- Parks
- Scenic Corridor
 - Exceptional
 - High
 - Medium
- Boating Facility
 - Boat Launch Ramp
 - Small Boat Harbor
- Aquatic Activity
 - Ocean Recreation
 - Board Surfing
 - Body Surfing
 - Canoe Paddling
 - Snorkeling/Diving



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This is not a zoning map. Please contact the Planning Department for Zoning confirmation.

Prepared by:
Long Range Planning Division
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Map I-1



Figure 14, Maui Island Plan, Context and Character Map

consistently throughout the corridor” and are “typically in a natural condition and unmarked by development.” The study’s GIS inventory provides “field study” notes that describe the character of the subject corridor. The notes describing the Honoapi’ilani corridor, fronting the project site, are as follows:

High concentration of agricultural lands; open space; and distant Haleakalā views. Intact West Maui mountain views and expansive views of Mā’alaea and the Kīhei coastline and Lanai views exist. There is considerable utility clutter along the highway. Sprawl conditions along the highway between Waikapū and Mā’alaea should be avoided through the establishment of clear boundaries and features such as landscape plantings and entry signage.

Chapter 3, Heritage Resources, of the MIP contains policies that discourage sprawl and the merging of the island’s small towns. MIP policies also protect views of Haleakalā, the West Maui Mountains, the Pacific Ocean and other scenic resources.

As such, design strategies are needed to mitigate the impact of the proposed development on these visual resources. To accomplish this objective, the WCT Master Plan incorporates the following urban design strategies to address sprawl, impact to Haleakalā and West Maui Mountain views, and impact to open space resources:

- **Sprawl.** The WCT will have approximately one-mile of frontage along the Honoapi’ilani Highway. This frontage will occur on each side of the highway and will contain a variety of uses, including commercial, residential, rural, multi-family, schools and parks. The development pattern will represent a significant change from the current open space views that exist along this section of the highway. While the existing open space views of sugar cane fields will be impacted by the development, setbacks of at least 40, and in some areas up to 100-feet, will be utilized along each side of the Honoapi’ilani Highway to separate the development from the public right-of-way. Within these setbacks, the planting of large canopy Monkey Pod trees, tropical shrubs and bushes and grass will be

maintained to create a sense of separation and definition between the urban development and the highway. In addition, an approximate 10-foot wide shared pedestrian and bicycle track, separated from the highway, will meander along the highway frontage.

- ***Haleakalā and West Maui Mountains.*** From Honoapiʻilani Highway, the elevation of the project site rises rather gradually, at a 3% to 6% slope, from about 325-feet above mls to about 550-feet where the Waikapū Ditch traverses north to south across the property. From the Waikapū Ditch the slopes increase to between 10% and 15% as the elevation increases to the foot of the West Maui Mountains. The foot of the West Maui Mountains is at an elevation of approximately 1,250 feet and is about 3,000 feet from the highway.

In order to mitigate the obstruction of views from the highway to the West Maui Mountains, buildings will be setback at least 40-feet from the highway and building heights will be limited to a maximum of 30-feet along the highway frontage. Within the project, roadways will also be aligned, where practicable, to capture mauka and makai view corridors. This opportunity exists at each entrance into the project site and along these roads as they travel east to west.

- ***Open Space Resources.*** The project will impact views of sugarcane lands on each side of the Honoapiʻilani Highway fronting the project site. While these views are not unique within Central Maui, they do enhance Maui's beauty and are an important visual resource. In order to mitigate this impact, approximately 800 acres of sugarcane land will be preserved in perpetuity as an open space buffer and permanent separation between Waikapū Town and Māʻalaēa. Along the section of the highway where agricultural land is to be preserved, largely unobstructed views of Haleakalā, the West Maui Mountains and partial views of the Pacific Ocean exist.

Within the project site, the WCT Master Plan will transform the current character of the MTP from a visitor oriented attraction to a park-like town center, with its existing lagoon, gardens, open spaces, shops, and restaurant coming together to create a unique sense of place. While the existing agricultural and open space ambiance of the lands abutting the MTP will be transformed to an urban settlement pattern, the WCT will maintain a rural and agricultural ambiance at its boundaries because of the preservation of agricultural land.

The WCT Master Plan Design Guidelines will limit building heights, where necessary, in order to maintain views towards the summit of Haleakalā and the West Maui Mountains. Moreover, open space will be integrated throughout the Project and, together with the proposed street layout, will create and frame view corridors throughout the WCT to the Pacific Ocean, Haleakalā, and the West Maui Mountains.

From an urban design perspective, the proposed project will complement the unique country-town architectural character that exists in Waikapū, Wailuku, Pāʻia, and Makawao. The WCT design guidelines are being developed to control the density, architectural design, and variation of all buildings in the WCT without sacrificing views or the aesthetic character of the development. Goals of the design guidelines will be to protect views, access to sunlight and the aesthetic character of the community. A defining quality of the urban design character of the development will be architecturally pleasing streets, with landscape planting that will frames the travel ways and help to screen the massing of buildings.

All buildings within the WCT will be designed in accordance with the applicable Maui County building code standards.

10. Agricultural Resources

Existing Conditions. In July 2013 Planning Consultants Hawai'i, LLC prepared an Agricultural Impact Assessment (AIA) to assess the long-term impact of the project on the State's and County's agricultural industries (See: Appendix C, "Agricultural Impact Assessment").

The scope of the study included the following tasks:

- Assessment of the current status of Hawai'i's agricultural industry;
- Assessment of the current availability of agricultural lands;
- Analysis of existing agronomic conditions within the project site;
- Description of the recent agricultural history of the property;
- Assessment of the impact of the project on current agricultural operations; and
- Analysis of the project's consistency with State and County agricultural policies.

The project area encompasses approximately 14 acres of State Urban District land and 1,562 acres of State Agricultural District land (See: Figure No. 5, "State Land Use Designation"). The existing MTP retail shops, restaurant, convention hall, tropical gardens and lagoon are on the urban designated land. In order to implement the Master Plan, approximately 485 acres will be re-designated from the State Agricultural District to the State Urban and Rural Districts.

Current Status of Hawai'i's Agricultural Industry

While agriculture, predominantly sugar and pineapple, dominated Hawai'i's economy from the late 1800s through the 1950s, its overall significance has declined dramatically since the advent of mass market tourism. In 1927, sugar alone created 56,600 jobs throughout the State, whereas in 2011 the entire agricultural industry employed just 6,900 workers.^{viii} In 2011, agriculture employed 1,600 Maui County workers, which was 2.4% of the 67,200 wage and salary jobs in the County.^{ix}

Hawai'i farmers face stiff competition in local, national, and international markets. In the Hawai'i market, off-shore suppliers dominate the market for most fresh fruits, vegetables, dairy,

meat, and poultry products. It has been estimated that 85% of all food consumed in Hawai'i statewide is imported.

In the U.S. Mainland market, Hawai'i growers have sustained the value of their sales in recent years, but have lost significant export value of sales to Japan. Significant impediments to agricultural development in Hawai'i include high labor costs, high transportation costs, high energy costs and high land costs.

Despite major challenges, Hawai'i's growers are competitive in many niche products and opportunities are available. Because 85% of food consumed in Hawai'i is imported, a significant market exists for farmers who can find creative ways to displace imports. Moreover, Hawai'i's seed crop industry has demonstrated that Hawai'i agriculture can have significant comparative advantage in some sectors. Substituting locally grown biofuels for imported petroleum may also provide opportunities for Hawai'i farmers over the coming decades.

State and County Agricultural Lands

Since 1960, there has been a release of approximately 316,590 acres from crop farming, primarily sugar and pineapple. ^x While some of these lands have been absorbed by urban development and other agricultural uses, much is fallow and available for agricultural use on Oahu, Maui, Molokai, Lanai and Kauai.

The County of Maui has approximately 402,354 acres within the State Agricultural District. Of these lands, approximately 244,088 acres, or 61%, is located on Maui. ^{xi} Using the LSB rating system, Maui alone has approximately 82,592 acres that are classified "A", "B", or "C". ^{xii} Since 1960, there has been a release of approximately 64,150 acres from crop farming, primarily sugar and pineapple, within the County. ^{xiii} While some of these lands have been absorbed by urban development and other agricultural uses, much is fallow and available on the islands of Maui, Molokai, and Lanai.

Although there is an abundant supply of productive agricultural land throughout the State, access to affordable agricultural lots offering long-term tenure remains an impediment to agricultural development in Hawai'i. The current shortage of available State and County agricultural park lots is symptomatic of this issue.

WCT, including its adjoining agricultural lands, comprises approximately 1,576 acres, 14 acres of which are within the State Urban District. Over 90% of the project's agricultural lands are rated "A" or "B" by the Land Study Bureau and "Prime" by the Agricultural Lands of Importance to the State of Hawai'i rating systems (**See:** Figure Nos. 15 and 16, "Land Study Bureau Map" and "ALISH Map"). WCT agricultural lands are of very high quality and it has been determined that these lands are important resources to the State of Hawai'i.

Potential Impacts and Mitigation Measures. The Project will result in the urbanization of approximately 485 acres of prime agricultural land. This represents a very small percentage of agricultural lands statewide and on Maui. There are approximately 2 million acres in the State Agricultural District. The subject development represents just .024% of this area. On Maui, there are approximately 82,582 acres of agricultural lands rated by the LSB as A, B, or C. The subject development represents just 0.59% of these lands. Within Maui County, approximately 64,150 acres has been released from crop production since 1987. The subject development represents just 0.76% of these lands. Thus, the urbanization of the subject 485 acres should have minimal long-term impact on the availability of agricultural land within the County and/or State since an abundance of other land, of a similar or higher quality, is currently fallow and available for production elsewhere. As noted, the MTP Master Plan's agricultural component includes nearly 1,077 acres of land that will remain in agricultural use. Of these lands, approximately 800 acres will be permanently dedicated to agricultural use with no residential structures to be permitted. The remaining 277 acres may be subdivided into as many as five large agricultural lots where a farm dwelling may be permitted. Within the agricultural lands, several hundred acres may be developed as a public and/or private agricultural park to help facilitate Maui's agricultural development.

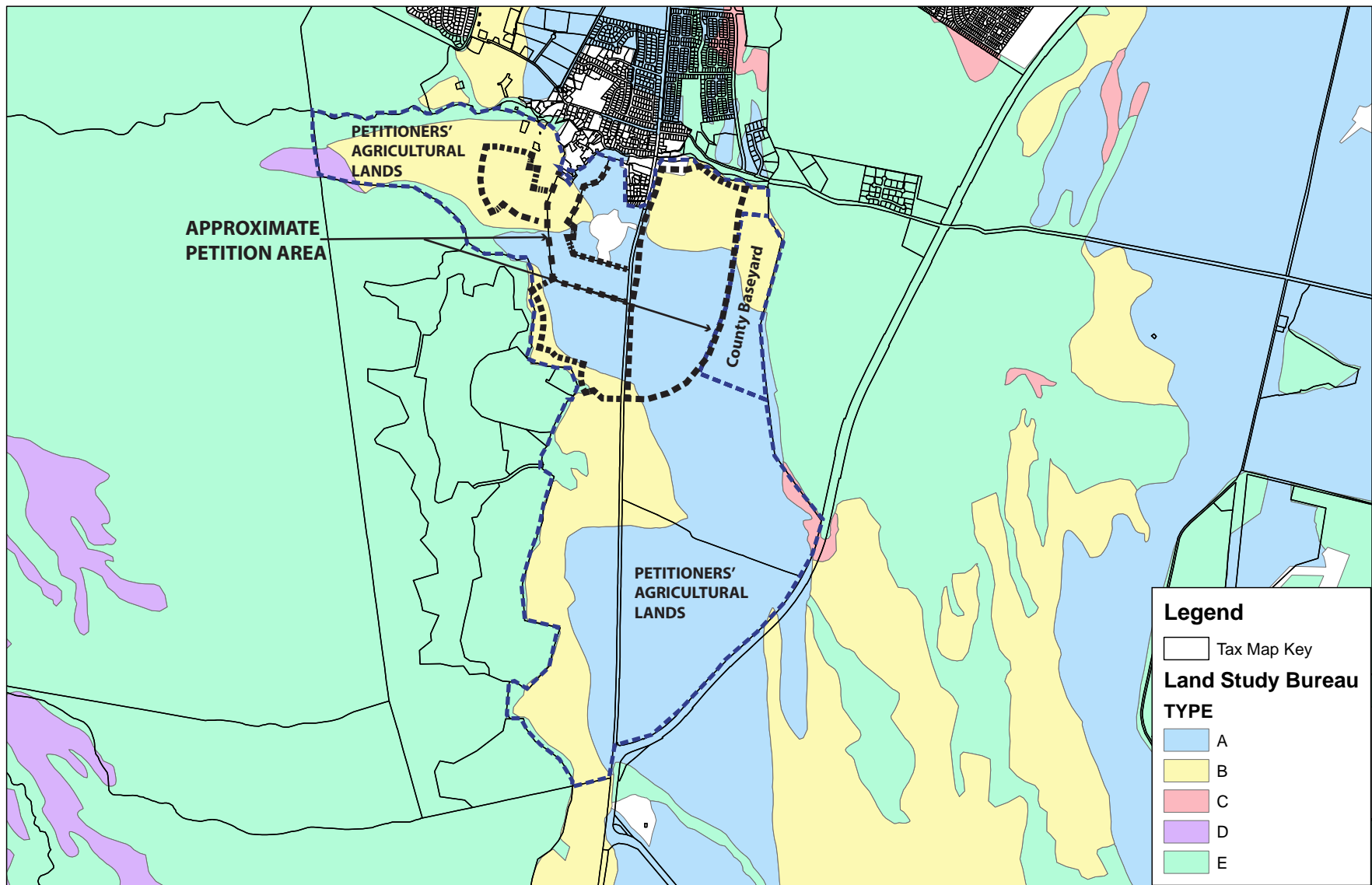


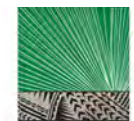
Figure 15

LAND STUDY BUREAU
DETAILED LAND CLASSIFICATION



Not to Scale

WAIKAPŪ COUNTRY TOWN



PLANNING
CONSULTANTS
HAWAII, LLC

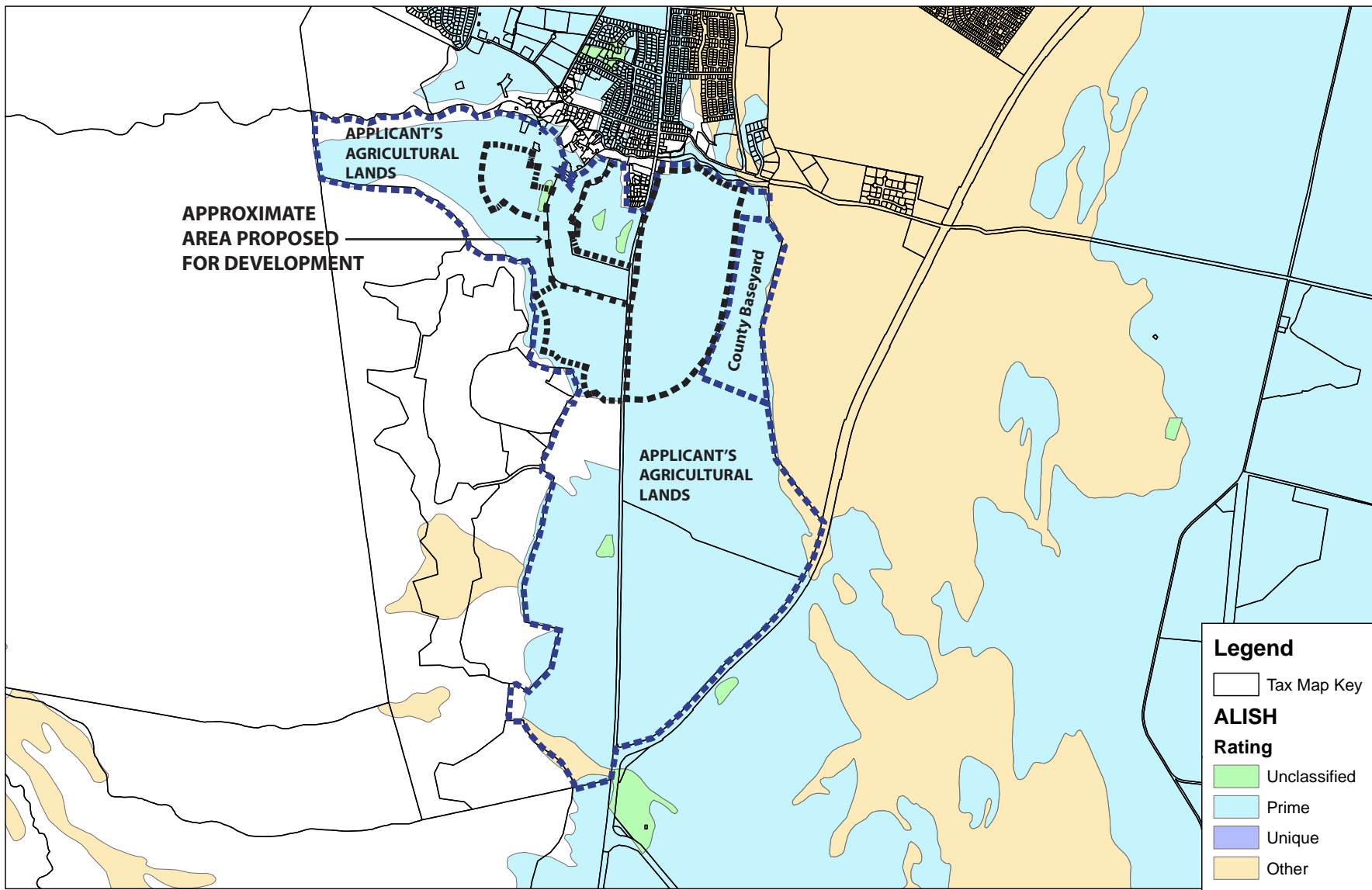


Figure 16
 AGRICULTURAL LANDS OF
 IMPORTANCE TO THE STATE OF HAWAII



Not to Scale

WAIKAPŪ COUNTRY TOWN



**PLANNING
 CONSULTANTS
 HAWAII, LLC**

There are currently three commercial farms farming MTP lands. These include Kumu Farms, Hawai'i Taro LLC, and HC&S. The proposed urbanization will require both Kumu Farms and Hawai'i Taro to relocate their agricultural operations to the proposed agricultural park and other suitable agricultural lands within the project. The project will also impact a portion of the current lands being leased by HC&S. It is anticipated that these lands will gradually begin to be impacted in about three to five years. Over the long-term, HC&S may lose approximately 330 acres to urbanization and up to an additional 75 acres to a private agricultural park. According to HC&S General Manager, Mr. Rick Volner, HC&S would desire to continue farming its MTP lands to maximize its current economy of scale in production. However, Mr. Volner acknowledged that HC&S has additional lands available that are currently fallow and that urbanization of a portion of its MTP leased lands will not significantly impact the Plantation's long-term economic viability.

It has been noted that a significant impediment to agricultural development on Maui, and throughout the state, is the scarcity of agricultural land that is both readily available and affordable for long-term lease to diversified farmers. The establishment of a centrally located agricultural park, with productive lands and affordable irrigation water, should help Maui farmers compete in local, mainland and international markets.

Consistency with State and County Agricultural Policies

The Hawai'i State Plan and State Functional Plans establish policy to protect the viability of the sugar and pineapple industries, protect agriculturally suitable lands for future agricultural needs, and promote the growth of diversified agriculture.

The Maui County General Plan (County-wide Policy Plan, Maui Island Plan, and Wailuku-Kahului Community Plan) seek to preserve productive agricultural lands and facilitate agricultural self-sufficiency in food production. The General Plan also recognizes the need to provide sufficient land areas to accommodate future population growth. Goal 7.1.1.f of the Maui Island Plan (MIP) states, "Strongly discourage the conversion of productive and important agricultural lands

(such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.”^{xiv}

The subject land was placed into an Urban Growth Boundary during the General Plan 2030 update, when other overriding factors were present. These factors included the forecasted demand for additional urban lands to accommodate projected population growth, the development suitability of the subject land, as well as its proximity to existing employment, infrastructure, public facility systems and existing urban development. Moreover, as documented in the Agricultural Impact Assessment, the urbanization of the subject lands will not significantly impact the future viability of the sugar or pineapple industries or the growth of diversified agriculture on Maui or throughout the State.

The proposed action has been carefully analyzed for its short- and long-term impacts upon the agricultural industry. While the proposed action will result in the loss of prime agricultural lands, it will not significantly impact the short- or long-term viability of agriculture in Hawai‘i since an abundance of currently fallow former sugar and pineapple land is currently available elsewhere. The project will, however, help to address the current shortage of agricultural park lots by establishing a new private and/or public agricultural park within Central Maui.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

The resident population of Maui County has experienced rapid growth. According to census figures the resident population of Maui County has grown by approximately 56% since 1990, and from 100,504 to 156,764 in 2011.^{xv} These robust growth rates are expected to continue through 2040. According to the State of Hawai‘i, Department of Business, Economic Development, and Tourism, “Population and Economic Projections for the State of Hawai‘i to 2040”, the County’s population is expected to reach 232,863 by 2040, which is an increase of 46%.^{xvi}

Wailuku-Kahului is the island's largest population and employment center. In 2010 the region's population was approximately 53,456⁴, which was about 37% of the island's 2010 population of 144,444. Like the rest of Maui, the Wailuku-Kahului region has experienced high growth rates. In 1990 the region's population was 32,816 and by 2010 it had grown to approximately 53,456, which is an increase of 63% over 20 years. Between 2010 and 2030 the region's population is projected to grow to 65,616, which is a much more modest increase of 21%. The U.S. Census Bureau, in 2010, recorded a population of 2,965 persons living within the Waikapū Census Designated Place.

Kahului is home to the island's only major airport and commercial harbor. The Central Maui Wastewater Treatment Facility, which treats most of Central Maui's wastewater, is located in Kahului. Kahului is also home to the 78-acre University of Hawai'i Maui College, which offers Associate, Bachelor and Master Degree programs to more than 4,400 full- and part-time students. Several "Big Box" retail stores are also located in Kahului, including Costco, Walmart, Lowes, K-Mart and Home Depot.

Wailuku is the island's civic center. Most State and County offices are located in Wailuku, along Main and High Streets. The Wailuku Police Station, which services Central and Upcountry Maui, is located in Wailuku as is the Maui Memorial Hospital. Maui Memorial Hospital is the island's sole hospital, offering 240 inpatient beds. The island's only State Correctional Facility, Maui Community Correctional Center (MCCC), is also located in Wailuku, along Waiale Road. A small "main street" commercial district that dates to the 1880s is located in Wailuku along Main, Market, Vineyard and Church Streets. Both Wailuku and Kahului have supporting shopping centers, parks, recreation facilities, educational facilities, libraries, industrial districts and residential districts.

⁴ Includes Census Designated Places of Kahului, Waihe'e-Waiehu, Waikapu, and Wailuku

Potential Impacts and Mitigation Measures. An Economic and Fiscal Impact Assessment is being prepared by The Hallstrom Group Inc. for inclusion in the Draft Environmental Impact Statement. This report will more fully document the project's impact upon the region's population.

2. Housing

Existing Conditions. Median home prices on Maui, like in most other regions of the Country, rose sharply between 1998 and 2006 and then fell precipitously between 2007 and 2010. In January 1998 the median sales price of a fee simple condominium on Maui was \$160,000 and a single-family residence was \$258,068. By 2006 the median sales price of a fee simple condominium had increased by over 300% to \$505,000 and a single-family residence by 269% to \$693,000. By December 2012, prices had come down from their peak by about 32% for single-family homes to \$470,000 and by 28% for fee simple condominium units to \$366,086. However, by December 2012 prices for single-family residences were still over 88% higher than prices in 1998, and for fee simple condominiums the prices were over 228% higher than in 1998.

Like the rest of Hawai'i, housing affordability on Maui is a significant concern. It is generally recommended that no more than 30% of monthly income be spent on rent. However, nearly half of all Maui residents exceed this threshold and, compared to the other counties, Maui residents spend more of their monthly income on housing. In 2011, 18% of Maui residents spent between 30 and 40% of their household income on shelter and 30.2% spent over 40%, while only 40.8% spent less than 30% of their income on shelter. By comparison, 54.1% of Oahu residents and 49.1% of Hawai'i County residents spent less than 30% of their income on shelter. According to the US Census Bureau, 2007-2011 American Community Survey 5-Year Estimates, 65% of renters in Wailuku spend over 30% of their income on gross rent and 44% spend over 50% of their income on gross rent.^{xvii}

According to the County of Maui, Department of Housing and Community Concerns, Affordable Sales Price Guidelines, in February 2014 a Maui family earning 100% of the median income

(\$75,800 as determined by the United States Department of Housing and Urban Development), could afford a \$393,700 three-bedroom single-family residence at a 4.5% interest rate. The median single-family sales price in Central Maui between January and September 2014 was \$433,787 (Realtors Association of Maui). Maui County's 2014 Affordable Sales Price Guidelines for a 1-bedroom condominium for a family earning 100% of the median income is \$248,010. The median fee simple condominium sales price in Central Maui between February and September 2014 was \$267,655.

According to the MIP (December 2012), there will be a demand for an additional 29,589 housing units on Maui through 2030. Of these units, approximately 10,845 are expected to be built on lands not currently entitled for urban development.^{xviii}

Potential Impacts and Mitigation Measures.

The WCT proposes the development of up to 1,433 residential dwelling units targeted at the full spectrum of workers in the development. Homes will be priced for a range of consumer groups, including workforce affordable homes in compliance with Chapter 2.96 MCC (Residential Workforce Housing Policy). All workforce affordable homes will be priced and subject to restrictions in accordance with the requirements of Chapter 2.96, MCC. The potential long-term demand for the project's housing will be analyzed in the Socio-Economic section of the Draft EIS.

3. Economy

Existing Conditions. Tourism is the predominant component of Maui County's economy. In 2011 there was an annual average job count of 62,900 on Maui. At 29% of all jobs, the Accommodations and Food Service Industry accounts for the largest proportion of jobs on the island. This is followed by federal, state, and county government at 14%. The retail trade, also highly dependent upon tourism, ranks third at 13%. Professional and business services ranks fourth at 10%.^{xix} Agriculture generates just 2.1% of Maui County jobs but is disproportionately important for its historic and cultural legacy and its contribution to the island's scenic beauty and quality of life.

According to the Economic Development Issue Paper (October 2007) prepared for the County of Maui, Department of Planning, in support of the Maui County General Plan 2030 update, Maui County is much more dependent upon tourism than other Hawai'i Counties. Of Maui County's Gross County Product (GCP), 39 percent is attributed to tourism, versus a range of 19-29% for the other counties (Economic Development Issue Paper, 2007). The Economic Development Issue Paper further notes that most Maui households support themselves on two or more jobs. Based on a living wage study of Maui County, a family of four (two adults, two children) would have needed an annual income of \$61,650 to support itself in 2005. A corresponding analysis of 2005 jobs and wage data for Maui found that the average wage of 78 occupations – representing 54 percent of all jobs – fell below the \$30,800 living wage standard.^{xx}

Maui County had 2,446,084 visitor arrivals in the year 2011 and hotels on Maui Island experienced a 70.1 percent occupancy rate.^{xxi} In June of 2013 Maui's occupancy rate was 69.1 percent. In the aftermath of the great recession, Maui County's unemployment rate rose to a high of 9.5% in June 2009 but has decreased to 4.9% as of July 2013. In Central Maui, economic activity centers on wholesale and retail trade, transportation services, business and professional services, education and government. HC&S is also a major employer in Central Maui.

According to the Economic Development Issue Paper (October 2007), diversifying Maui's economy has been a key, longstanding County policy. Chapter 4, Economic Development, of the MIP, December 2012, states the following in its analysis of the island's challenges and opportunities:

The Island of Maui, like the County as a whole, faces two fundamental challenges in economic development: (1) diversification; and (2) increasing the number and proportion of living wage jobs. There is a subset of more specific challenges, such as the high cost of housing and the need to strengthen public education.^{xxii}

Potential Impacts and Mitigation Measures. Development of WCT is expected to generate short-term economic benefits in the form of construction-related employment, as well as long-term benefits that include increased permanent employment and tax revenues. Short- and long-term economic benefits will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

C. PUBLIC SERVICES

1. Recreational Resources

Existing Conditions. In September 2007 the County of Maui conducted an infrastructure and public facilities assessment to support the update of the Maui County General Plan. The study analyzed existing park acreage by community plan district. According to the study, the Central Maui region currently has 186 acres of sub-regional park land and 377 acres of regional parks. There is a diverse selection of both active recreational parks and beach parks within proximity of the project site. These include

Active Recreation Parks

- Honoli'i Park
- Waikapū Park and Neighborhood Center
- Kahului Community Center and Pool
- Lihikai Park
- Maui Lani Park
- Pōmaika'i Park
- Wai'ale Neighborhood Park
- Wailuku Gym and Pool
- War Memorial Complex
- Keopuolani Regional Park
- Wells Community Park

Regional Parks

- Keopuolani Regional Park
- War Memorial Complex

Beach Parks

- Kanahā Beach Park
- Kahului Harbor Beach Park

Moreover, the County of Maui recently acquired 309 acres in Waikapū, near the project site, for a regional park. According to the Mayor's proposed 2013 capital improvement plan, the park will include soccer, baseball, and softball fields and will be built out in phases.

A central Maui sports complex is also being planned in Waikapū on 65 acres by the State of Hawai'i. The complex will be built in phases and may include a full-size baseball field, a quad of softball fields, a little league baseball quad, an area for soccer fields, comfort stations, concession buildings, and new infrastructure.^{xxiii}

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT Master Plan will contribute to the increase in population projected for the Wailuku-Kahului region. This impact, and its associated impact to recreational facilities, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

2. Medical Facilities

Existing Conditions. Maui Memorial Medical Center, located approximately 4 miles from Waikapū, is in Wailuku and is the island's only acute care hospital. It is an approximately 240 bed hospital. Various private medical offices and facilities are located throughout Wailuku-Kahului. These facilities provide non-emergency medical care. Kaiser Permanente has clinics in Wailuku and in Maui Lanai and Maui Medical Group has offices in Wailuku.

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT Master Plan will contribute to the increase in population projected for the Wailuku-Kahului region. This impact, and its associated impact on the demand for medical facilities, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

3. Police Protection

Existing Conditions. The Waikapū area falls within the MPD's District I. This police district is served by the Wailuku (Central) Station, which houses the MPD headquarters for the entire County. The Police Department includes four programs:

- The Administration Program;
- Technical and Support Services Program;
- Investigative Services Program; and
- Uniformed Services Program.

In March 2007 the County of Maui conducted a Public Facilities Assessment Update to support the update of the General Plan to 2030. The Public Facilities Assessment documented the existing staffing conditions at the Department and projected future staffing needs based upon forecasted population growth.

According to the study, in FY 2005 the Wailuku Station was staffed with 146 budgeted uniformed patrol officers and an estimated share of 38 investigative officers. The study concluded that District I staffing was sufficient to meet the policing needs of the Wailuku-Kahului CPR. However, the study estimated that by 2030 police service needs will increase by approximately 41 percent from the current allocation of 162 officers to 229. In addition, the 67 new officers will require a further addition of 72 new support positions to be staffed at the Wailuku Station.

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT Master Plan will contribute to the increase in population projected for the Wailuku-Kahului region. This

impact, and its associated impact to police services, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

4. Fire Protection

Existing Conditions. The Department of Fire and Public Safety includes five programs:

- The Administration and Maintenance Program;
- The Training Program;
- The Fire/Rescue Operation Program; and
- The Fire Prevention Program.

There are two fire stations that are within a five road mile service area of Waikapū. These include Wailuku Station at 21 Kinipopo Road and the Kahului Fire Station at 200 Dairy Road. The Wailuku Station is an Engine Company. The Kahului Fire Station is an Engine, Tanker and Rescue Company.

The County uses a distance standard of 2 to 3 miles to provide adequate coverage to residential districts. Waikapū is approximately 3 road miles from the Wailuku Fire Station and 4.5 road miles from the Kahului Fire Station.

In order to reduce response times for both fire and medical emergencies, construction of a new fire station is planned in Waikapū. According to the Mayor's proposed 2013 capital improvement program, the fire station will be situated on approximately 5 acres of the 100 acres recently acquired in Waikapū to accommodate a County campus for various departments, police and fire stations. The CIP states that the 5-acre fire station will be located along the proposed Waiko Road Extension. The development of a fire station within Waikapū will bring the proposed project well within the County's desired response time standard.

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT Master Plan will contribute to the increase in population projected for the Wailuku-Kahului region. This

impact, and its associated impact to fire protection services, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

5. Schools

Existing Conditions. Maui schools are organized into complexes and complex-areas. A complex consists of a high school and all of the intermediate/middle and elementary schools that flow into it. Groups of two to four complexes form a "complex area" that is under the supervision of a complex area superintendent.

The WCT is located within the State Department of Education's Baldwin-Kekaulike-Maui Complex-Area. The Complex is comprised of the following schools:

Elementary Schools

- Pu'u Kukui
- Waihe'e
- 'Īao

Intermediate Schools

- Lokelani Intermediate
- Maui Waena Intermediate

High Schools

- Maui High

Current and projected enrollment and capacities for area schools were provided by the Planning Section of the Department of Education's Facilities Development Branch and are shown in Table 11, "DOE School Enrollment & Capacity" below.

Table 11: DOE School Enrollment & Capacity

Schools	2013 Enrollment	2013 Capacity	Surplus / Deficit	2018 Projected Enrollment	2018 Surplus / Deficit
Wailuku Elementary	740	958	218	695	263
Pu'u Kukui Elementary	541	550	9	603	-53
Īao Intermediate	886	999	113	972	27
Baldwin High School	1538	1809	271	1606	203
Kahului Elementary	1064	915	149	992	-77
Lihikai Elementary	943	1036	93	933	103
Pōmaika'i Elementary	550	760	210	545	215
Maui Waena Intermediate	1095	1276	181	1197	79
Maui High School	1908	2035	127	1394	641

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT will contribute to the increase in population projected for the Wailuku-Kahului region. This impact, and its associated impact to school facilities, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

6. Solid Waste

Existing Conditions. The Central Maui Landfill services the residential waste stream for Central Maui, including Waikapū. The privately owned and operated Decoite Landfill services the Island's construction and demolition waste stream. According to the County of Maui's Integrated Solid Waste Management Plan (ISWMP) (February 2009), the amount of waste generated in 2006 was 345,000 tons of which 124,000 tons was diverted for recycling.^{xxiv} In 2006, the Central Maui Landfill received 213,993 tons of residential waste, the Maui Construction and Demolition Landfill (Decoite Landfill) received 50,000 tons of construction waste, and the Eco Compost Facility received 54,243 tons of yard waste. It is projected that by 2030 the total generated waste on Maui will be 499,381 tons per year (TPY) of which

approximately 31 percent, or 147,309 TPY, would be recycled. Thus, by 2030 it is projected that approximately 353,632 TPY of solid waste would be entering the Island's landfills. In comparing planned capacity versus projected solid waste generation, the ISWMP projects that the planned capacity is sufficient to accommodate demand through 2026.

The County of Maui is currently assessing the feasibility of developing a waste-to-energy facility in Central Maui, on land near the Central Maui Landfill. The facility could have the potential to divert up to 80% of the waste generated on Maui with the byproduct used as a renewable fuel. Such a capital improvement would significantly mitigate the need for additional landfill space to accommodate the projected population growth.

The ISWMP also uses residential and commercial waste generation rates for its projections. The residential generation rate in tons per household per year for Maui (excluding Hana) is 2.3. The Commercial Generation Rate (tons per employee per year) for Maui (excluding Hana) is 1.58

Potential Impacts and Mitigation Measures. The long-term implementation of the WCT Master Plan will contribute to the increase in population projected for the Wailuku-Kahului region. This impact, and its associated impact on solid waste collection facilities and services, will be more thoroughly analyzed in the Socio-Economic section of the Draft EIS.

D. INFRASTRUCTURE

1. Roadways

Existing Conditions. The mauka side of the Project at the MTP is accessible from Honoapi'ilani Highway, a two-lane, two-way State Highway that connects Wailuku with Waikapū, Mā'alaea and Lāhainā. The makai side of the property is undeveloped and in sugar cane cultivation. Access to the makai land is from Honoapi'ilani Highway, East Waiko Road and Kuihelani Highway from cane haul roads.

Potential Impacts and Mitigation Measures. A Traffic Impact Analysis Report (TIAR) will be prepared for the project and included in the Draft EIS. The report will analyze current and projected conditions with and without full development based upon the Master Plan. It will also make recommendations for any traffic mitigation measures deemed necessary.

2. Utilities

Existing Conditions. There are existing power, telephone, and cable television transmission facilities along Honoapi'ilani Highway.

Potential Impacts and Mitigation Measures. Proposed electrical, telephone, and cable television distribution systems will be served from the existing facilities along Honoapi'ilani Highway. Potential impacts to utilities will be more thoroughly analyzed in the Preliminary Engineering Report prepared in support of the Draft EIS.

3. Drainage

Existing Conditions. A Preliminary Drainage Report will be prepared for the Draft EIS. The report will analyze current conditions, including drainage patterns, existing improvements, and runoff totals.

Potential Impacts and Mitigation Measures. The Drainage Report will analyze anticipated changes in stormwater runoff and recommend improvements necessary to comply with County drainage requirements.

4. Water

Existing Conditions. A Preliminary Engineering Report will be prepared for the Draft EIS. The report will analyze current water source and transmission requirements to support the implementation of the WCT Master Plan.

Potential Impacts and Mitigation Measures. The Engineering Report will analyze anticipated increases in water demand and propose means of meeting that demand.

5. Wastewater

Existing Conditions. A Preliminary Engineering Report will be prepared for the Draft EIS. The report will analyze current wastewater system capacity and existing infrastructure to support the project.

Potential Impacts and Mitigation Measures. The Engineering Report will analyze anticipated increases in wastewater flows and propose means of meeting that demand.

E. CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are defined as the impact on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

Secondary impacts are those that have the potential to occur later in time or farther in distance, but which are reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. Secondary impacts from highway projects, for example, can occur because they can induce development by removing transportation impediments to growth.

The Draft EIS will discuss potential cumulative and secondary impacts from the proposed Master Plan.

F. SUMMARY OF UNAVOIDABLE IMPACTS ON THE ENVIRONMENT AND RESOURCES

The Draft EIS will discuss unavoidable impacts on the environment and resources and analyze their significance.

III. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE

Chapter 205, Hawai'i Revised Statutes, relating to the Land Use Commission (LUC), establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as *Urban*, *Rural*, *Agricultural*, and *Conservation*. The lands of the WCT lie within the State *Urban* and *Agricultural* districts. Refer to Figure 7, "State Land Use Map".

The proposed Master Plan will require a State Land Use District Boundary Amendment in order to bring the land proposed for urbanization into the *Urban* district and the land proposed for rural into the *Rural* district. The majority of the land will remain classified as *Agricultural*. The total land area expected to be affected comprises approximately 499 acres and is identified by Tax Map Parcels (2) 3-6-5:007 (Por.), (2) 3-6-004:003 (Por.), (2) 3-6-004:006, (2) 3-6-006:036, and (2) 3-6-002:003 (Por.) (See: Figure 3a-d, "TMK Maps"). The Project will require amendments to the conditions placed upon the 14-acres of currently urbanized lands, identified as a portion of TMK Map Parcel (2) 3-6-5:007.

The Draft EIS will analyze the proposed boundary reclassification's consistency with the following standards of the Urban and Rural Districts, Sec 15-15-18, Hawai'i Administrative Rules:

Urban District Standards

1. It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban and other related land uses; streets, urban level of services and other related land uses;
2. It shall take into consideration the following specific factors:

- A. Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;
 - B. Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and
 - C. Sufficient reserve areas for foreseeable urban growth;
- 3. It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil condition, and other adverse environmental effects;
 - 4. Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans;
 - 5. It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the state and county general plans;
 - 6. It may include lands which do not conform to the standards in paragraphs (1) to (5):
 - A. When surrounded by or adjacent to existing urban development; and
 - B. Only when those lands represent a minor portion of this district;
 - 7. It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and
 - 8. It may include lands with a general slope of twenty per cent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any federal, state, or county agency, are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.

Rural District Standards

1. Areas consisting of small farms; provided that the areas need not be included in this district if their inclusion will alter the general characteristics of the areas;
2. Activities or uses as characterized by low-density residential lots of not less than one-half acre and a density of not more than one single-family dwelling per one-half acre in areas where “city-like” concentration of people, structures, streets, and urban level of services are absent, and where small farms are intermixed with the low density residential lots; and
3. It may also include parcels of land which are surrounded by, or contiguous to this district, and are not suited to low-density residential uses for small farm or agricultural uses.

B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the *Hawaii State Plan*, is a long-range comprehensive plan that serves as a guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. As stated in Section 226-1,

The purpose of this chapter is to set forth the Hawaii state plan that shall serve as a guide for the future long-range development of the State; identify the goals, objectives, policies, and priorities for the State; provide a basis for determining priorities and allocating limited resources, such as public funds, services, human resources, land, energy, water, and other resources; improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities; and to establish a system for plan formulation and program coordination to provide for an integration of all major state, and county activities.

The Draft EIS will analyze the Master Plan’s consistency with State Plan Objectives and Policies.

C. MAUI COUNTY GENERAL PLAN

The General Plan of the County of Maui refers to a hierarchy of planning documents that together set forth future growth and policy direction in the County. The General Plan is comprised of the following documents: 1) County-wide Policy Plan; 2) Maui Island Plan; and 3) nine community plans.

The County-wide Policy Plan was adopted in March 2010 and is a broad policy document that identifies a vision for the future of Maui County. It establishes a set of guiding principles and provides comprehensive goals, objectives, policies and implementing actions that portray the desired direction of the County's future. The County-wide Policy Plan provides the policy framework for the development of the Maui Island Plan and nine Community Plans.

The MIP functions as a regional plan and addresses the policies and issues that are not confined to just one community plan area, including regional systems such as transportation, utilities and growth management, for the Island of Maui. Together, the Island and Community Plans develop strategies with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design and other matters related to development. The MIP was adopted on December 28, 2012.

The WCT Master Plan, and request for land use entitlements, should be consistent with the goals, policies and actions found in the General Plan.

County-wide Policy Plan

The County-wide Policy Plan establishes a list of county-wide goals, objectives, policies, and implementing actions related to the following core themes:

- Protect the Natural Environment
- Preserve Local Cultures and Traditions
- Improve Education

- Strengthen Social and Healthcare Services
- Expand Housing Opportunities for Residents
- Strengthen the Local Economy
- Improve Parks and Public Facilities
- Diversify Transportation Options
- Improve Physical Infrastructure
- Promote Sustainable Land Use and Growth Management
- Strive for Good Governance

Analysis. The Draft EIS will provide a comprehensive discussion of the Project’s conformance to the County-wide Policy Plan’s themes and associated goals, policies and actions.

Maui Island Plan (MIP)

The MIP serves as the regional plan for the Island of Maui. The Plan is comprised of the following nine elements: 1) Population; 2) Heritage Resources; 3) Natural Hazards; 4) Economic Development; 5) Housing; 6) Infrastructure and Public Facilities; 7) Land Use; 8) Directed Growth Plan; 9) Monitoring and Evaluation; and 10) Implementation. Each element contains goals, objectives, policies and implementing actions. The Directed Growth Plan identifies the location of future development through 2030. The Directed Growth Plan is intended to guide the location and general character of future urban development and will direct future zoning changes and guide the development of the County’s short-term and long-term capital improvement plan budgets.

Analysis. The project site is within the MIP’s “Small Town” Growth Boundary. The MIP establishes policies to support the development of the Project at the subject location.

The Draft EIS will analyze the proposed development’s consistency with the MIP’s goals, objectives and strategies.

D. WAILUKU-KAHULUI COMMUNITY PLAN

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a Community Plan, which sets forth desired land use patterns together with goals, objectives, policies, and implementing actions for a number of functional areas including infrastructure-related parameters.

The WCT is located within the Wailuku-Kahului Community Plan region. The majority of the project area is designated *Agriculture* in the Community Plan, with a portion designated *Wailuku-Kahului Project District 5 (Maui Tropical Plantation)*. Refer to Figure 10, “Community Plan Map”.

Community Plan Amendments will be sought to bring the entire project site into community plan designations that better align with the Master Plan vision.

The Draft EIS will analyze the WCT Master Plan’s consistency with the *Wailuku-Kahului Community Plan* Objectives and Policies.

E. COUNTY ZONING

Title 19 of the Maui County Code provides comprehensive zoning for the county. The purpose and intent of this comprehensive zoning is to regulate the utilization of land in a manner that encourages orderly development that protects the health, safety and welfare of the people of the County.

The Project will require a Change in County Zoning in order to implement the master plan vision. The proposed zoning designations will be described in the Draft EIS.

F. COASTAL ZONE MANAGEMENT

Coastal Zone Management objectives and policies (section 205A-2 HRS) and the Special Management Area Rules for the Maui Planning Commission (Chapter 202) have been developed to preserve, protect and, where possible, to restore the natural resources of the coastal zone of Hawai'i. While the subject property is not located within the Special Management Area, the Draft EIS will analyze the project's consistency with Coastal Zone Management Objectives and Policies.

1. Recreational Resources

Objective: Provide coastal recreational resources accessible to the public.

Policies:

- (a) Improve coordination and funding of coastal recreational planning and management; and
- (b) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:
 - (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;
 - (ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or require reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;
 - (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
 - (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

- (v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having standards and conservation of natural resources;
- (vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;
- (vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing;
- (viii) Encourage reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

2. Historical/Cultural Resources

Objective: Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

- (a) Identify and analyze significant archeological resources;
- (b) Maximize information retention through preservation of remains and artifacts or salvage operations; and
- (c) Support state goals for protection, restoration, interpretation, and display of historic structures.

3. Scenic and Open Space Resources

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

- (a) Identify valued scenic resources in the coastal zone management area;
- (b) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
- (c) Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources; and
- (d) Encourage those developments that are not coastal dependent to locate in inland areas.

4. Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

- (a) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
- (b) Improve the technical basis for natural resource management;
- (c) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
- (d) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
- (e) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and non-point source water pollution control measures.

5. Economic Use

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

- (a) Concentrate coastal dependent development in appropriate areas;
- (b) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area;
- (c) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
 - (i) Use of presently designated locations is not feasible;
 - (ii) Adverse environmental impacts are minimized; and
 - (iii) The development is important to the State's economy.

6. Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

- (a) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;
- (b) Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and non-point pollution hazards;
- (c) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- (d) Prevent coastal flooding from inland projects.

7. Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

- (a) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
- (b) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
- (c) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

8. Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

- (a) Promote public involvement in coastal zone management processes;
- (b) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
- (c) Organize workshops, policy dialogues, and site-specific medications to respond to coastal issues and conflicts.

9. Beach Protection

Objective: Protect beaches for public use and recreation.

Policies:

- (a) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;
- (b) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
- (c) Minimize the construction of public erosion-protection structures seaward of the shoreline.

10. Marine Resources

Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

- (a) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
- (b) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;
- (c) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
- (d) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
- (e) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources. [L 1977, c 188, pt of §3; am L 1993, c 258, §1; am L 1994, c 3, §1; am L 1995, c 104, §5; am L 2001, c 169, §3]

IV. FINDINGS AND CONCLUSIONS

According to the Department of Health Rules (11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish “Significance Criteria” to be used as a basis for identifying whether significant environmental impact will occur. The criteria consists of the following items:

1. The proposed action will not result in an irrevocable commitment to loss or destruction of natural or cultural resources.
2. The proposed action will not curtail the range of beneficial uses of the environment.
3. The proposed action will not conflict with State or County long-term environmental policies and goals as expressed in Chapter 344, HRS, and those which are more specifically outlined in the Conservation District Rules.
4. The proposed action will not substantially affect the economic or social welfare and cultural activities of the community, county or state.
5. The proposed action will not substantially affect public health.
6. The proposed action will not result in substantial secondary impacts.
7. The proposed action will not involve substantial degradation of environmental quality.
8. The proposed project will not produce cumulative impacts and does not have considerable effect upon the environment or involve a commitment for larger actions.
9. The proposed project will not affect a rare, threatened, or endangered species, or its habitat.

10. The proposed action will not substantially or adversely affect air and water quality or ambient noise levels.
11. The proposed action will not substantially affect or be subject to damage by being located in an environmentally sensitive area, such as flood plain, shoreline, tsunami zone, erosion-prone areas, estuary, fresh waters, geologically hazardous land or coastal waters.
12. The proposed action will not substantially affect scenic vistas or view planes identified in county or state plans or studies.
13. The proposed action will not require substantial energy consumption.

The Draft EIS will analyze the Project in relation to these Significance Criteria. A final declaration will be made after the Accepting Authority has considered all agency and public comments on the Draft EIS.

V. REFERENCES

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^{xiv} Maui Island Plan. Prepared by County of Maui, Department of Planning, Long-range Planning Division. December 2012.

^{xv} 2012 State of Hawai'i Data Book; Prepared by the State of Hawai'i, Department of Business Economic Development & Tourism, Research & Analysis Division. 2012.

^{xvi} Population and Economic Projections for the State of Hawai'i to 2040. Research and Economic Analysis Division, Department of Business, Economic Development and Tourism. March 2012.

^{xvii} 2007 - 2011 American Community Survey 5-year Estimate. Bureau, U.S. Census.

^{xviii} Maui Island Plan. Prepared by County of Maui, Department of Planning, Long-range Planning Division. December 2012.

^{xix} Maui County Data Book 2011. Prepared by the County of Maui, Office of Economic Development. Hawai'i Small Business Development Center. Hawai'i Business Research Library. December 2011.

^{xx} Economic Development Issue Paper, Island of Maui, Maui County General Plan 2030. Plan Pacific, Inc., in association with John M. Knox & Associates, Inc., Tom Dinell, FAICP, and Chris Hart & Partners, Inc. 2007.

^{xxi} Maui County Data Book 2012. Prepared by the County of Maui, Office of Economic Development. Hawai'i Small Business Development Center. Hawai'i Business Research Library. December 2012.

^{xxii} Economic Development Issue Paper, Island of Maui, Maui County General Plan 2030. Plan Pacific, Inc., in association with John M. Knox & Associates, Inc., Tom Dinell, FAICP, and Chris Hart & Partners, Inc. 2007.

^{xxiii} "Breaking: \$4.74 M Released for Central Maui Sports Complex." Osher, Wendy. Maui Now, 11 October 2013.

^{xxiv} "Integrated Solid Waste Management Plan." Gershman, Bricknell, Bratton, Inc. February 2009.

APPENDIX A
A history of Waikapū

A History of Waikapū



Waikapū is shown here in the 1890's, some 30 years after sugar growers William Cornwell and Jamees Louzada formed Waikapū Plantation, which was acquired by Wailuku Sugar Company in 1894. The road shown is West Waiko Road, and the church building at right is now a private residence. Waikapu is now home to more than 1,000 Mauians and is the site of the Maui Tropical Plantation, a visitor attraction built around a tropical agricultural theme. Maui Historical Society Photo

By
Jill Engledow

For
Mike Atherton

August 2009

A History of Waikapū

by

Jill Engledow

Ka makani kokoloio o Waikapū

“The gusty wind of Waikapū”

An ‘ōlelo no‘eau, or traditional saying, referred to in the song “Inikinikimālie” by James Kahale

Famed for its gusty winds and pleasant living, the land division called Waikapū originates in one of four valleys created by streams known as *Nā Wai Eha*--The Four Waters. One of those famous streams carved the steep ridges and gullies of Waikapū Valley through the West Maui volcano, transporting the mountain's core material and depositing it in an alluvial fan at the mouth of the canyon. This fan joined with those of the other three valleys -- ‘Īao, Waiehu and Waihe‘e -- to create an alluvial plain 13 km long. (Kyselka: 28, 36) The soil of this plain accumulated thickly near the mountain, spreading more thinly across the Isthmus formed when lava from Haleakalā pooled against West Maui. Over thousands of years, as glaciers grew in other parts of the world and sea levels dropped, broad stretches of coral reef were exposed and broken down to sand. Trade winds blew the sand onto the isthmus and formed it into ridges, which became lithified, or turned into stone, by carbonic acid released from the roots of plants growing in the sand.

By the time human beings arrived, the land of *Nā Wai Eha*, with its deep, rich alluvial soil and flowing streams, was ripe for cultivation. The new residents looked down over the sand dunes of the Isthmus, a shifting plain where inhabitants of the land believed that ghosts wandered. (Pukui: 81) Many years later, a writer would remark that "at times, the wind sweeps across this plain with great force, and clouds of sand, five hundred to one thousand feet high, move over it, presenting to the spectator on the mountains a most beautiful sight." (*Pacific Commercial Advertiser*, April 9, 1864)

Ambitious ancient farmers took advantage of the optimal growing conditions close to the streams. "Spreading north and south from the base of Waikapu to a considerable distance below the valley are the vestiges of extensive wet plantations, now almost obliterated by sugarcane cultivation," wrote E. S.C. Handy in 1934. "Far on the north side, just above the main road and at least half a mile below the entrance to the canyon, an extensive truck garden on old terrace ground showed the large area and the distance below and away from the valley that was anciently developed in terraced taro culture. On the south side there are likewise several sizable *kuleana* where, in 1934, old terraces were used for truck gardening. . . There were probably once a few small terraces on the narrow level strips of valley bottom in the lower canyon." (Handy: 497)

S.W. Nailiili, writing in 1865, offered this poetic description: "Waikapu, a district known for its majesty and splendid living, whose native songs gather flowers in the dew and weave wreaths of *ohelo* berries."

(Sterling: 91)

Though some maintain that "Waikapū" means "sacred water," others say "Waikapū" refers to a conch shell, or *pū*, once secreted in a cave "away up the stream, about a mile or more from the village," wrote W.K. Kauaililehua in 1872.

On the left side of the stream is a cave and in the cave was the conch. It sounded all the time, unseen by the public, but a prophet on Kauai listened for it and came to seek with the idea of finding it.

On the northeast side of that stream on the opposite side of the conch that sounded, on the cliff, was a dog named Puapualenalena. Because he heard it, he sought diligently to find it but he did not succeed. Those who guarded the conch were very watchful. The dog kept studying ways of obtaining it.

One day, when the owners of the conch had been "utterly careless," Puapualenalena stole the conch. "After he took it, it sounded no more to this day. It used to be heard everywhere in the islands and was annoying to some people. From this conch, the whole of the place was named Waikapū (Water of the conch). This is the legend of how it received its name. . . ." (Sterling: 93)

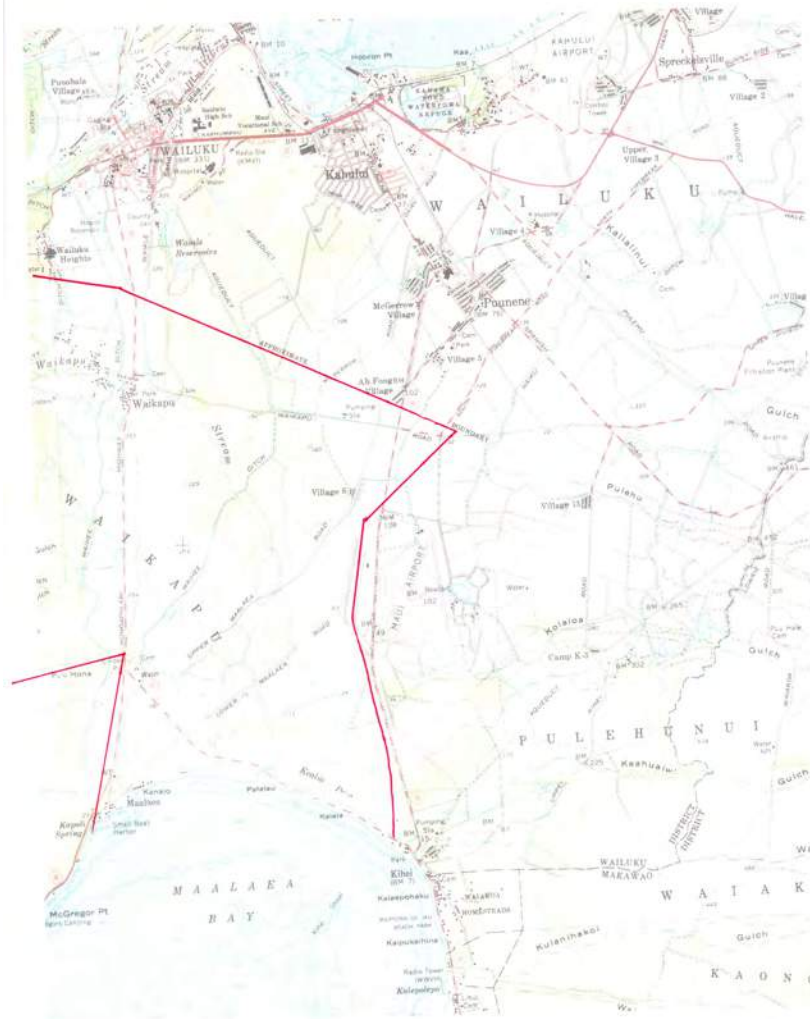
Others say the name refers to Kamehameha assembling his forces for battle by sounding a conch shell at Waikapū. (Sterling: 93) It's not clear which battle this story refers to.

The great chief Kihapi'ilani and his wife passed through Waikapū on their travels around the island, finding a crowd near a huge rock above the stream of Waikapū, an adz rock said to be the boundary between Wailuku and Waikapū. "And it remains there until this day," writer Moses Manu said in 1884. (Sterling: 94)

Kiha also visited Waikapū on the advice of two old men in Ha'ikū, who told him their sister Pao could help him:

Kihapi'ilani started for Waikapū where the prophetess by the name of Pao was living. While Kihapi'ilani was yet on the road, on his way to meet her, she predicted to those around her, saying: "There is a chief on the way here in search for some one to help him in his revenge."

When Kihapiilani arrived in the presence of Pao, a rainbow appeared at the same time. Pao then said: "My lord is swift of foot." She then greeted Kihapiilani. Kihapiilani returned the greeting. After the greetings had been exchanged, Pao invited Kihapiilani to come in, and then she asked him: "What brings my lord here on this hot day?" The chief replied: "I have come in search of someone who will cause the death of my brother Piilani, for he has treated me shamefully." Pao then replied: "There in the lowlands of Kalepolepo lives the one who will assist you in killing your enemy. You go down till you reach Kalepolepo and look for a man whose face is covered over with filth. He is the one." At the close of the directions of Pao, Kihapiilani proceeded on his way to Kalepolepo, where in time he found the man described to him and he went up to meet him. (Fornander, Vol. IV)



1954 USGS map, with approximate Waikapū boundaries marked in red

Waikapū the District

Traditionally, Waikapū is more than just the fertile valley at the base of the mountain. The district covers approximately half of the Isthmus known as Kama‘oma‘o, reaching the south shore and including the shoreline from near Ma‘alaea to Kīhei Pūko‘a. According to approximate boundary lines on a 1954 USGS map, the northern mauka boundary passes near the south end of Wailuku Heights and follows a line slanting down to a point near the bottom of modern-day Waiko Road. From there it turns sharply east, descending in a somewhat curved line to Kīhei. The eastern boundary line of the district meets the ocean at Kīhei Pūko‘a, at the eastern end of the great wetlands known as Kealia Pond. Unlike the other three streams of Nā Wai Eha, Waikapū Stream did not reach the sea. Blocked by sand dunes, it drained instead into Kealia Pond. On this makai edge of the district is a surf spot still famous today and once there were salt pans "where they make most excellent salt," according to a voyager in 1817.

(Sterling: 95)

Between the shore and the valley was Pu‘u Hele, a cinder cone formed late in the history of the West Maui Volcano. According to legend, Pu‘u Hele was one of a pair of *mo‘o* (lizards), the husband of nearby Pu‘u-o-kali. Their child, Pu‘u-o-inaina, was placed on Kaho‘olawe and later was a lover of Pele's sweetheart, Lohiau, according to *Place Names of Hawaii*. (Pukui: 203) Once 20 meters in height, Pu‘u Hele was considered an essential stop on a trip around the island, according to Theodore Kelsey. "You cannot claim a circuit of Maui unless after you have been all around, you circle the hill above Puu-hele, then climb to the top and proclaim, 'Uapuni o Maui ia'u'." (Sterling: 94)

Pu‘u Hele now is a hole in the ground, deeper than it once was tall. Its cinders were mined to make road beds, beginning in World War II, when the Navy built Naval Air Station Pu‘unēnē. (Kyselka:38 and Ashdown: 59) Today, what appears to be the remnants of the cinder cone's edges may be seen along Honoapi‘ilani Highway just mauka of the South Kihei Road intersection.

A Famous Battle

In the days when Pu‘u Hele stood tall, before cultivation and sand mining had flattened the dunes of Kama‘oma‘o, those dunes provided cover for Maui warriors in a famous battle. Around 1776, near the end of a century of warfare that frequently brought the chiefs of Maui and Hawai‘i Island into conflict, the Big Island chief Kalaniopu‘u made what turned out to be a disastrous decision. Having successfully retaken Hana (a territory long disputed by chiefs of the two islands), he landed his fleet of war canoes along the south shore at Keone‘ō‘io, Honua‘ula and Kihei. From here, he planned to attack Maui's ruling chief, Kahekili, who happened to be his brother-in-law. Kahekili's sister, Kalola, was with her husband, along with Kīwala‘ō, the son of Kalaniopu‘u and Kalola.

Though he had arrived with close to 3,000 men, Kalaniopu‘u at first gathered only 800, his most skilled warriors, the ‘Ālapa and the Pi‘ipi‘i. These young chiefs were "of equal height and were garbed in feather cloaks of various colors. They were those of whom King Kalaniopuu thought a great deal, for they were skilled in the martial arts of those days," Stephen L. Desha wrote. "I am sending you inland to Wailuku to fight the warriors of Kahekili and my word of hope to you is you will have great strength and drink the water of Iao," Kalaniopu‘u said to these warriors as he sent them into battle at dawn. The warriors' shouted response in the quiet morning betrayed their battle preparation to spies who raced back toward Wailuku to inform Kahekili that the Hawai‘i Island army was ready to march.

Alas for those young warriors, their leader had failed to heed the advice of his own kahuna, who had warned him that he should wait until the next day at high noon, and have his nephew Kamehameha lead the army. On the other side of the isthmus, Kahekili had been given a more positive prophecy: "O heavenly one, the fish has entered the sluice-gate and is surrounded by the small-meshed net." A great strategist, Kahekili had planned carefully and also enjoyed the support of additional warriors provided by his ally and nephew, Kahahana of O‘ahu. "Kahekili's warriors were roused up, joined by the Oahu warriors under Kahahana, the young Oahu chief, and these numerous warriors were stationed at the sand dunes of Waikapu and also at a place close to those sand dunes seaward of Wailuku. Kahekili's warriors hid like sand crabs in their holes awaiting the onslaught of Kalaniopuu's relatively few warriors who would move inland to Wailuku without realizing that their death was awaiting them." (Desha: 35-43)

Historian Samuel Kamakau's description of the battle is evocative:

Across the plains of Pu‘u‘ainako (Cane-trash-hill) and Kamaomao shone the feather cloaks of the soldiers, woven in ancient pattern and covered like the hues of the rainbow in red, yellow, and green, with helmets on their heads whose arcs shone like a night in summer when the crescent lies within the moon. . . . Like a dark cloud hovering over the Alapa rose the destroying host of Kahekili seaward of the sandhills of Kahulu‘u. . . . They slew the Alapa on the sand hills at the southeast of Kalua. There the dead lay in heaps strewn like kukui branches; the corpses lay heaped in death; they were slain like fish enclosed in a net. This great slaughter was called Ahulau ka Piipii i Kakanilua (Slaughter of the Piipii at Kakanilua). (Kamakau: 85)

Kahekili's forces, hidden in the sandhills on either side of the plain, allowed the warriors to advance across the plain of Kama‘oma‘o until they reached the southeastern side of a place called Kalua, close to the village of Wailuku. (Sterling: 88) The Maui warriors then attacked, slaughtering all but two of the crack warriors in Kalaniopu‘u's army. These two managed to get back to Kihei Puko‘a, where Kalaniopu‘u was confidently boasting that his warriors had perhaps already drunk of the waters of Wailuku. Grief stricken and furious, Kalaniopu‘u and his chiefs determined to try again. In response, Kahekili's men rose at dawn once more and occupied the sand hills, and again their divided forces sent down a rain of spears, javelins and other missiles on the Hawaii warriors. "The terrified soldiers were surrounded and took to flight; they were driven by Kahekili's men like leaves before a whirlwind. The plains of Kamaomao became like a fishpond through whose sluice gate the sea flooded, Kalaniopu's men like the mullet driven by the sound of beating into the sluice gate. . ." (Kamakau: 85-88)

At last accepting that his men were surrounded and the battle lost, Kalaniopu‘u first asked his wife to go to her brother and sue for peace. Kalola refused, saying that she would be killed "for we came to deal death. If we had come offering love we should have been received with affection. I can do nothing." Instead, she told her husband to send her son, a chief of divine rank, along with the twin half-brothers of Kahekili. Kiwalao's rank was such that even the Maui warriors had to bow before him and allow him passage to Wailuku, where Kahekili magnanimously accepted their surrender. "Then Kahekili said to his followers, 'Take the fish of Kanaha and Mau‘oni and the vegetable food of Nawaieha down to Kiheipukoa.' So the two chiefs became reconciled, but Kalaniopu's was a feigned friendship." (Kamakau: 88-89)

The next great battle in Na Wai Eha would be the decisive battle of Kepaniwai, in which Kalaniopu‘u's nephew and heir Kamehameha would defeat Kahekili's son in the valley above Wailuku in his campaign to conquer and rule all the islands. As part of the spoils of war, the conqueror parceled out land to his supporters. Waikapū was among the ‘āina given to Ke‘eaumoku, one of the four "Kona Uncles," powerful chiefs whose support had helped Kamehameha rise. (Kame‘eleihiwa: 106)

The Outside World Arrives

By this time, Western voyagers were beginning to appear regularly in the Islands as word spread of the visit by Captain James Cook in 1778.

Foreigners arrived early in Waikapū. Kamakau, describing the chief Kuakini (also known as John Adams), who "was fond of the foreigners and entertained them at meals," says "there were foreigners

Soon after the death of Kamehameha I in 1819, missionaries arrived to share the Gospel and the Western skills of reading and writing. Small schools and churches spring up everywhere around the islands. Though missionaries did conduct two censuses (one in 1832 and one in 1836, with 733 persons in Waikapū in 1832 and 709 in 1836), it is often school and church records that give us an idea of population levels at a time when few records were kept.

A report from 1834 counts individuals attending two schools in Waikapū, one with 170 *kane* and 155 *wahine* and another with 84 *kane* and 54 *wahine*. The report, printed in the mission-sponsored newspaper *Ka Lama*, laments that few children are represented in these numbers. In a report on the Wailuku Station from June 1, 1837 to June 1, 1838, missionary Richard Armstrong wrote: "From Waikapu to Waihee, there are now 5 good doby [adobe] schoolhouses." (Ms. in HMCS). In April 1841, school commissioner David Malo reported to the Legislative Council of the Chiefs held at Kaluaokiha in Lahaina that there were four schools and four teachers in Waikapū, with a total of 159 students. In his 1842 tour of schools, Malo found a total of 146 students in Waikapū. Teachers at this time were paid between 12.5 cents and 25 cents a day. (General Reports 1821-1842, HMCS) In 1852, the school agent's report found three schools, with a total of 84 students. Very likely these schools were scattered throughout the district, rather than clustered at the village we now call Waikapū.

Waikapū village was clearly well populated at the time of the Māhele, when land was divided between the king, chiefs and commoners. A map of Waikapū Plantation in the State Survey Office shows the area to be filled with the small landholdings known as *kuleana*. Though the map is not dated, it probably would have been drawn sometime between 1862, when Waikapū Plantation was founded, and 1894, when the plantation was purchased by Wailuku Sugar Company. One contemporary landowner, Avery Chumbley, says there are 32 *kuleana* within the 67 acres he owns in upper Waikapū. The old map shows that land use was similarly concentrated throughout the village area, with *kuleana* extending along the streambed far up the mountain.

The *Indices of Awards*, listing those who acquired land during the Mahele, shows some of the largest in plots in Waikapū going to *haole*. Michael J. Nowlien received 303.5 acres, William Humphries 131.3 acres and James Lozada 26.1 acres. Others with relatively large pieces include Haa (35 acres), Copp (16.94 acres), Catalina (13.61 acres), Manu (11.01 acres), John Richardson & Co. (two pieces, 8 and 6.10 acres), William Shaw (two pieces 13.6 and 6.3 acres), Anthony Silva (8.2 acres), Kepaa (9.69 acres), Kuihelani (9.4 acres), William McLane (5 acres). Maps of the time show Richardson with what looks like considerably more land than is indicated in the *Indices*. David Malo, the well-known scholar and author, also received a lot with a house and *kalo* and pasture land.

In addition to *kalo*, there was some early growing of sugar at Waikapū, perhaps by Anthony (Antonio) Sylva or by Antonio (or Antone) Catalina. One 1823 report says that Catalina made "an excellent syrup." (Girvin: 195) There was an early attempt at coffee growing around 1847, (Kuykendall: 316) and residents apparently raised cattle, whose "depredations" as they wandered the plain destroyed acres of young sugar cane. "Some of the natives have lost nearly all they had planted," J. S. Green wrote in 1846. (*The Polynesian*, October 3, 1846) Some indication of the area's agricultural nature comes also from this *Pacific Commercial Advertiser* report of a destructive storm in 1858, when:

. . . A waterspout was formed and carried to the summit of the mountains between Waikapū and Ukumehame and there discharged. The torrent rolled down on each side, bearing all before it; the branch of waterspout that came down to Waikapū uprooted huge trees and strewed them out

over the plain, dug up and removed large fields of kalo, and carried away considerable portions of arable land, leaving deep fissures and piles of stone instead. Many families, who before the catastrophe, sent food to market, were left destitute. The water came down in a body like a mighty wall fifteen or twenty feet high, with such majesty that it would not follow the windings of the brook, but rushed over whatever lay in its way, cutting its own path. Several horses and cattle were caught in its track and drowned. One dwelling house was carried off with all its contents, the inmates barely escaping with their lives. It is very remarkable that the house of Mr. Devauchelle escaped destruction. The torrent passed like a high wall on both sides of it, leaving it unhurt and strewing large boulders and trunks of trees all around it. After crossing the road in front of Mr. Antonio Sylva's house, the torrent parted and one branch rushed on to Kealia and the other hastened down to Kahului, both depositing all along their track large trunks of trees brought down from the mountain, and kalo and sugar cane from the Waikapu gardens. . . (*P.C. Advertiser*, 3/11/1858)

Waikapū Plantation

Waikapū Plantation was founded several years later. It was formed by a series of purchases that began when James Louzada acquired the estate of the late Circuit Court Judge John "Iaone" Richardson. Members of the Richardson family had lived in Waikapū for many years. Apparently the first resident of that name was George Richardson, who was born in Ireland and died in Waikapū in 1835, leaving a widow named Kaneole. Their son or grandson, John Richardson, is named in several places on the Waikapū Plantation map. His land became available for sale through tragic circumstances, when Richardson committed suicide at age 35 by hanging himself from a tree on his cattle range in Kula. "He had been laboring for some time under a mental aberration, caused, it is said, by domestic troubles," said the *Pacific Commercial Advertiser* in January 1860. Perhaps this was depression resulting from the death of his wife, Dorcas (Doreka Ilai) in 1857 and their four-year-old daughter Fanny in 1859. The newspaper said Richardson had been a member of the House of Representatives, recently promoted by the king to a seat in the House of Nobles, and was considered "one of the most promising and intelligent of his race." (*P.C. Advertiser*, 1/12/1860)

Louzada, a native of New York, had arrived in the Islands in 1834. (*The Friend*, December 1869: 104) His acquisition of Richardson's estate was not his first stake in Waikapū land. A copy of a March 15, 1844, deed from Charles Kanaina to Louzada, translated from Native Register, Volume I, page 175, reads as follows:

I hereby give two ilis of mine at Waikapu, Aoaokamanu and Puahinakao, to James Louzada to live on under me, as the natives of Hawaii do. If he does wrong under the law, his occupation thereof shall end. Furthermore I shall have the Thursdays and the Fridays [tax days] of the land, and he shall be responsible to me. Furthermore he shall give the tribute to the tax

collector, as formerly paid by these lands. Furthermore, *e like no me ka la me ai kahiko* [the ancient ways of the land shall be followed?] Furthermore if it comes to us that he petitions as a foreigner [does not follow Hawaiian custom] then his occupation of the land shall cease. Furthermore if the *lunas* object to this grant of land, then it shall cease and the land be returned to me.

Several years later, Louzada wrote to William Richards, president of the Board of Commissioners to Quiet Land Titles, regarding his application for Land Commission Award 225, for land at Waikapū totaling 26.10 acres:

Enclosed I take the liberty to transmit to Your Excellency a verified copy of a deed for the land, which I cultivate at present, given me by Ch. Kanaina Esqr. with the consent of Her Highness the late Premier. The stipulations of the deed are of such a nature, that as a new order of things is impending, I cannot feel satisfied or safe, until I ensure that the land cannot be taken from me. I have the more reasons to be anxious, as I have expended all I had, to put the land in order, and it would be very distressing to me, if I had to leave it. I have always strictly adhered to the conditions of the writing, and shall certainly still in future endeavor to show, that I am not unworthy of the favor which I respectfully beg . . .

Copies of these two documents are in the possession of a contemporary Cornwell descendant, Mark R. Walker.

In a column by Mrs. D.P. Penhallow titled "Waikapu, Maui: a Sketch" in the February 3, 1926, *Maui News* is more detail.

As with much of early Hawaiian history, so it is with Waikapu. Definite dates of events are hard to fix and the sequence of them not always clear, but as Waikapu was first in this section of Maui in war so, evidently, was it the first to produce sugar and cattle. A Spaniard named Antone Catalina made cane syrup at Waikapu in 1823, which was apparently the beginning of the sugar industry in the Wailuku District. James Louzada came over from Waimea, Hawaii, a number of years later, established a cattle business, opened a store and began cultivating cane on a large scale. The date is not definite but he erected a stone mill with oxen for motive power on the premises known as Hale-pa-laha-laha at the interest in Waikapu Valley, located on its northern slope. It is reputed that Louzada's Hawaiian wife, Kapu, lost an arm while tending the mill.

Following this mill a stream driven one was erected in 1862 near the present road to Lahaina, just north of the stream crossing. . . the store referred to was the first in the district, people going from Wailuku to make purchases there. The store building was located on the lower corner of the Pia Cockett premises and remained as a landmark until a few years ago. The cattle industry flourished and also, many fine horses were produced, horseracing being a feature of Waikapu for years. . . . Aside

from its commercial aspect, there was much of romantic interest attached to Waikapu. Kalalaua spent some of his leisure time with the Cornwells, who kept open house, and it has been featured in song and story. Its romance was of the past, which belonged to its day and age. Of this there are but slight reminders evident only to those who can picture it as it was.

Louzada's acquisition of additional land in 1862 apparently was unplanned, simply a response to a promising opportunity. According to an article in the April 9, 1864, *Pacific Commercial Advertiser*:

Mr. James Louzada, happening to be in the vicinity, heard that there was to be an auction sale of the estate of the late John Richardson, and attracted by curiosity attended it. A good frame house and lot was put up for sale, but nobody wanted it. Seven hundred dollars only were bid, and Mr. L. thinking it a safe investment, took it at a few dollars over that sum, and for a few hundreds also purchased the taro lands belonging to the estate. Thus, without any intention of buying when he went to the sale, he found himself possessed, for the paltry sum of \$1,200, of a good dwelling house and some of the finest cane land on the island. He was not long in finding out that he had located over a mine destined to be as productive as a gold mine, nor in making his plans for the future. Associating himself with his brother-in-law, Henry Cornwell, Esq. [married to Louzada's sister Adelia], formerly of this city [Honolulu], he set to work to erect a mill and commence the manufacture of sugar, the natives and foreigners in the village promising to plant cane on their own lands. Two years have passed since the lucky purchase of this property occurred, and already he has sent to market some 400,000 pounds of sugar, worth perhaps \$25,000, though his mill has been in operation only about eight months.

The writer said there had been a remarkable change in the village of Waikapū since "we last rode past it" four years ago, when "there was nothing here to attract a stranger--a few thatch houses with one or two frame buildings, scattered among taro patches were all that one would notice in passing. Now a tall chimney attracts for miles the eye of the traveler and the dark smoke, growing up in clouds from its top, tells plainly of the industry, capital and enterprise that center here."

The writer told of visiting the mill to meet:

"Mr. Cornwell and his son William, who were hard at work turning cane juice into gold. The mill consists of a large building in the form of an L, on a hill slope, which facilitates the work very much. The machine is driven by a 36 horse engine, built by Mr. Henry Hughes of this city, who also constructed all the machinery used on this plantation. Everything about the mill is of Hawaiian manufacture, which can be said of but a few sugar manufacturers on the islands. The capacity of the mill is about four thousand pounds of sugar per day, though, by working nights, which is sometimes done, five thousand pounds can be got off. To obtain this product, Messrs. Louzada and Cornwell employ about seventy field and mill laborers, of whom forty are females, who are engaged on account of

the scarcity of men. . . .The land at Waikapu consisting of a gentle slope from the base of the mountain to the road, irrigated by the Waikapu river, is admirably adapted to sugar culture, producing, when well cared for, very heavy crops. The extent of land suitable for cane is limited only by the amount of water obtainable for irrigation. The proprietors of the mill have purchased land largely since they began operations and have now some 200 acres. They purchase cane from the natives, paying generally about one hundred dollars an acre for the standing crop, taking it off at their own expense. The sugar boiling department is under the charge of Wm. Cornwell, who possesses all the activity, industry and perseverance of his father and uncle. The high reputation of the sugar made at this mill is the best recommendation that a sugar-boiler can wish.



Old map of Waikapu Plantation shows mill site near Waiko Road intersection.
Map source: DLNR State Survey Office

About a mile back from the mill, and on an elevation overlooking the whole country, stands the house of the late Mr. Richardson, the sale of which we have already referred to, now occupied by Mr. Cornwell and his family. It has been much improved, by additions, and forms one of the pleasantest residences we have ever seen. From its front verandah, a most beautiful scene is had--the village and mill buildings, the plain, Kahului Bay on the left, Kalepolepo Bay at the right, and the whole of Mt. Haleakala, with its villages on its side--are all in view. Were we to select a site for a country home, it would be this charming spot in Waikapu, and we congratulate Mr. and Mrs. C. and their family on possessing so healthy and delightful a home, where in and around the dwelling every comfort and luxury is provided. The traveler, who enjoys, as did we, the pleasure of a short sojourn here, and an acquaintance with those who show such refinement and taste, and who welcome visitors with such cordial hospitality, will leave their pleasant home with many regrets. Such residences and such homes we trust will spring up in every district.

What a change has taken place in Waikapu within two years! Where were a few taro-patches, half cultivated by lazaroni, a village has sprung up, with its sugar mill and buildings, its waving cane fields and busy laborers, scattering industry, thrift and contentment everywhere. Here where a few hundred dollars worth of taro were formerly raised, forty thousand dollars' worth of sugar may now annually be made and sent to market.

A planter's life, however, is no playspell. Messrs Louzada and Cornwell and every one else engaged on the estate work hard -- up early in the morning, and late at night, they earn every dollar they receive. Although the first outlay in commencing a plantation is heavy -- and few estates are set in operation with less than forty or fifty thousand, and from that to one hundred thousand dollars -- yet when once completed, the income promises to be large, and on most plantations will amount to at least twenty-five per cent on the investment, when well managed. This estate, thus far, has cost its proprietors nearly fifty thousand dollars and it is safe to say that it will produce annually at least forty thousand dollars, at present prices of sugar."

This account, in addition to providing a detailed glimpse of life at Waikapū in 1864, also offers insights into attitude and understanding at the time. Clearly, sugar plantations were welcomed as the economic future of the Islands. The use of the word "lazaroni" in relation to Waikapū taro farmers now seems insulting; *Webster's New World Dictionary* defines lazaroni as "any of the class of homeless beggars formerly common on the streets of Naples." The writer apparently has no understanding of the fact that "a few taro patches, half cultivated" may be the remnants of a highly productive farming community devastated by imported diseases in previous decades. Or perhaps the "few taro patches" were all that was left after the destructive 1858 waterspout described above. This 1864 writer's view is in contrast to that of Gorham D. Gilman, who wrote in 1843 of a tour of Maui: "The country around Waikapu and

approaching Wailuku is quite fertile and well cultivated, and formed a pleasing contrast to the arid plain below." Gilman reported being greeted by friendly natives who offered "a tumbler of fine cool water" and "a stick of Sugar Cane in our hands to eat on the way." (MHS ms. collection)

The new plantation established a mill at the Kīhei-mauka corner of West Waiko Road, which may be seen on the old Waikapū Plantation map. The map also shows another mill east of that site and on the other side of the stream; it seems unlikely that this is the earlier mill set up by Louzada, because a *Maui News* column from 1926 (quoted below) sites the first mill at Halepalahalaha, which is higher up the hill. The site of the Waikapū Plantation mill yard continued as stables until it was subdivided for housing starting about 1955. (Chumbley) The old smokestack "which marked the site of the original Waikapu sugar mill," toppled in a Kona gale in 1918. (Silva: 32)

Not all was rosy in the early years of the Waikapū Plantation. One problem arose from the establishment by Louzada and Cornwell of a road that is now known as Old Waikapū Road. Thomas W. Everett, a Waikapū resident who served as sheriff of Maui for many years, reported in an 1866 letter:

I got Mr. Alexander to survey the Crownenburg Lot last week and likewise the Nowlien Lot Boundaries. He found that the disputed road was no part of it on the "Nowlien" land now owned by Cornwell but that after the road left the Crownenburg land it ran through Govt. land all the way into the main road leading from Wailuku to Lahaina. He found that Louzada and Cornwell had fenced in quite a piece of land into their pasture from the main road up to what I have marked on enclosed sketch Pohakoi. . . this stone "Pohakoi" was decided by the parties who settled the boundary question in 1847 or 8 to be the boundary between Wailuku and Waikapu. Consequently the Nowlien lot is in Wailuku. Cornwell has lately bought the Crownenburg lots, but Daniels has possession for three years to come. . . . there is no doubt that the parties knew of this piece of land when it was fenced up but it was probably thought it would not be missed. . . (MHS files)

This road still remains, though it is little used today. According to Avery Chumbley, the road once continued more parallel with Honoapiʻilani Highway, rather than turning down toward the highway around Kuikahi Drive. Chumbley thinks it was realigned some time around the 1930s. He is not sure why this happened, but says until that time the road was the main access to the hundreds of *kuleana* properties scattered throughout the valley.

A much bigger issue was the unclear boundary between Waikapū and Pulehunui. Much of the land of Waikapū was part of the one-twentieth of all unappropriated public lands set aside to produce income for school purposes by a law established in 1850. "During the next few years considerable acreage was sold to procure money for educational purposes." (Wist: 60) "In 1875, the Board of Education sold at auction the 'Land known as the Ahupuaa of Waikapu, saving grants hitherto made within the said ahupuaa, or sales by the Board of Education,' to Henry Cornwell, from the Government issuing a royal patent in the above terms without survey or statement of area. Mr. Cornwell afterward sold to Claus Spreckels and others the part known as Waikapu Commons." (Sterling: 95) This 1878 sale was of an undivided half interest in 16,000 acres of the Waikapū Commons from Henry Cornwell to Spreckels, who was in the process of acquiring land and water rights in order to begin what would become Hawaiian Commercial & Sugar Company. (Adler: 36)

This land sale was to result in problems within the next few years, as the owners of the adjacent *ahupua'a*. The original sale to Cornwell had been based on a map, with no survey or notes and just an estimate of the acreage. For \$15,050, Cornwell received "all that tract of Kula land commonly known as the Waikapu commons, extending on both sides of the Waikapu main road and embracing all the said commons land known to belong to the Hawaiian Board of Education." Subsequent to the sale, the owner of Pulehunui went to court to claim that the boundaries were incorrect. Based on testimony by "the oldest native residents" of the area, the claim was upheld, and Cornwell was "ejected." Having already sold it, he was obliged to repurchase it from the owner of Pulehunui at a cost of \$7,500. Cornwell then went to court to claim that the Board of Education was responsible for this problem, and the court agreed. (Supreme Court of the Hawaiian Islands)

Meanwhile, the ownership of Waikapū Plantation had changed in 1877, with the original proprietor retaining an interest but selling the remainder to his son William H. Cornwell and William's brother-in-law, George W. McFarlane. At this point, Waikapū Plantation could produce 1,000 tons annually, and if water could be brought in, it would produce 2,000 tons of sugar. (Apparently this need would be met by the first artesian well on the outside islands, drilled in 1881 at Waikapū Plantation by the McCandless brothers.) Ownership changed yet again, with the partnership known as the Waikapū Sugar Plantation Company dissolved by mutual consent to be continued thereafter by William Cornwell and George McFarlane under the firm name of Cornwell & Company. (Silva: 17, 19) Louzada had died in 1869, and Henry Cornwell was getting on in years and would die in 1886 at the age of 70. (familysearch.org)

In 1889, the *Pacific Commercial Advertiser* reported the sale of W.H. Cornwell's half-interest in the Waikapū Plantation to Spreckels. "The remaining half is held by G. W. MacFarlane and Company and probably will be purchased by the same party. Major Cornwell will continue to be the manager. . . the purchase of this plantation by such a shrewd, farseeing capitalist as Colonel Spreckels, indicates that he has firm faith in Hawaiian sugar property, and that the proposed changes in the American tariff will not ruin our sugar planters, croakers to the contrary notwithstanding," the paper said. (Silva: 22) The next year, MacFarlane sold the other half interest to Spreckels. In 1894, Wailuku Sugar Company purchased Waikapū Sugar Company, with 2,500 shares at \$42 per share. The first crop of the combined Wailuku, Waihee and Waikapū plantations in 1895 produced 4,939 tons of sugar. The survey for a railroad line to Waikapū had just been completed--this line would be 20,800 feet in length. (Silva: 24) Over the next 20 years or so, Wailuku Sugar Company would also buy up another operation, Waikapū Agricultural Company; it is not clear at this point who or what constituted this company. (Silva: 29-32)

Colonel Cornwell

Through the late 19th century, the Cornwell residence was a center of hospitality enjoyed by none other than King Kalākaua, as William Henry Cornwell's involvement in the affairs of the kingdom grew. Cornwell, born about 1842 in Brooklyn, New York, came to the Islands with his parents about 1857, according to his 1903 obituary in *Paradise of the Pacific*. Cornwell married Blanche MacFarlane, sister of G.W. MacFarlane, and the two had three children before her death at the age of 27. The obituary said that Cornwell:

" . . . grew up in the cane fields and was made manager at an early age. Throughout his whole life he was one of the most successful planters in the group. He became quite intimate with Claus Spreckels when the latter launched his great plantations on Maui, and through business dealings

with the gentleman afterwards, which involved the acquisition of water rights from the King, he got well acquainted with his Majesty, who made him a member of his staff. In 1890 he was elected noble and ever after that time was prominent in politics. On March 14, 1891, he [and others were] appointed by Queen Liliuokalani as members of her personal staff with the rank of Colonel. At the time of the overthrow of the Monarchy he was Minister of Finance in the Queen's Cabinet. After annexation Colonel Cornwell allied himself with the Democratic Party, being at the time of his death member of the National Democratic Committee. No one in the islands had a keener relish for honest racing sport than he. As an importer of superior breed of horses he was instrumental in improving much island stock for racing and general purposes." (*Paradise of the Pacific*, December 1903: 69)

Family stories shared by Cornwell's great-grandson, John Cornwell Walker of Honolulu, tell of the two-story house acquired in the original purchase of the Richardson state, its location still marked by two Norfolk pines that stood on either side of the walkway, with another pine a quarter-mile away at the site of the stables. Cornwell raised horses to race in Honolulu, and once took a winning steed to a downtown hotel and poured champagne over the horse. The king would come to visit, landing at McGregor Point, where he would be joined by other riders for a parade to Waikapū. He would stay for perhaps a week of parties and poker games, then depart, accompanied once again by an escort of horsemen. (Walker)



Two Norfolk pines mark the former site of the Cornwell home. Engledow photo 7/09

Some say that the character of "Uncle Bill Calhoun" in Armine von Tempski's *Born in Paradise* is based on that of William H. Cornwell. Though much of the story beginning on page 64 is obviously

fiction, it may be that some of the descriptions apply to the real Waikapū and the real Cornwell.

"A short distance from the sheer walls of rock which made a sort of awesome portal [to the valley], a sprawling house sat on a low hill top surrounded by Norfolk Island Pines. Purple mango trees and dark pointing fingers of Italian cypresses flanked brick walks which leaped down through terraces of gay flowers in wide steps to meet the road. A feeling of excitement poured from the house though no people were visible . . ."

Inside the house, in "a spacious room filled with pictures of racehorses and women," Uncle Bill Calhoun lay, obviously ill. But "I sensed he was a great figure. His conversation was punctuated with damns, shouts, and 'Let's hoist another!' Opened-armed, open-hearted, he seemed to embrace life as it came toward him."

A photograph of Colonel Cornwell published in the Wailuku Sugar Company's Centennial history shows a man who might very well have been this hearty, lively character, though the real Cornwell did not die a lingering death tended by a lovely young *hapa-haole* woman, but died suddenly following an attack of angina pectoris at his home in Waikapū, having married Josephine Colvin a year earlier. William H. Cornwell was buried in Honolulu, but a Cornwell family graveyard remains on the property in upper Waikapū owned by Avery Chumbley, and Chumbley says other graves that were next to the Piltz house above Old Waikapū Road (near the site of the old Cornwell house) were exhumed. These may have included the grave of George E. Richardson, brother of Judge John Richardson, who was buried in Waikapū in the "family vault."



Col. William H. Cornwell. Source: Wailuku Sugar Co. Centennial

Cornwells maintained their presence in Waikapū for at least a few years; William H. Cornwell Jr. opened a butcher shop called the Waiohuli Market in Waikapū in 1906. He left in 1907 to establish a business on the mainland. And at least one contemporary family, the Vidas, is of Cornwell ancestry.

Wailuku Sugar

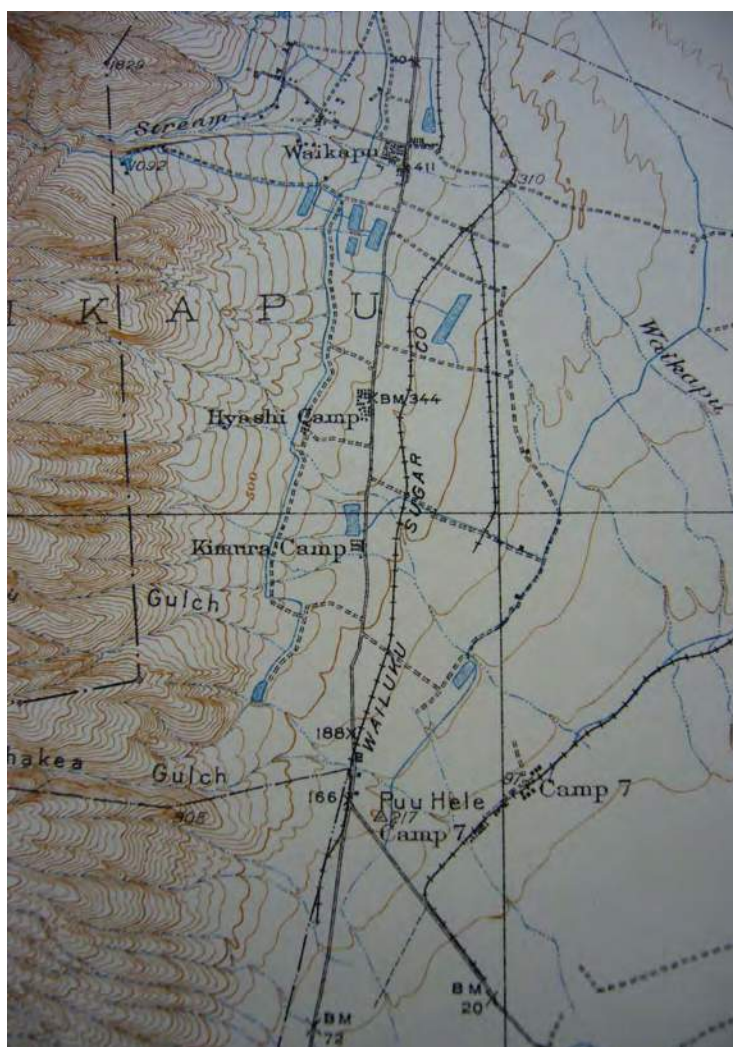
The sale of Waikapū Sugar Company to Wailuku Sugar Company brought it into a much larger operation and into the plantation lifestyle often remembered today, with workers of various ethnicities living in separate camps near their work sites. Apparently there was a camp at Waikapū village, which was enlarged in 1919 by bringing in six houses from Pu‘uhele Camp. That same year, a new dispensary was built at Waikapū. (Silva: 32) Old maps show two camps between Waikapū and Pu‘u Hele, one called Kimura Camp and one called Hayashi Camp. Graves in a small cemetery on East Waiko Road are almost all marked in Japanese, indicating that there may have been another ethnic Japanese camp nearby, but no such camp shows on maps consulted for this report. There are about 75 marked graves and more than 20 unmarked graves at this Waikapū Community Cemetery. (MHS)



Waikapu Community Cemetery. Engledow photo 7/09

The 1910 census enumerator noted specific areas as he filled in the names on each 25-line page for Census District 76, making it possible to estimate population at that time. Kimura Camp had about 60 residents; Hayashi about 100; Pu‘uhele Camp about 60; "Waikapu Plantation Camps" more than 200; "Waikapu Camp number one," 100; Waikapu Ranch Camp, 50; Waikapu Village about a dozen; "plantation camps," 50; and "Waikapu mauka camps," 50.

The 1920 count lists about 175 residents on Waikapū Road. The 1930 count lists 325 in Waikapū Village, 25 in Waikapū and an unclear number, at least 125, in Hayashi Camp.



1923 Ma'alaea Quadrangle map showing Waikapū with camps and railroads. Hawai'i State Archives

School and Church

Old maps show the parcel on the Wailuku side of the Waikapū Protestant church as a school. Whether this is the same location as the missionary schools reported in the mid-1800s is not clear, but a current Waikapū resident, Zelig Rogers Harders, says school continued to be in session there at least through the early 1940s. Mrs. Harders was attending Kaunoha School when Pearl Harbor was attacked, and her parents decided to keep her closer to home and enrolled her in the one-room Waikapū schoolhouse. A few records on file at the State Archives in the Department of Education "Reports on Numbers and Nationalities of Pupils" mention the school. In 1890, F.R. Woolsey was principal, with 29 boys and 14 girls (all "native") plus two girls who were "half caste" in first through fourth grade. Most were aged six to 15; one was older than 15 years. (262-8-19) In 1911, Zelig Rogers (Mrs. Harders' grand-aunt) was a teacher. In the term ending March 31 of that year, there were 42 pupils but only 32 seats, all in first grade. The report said 16 were Hawaiian, five-part Hawaiian, 19 Japanese and one Chinese. Most were six or seven years old; two were 11 years old and beginning school for the first time. (262-9-39) Mrs. Harders says that when her grand-aunt was teacher, she was able to fool naughty boys who plotted mischief in Hawaiian, because she herself was part Hawaiian and fluent in the language. Miss Rogers later married Patrick "Pia" Cockett, who would become a member of the county Board of Supervisors.



Waikapu Church in 2009. Engledow photo 7/09

The Protestant church in Waikapū began in 1838. Its first building was erected in 1866. Records of church growth and change may be found in the Mission Houses Museum Library, which includes minutes of the Maui Presbytery and of the Hawaii Evangelical Association. Originally, this church was part of the Wailuku parish, which included Wailuku, Waikapū, Waihe'e and Waiehu. In the minutes of the Maui Presbytery for 1869, translated by H. P. Judd, a request by members of the Waikapū congregation that it be separated as an independent church was approved. In 1870, church elder J. Kamakele reporting on the doings of the church, and the church called a new pastor, W. Kaho'okaumaha (also spelled Ho'okaumaha).

Archives of the Hawaiian Evangelical Association provide annual statistics as well as occasional insights into the life of the church and the village. In 1871, a report from the Rev. W. Ho'okaumaha says "this is a small parish but rich (fertile). There are not many members of this church, for they are a small family." Religious meetings were held on Wednesdays, Saturdays and Sundays and not many attended during the week because they were working for the sugar planters, but "on Sundays the Hawaiians set apart that day, so they assemble in larger numbers in the church. There are some unbelievers in the parish. In the camps of the 'haole' are the chief doubters." The pastor said these would hide in their office or lie down and pretend to be sick when church members came to visit. The church building was in poor condition, and the congregation was preparing to raise a fund of \$2,000 to improve it. At this time, "there are two schools in the parish, the teachers of which are Protestant." There were a few Roman Catholics and Mormons. Apparently there was some sort of epidemic, because the pastor notes that "last March, 40 died." He was also concerned that hula teachers had come from Lahaina and unbelievers practiced the dance. "Some religious persons went to forbid that evil practice and it has ceased," and the teacher had gone back to Lahaina, he wrote.

In the Presbytery minutes of 1876, the minister reported "great activity of the church at Waikapu in rebuilding their edifice."

The statistical tables for 1870-71 shows 197 members in good standing. By 1887-88, there were only 56 members, with the Reverend S. Kaili in charge. The statistical report for 1889-90 shows that

Wailuku and Waikapū were under the leadership of the Reverend O. Nawahine, with a total of 94 on the membership rolls. Consolidation continued--in 1897-98, Wailuku, Waikapū and Honua'ula were led by the Reverend S. Kapu, with a total of 187 congregants.

In 1909, the Maui News reported that the Reverend Lincoln Benjamin Kaumeheiwa had been invited to co-pastor with the Reverend R.B. Dodge of Kaahumanu and Waikapū churches; he had been in Hana and was "a good preacher and has a good voice for singing," the newspaper said. In 1918, he was installed as pastor of Waikapū and Pu'unene churches. Church membership continue to dwindle, and by the 1940s a supply pastor preached to 27 members. In 1957, Waikapū, still listed as a "Hawaiian church," had an average attendance of 10 and was "yoked" with Kahului Union. By 1958, the church is no longer included in the annual statistical reports.

St. Joseph Mission, on Honopi'ilani Highway, served the Catholic community of Waikapū from 1900 (*Pioneers of the Faith*: 327) until it burned down in February 1997. Today it is a well-kept shrine to St. Joseph, with some graves, only three of which are marked. They are the graves of Hanna Sylva, wife of Antone, who died October 13, 1885, and of Mary Ann and George Maxwell (died 1931 and 1930).

World War II

Like others around Hawaii, the people of Waikapū endured martial law and pitched in to prepare for possible enemy attack. There also was new construction in the village with the establishment of Waikapū Station Hospital. An article in the June 17, 1942, *Maui News* describes its formal opening at a banquet held in a hospital's mess hall.

The hospital is considered an example of the speed with which defense construction has been accomplished on the island, in as much as it was not completed until last January, and now includes almost complete facilities for operation of a general hospital. . . . Major J. Mulligan asserted that the hospital could not have been built without the combined efforts of individuals present at the banquet, and asserted that he appreciated the neighborliness and assistance that had been given on the project. Staff of the hospital consists of eight physicians, ten nurses and 21 enlisted men. Facilities installed include four wards, complete surgery, laboratory, dentistry office, X-ray machine and darkroom, beside large storerooms, mess hall and quarters for the officers, nurses and enlisted men. Wards at the new hospital are so constructed that emergency wards may be organized on the ground beneath them. The surgery is located in the old Waikapu church, from which the steeple has been removed to make it less conspicuous. Now serving as a nurses cottage is the old parsonage. { According to Avery Chumbley, this site was the triangular parcel at the junction of Waiko and Old Waiko roads.]



Steps at junction of Waiko and Old Waiko roads may have led to WWII nurses cottage.
Engledow photo 7/09

An article in the August 18, 1923, *Maui News* tells of the formation of a volunteer company made up mostly of men from Waikapū.

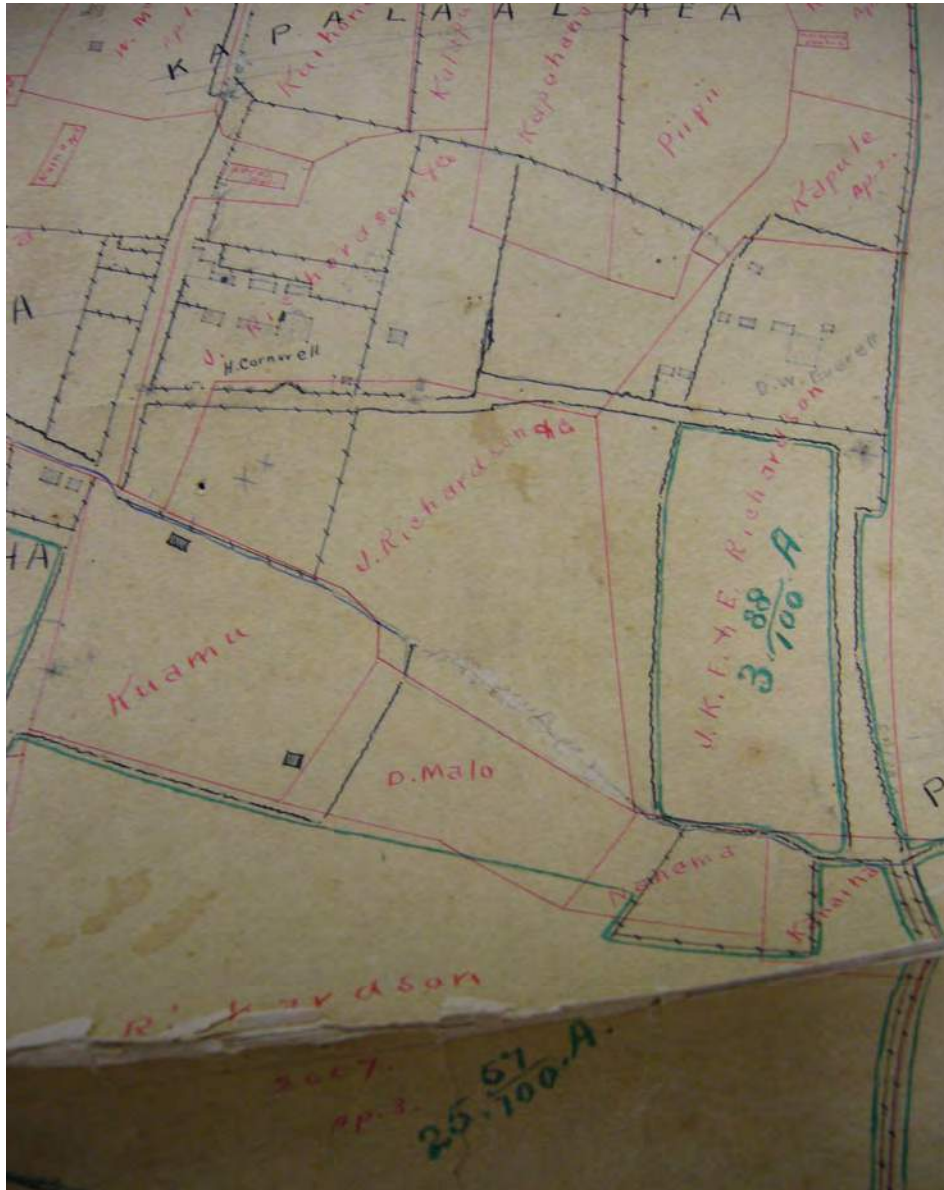
Proficiency in the use of the bolo knife, with which the majority of its members are armed, and skill with small arms and in hand-to-hand combat is the pride of Co. E. 2nd Bn., Maui Volunteers.

The company, sponsored by the Wailuku Sugar Company, comes largely from Waikapu, where it has its headquarters, and consists largely of men working for the Wailuku Sugar Co. Most of its members are Filipino nationals.

The company is commanded by Capt. Wayne Richardson, Jr., Wailuku Sugar Co. division overseer and a graduate of Stanford University, with 1st Lt. James A. Tokunaga, former Hawaiian National Guardsman and highway maintenance foreman for the Territorial department of public works here, as executive officer and second in command.

Approximately 130 men answered the call on May 10, 1942, which deemed a volunteer company necessary at Waikapu. After considerable organizing and fundamental training, the company was under way to becoming a top-notch outfit. . . Training primarily has been with small arms. Considerable effort and time also has been spent in training on hand-to-hand combat, bayonet defense and the use of bolo knives. Most members of the company are equipped with a bolo knife made by themselves and each man owns a hunting knife. . . . Weekly drills are

conducted from 8:30 to noon each Sunday at the Waikapu ball park. The public is invited to witness these drill periods and see the men who volunteer their time, in addition to fulfilling their civilian jobs, for the defense of Maui.



Section of Waikapu Plantation map showing Kuamu and David Malo kuleana, plus Richardson and Cornwell lands
DLNR State Survey Office

Waikapu Residents

Waikapū has over the years at home to many families whose names are familiar around Maui, including the Sylvas, Cocketts, Vidas and Maxwells, who are descendants, according to Charles K. Maxwell, of Kealiwahineholololio, a high chiefess who once controlled all the lands from Waikapū to Ma‘alaea. (BWS 12/4/2002)

One of the oldest families in Waikapū is descended from Kuamu, whose *kuleana* was high on Waiko Road, which was bounded on one side by David Malo and on others by John Richardson. The great-great-great-great-grandson of Kuamo is Glenn McLean, who lived on the property for many years beginning in 1973. McLean is the family historian, having spent much time listening to the stories of his elders as he was growing up, and he has studied history formally in recent years, learning Hawaiian and digging into archival records. McLean's grandfather Kalā Pelekai grew up on the Kuamu kuleana. His grandmother Lu'ukia Pelekai grew up on land mauka of the Maui Tropical Plantation belonging to her stepfather, Ka'a'a; there are several family graves on that parcel. Kalā and Lu'ukia married in 1916 and moved to Hāna, where Glenn McLean now lives. McLean's mother also grew up in Waikapū, but now lives in Hāna as well.

McLean said Kuamu was awarded five *apana*--three for *kalo*, one for *wauke* and one in Keokea for sweet potatoes. The Waikapū property as it now exists has shrunk by about two-thirds from the original dimensions of about 3.5 acres shown on early maps. The property has limited access to water from the Waikapū stream, through a 1-inch pipe that waters fruit trees and the native plants grown by McLean's son Luke, who now lives on the property. McLean has applied for a Commission on Water Resource Management surface water use permit in order to re-open old *lo'i* on the property.

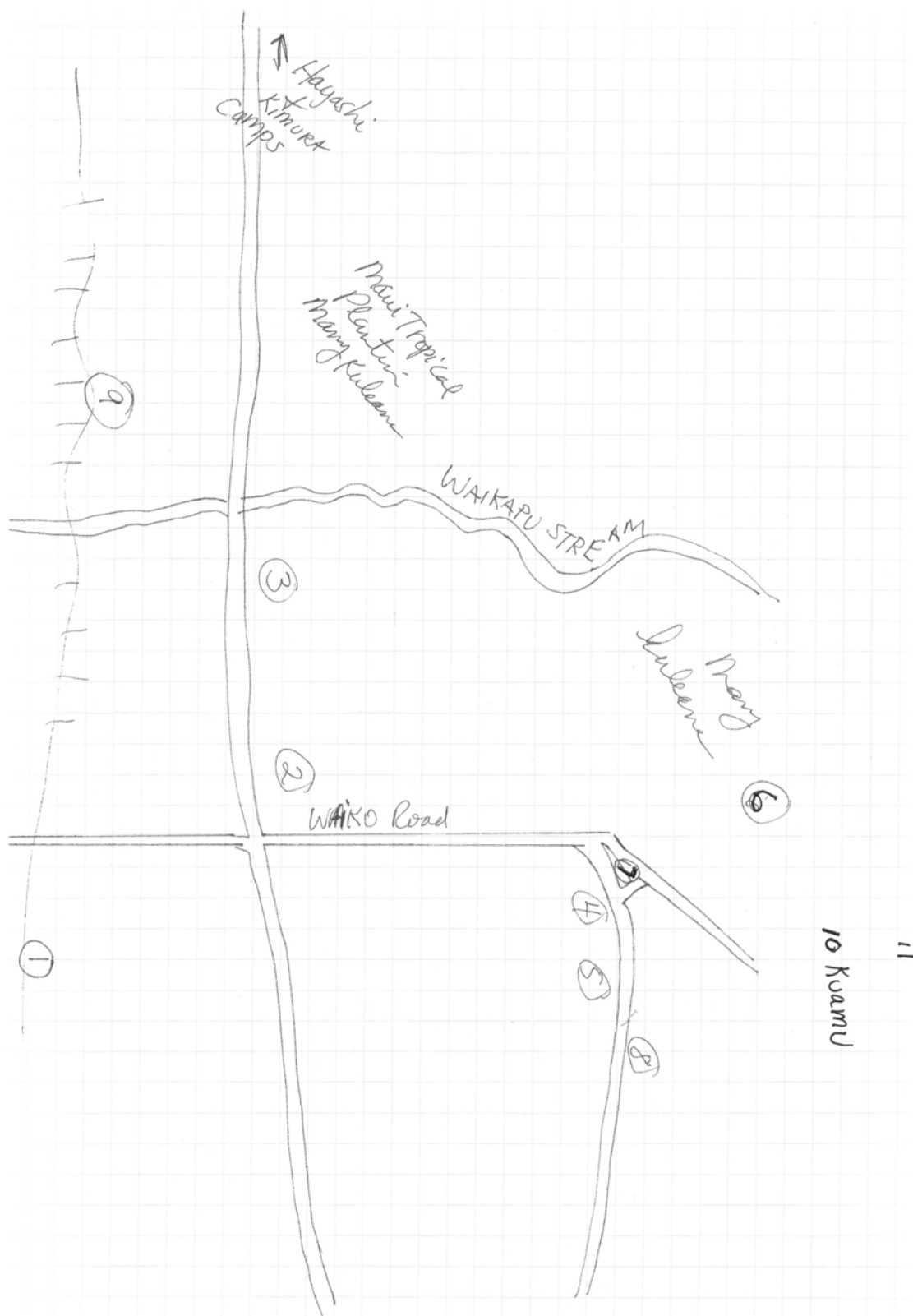
In a brief, informal conversation, McLean shared a few tidbits of Waikapū history. Some of his relatives were among many who left the village in the 1930s to move to Moloka'i and take up homestead lands there. Eddie Rogers, whose family still lives in Waikapū, once leased 5,000 acres between Waikapū and Ma'alaea for his cattle; as a young man, McLean worked for him fixing fences. Near the junction of Waiko and Old Waiko roads was a store run by Ah Fat Soong, where Rogers and other residents loved to go for bread and coffee in the morning. Another old family is the Vidas (descendants of Kate Louzada Cornwell and Daniel Rodrigues Vida, who came from Chile and married Kate in 1868). (familysearch.org) A grave on their property belongs to a Cockett, perhaps Charles, the first person of that well-known Maui name to come to the island.

Waikapu also has spawned some famous individuals, beginning with earliest recorded history. The early Hawaiian evangelist known as Blind Bartimeus was born in Waikapū about 1875 and was a noted hula performer and drummer for Hawaiian royalty. (Bingham)

More recently, it is the hometown of the late Shin'ichi Suzuki, a world-class teacher and practitioner of aikido. Suzuki was born in 1917 in Waikapū, the first in a family of ten children whose father immigrated from Japan to work in the cane fields. (Curtis)

* * * * *

Author's note: Waikapū clearly was a vital and important community in Maui's history, and its story as presented here could be greatly expanded. Due in part to time constraints, this report is based almost entirely on documentary resources, with few interviews of contemporary Waikapū residents (who are putting together their own oral history). Stories told by residents and descendants of former residents would fill in gaps and perhaps correct errors or misperceptions found in this report. The author hopes that this report turns out to be the first draft of a comprehensive history of Waikapū.



Engledow map 7/09

Approximate locations of various sites mentioned in A History of Waikapū

1. Waikapū Community Cemetery.
2. Site of 1862 Waikapū Mill, later Wailuku Sugar stables area. This was subdivided starting 1955.
3. Old Catholic church that burned in 1997
4. Old Congregational church. Turned into a surgery during WWII; now a private residence.
5. Old school site, closed sometime after early 1940s.
6. Many kuleana on Avery Chumbley's land, and some Cornwell graves.
7. WWII nurses cottage
8. Old Waikapu Road, created in 1860s, was much-used access route between Wailuku and *kuleana* in the area.
9. Plantation railroad in this approximate area.
10. Kuamu *kuleana*
11. Cornwell home

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APPENDIX B
Botanical and Faunal Surveys

BIOLOGICAL RESOURCES SURVEY
for the
WAIKAPU COUNTRY TOWN PROJECT
WAIKAPU, WAILUKU DISTRICT, MAUI

by

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February 2013

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**BIOLOGICAL RESOURCES SURVEY
WAIKAPU COUNTRY TOWN PROJECT
Waikapū, Maui, Hawaii**

INTRODUCTION

The Waikapū Country Town Project lies on approximately 520 acres of land on the southeast slopes of the West Maui mountains just south of Waikapū Stream and the village of Waikapū (see Figure 1). The project area straddles the Honoapi'ilani Highway and includes the Maui Tropical Plantation facilities and surrounding agriculture and pasture lands, TMKs (2) 3-6-02:003 por., (2) 3-6-04:003 and 006 por. and (2) 3-6-05:007.

SITE DESCRIPTION

The project area includes about 70 acres that comprise the facilities of the Maui Tropical Plantation. This is surrounded by 50 acres of vegetable farm. On the slopes above this are 150 acres of cattle pasture, and below the highway are 240 acres in sugar cane production. Elevations range from 250 feet at the lower end up to 800 feet at the top of the pastures. Soils are all deep, well-drained alluvial soils which are classified in the Wailuku Silty Clay, Iao Clay and Pulehu Cobbly Clay Loam soil series (Foote et al, 1972). The vegetation consists of a great variety of ornamental plant species on the grounds of the Maui Tropical Plantation, a diversity of vegetable crop plants, pasture grasses and dense fields of sugar cane. Annual rainfall ranges from 25 inches in the lower end up to 30 inches at the top (Armstrong, 1983).

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the proposed Waikapū Country Town Project which was conducted during February 2013. The objectives of the survey were to:

1. Document what plant and animal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used to cover all of the diverse habitats represented across the entire project area. The riparian strip along Waikapū Stream was examined more intensively because of its special habitat. Specifically excluded from this survey were the ornamental plants in the Maui Tropical Plantation landscape and the numerous crop plants in the farm area.

DESCRIPTION OF THE VEGETATION

The vegetation, excluding the purely ornamental plants and vegetable crop species, was still quite diverse. A total of 130 plant species were recorded during the survey. Seven species were found to be common within the project area: buffelgrass (*Cenchrus ciliaris*), Guinea grass (*Megathyrsus maximus*), sugar cane (*Saccharum officinarum*), smooth rattlepod (*Crotalaria pallida*), cheeseweed (*Malva parviflora*), 'uhaloa (*Waltheria indica*) and Java plum (*Syzygium cumini*). These species are found naturally in Hawaii as well as throughout the tropics nearly worldwide and are common.

Just 3 native species were found on the 520 acre project area: 'uhaloa, koali awahia (*Ipomoea indica*) and popolo (*Solanum americanum*). These species are found naturally in Hawaii as well as throughout the tropics nearly worldwide and are common.

Four plant species found during the survey were introduced over a thousand years ago by Polynesian voyagers: kukui (*Aleurites moluccana*), niu (*Cocos nucifera*), hau (*Talipariti tileaceum*) and 'ihi'ai (*Oxalis corniculata*).

The remaining 123 species were non-native plants including some useful forage grasses, but many are considered to be agricultural or roadside weeds.

The largest portions of this project area are agricultural fields in sugar cane production or are cattle pastures. The narrow Waikapū Stream corridor is another distinctive forested habitat type. The remainder of the project includes the highly manipulated ornamental landscapes of the Maui Tropical Plantation grounds and the ever-changing farm fields, the plant species of which were not deemed important to the purposes of this study and were not included in the plant inventory.

DISCUSSION AND RECOMMENDATION

The vegetation along the project corridor is dominated by non-native species. Only three common indigenous species were found. No federally listed Endangered or Threatened plant species (USFWS, 2012) were found, nor do any plants proposed as candidates for such status occur on the property.

Waikapū Stream is a sensitive environment that needs to be carefully managed, although it is not a special plant habitat in that it has no Endangered or Threatened plants living in or around it. The stream is diverted for agricultural irrigation that contributes to it being periodically dry. Were it not diverted it would almost certainly be a perennial running stream with increased possibilities of harboring native species. As it is now no native plants were found within this riparian channel.

No wetlands occur on the site. Streams are technically not wetlands by federal definition. The remainder of the project area consists of dry upland habitat.

As a result of the above findings it is determined that there is little of botanical concern and that the proposed project is not expected to have a significant negative impact on the botanical resources in this part of Maui. No recommendations with regard to plants are deemed appropriate or necessary.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of four groups: Ferns, Conifers, Monocots and Dicots. Taxonomy and nomenclature are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation.
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:

endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographical area(s).

Polynesian = all those plants brought to Hawaii during the course of Polynesian migrations.

non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

abundant = forming a major part of the vegetation within the project area.

common = widely scattered throughout the area or locally abundant within a portion of it.

uncommon = scattered sparsely throughout the area or occurring in a few small patches.

rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
NEPHROLEPIDACEAE (Sword Fern Family)			
<i>Nephrolepis brownii</i> (Desv.) Hovencamp & Miyamoto	Asian sword fern	non-native	rare
THELYPTERIDACEAE (Marsh Fern Family)			
<i>Christella parasitica</i> (L.) H. Lev.	-----	non-native	rare
CONIFERS			
ARAUCARIACEAE (Araucaria Family)			
<i>Araucaria columnaris</i> (Forst.) J.D. Hooker	Cook pine	non-native	rare
MONOCOTS			
ALOEACEAE (Aloe Family)			
<i>Aloe vera</i> (L.) N.L. Burm	aloe	non-native	rare
ARECACEAE (Palm Family)			
<i>Cocos nucifera</i> L.	coconut	Polynesian	rare
<i>Dypsis lutescens</i> (Wendl.) Beentjie & Dransfield	golden-fruited palm	non-native	rare
ASPARAGACEAE (Asparagus Family)			
<i>Furcraea foetida</i> (L.) Haw.	Mauritius hemp	non-native	rare
<i>Asparagus plumosus</i> J.G. Baker	climbing asparagus fern	non-native	rare
COMMELINACEAE (Dayflower Family)			
<i>Commelina diffusa</i> N.L. Burm.	honohono	non-native	rare
CYPERACEAE (Sedge Family)			
<i>Cyperus involucratus</i> Rottb.	umbrella sedge	non-native	rare
<i>Cyperus rotundus</i> L.	nutsedge	non-native	uncommon
<i>Eleocharis radicans</i> (Poir.) Kunth	pīpīwai	non-native	rare
<i>Kyllinga brevifolia</i> Rottb.	kilio'opu	non-native	rare
POACEAE (Grass Family)			
<i>Bothriochloa pertusa</i> (L.) A. Camus	pitted beardgrass	non-native	rare
<i>Cenchrus ciliaris</i> L.	buffelgrass	non-native	common
<i>Cenchrus echinatus</i> L.	common sandbur	non-native	rare
<i>Cenchrus purpureus</i> (Schumach.) Morrone	Napier grass	non-native	rare
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	non-native	uncommon
<i>Coix lacryma-jobi</i> L.	Job's tears	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	non-native	rare
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	non-native	rare
<i>Digitaria violascens</i> Link	kukae pua'a	non-native	rare
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	non-native	rare
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	rare
<i>Megathyrsus maximus</i> (Jacq.) Simon & Jacobs	Guinea grass	non-native	common
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	non-native	uncommon
<i>Paspalum conjugatum</i> Bergius	Hilo grass	non-native	uncommon
<i>Saccharum officinarum</i> L.	sugar cane	non-native	common
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	non-native	rare
<i>Sorghum halapense</i> (L.) Pers.	Johnson grass	non-native	uncommon
<i>Urochloa subquadrifida</i> (Trin.) R.D. Webster	-----	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
DICOTS			
ACANTHACEAE (Acanthus Family)			
<i>Asystasia gangetica</i> (L.) T.Anderson	Chinese violet	non-native	rare
<i>Justicia betonica</i> L.	white shrimp plant	non-native	uncommon
<i>Thunbergia fragrans</i> Roxb.	sweet clock-vine	non-native	rare
AMARANTHACEAE (Amaranth Family)			
<i>Alternanthera pungens</i> Kunth	khaki weed	non-native	rare
<i>Amaranthus spinosus</i> L.	spiny amaranth	non-native	uncommon
<i>Atriplex suberecta</i> Verd.	saltbush	non-native	rare
<i>Chenopodium carinatum</i> R. Br.	keeled goosefoot	non-native	rare
<i>Chenopodium murale</i> L.	'āheahea	non-native	rare
ANACARDIACEAE (Mango Family)			
<i>Mangifera indica</i> L.	mango	non-native	uncommon
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	non-native	rare
APIACEAE (Parsley Family)			
<i>Centella asiatica</i> (L.) Urb.	Asiatic pennywort	non-native	rare
<i>Ciclospermum leptophyllum</i> (Pers.) Sprague	fir-leaved celery	non-native	rare
APOYCYNACEAE (Dogbane Family)			
<i>Asclepias physocarpa</i> (E. Mey.) Schlect.	balloon plant	non-native	rare
<i>Calotropis procera</i> (Aiton) Aiton	small crown flower	non-native	rare
ARALIACEAE (Panax Family)			
<i>Schefflera actinophylla</i> (Endl.) Harms	octopus tree	non-native	rare
ASTERACEAE (Sunflower Family)			
<i>Bidens pilosa</i> L.	Spanish needle	non-native	uncommon
<i>Calyptracarpus vialis</i> Less.	-----	non-native	rare
<i>Conyza bonariensis</i> (L.) Cronq.	hairy horseweed	non-native	uncommon
<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	redflower ragleaf	non-native	rare
<i>Emilia fosbergii</i> Nicolson	red pualele	non-native	uncommon
<i>Emilia sonchifolia</i> (L.) DC.	violet pualele	non-native	rare
<i>Flaveria trinervia</i> (Spreng.) C. Mohr	clustered yellowtops	non-native	rare
<i>Lactuca sativa</i> L.	prickly lettuce	non-native	rare
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	non-native	uncommon
<i>Senecio madagascariensis</i> Poir.	fireweed	non-native	rare
<i>Sonchus oleraceus</i> L.	pualele	non-native	uncommon
<i>Synedrella nodiflora</i> (L.) Gaertn.	nodeweed	non-native	rare
<i>Tridax procumbens</i> L.	coat buttons	non-native	uncommon
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon
<i>Xanthium strumarium</i> L.	kīkānia	non-native	rare
BASELLACEAE (Basella Family)			
<i>Anredera cordifolia</i> (Ten.) Steenis	Madeira vine	non-native	rare
BIGNONIACEAE (Bignonia Family)			
<i>Spathodea campanulata</i> P. Beauv.	African tulip tree	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
BORAGINACEAE (Borage Family)			
<i>Carmona retusa</i> (Vahl) Masam.	Fukien tea	non-native	rare
<i>Heliotropium aplexicaule</i> Vahl	summer heliotrope	non-native	rare
<i>Heliotropium procumbens</i> Mill.	fourspike heliotrope	non-native	rare
BRASSICACEAE (Mustard Family)			
<i>Lepidium virginicum</i> L.	pepperwort	non-native	rare
CACTACEAE (Cactus Family)			
<i>Hylocereus undatus</i> (Haw.) Britton & Rose	night-blooming cereus	non-native	rare
CASUARINACEAE (She-oak Family)			
<i>Casuarina equisetifolia</i> L.	common ironwood	non-native	uncommon
CLEOMACEAE (Cleome Family)			
<i>Cleome gynandra</i> L.	wild spider flower	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea indica</i> (J. Burm.) Merr.	koali 'awahia	indigenous	rare
<i>Ipomoea triloba</i> L.	little bell	non-native	uncommon
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	non-native	rare
CUCURBITACEAE (Gourd Family)			
<i>Momordica charantia</i> L.	bitter melon	non-native	uncommon
EUPHORBIACEAE (Spurge Family)			
<i>Aleurites moluccana</i> (L.) Willd.	kukui	Polynesian	rare
<i>Euphorbia heterophylla</i> L.	kaliko	non-native	rare
<i>Euphorbia hirta</i> L.	hairy spurge	non-native	rare
<i>Euphorbia hypericifolia</i> L.	graceful spurge	non-native	rare
<i>Euphorbia prostrata</i> Aiton	prostrate spurge	non-native	rare
<i>Macaranga tanarius</i> (L.) Mull. Arg.	parasol leaf tree	non-native	uncommon
<i>Ricinus communis</i> L.	Castor bean	non-native	uncommon
FABACEAE (Pea Family)			
<i>Alysicarpus vaginalis</i> (L.) DC.	alyce clover	non-native	rare
<i>Canavalia cathartica</i> Thouars	maunaloa	non-native	rare
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	non-native	uncommon
<i>Crotalaria incana</i> L.	fuzzy rattlepod	non-native	uncommon
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	non-native	common
<i>Crotalaria retusa</i> L.	rattlepod	non-native	rare
<i>Desmanthus pernambucanus</i> (L.) Thellung	slender mimosa	non-native	uncommon
<i>Desmodium tortuosum</i> (Sw.) DC.	Florida beggarweed	non-native	rare
<i>Enterolobium cyclocarpum</i> (Jacq.) Griesbach	elephant earpod	non-native	rare
<i>Indigofera hendecaphylla</i> Jacq.	creeping indigo	non-native	uncommon
<i>Indigofera suffruticosa</i> Mill.	inikō	non-native	uncommon
<i>Leucaena leucocephala</i> (Lam.) de Wit	koa haole	non-native	uncommon
<i>Macroptilium atropurpureum</i> (DC.) Urb.	siratro	non-native	uncommon
<i>Mimosa pudica</i> L.	hilahila	non-native	rare
<i>Neonotonia wightii</i> (Wight & Arnott) Lackey	glycine	non-native	uncommon
<i>Pithecellobium dulce</i> (Roxb.) Benth.	'ōpiuma	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	kiawe	non-native	rare
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod	non-native	rare
<i>Tamarindus indica</i> L.	tamarind	non-native	rare
LAMIACEAE (Mint Family)			
<i>Hyptis pectinanta</i> (L.) Poit.	comb hyptis	non-native	rare
<i>Leonotis nepetifolia</i> (L.) R. Br.	lion's ear	non-native	uncommon
MALVACEAE (Mallow Family)			
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	non-native	uncommon
<i>Malva parviflora</i> L.	cheeseweed	non-native	common
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	non-native	uncommon
<i>Sida rhombifolia</i> L.	Cuban jute	non-native	uncommon
<i>Talipariti tileaceum</i> Fryxell	hau	Polynesian	rare
<i>Waltheria indica</i> L.	'uhaloa	indigenous	common
MELIACEAE (Mahogany Family)			
<i>Melia azedarach</i> L.	pride-of-India	non-native	rare
MORACEAE (Mulberry Family)			
<i>Ficus microcarpa</i> L. fil.	Chinese banyan	non-native	rare
MYRTACEAE (Myrtle Family)		non-native	
<i>Corymbia citriodora</i> (Hook.) Hill & Johnson	lemon gum	non-native	rare
<i>Eucalyptus robusta</i> Sm.	swamp mahogany	non-native	uncommon
<i>Psidium cattleianum</i> Sabine	strawberry guava	non-native	uncommon
<i>Psidium guajava</i> L.	common guava	non-native	rare
<i>Syzygium cumini</i> (L.) Skeels	Java plum	non-native	common
NYCATAGINACEAE (Four-o'clock Family)			
<i>Boerhavia coccinia</i> Mill.	scarlet spiderling	non-native	uncommon
<i>Mirabilis jalapa</i> L.	four-o'clock	non-native	rare
ONAGRACEAE (Evening Primrose Family)			
<i>Ludwigia octovalvis</i> (Jacq.) Raven	primrose willow	non-native	rare
OXALIDACEAE (Wood Sorrel Family)			
<i>Oxalis corniculata</i> L.	'ihi'ai	Polynesian	uncommon
PAPAVERACEAE (Poppy Family)			
<i>Argemone mexicana</i> L.	Mexican poppy	non-native	rare
PORTULACACEAE (Purslane Family)			
<i>Portulaca oleracea</i> L.	pigweed	non-native	rare
SOLANACEAE (Nighthshade Family)			
<i>Datura stramonium</i> L.	jimson weed	non-native	rare
<i>Nicandra physalodes</i> (L.) Gaertn.	apple-of-Peru	non-native	uncommon
<i>Nicotiana glauca</i> R.C. Graham	tree tobacco	non-native	rare
<i>Solanum americanum</i> Mill.	pōpolo	indigenous	rare
<i>Solanum lycopersicum</i> L.	cherry tomato	non-native	rare
<i>Solanum seaforthianum</i> Andr.	Brazilian nightshade	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
VERBENACEAE (Verbena Family)			
<i>Lantana camara</i> L.	lantana	non-native	rare
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	nettle-leaved vervain	non-native	rare
ZYGOPHYLLACEAE (Creosote Bush Family)			
<i>Tribulus terrestris</i> L.	puncture vine	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Four species of non-native mammals were observed during four site visits to the project area. These included: cattle (*Bos Taurus*), small Indian mongoose (*Herpestes javanicus auropunctata*), domestic cat (*Felis sylvestris catus*) and domestic dog (*Canis lupus familiaris*). Taxonomy and nomenclature follow Tomich (1986).

Other non-native mammals one might expect to utilize this area include: rats (*Rattus* spp.), mice (*Mus domesticus*) and axis deer (*Axis axis*). Rats and mice feed on seeds, fruits, eggs and succulent vegetation and are in turn preyed upon by cats and mongoose. Axis deer are expanding their range into this area and small herds are occasionally seen during the evenings.

A special effort was made to look for the native Hawaiian hoary bat by making an evening survey to four sites in the project area: one near the top of the project, one in the middle and two along the Waikapū Stream corridor. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent. In addition a bat detecting device (Bat Box IIID) was used, set to the frequency of 27,000 to 28,000 hertz which is the typical range within which these bats are known to use for echolocation. No activity was detected using this device.

BIRDS

There was a good diversity of birdlife present on this large project area. Twenty one species were observed during four site visits. This included 20 non-native birds and one migratory bird, the Pacific golden-plover (*Pluvialis fulva*). Four species were common throughout the project area: zebra dove (*Geopelia striata*), common myna (*Acridotheres tristis*), spotted dove (*Streptopelia chinensis*) and chestnut mannikin (*Lonchura malacca*). The remaining 17 species were uncommon or rare of occurrence. Taxonomy and nomenclature follow American Ornithologists' Union (2011).

A few other bird species might be expected in this area and at different times of year. These include the northern mockingbird (*Mimus polyglottos*), the orange-cheeked waxbill (*Estrilda melpoda*) and the barn owl (*Tyto alba*). The indigenous black-crowned night-heron (*Nycticorax nycticorax hoactli*) can occasionally be seen along the stream fishing and roosting in trees when the stream is running. The habitat is also unsuitable for Hawaii's native forest birds that are presently restricted to good quality native forests at higher elevations beyond the range of mosquitoes and the avian diseases they carry and transmit.

INSECTS

Insect life was moderate in numbers of species as well as in total numbers of individuals. Sixteen insect species were recorded during the survey representing six Orders. Taxonomy and nomenclature follow Nishida et al (1992). Most common were: the dung fly (*Musca sorbens*), the Sonoran carpenter bee (*Xylocopa sonorina*), the long-tailed blue butterfly (*Lampides boeticus*) and the globe skimmer dragonfly (*Pantala flavescens*). Native species recorded included: the indigenous globe skimmer dragonfly, the indigenous green darner dragonfly (*Anax junius*) and the endemic and Endangered Blackburn's sphinx moth (*Manduca blackburni*) of which two eggs were seen on leaves of its preferred host plant, the tree tobacco (*Nicotiana glauca*).

AMPHIBIANS

One amphibian, the green frog (*Rana clamitans*), was observed in the pond at the Maui Tropical Plantation.

REPTILES

Two gecko species, the house gecko (*Hemidactylus frenatus*) and the mourning gecko (*Lepidodactylus lugubris*) were observed during the evening survey.

MOLLUSKS

One mollusk, the giant East African snail (*Achatina fulica*) was seen in various parts of the project area.

CONCLUSIONS AND RECOMMENDATIONS

The project area encompasses a variety of highly altered areas which have been the focus of large scale agriculture for over 100 years. Only the narrow Waikapū Stream channel shows some resemblance of its original character.

All of the mammals recorded are common non-native species of no particular concern. None of the Endangered native bats were detected during the survey. However, these bats do occur in many parts of Maui and are known to be highly mobile both on a daily (nightly) basis and seasonally. They have been observed from sea level to high elevations. Their movements appear to coincide with surges in insect activities and are thus likely to be tied to food availability for the bats.

Birdlife here, as well, is dominated by widespread introduced species that merit no special environmental protections. The habitat is unsuitable for Hawaii's native forest birds that are presently restricted to native habitats at higher elevations, beyond the range of mosquitoes that are carriers of lethal avian diseases for which these native birds have almost no resistance.

One indigenous waterbird, the auku'u or black-crowned night-heron, while not seen during the survey, often can be found in Waikapū Stream's forested channel when the water is running. They feed on mollusks, crustaceans and small fish. These birds are relatively common throughout Hawaii as well as in the Western USA and Mexico and carry no special protected federal status under the Endangered Species Act.

While no protected seabirds were found on the property, the 'ua'u and 'a'o are known to overfly the area at dawn and dusk to their burrows high in the mountains between the months of March and November. In late fall young birds fledge from their burrows to take their first tentative flights out to sea. These inexperienced birds are easily confused and distracted by bright lights and often crash to the ground where they are particularly vulnerable to being run over by vehicles or killed by predators. It is recommended that any significant outdoor lighting such as street lights or flood lights that are incorporated into the project design be shielded to direct the light downward so that it is not visible from above.

Three native insects were recorded during the survey. The indigenous dragonflies, the globe skimmer and the green darner are both widespread and common both in Hawaii and elsewhere, and are of no particular conservation concern. The Blackburn's sphinx moth, however, is an Endangered species and is of special concern. Just two individuals of its preferred host plants, the tree tobacco, were found on the northern end of the sugar cane fields at the base of a stockpiled sand pile. These two plants were carefully examined for eggs, larvae or signs of feeding. One plant was found to have two mature eggs on separate leaves. The eggs had turned brown, indicating they were ready to hatch out young larvae. Tree tobacco plants are not native to Hawaii, but fall under the protection of the Endangered Species Act (1973) during the period of their association with the Endangered Blackburn's sphinx moth. It is recommended that this occurrence be reported to the U.S. Fish and Wildlife Service so that the required protections and management actions can be clarified.

The occurrences of the non-native amphibians, reptiles and mollusks are of no particular interest or concern.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within six groups: Mammals, Birds, Insects, Amphibians, Reptiles and Mollusks. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:

endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the over wintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

abundant = many flocks or individuals seen throughout the area at all times of day.

common = a few flocks or well scattered individuals throughout the area.

uncommon = only one flock or several individuals seen within the project area.

rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MAMMALS			
<i>Bos taurus</i> L.	cattle	non-native	common
<i>Herpestes javanicus auropunctatus</i> Hodgson	small Asian mongoose	non-native	uncommon
<i>Felis sylvestris catus</i> L.	domestic cat	non-native	rare
<i>Canis lupus familiaris</i> L.	domestic dog	non-native	rare
BIRDS			
<i>Geopelia striata</i> L.	zebra dove	non-native	common
<i>Acridotheres tristis</i> L.	common myna	non-native	common
<i>Streptopelia chinensis</i> Scopoli	spotted dove	non-native	common
<i>Lonchura malacca</i> L.	chestnut mannikin	non-native	common
<i>Padda oryzivora</i> L.	Java sparrow	non-native	uncommon
<i>Passer domesticus</i> L.	house sparrow	non-native	uncommon
<i>Francolinus pondicerianus</i> Gmelin	gray francolin	non-native	uncommon
<i>Carpodacus mexicanus</i> Muller	house finch	non-native	uncommon
<i>Cardinalis cardinalis</i> L.	northern cardinal	non-native	uncommon
<i>Aratinga mitrata</i> Tschudi	mitred conure	non-native	uncommon
<i>Gallus gallus</i> L.	chicken	non-native	uncommon
<i>Lonchura punctulata</i> L.	nutmeg mannikin	non-native	rare
<i>Bubulcus ibis</i> L.	cattle egret	non-native	rare
<i>Columba livia</i> Gmelin	rock pigeon	non-native	rare
<i>Francolinus francolinus</i> L.	black francolin	non-native	rare
<i>Zosterops japonicus</i> Temminck & Schlegel	Japanese white-eye	non-native	rare
<i>Phasianus colchicus</i> L.	Chinese ring-necked pheasant	non-native	rare
<i>Lonchura cantans</i> Gmelin	African silverbill	non-native	rare
<i>Paroaria coronata</i> Miller	red-crested cardinal	non-native	rare
<i>Pluvialis fulva</i> Gmelin	Pacific golden-plover	migratory	rare
<i>Zenaida macroura</i> L.	mourning dove	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order ARANAE - true spiders			
ARANEIDAE (Orb Weaver Spider Family)			
<i>Gasteracantha mammosa</i> Koch	Asian spiny-backed spider	non-native	rare
Order DIPTERA - flies			
CALLIPHORIDAE (Blow Fly Family)			
<i>Rhinia testacea</i> Robineau - Desvoidy	-----	non-native	rare
MUSCIDAE (House Fly Family)			
<i>Musca domestica</i> L.	house fly	non-native	rare
<i>Musca sorbens</i> Wiedemann	dung fly	non-native	common
SYRPHIDAE (Hoverfly Family)			
<i>Simosyrphus grandicornis</i> Macquart	Australian hoverfly	non-native	rare
Order HETEROPTERA - true bugs			
APHIDIDAE (Aphid Family)			
<i>Aphis craccivora</i> Koch	cow pea aphid	non-native	rare
Order HYMENOPTERA - bees, wasps & ants			
APIDAE (Honey Bee Family)			
<i>Apis mellifera</i> L.	honey bee	non-native	uncommon
<i>Xylocopa sonorina</i> Smith	Sonoran carpenter bee	non-native	common
FORMICIDAE (Ant Family)			
<i>Pheidole megacephala</i> Fabricius	big-headed ant	non-native	uncommon
Order LEPIDOPTERA - butterflies & moths			
LYCAENIDAE (Gossamer-winged Butterfly Family)			
<i>Lampides boeticus</i> L.	long-tail blue butterfly	non-native	common
PAPILIONIDAE (Swallowtail Butterfly Family)			
<i>Papilio xutha</i> L.	Asian swallowtail	non-native	rare
PIERIDAE (White & Sulphur Butterfly Family)			
<i>Phoebis agarithe</i> Boisduval	large orange sulphur butterfly	non-native	rare
<i>Pieris rapae</i> L.	cabbage butterfly	non-native	uncommon
SPHINGIDAE (Sphinx Moth Family)			
<i>Manduca blackburni</i> Butler	Blackburn's sphinx moth	endemic	rare
Order Odonata - dragonflies & damselflies			
AESHNIDAE (Hawker Dragonfly Family)			
<i>Anax junius</i> Drury	green darner	indigenous	uncommon
LIBELLULIDAE (Skipper Dragonfly Family)			
<i>Pantala flavescens</i> Fabricius	globe skimmer	indigenous	common

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
AMPHIBIANS			
<i>Rana clamitans</i> Latreille	green frog	non-native	rare
REPTILES			
<i>Hemidactylus frenatus</i> Schlegel	house gecko	non-native	rare
<i>Lepidodactylus lugubris</i> Dumeril & Bibron	mourning gecko	non-native	rare
MOLLUSKS			
<i>Achatina fulica</i> Ferussac	giant east African snail	non-native	uncommon

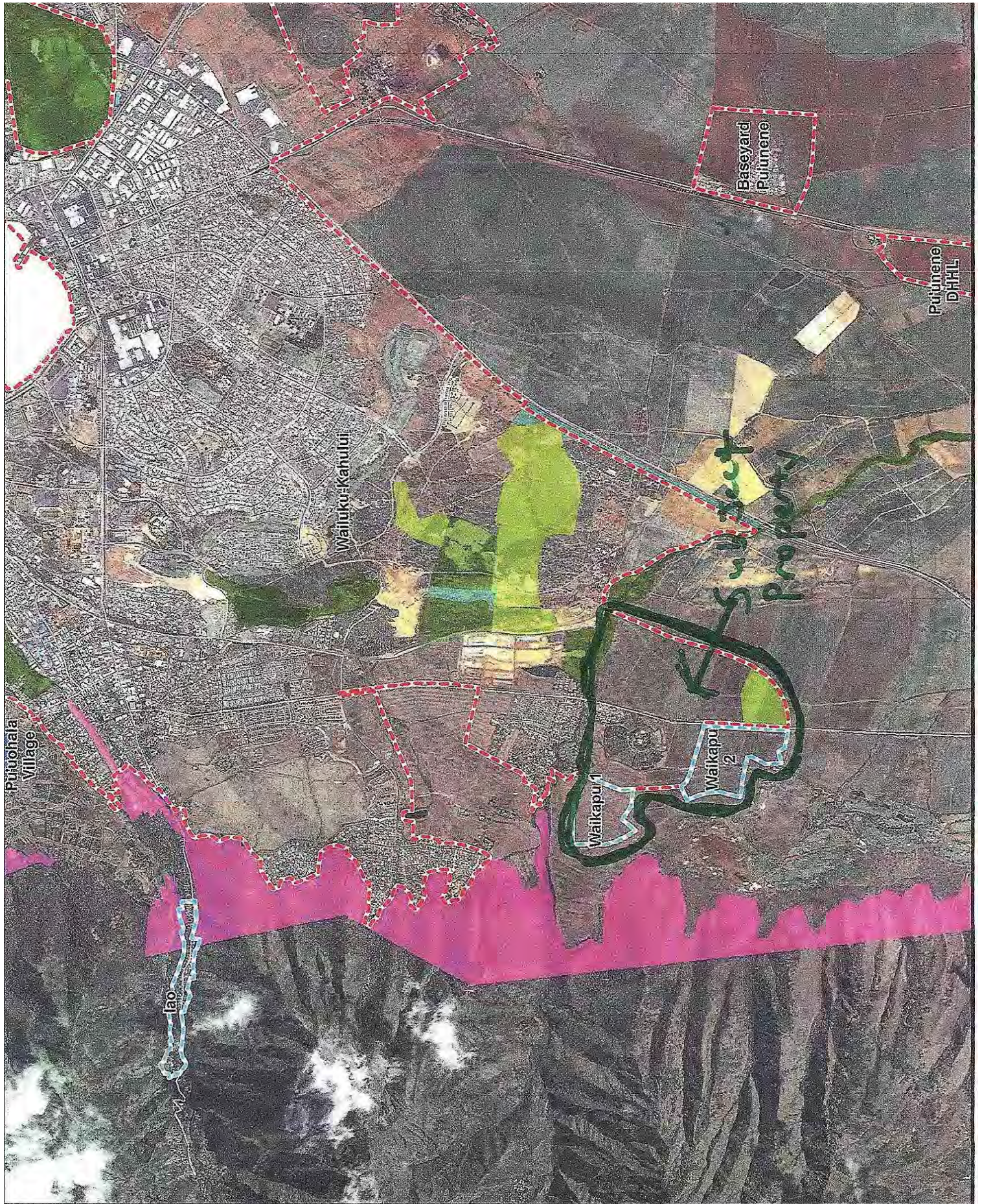




Figure 2 – Entrance to the Maui Tropical Plantation facilities



Figure 3 – An open field alongside the Maui Tropical Plantation



Figure 4 Entrance to the commercial farm



Figure 5 Rows of vegetables in the commercial farm.



Figure 6 – View of the pasture lands in the upper part of the project area.



Figure 7 A portion of fenced pasture land with grazing cattle.



Figure 8 Sugar cane fields in the lower portion of the project area.



Figure 9 A lateral view of the narrow, forested Waikapū stream where it passes through agricultural lands.



Figure 10 Densely forested rocky river bed of Waikapū stream.



Figure 11 A densely grassy section of Waikapu stream with running water following a rain event.



Figure 12 A tree tobacco plant (*Nicotiana glauca*), the preferred host plant for the Blackburn's sphinx moth (*Manduca blackburni*), an Endangered species.



Figure 13 A close up of a tree tobacco leaf with a mature egg of an Endangered Blackburn's sphinx moth.

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APPENDIX C
Agricultural Impact Assessment

Waikapu Country Town

Agricultural Impact Assessment



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Table of Contents

I. EXECUTIVE SUMMARY	1
A. WAIKAPU COUNTRY TOWN MASTER PLAN	1
B. PURPOSE AND SCOPE OF THE AGRICULTURAL IMPACT ASSESSMENT	1
C. STATUS OF HAWAII’S AGRICULTURAL INDUSTRY	2
D. STATE AND COUNTY AGRICULTURAL LANDS	3
E. IMPACT OF DEVELOPING THE PROJECT	3
F. CONSISTENCY WITH STATE AND COUNTY AGRICULTURAL POLICIES	5
II. INTRODUCTION	7
A. BACKGROUND	7
B. THE WAIKAPU COUNTRY TOWN MASTER PLAN	11
C. PURPOSE AND SCOPE OF THE AGRICULTURAL IMPACT ASSESSMENT	20
III. HAWAII’S AGRICULTURAL INDUSTRY	23
A. ECONOMIC SIGNIFICANCE TO THE ECONOMY	23
B. MARKET COMPOSITION	24
C. MARKET SHARE	28
D. INDUSTRY CHALLENGES AND OPPORTUNITIES	32
E. CONCLUSIONS	43

IV. STATE AND COUNTY AGRICULTURAL LANDS	46
A. STATE OF HAWAII	46
B. CURRENT AVAILABILITY OF STATE AGRICULTURAL LANDS	47
C. COUNTY OF MAUI	48
D. AVAILABILITY OF AGRICULTURAL LANDS ON MAUI	50
E. CONCLUSIONS	54
V. AGRICULTURAL IMPACT OF THE PROPOSED PROJECT	56
A. WAIKAPU COUNTRY TOWN’S EXISTING AGRICULTURAL RESOURCES	56
B. PRIOR AGRICULTURAL USE	64
C. CURRENT AGRICULTURAL USE	65
D. IMPACT OF THE PROJECT ON AGRICULTURE	67
E. CONCLUSIONS	71
VI. CONSISTENCY WITH STATE AND COUNTY AGRICULTURAL POLICIES	73
A. STATE AGRICULTURAL LAND USE POLICY	73
B. COUNTY AGRICULTURAL LAND USE POLICY	76
REFERENCES	84

LIST OF FIGURES

Figure 1a: Maui Island Plan Directed Growth Map	9
Figure 1b: Maui Island Plan Wailuku / Kahului Planned Growth Areas	10
Figure 2: Regional Location Map	13

Figure 3: Aerial Location Map	14
Figure 4 a-d: TMK Maps	15
Figure 5: State Land Use Designation	19
Figure 6: Conceptual Land Plan	21
Figure 7: Value of Hawaii's Agricultural Production between 1964 and 2003	25
Figure 8: Relative Value of Hawaii's Major Agricultural Crops from 1960 to 2003	25
Figure 9: Value of 2010 Crop Sales (in thousands)	26
Figure 10: Value of Hawaii's Major Crops between 1985 and 2010 (in thousands)	27
Figure 11: Value of Hawaii's Crop Sales between 1995 and 2010 (in thousands)	27
Table 1: 2005 Market Share for Hawaii Agricultural Products	28
Figure 12: Hawaii Market Share in U.S. Mainland Market for Select Products (in thousands)	30
Table 2: Japanese Market Sales between 1995 and 2008 of Select Hawaii Products	31
Figure 13: Cost per Acre of Agricultural Land in Hawaii and the U.S. Mainland	34
Figure 14: Cost per Acre to Rent Agricultural Land in Hawaii and the U.S. Mainland	35
Figure 14:	35
Table 3: Value of Consumption and Production of Select Agricultural Products in Hawaii (in thousands)	36
Figure 15: Hawaii Crop Sales between 1995 and 2010 (in thousands)	37
Figure 16: Value of Hawaii's Seed Crop Sales between 2000 and 2010 (in thousands)	39
Table 4: HCEI Renewable Fuel Goals for 2015	41
Table 6: Hawaii's Important Agricultural Lands by Rating System	47
Table 8: Hawaii's Important Agricultural Lands by Rating System	49
Table 9: Maui Island's LSB Designated Agricultural Lands	49
Table 10: Acreage in Crop in Maui County between 1987 and 2010	51
Figure 17a: Waikapu Country Town LSB Ratings	56
Figure 17b: Waikapu Country Town LSB Map	57
Figure 18a: Waikapu Country Town ALISH Ratings	58
Figure 18b: Waikapu Country Town ALISH Map	59
Figure No.19: Soils Map	61

LIST OF TABLES

Table 1: 2005 Market Share for Hawaii Agricultural Products	28
Table 2: Japanese Market Sales between 1995 and 2008 of Select Hawaii Products	31
Table 3: Value of Consumption and Production of Select Agricultural Products in Hawaii (in thousands)	36
Table 4: HCEI Renewable Fuel Goals for 2015	41
Table 5: HCEI Renewable Fuels Goal for 2020	42
Table 6: Hawaii's Important Agricultural Lands by Rating System	47
Table 7: Acreage in Crop in Hawaii between 1960 and 2010	48
Table 8: Hawaii's Important Agricultural Lands by Rating System	49
Table 9: Maui Island's LSB Designated Agricultural Lands	49
Table 10: Acreage in Crop in Maui County between 1987 and 2010	51
Table 11: Waikapu Country Town Soil Types	60

I. EXECUTIVE SUMMARY

A. WAIKAPU COUNTRY TOWN MASTER PLAN

The proposed Waikapu Country Town (WCT) is situated in Central Maui, just south of the small plantation community of Waikapu, at the Maui Tropical Plantation (MTP).

The project area encompasses approximately 14 acres of State Urban District lands and 1,562 acres of State Agricultural District lands (See: Figure No. 5, “State Land Use Designation”). The existing MTP retail shops, restaurant, convention hall, tropical gardens and lagoon are on the urban designated lands. Approximately 488 acres are proposed to be re-designated from the State Agricultural District to the State Urban and Rural Districts.

WCT will be a “complete community,” encompassing a mixture of rural, single- and multi-family residential units, commercial, and civic uses. In accordance with the Maui Island Plan (MIP), WCT includes 1,433 residential units together with neighborhood retail, commercial, a school, parks and open space. The town will be bound by agricultural lands that will be preserved in perpetuity through a conservation easement. WCT will be built both mauka and makai of Honoapiilani Highway. Access to the project will be from Honoapiilani Highway and the proposed Waiale Bypass road.

B. PURPOSE AND SCOPE OF THE AGRICULTURAL IMPACT ASSESSMENT

The Agricultural Impact Assessment (AIA) will assess the long-term impact of the project on the State and County’s Agricultural industry.

The scope of the study includes the following tasks:

- Assessment of the current status of Hawaii’s agricultural industry;
- Assessment of the current availability of agricultural lands;
- Analysis of existing agronomic conditions within the project site;
- Description of the recent agricultural history of the property;
- Assessment of the impact of the project on current agricultural operations; and
- Analysis of the project’s consistency with State and County agricultural policies.

C. STATUS OF HAWAII’S AGRICULTURAL INDUSTRY

While agriculture, predominantly sugar and pineapple, dominated Hawaii’s economy from the late 1800s through the 1950s, its overall significance has declined dramatically since the advent of mass market tourism. In 1927, sugar alone created 56,600 jobs, whereas in 2011 the entire agricultural industry employed just 6,900 workers.ⁱ In 2011, agriculture employed 1,600 Maui County workers, which was 2.4% of the 67,200 wage and salary jobs in the County.ⁱⁱ

Hawaii farmers face stiff competition in local, national, and international markets. In the local market, off-shore suppliers dominate the market for most fresh fruits, vegetables, dairy, meat, and poultry products. It has been estimated that 85% of all food consumed in Hawaii statewide is imported.

In the U.S. Mainland market, Hawaii growers have sustained the value of their sales in recent years, but have lost significant export value in sales to Japan. Significant impediments to agricultural development in Hawaii include high labor costs, high transportation costs, high energy costs and high land costs.

Despite major challenges, Hawaii’s growers are competitive in many niche products and opportunities are available. Because 85% of food consumed in Hawaii is imported, a significant

market exists for farmers who can find creative ways to displace imports. Moreover, Hawaii's seed crop industry has demonstrated that Hawaii agriculture can have significant comparative advantage in some sectors. Substituting locally grown biofuels for imported petroleum may also provide opportunities for Hawaii farmers over the coming decades.

D. STATE AND COUNTY AGRICULTURAL LANDS

Since 1960, there has been a release of approximately 316,590 acres from crop farming, primarily sugar and pineapple.ⁱⁱⁱ While some of these lands have been absorbed by urban development and other agricultural uses, much is fallow and available on Oahu, Maui, Molokai, Lanai and Kauai.

The County of Maui has approximately 402,354 acres within the State Agricultural District. Of these lands, approximately 244,088 acres, or 61%, is located on Maui.^{iv} Using the LSB rating system, Maui alone has approximately 82,592 acres that are classified "A", "B", or "C".^v Since 1960, there has been a release of approximately 64,150 acres from crop farming, primarily sugar and pineapple, within the County.^{vi} While some of these lands have been absorbed by urban development and other agricultural uses, much is fallow and available on the islands of Maui, Molokai, and Lanai.

Although there is an abundant supply of productive agricultural land, access to affordable agricultural lots offering long-term tenure remains an impediment to agricultural development in Hawaii. The current shortage of available State and County agricultural park lots is symptomatic of this issue.

E. IMPACT OF DEVELOPING THE PROJECT

The Waikapu Country Town, including its adjoining agricultural lands, comprises approximately 1,576 acres, 14 acres of which are within the State Urban District. Over 90% of WCT agricultural

are rated “A” or “B” by the Land Study Bureau (LSB) and “Prime” by the Agricultural Lands of Importance to the State of Hawaii (ALISH) rating systems.

The project will result in the urbanization of approximately 488 acres of prime agricultural land. This represents a very small percentage of agricultural lands statewide and on Maui. There are approximately 2 million acres in the State Agricultural District. The subject development represents just .024% of this area. On Maui, there are approximately 82,582 acres of agricultural lands rated by the LSB as A, B, or C. The subject development represents just 0.59% of these lands. Within Maui County, approximately 64,150 acres has been released from crop production since 1987. The subject development represents just 0.76% of these lands. The MTP’s agricultural component includes nearly 1,100 acres of land that will remain in agricultural use. Of these lands, approximately 800 acres will be permanently dedicated to agricultural use with no residential structures to be permitted. Several hundred acres of MTP’s agricultural lands may be developed as a private agricultural park to help facilitate Maui’s agricultural development.

There are currently three commercial farms farming MTP lands. These include Kumu Farms, Hawaii Taro LLC, and HC&S. The proposed urbanization will require both Kumu Farms and Hawaii Taro LLC to relocate their agricultural operations to the land owners’ proposed agricultural park, which will be located on lands to be preserved in perpetuity by the land owner for agricultural use. The project will also impact a portion of the current lands being leased by HC&S. It is anticipated that these lands will gradually begin to be impacted in about five to ten years. Over the long-term, HC&S may lose approximately 330 acres to urbanization and up to an additional 75 acres to a private agricultural park. According to HC&S General Manager, Mr. Rick Volner, HC&S would desire to continue farming its MTP lands to maximize its current economy of scale in production. However, Mr. Volner acknowledged that HC&S has additional

lands available that are currently fallow and that urbanization of a portion of its MTP leased lands will not significantly impact the Plantation's long-term economic viability.

A significant impediment to agricultural development on Maui, and throughout the state, is the scarcity of agricultural land that is both readily available and affordable for long-term lease to diversified farmers. The establishment of a centrally located agricultural park, with productive lands and affordable irrigation water, should help Maui farmers compete in local, mainland and international markets.

F. CONSISTENCY WITH STATE AND COUNTY AGRICULTURAL POLICIES

The Hawaii State Plan and State Functional Plans establish policy to protect the viability of the sugar and pineapple industries, protect agriculturally suitable lands for future agricultural needs, and promote the growth of diversified agriculture.

The Maui County General Plan (County-wide Policy Plan, Maui Island Plan, and Wailuku-Kahului Community Plan) seek to preserve productive agricultural lands and facilitate agricultural self-sufficiency in food production. The plans also recognize the need to provide sufficient land areas to accommodate future population growth. Goal 7.1.1.f of the Maui Island Plan (MIP) states, *"Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present."*

The subject land was placed into an Urban Growth Boundary during the General Plan update, when other overriding factors were present. These factors included the land's development suitability, as well as its proximity to existing employment, infrastructure, public facility systems and existing urban development. Moreover, as documented in this report, the urbanization of

the subject lands will not significantly impact the future viability of the sugar or pineapple industries or the growth of diversified agriculture.

The proposed action has been carefully analyzed for its short- and long-term impacts upon the agricultural industry. While the proposed action will result in the loss of prime agricultural lands, it will not significantly impact the short- or long-term viability of agriculture in Hawaii since an abundance of currently fallow land remains available. The project will, however, help to address the current shortage of agricultural park lots by establishing a new park within Central Maui.

The project represents a carefully considered approach to land development that balances the need for urbanization with the desire to protect agricultural lands and other important natural and environmental resources. This approach is consistent with the spirit of existing State and County policies to protect agricultural lands.

II. INTRODUCTION

A. BACKGROUND

In December, 2012, the County of Maui adopted the Maui Island Plan (MIP). The MIP establishes goals, objectives, policies and actions to direct growth and development on Maui through the year 2030. The MIP was based upon a comprehensive analysis of population growth, economic conditions, development capacity of existing entitled lands, and extensive community outreach.

To guide development of future urban lands, the MIP sets forth policies requiring higher urban densities, a greater balance between single- and multi-family housing types, mixed-use development, vehicular and pedestrian connectivity between land uses, and the incorporation of parks, schools, open space and affordable housing into future developments.

The MIP's Directed Growth Plan places approximately 502 acres of Waikapu Country Town's (WCT's) 1,576 acres into urban and rural growth boundaries. The remaining 1,074 acres are to remain within the State's Agricultural District. Of these lands, approximately 800 acres will be preserved in perpetuity for agricultural use through a conservation easement, and the remaining 274 acres will be kept in large agricultural lots (See: Figure No. 1a-b, "Maui Island Plan Map Directed Growth Map" and "Maui Island Plan Wailuku/Kahului Planned Growth Areas").

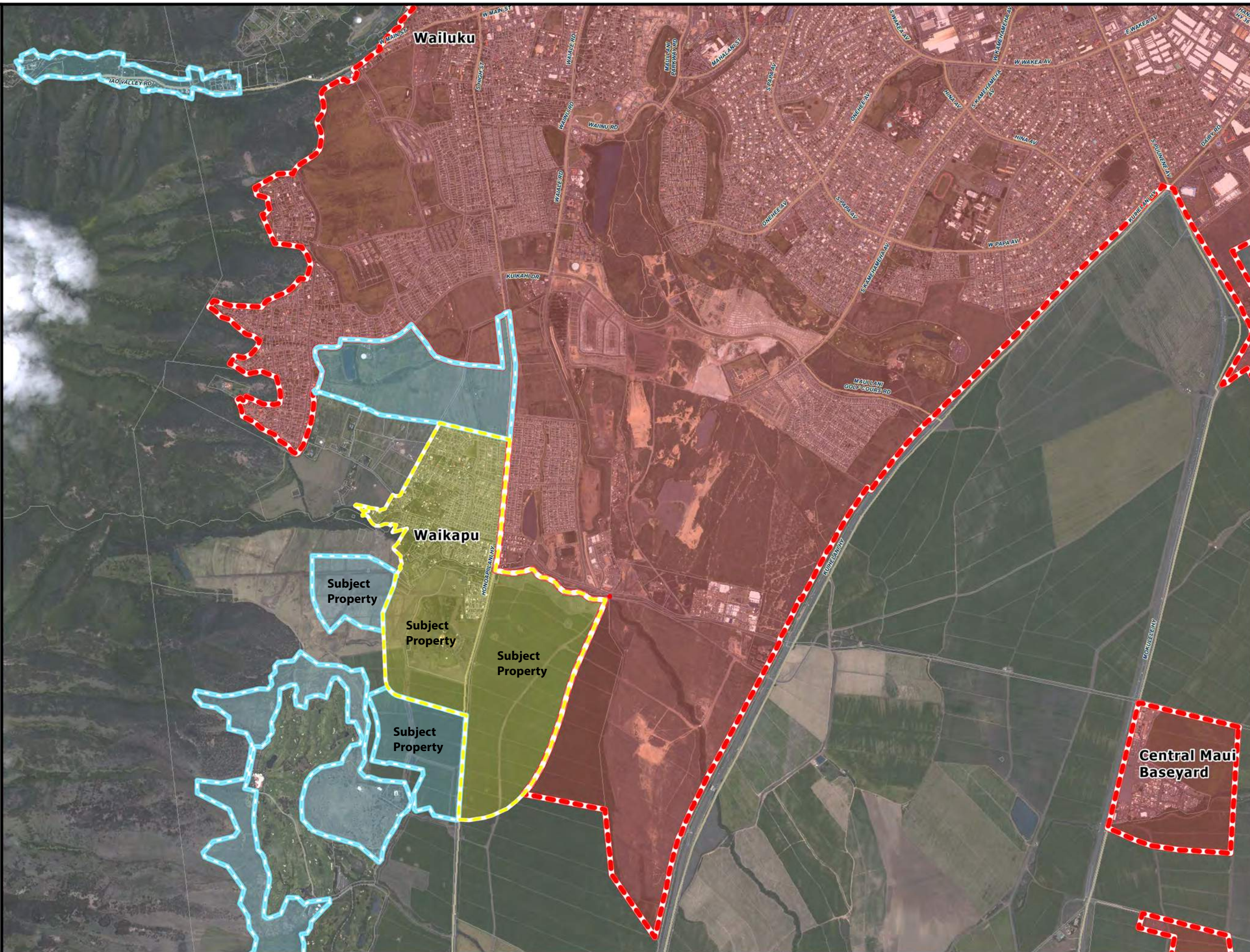
The MIP describes the purpose and intent of the Waikapu Country Town "Planned Growth Area" as follows:

The Waikapu Tropical Plantation Town planned growth area is situated in the vicinity of the Maui Tropical Plantation, and includes lands on both the mauka and makai sides of Honoapi'ilani Highway. Providing the urban character of a traditional small town, this area will have a mix of single-family and



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multifamily rural residences, park land, open space, commercial uses, and an elementary or intermediate school developed in coordination with the Wai'ale



Maui Island Plan Directed Growth Map

Waikapu / Kahului C3

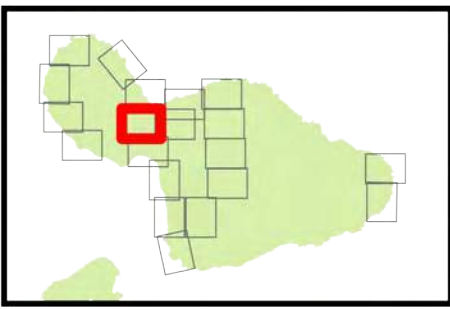
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Growth Boundaries

- Urban
- Small Town
- Rural

Reference

- 2011 Parcels
- Primary Roads



0 500 1,000 2,000 3,000 4,000 Feet

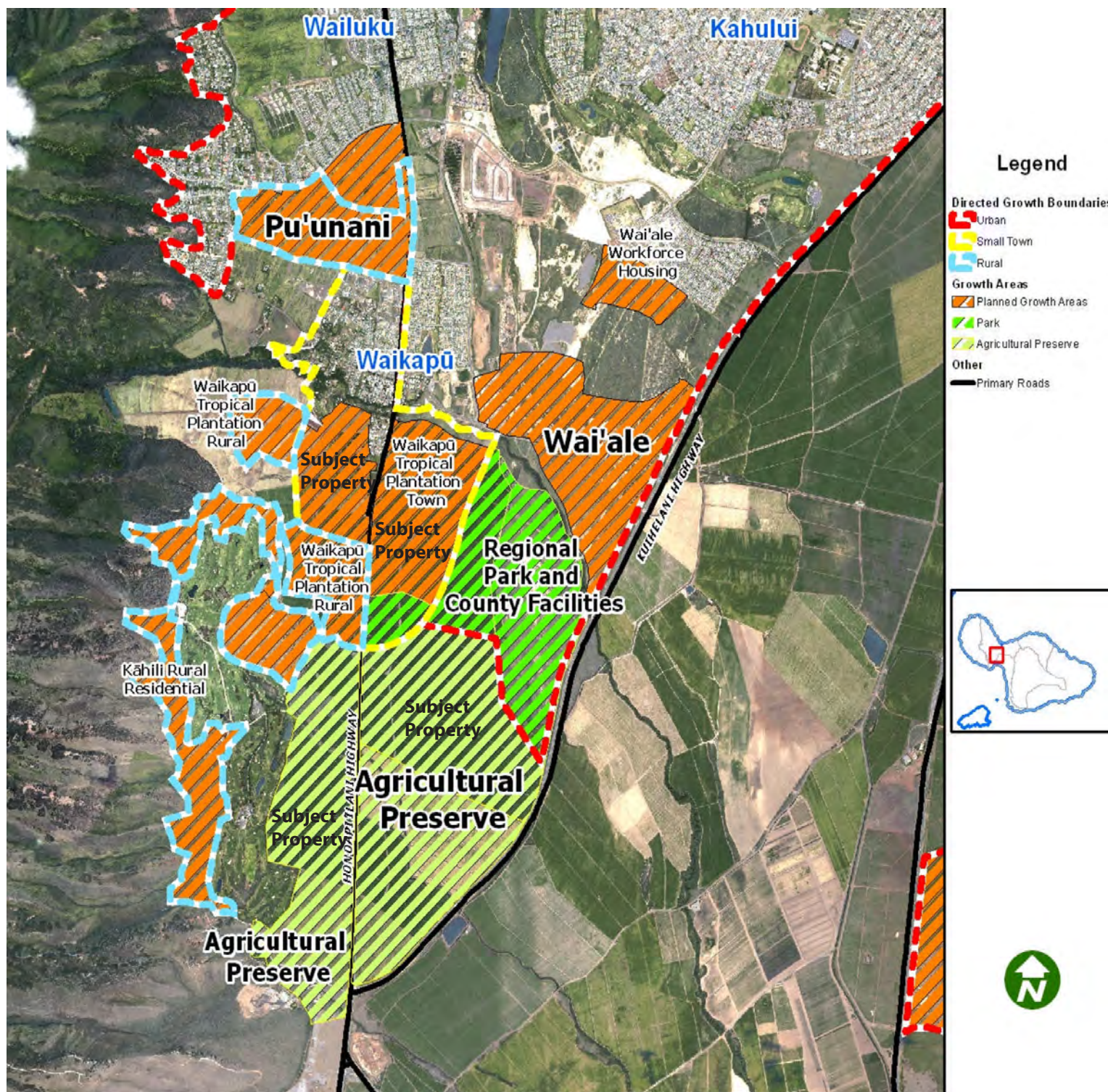
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Background Image: Worldview 2 - 2010

This is not a zoning map. Please contact the Planning Department for Zoning confirmation.

PREPARED BY:

Long Range Planning Division
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Source: Maui Island Plan, Department of Planning, Long-range Planning Division, December 2012

Figure 1b

Maui Island Plan
Wailuku-Kahului Planning Growth Areas



Not to Scale

WAIKAPU COUNTRY TOWN



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CONSULTANTS
HAWAII, LLC

project. The area is located south of Waikapu along Honoapi'ilani Highway, and it will incorporate the integrated agricultural and commercial uses of the existing tropical plantation complex. This area is proximate to the Wai'ale planned growth area, providing additional housing in central Maui within the Wailuku-Kahului Community plan region. As part of this project, parcels to the south of the project (identified as Agricultural Preserve on Figure 8-1) shall be protected in perpetuity for agricultural use through a conservation easement. A portion of this area may be dedicated to the County as an agricultural park administered pursuant to County regulations. Alternatively, this area can be developed as a private agricultural park available to Maui farmers, and executed through a unilateral agreement between the landowner and Maui County. The rural lots mauka of Honoapi'ilani Highway are intended to be developed using a CSD plan. The CSD plan shall provide access to uninterrupted walking and bicycling trails and will preserve mauka and makai views while protecting environmentally sensitive lands both along Waikapu stream and mauka of the subdivision.

Planned Growth Area Rationale:

Keeping the Waikapu Tropical Plantation as its town core, this area will become a self-sufficient small town with a mix of single-family and multifamily housing units in a walkable community that includes affordable housing in close proximity to Wailuku's employment centers. Schools, parks, police and fire facilities, transit infrastructure, wastewater, water supply resources, and other infrastructure should be developed efficiently, in coordination with neighboring developments including Maui Lani, Kehalani, Pu'unani and Wai'ale. The Waikapu Tropical Plantation Town planned growth area is located on Directed Growth Map #C3 .^{vii}

B. THE WAIKAPU COUNTRY TOWN MASTER PLAN

The proposed Waikapu Country Town (WCT) is situated in Central Maui, just south of the small plantation community of Waikapu, at the Maui Tropical Plantation (MTP). The property is identified as TMK Nos. (2) 3-6-5:007; 3-6-002:001 and 003; 3-6-004:003 and 006; and 3-6-

006:036 (See: Figure Nos. 2, 3, and 4a-d, (“Regional Location Map”, “Aerial Location Map”, and “TMK Maps”). The project area encompasses approximately 14 acres of State Urban District lands and 1,562 acres of State Agricultural District lands (See: Figure No. 5, “State Land Use Designation”). The existing MTP retail shops, restaurant, convention hall, tropical gardens and lagoon are on the urban designated lands (TMK No. (2) 3-6-005:007). Approximately 488 acres are proposed to be re-designated from the State Agricultural District to the State Urban and Rural Districts.

WCT will be a “complete community,” encompassing a mixture of single- and multi-family residential units, commercial, and civic uses. In accordance with the MIP, WCT includes 1,433 residential units together with neighborhood retail, commercial, a school, parks and open space. The town will be bound by agricultural lands that will be preserved in perpetuity through a conservation easement. The utilization of conservation subdivision design (CSD) practices will preserve additional rural lands for farming, open space, and open land recreation.

WCT will be built both mauka and makai of Honoapiilani Highway. Development mauka of the highway will focus inward onto a “village center,” incorporating the existing buildings and grounds of the MTP. The Master Plan calls for a diverse mixture of affordable and market priced housing, along with commercial, entertainment, and civic uses within and around the village center.

Development makai of the highway will focus onto a pedestrian-oriented “main street,” a nearby elementary school, and parks. The makai development is bound to the east by the planned extension of the Waiale Road, which will intersect with Honoapiilani Highway. A primary objective of the project is to develop a community where walking and biking are the preferred modes of transportation and recreation for short commutes. Therefore, in addition to proposing mixed-use and more compact development patterns, approximately eight miles of

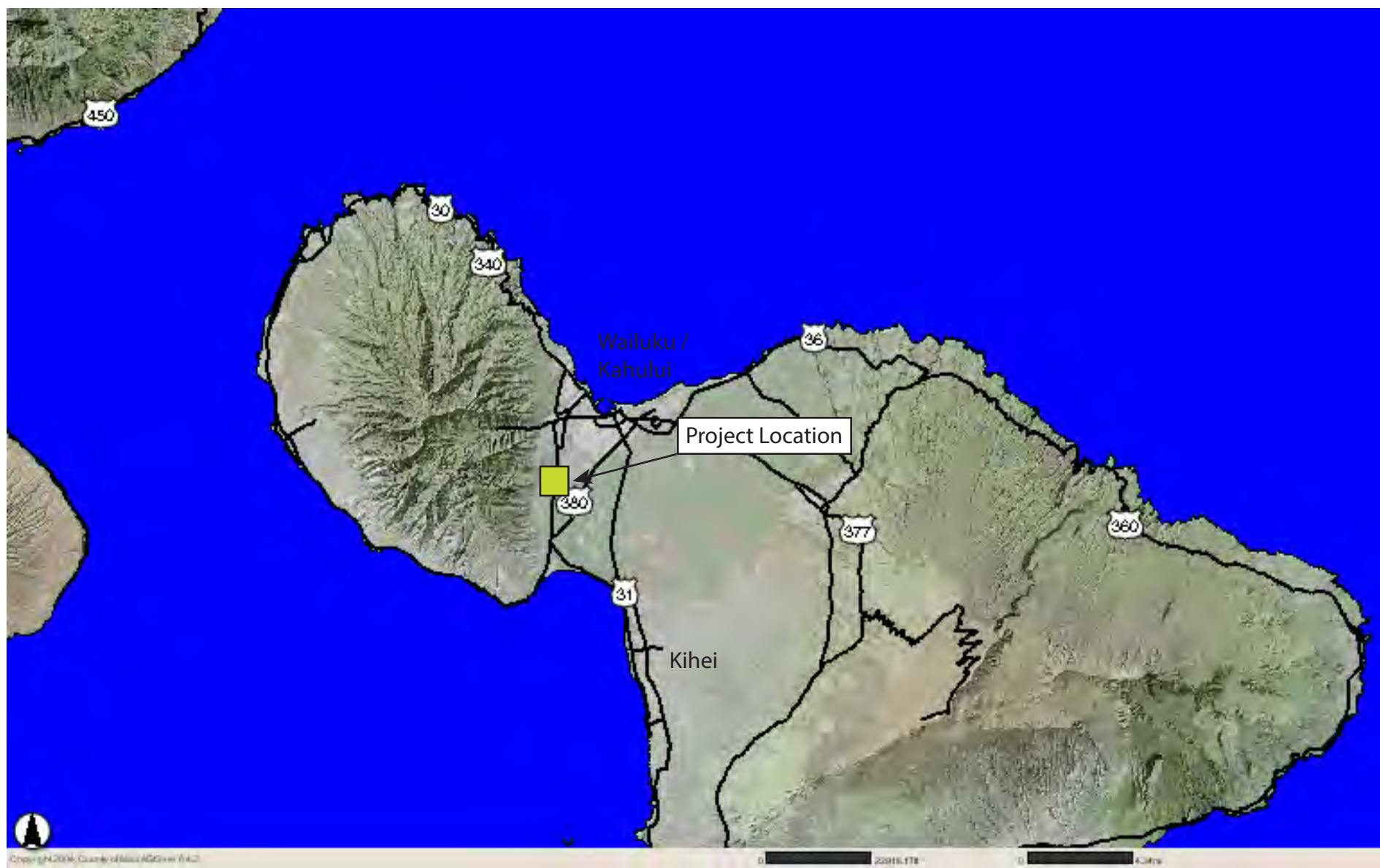


Figure 2
Regional Location

Not to Scale

WAIKAPU COUNTRY TOWN



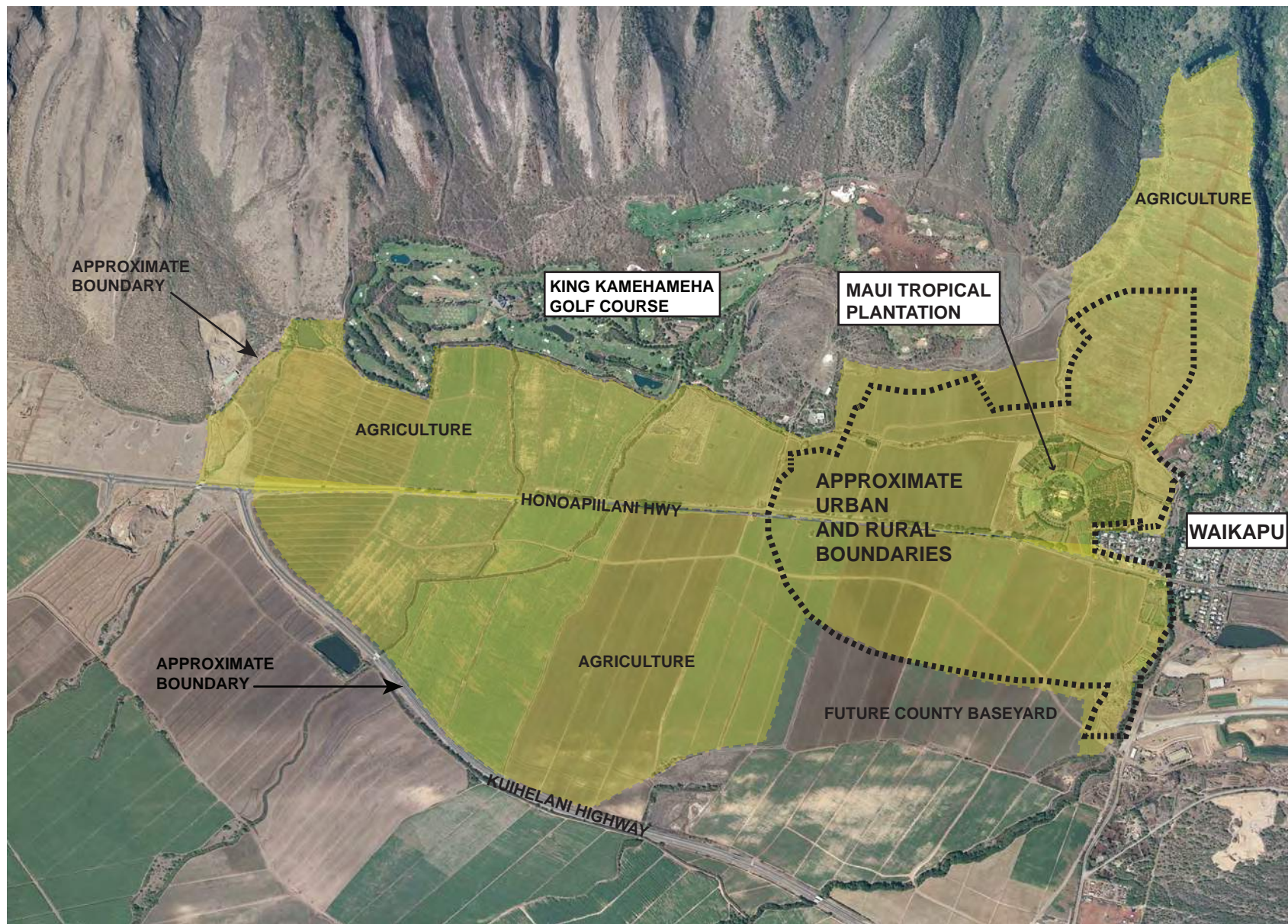


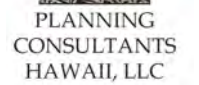
FIGURE 3
AERIAL LOCATION

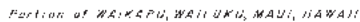


WAIKAPU COUNTRY TOWN



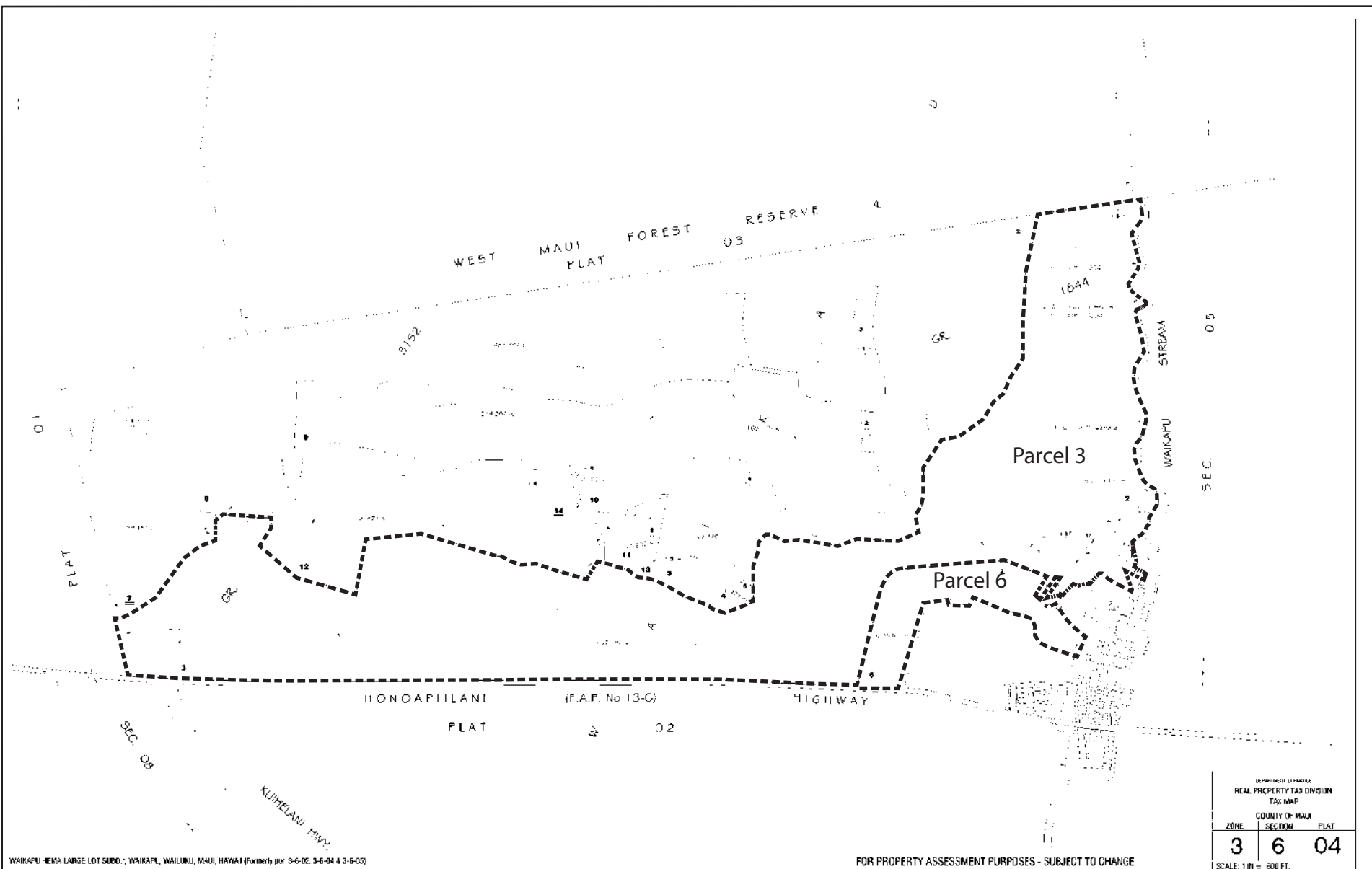
PLANNING
CONSULTANTS
HAWAII, LLC





PLANNING
CONSULTANTS
HAWAII, LLC

TMK No. (2) 3-6-002:003 and 001



WAIKAPU REMA LARGE LOT SUBD.; WAIKAPU, WAILUKU, MAUI, HAWAII (Formerly par 3-6-02, 3-6-04 & 3-6-05)

FOR PROPERTY ASSESSMENT PURPOSES - SUBJECT TO CHANGE

Figure 4c

TMK MAP

TMK Nos. (2) 3-6-004: 003 and 006



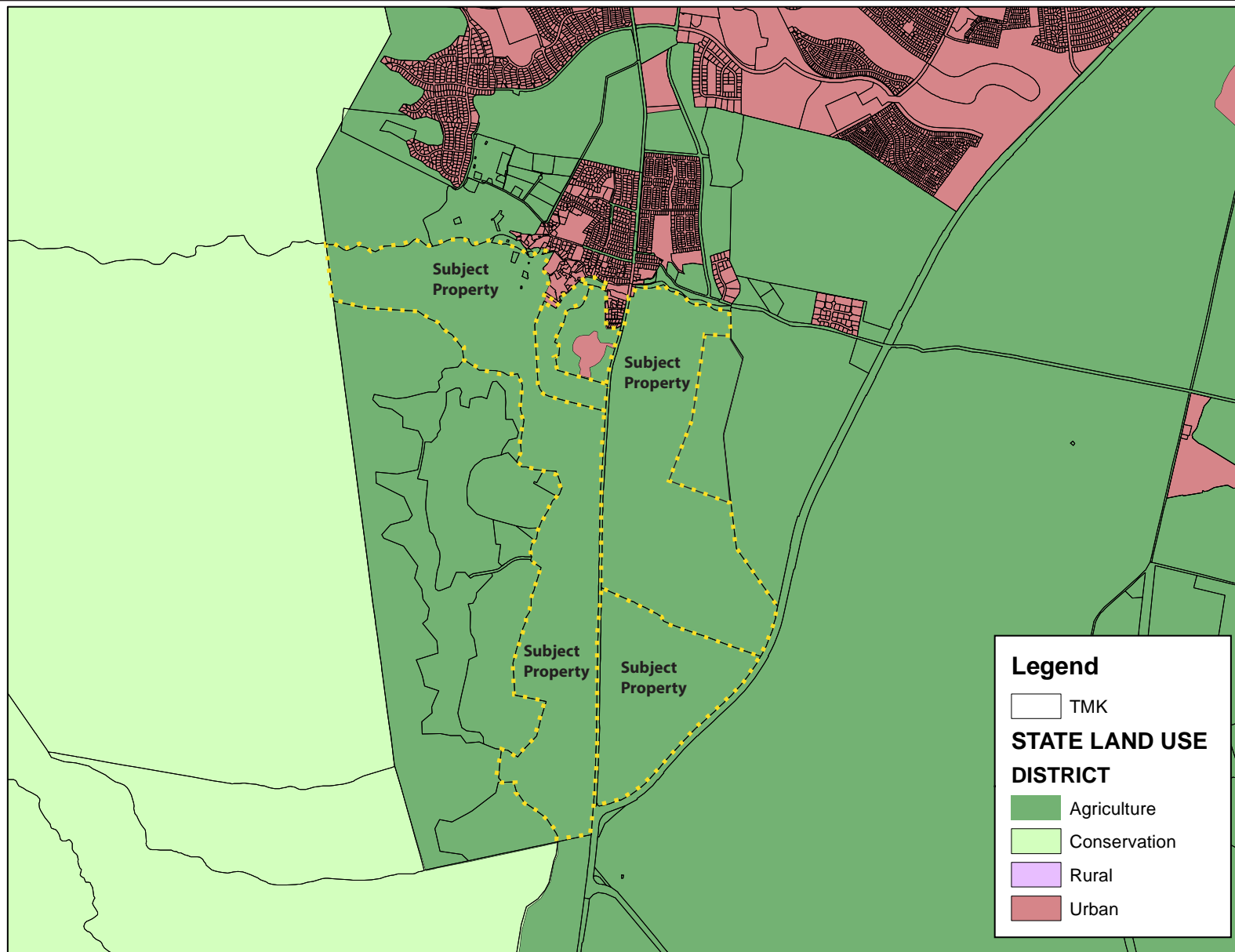
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WAIKAPU COUNTRY TOWN



PLANNING
CONSULTANTS
HAWAII, LLC

PLANNING
CONSULTANTS
HAWAII, LLC




Legend

TMK

STATE LAND USE DISTRICT

- Agriculture
- Conservation
- Rural
- Urban

FIGURE 5
 STATE LAND USE
 DISTRICT BOUNDARIES


 Not to Scale

WAIKAPU COUNTRY TOWN

hiking, biking and walking trails will be incorporated into the project. Public transit will also be accommodated in strategic locations to facilitate the use of transit to jobs-rich areas in Wailuku/Kahului and South and West Maui (See: Figure 6: “Conceptual Land Plan”).

C. PURPOSE AND SCOPE OF THE AGRICULTURAL IMPACT ASSESSMENT

The property owner, Waikapu Properties, LLC, has contracted with a professional consultant team to prepare a consolidated Hawaii Revised Statutes (HRS) Chapter 343 Environmental Impact Statement (EIS), State Land Use Commission District Boundary Amendment, Community Plan Amendment and Change in Zoning Application.

The Agricultural Impact Assessment (AIA) will assess the long-term impact of the project on the state’s agricultural industry.

The scope of the study includes the following tasks:

- Assessment of the current status of Hawaii agriculture. This will include an overview of the agricultural industry’s significance to Hawaii’s economy, its current economic standing, its market penetration, and challenges and opportunities.
- Assessment of the current availability of agricultural resources. This will include an assessment of the availability of agricultural lands state-wide and on Maui, current agricultural land use within Maui County, availability of State and County Agricultural Park lots, and agricultural lands proposed for development on Maui.
- Analysis of existing agronomic conditions within the project site. This will include documentation of the following factors: 1) soil types, 2) soil ratings, 3) slopes, 4) solar radiation, 5) rainfall, 6) and existing irrigation systems.
- Description of the recent agricultural history of the property. This will include a description of the past and current operators, including HC&S, Kumu Farms, Maui Tropical Plantation (MTP), Hawaii Taro LLC, and ranching.
- Assessment of the impact of the project on current agricultural operations. This will include an assessment of the project’s impact on the ongoing operations of HC&S, Kumu

Waikapu

COUNTRY TOWN

AGRICULTURE
PRESERVE

AGRICULTURAL
PARK

AGRICULTURE

AGRICULTURE
PRESERVE

LEGEND

- RURAL LOTS
- SINGLE FAMILY
- COTTAGE TOWN HOME
- COUNTRY TOWN MIXED USE
- COMMERCIAL
- PARKS AND OPEN SPACE
- SCHOOL

COUNTY OF MAUI
100 AC.

LAND USE PLAN



DATE: JULY 18, 2013

Farms, Hawaii Taro LLC and other enterprises actively engaged in farming on the property.

- Analysis of the Project's consistency with State and County Agricultural Policies. This section will identify and discuss the project's consistency with State and County agricultural land use policy.

III. HAWAII'S AGRICULTURAL INDUSTRY

A. ECONOMIC SIGNIFICANCE TO THE ECONOMY

Agriculture has played a major role in Hawaii's socio-economic development for over 150 years. Hawaii's modern culture, ethnic composition, land use patterns, urban design, and landscapes are all shaped by Hawaii's agricultural history.

However, while agriculture, predominantly sugar and pineapple, dominated Hawaii's economy from the late 1800s through the 1950s, its overall significance has declined dramatically since the advent of mass market tourism. At its peak in 1927, the sugar industry employed 56,600 workers. Shortly thereafter, in 1932, land utilized for sugar peaked at 254,600 acres. By 1957, however, the sugar industry employed just 16,800 workers, a decline of 70% since 1927. Despite its dramatic decline, sugar was still a major contributor to Hawaii's economy in 1957. In that year the leading income generators in Hawaii included these sources:

- Military expenditures at \$308 million;
- Sugar at \$146 million;
- Pineapple at \$110 million; and
- Tourism at \$80 million.^{viii}

By 2011, the fortunes of Hawaii agriculture, relative to the total economy, had fallen precipitously. In 2011, the entire agricultural sector in Hawaii employed 6,900 workers, providing 1.15% of wage and salary jobs. Moreover, its share of the gross domestic product (GDP) for all private industries was 0.89%, and, if Federal, State and County government is included, agriculture represented 0.68% of the State's GDP in 2011.^{ix}

Likewise, in Maui County, the economic significance of agriculture has fallen. In 2011, agriculture employed 1,600 Maui County workers, which represents 2.4% of the 67,200 wage and salary jobs in the County. In terms of County earnings, in 2008, agriculture generated \$98.55 million as compared to total non-farm earnings of approximately \$3.6 billion.^x

While agriculture is no longer a dominant industry in Hawaii, it is still important because it creates jobs and facilitates economic diversification. In addition to the 6,900 people that are directly employed by agriculture, the industry creates indirect and induced employment in other sectors of the economy. Using the State of Hawaii's input-output model, it can be estimated that in addition to direct employment, approximately 1,636 indirect jobs were created by agriculture and another 1,695 induced jobs were created by the industry in 2011.^{xi}

According to the Maui Agricultural Development Plan (July, 2009), the agricultural industry is important for the following reasons:^{xii}

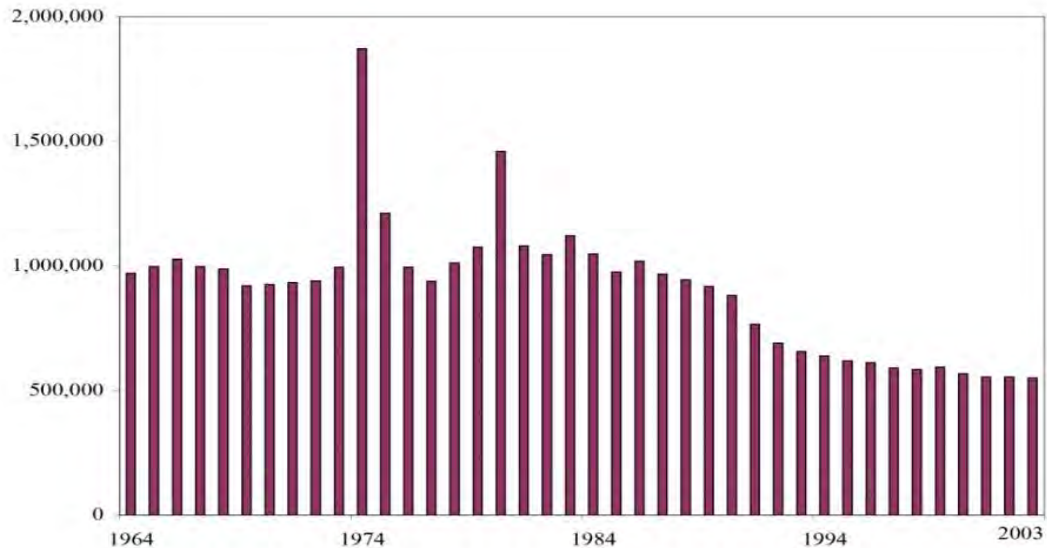
- Agriculture creates jobs;
- Locally grown foods are fresher and of higher quality;
- Locally grown food increases food security;
- Local agriculture provides for Maui's biosecurity;
- Agriculture preserves open space and working agricultural viewsapes; and
- Agriculture contributes to groundwater recharge.

It is because of these reasons that, despite the declining role of agriculture in Hawaii's economy, the State and County maintain strong policies to protect the State's agricultural resources.

B. MARKET COMPOSITION

As noted, agriculture is a far smaller component of Hawaii's economy than it was historically. As Figure 7 shows, the value of agricultural production decreased significantly between 1964 and 2003. The decrease is largely attributed to the closure of sugar plantations throughout the State.

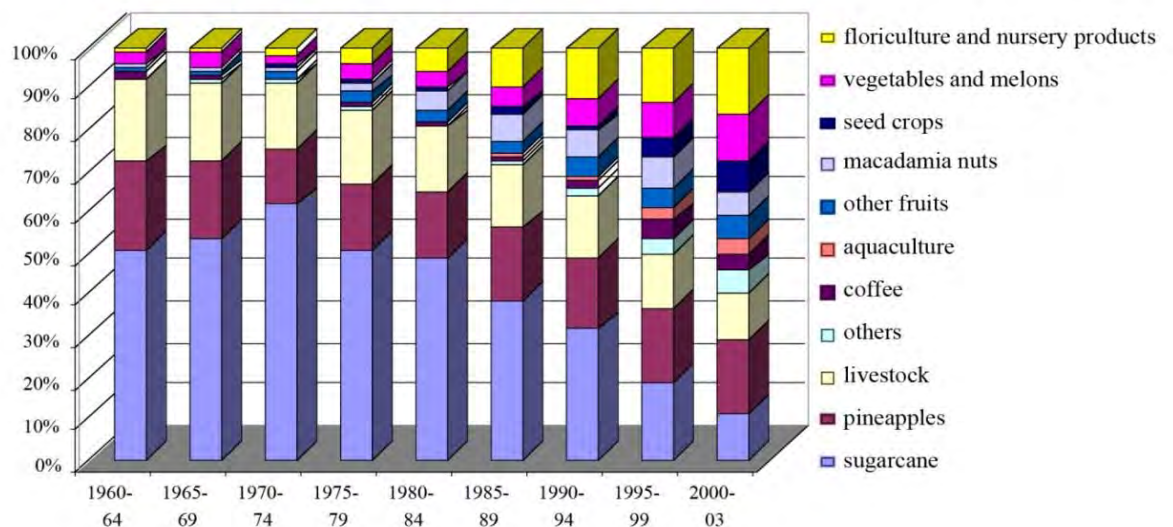
Figure 7: Value of Hawaii's Agricultural Production between 1964 and 2003



Since the mid 1980s, the economic benefits of agricultural production have been in steady decline.^{xiii}

However, since 2003 the market value of crop and livestock sales has increased by 27%, from \$520.47 million in 2003 to \$659.66 million in 2010.^{xiv} The increase is largely attributed to the dramatic growth in seed crop sales.

Figure 8: Relative Value of Hawaii's Major Agricultural Crops from 1960 to 2003

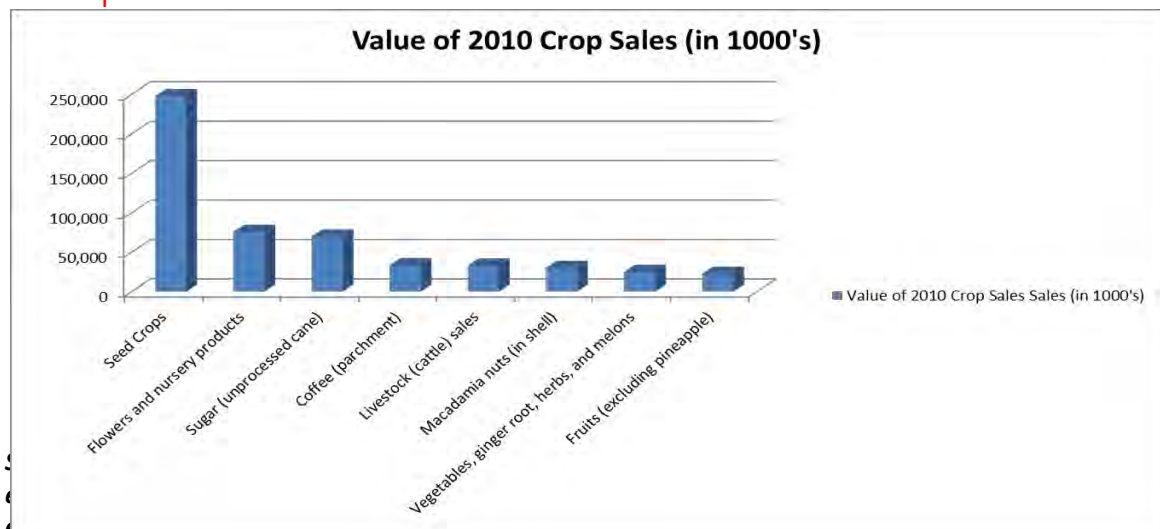


Agricultural Crop diversification was significant in the years between 1960 and 2003.^{xv}

Figure 8 shows the diversification of Hawaii's agricultural industry from one dominated by sugar, pineapple and livestock sales during the 1960s to a significantly more balanced and diversified portfolio in 2003. However, as Figure 9^{xvi} shows, the explosive growth of the seed crop industry has led to an industry whose value, as measured by sales, is once again dominated by a single crop.

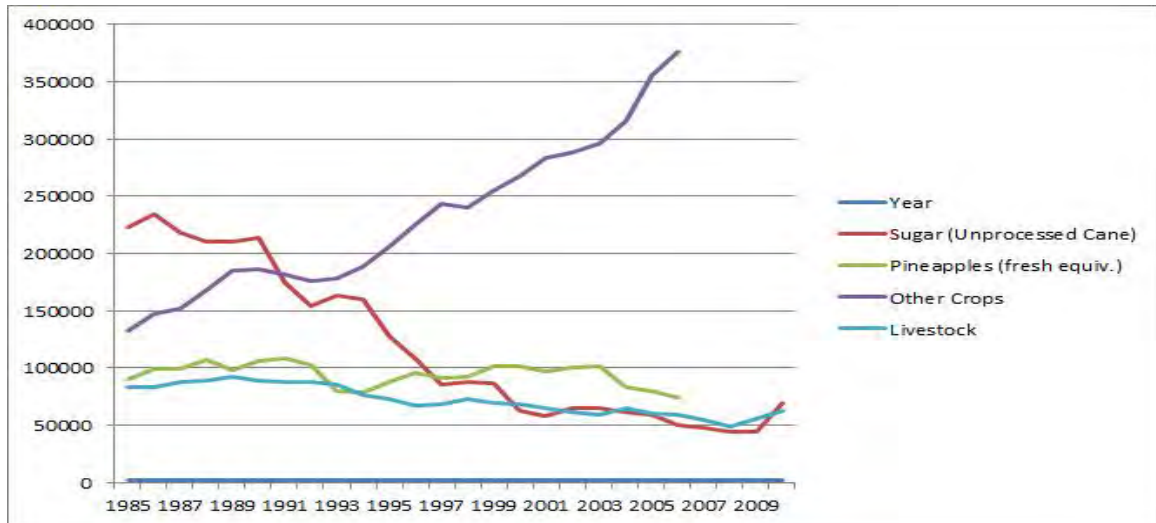
Figures 10 and 11 show the tremendous growth of Hawaii's seed crop industry and equally dramatic contraction of the sugar industry between 1985 and 2010. During this period, sales of Hawaii coffee, vegetables and melons, macadamia nuts and taro have been relatively flat.^{xvii}

Figure 9: Value of 2010 Crop Sales (in thousands)



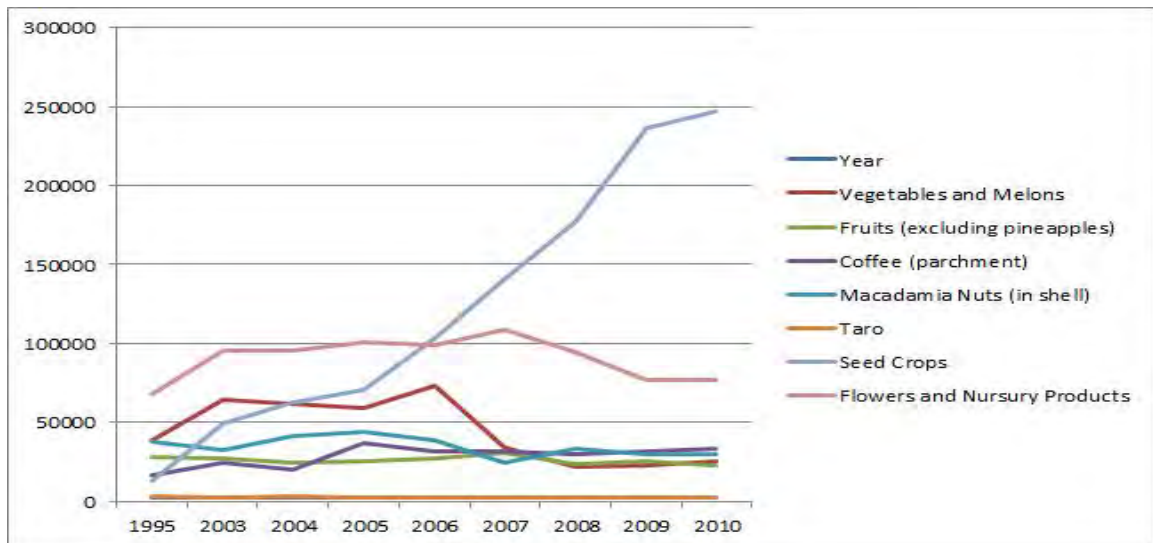
Seed crop sales far out performed other commodities in 2010.

Figure 10: Value of Hawaii's Major Crops between 1985 and 2010 (in thousands)



While seed crop sales increased dramatically between 1985 and 2010, sugar sales steadily declined.

Figure 11: Value of Hawaii's Crop Sales between 1995 and 2010 (in thousands)¹



Hawaii enjoyed varied crop sales in several different commodities, with seed crops the clear high performer.

¹ Beginning in 2007 non-published vegetable commodities were not included to avoid disclosure of individual operations. This change produces the sharp decline in vegetable and melon sales as shown in the graph.

C. MARKET SHARE

1. Hawaii Market

It has been well documented that Hawaii farmers face intense competition from U.S. Mainland and International food suppliers for Hawaii market sales. In a 2008 study by the University of Hawaii, College of Tropical Agriculture and Human Resources (UH-CTAHR),^{xviii} it was documented that Hawaii food consumption expenditures grew from \$2.6 billion in 1995 to \$3.7 billion in 2005, increasing at a rate of 3.4% annually. Of the food consumed in Hawaii, it further notes that approximately 85% is imported.

For local market sales, one would expect that Hawaii farmers would have a comparative advantage because of lower shipping costs and the ability to deliver fresher product. However, as documented by UH-CTAHR's study, in 2005 off-shore suppliers dominated the local market for fresh fruits and vegetables, beef, pork, chicken, eggs and milk, as is shown in Table 1:

Table 1: 2005 Market Share for Hawaii Agricultural Products

Agricultural Product	% of Hawaii market held by off-shore suppliers	% of Hawaii market held by Hawaii suppliers
Beef	95.50	4.50
Pork	96.10	3.90
Eggs	80.00	20.00
Fresh Milk	90.00	10.00
Fresh Fruits	65.22	34.78
Fresh Vegetables	66.50	33.50

Off-shore suppliers greatly exceeded Hawaiian suppliers for all products in 2005

According to the study, Hawaii farmers only increased market share in the fresh vegetable market. The UH-CTAHR study notes that the rate of growth in the production of fresh vegetables in Hawaii outpaced consumption at an annual rate of 5.8% to 4.3%,

which means Hawaii is becoming more self-sufficient in vegetables. In beef, Hawaii production and consumption remained stable at an annual growth rate of 4.4%. In fresh fruits, fresh milk, eggs and pork, annual production has decreased and Hawaii has become less self-sufficient.

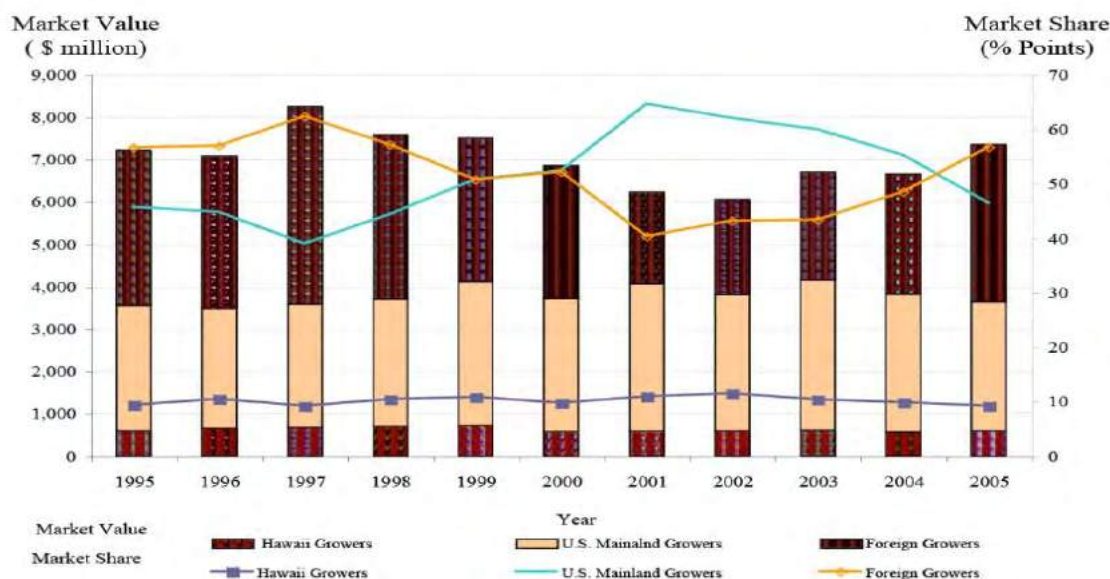
2. Mainland Market

In 2005, UH-CTAHR conducted an analysis of Hawaii's comparative advantage in the US Mainland market for the following eleven export crops:

1. Fresh papaya;
2. Fresh pineapples;
3. Processed pineapples;
4. Coffee;
5. Seed corn;
6. Dendrobium (spray)
7. Cut and potted foliage;
8. Raw sugar (cane);
9. Macadamia nuts;
10. Fresh cut anthuriums; and
11. Potted orchids.

In this study, UH-CTAHR found that Hawaii increased its competitiveness (as measured by market share) in seed corn, coffee and dendrobiums. In five crops – fresh pineapple, processed pine, raw sugar, potted orchids, and foliage – Hawaii became relatively less competitive. In three crops – fresh papayas, macadamia nuts, and anthuriums – Hawaii maintained its comparative advantage.^{xix}

Figure 12: Hawaii Market Share in U.S. Mainland Market for Select Products (in thousands)



Hawaii growers maintained a steady Mainland market share in the 10 years between 1995 and 2005.

Figure 12 above shows the U.S. Mainland market share controlled by Hawaii growers between 1995 and 2005 for the eleven agricultural products. During the period, Hawaii retained a relatively stable share of the aggregate market value of these products.

3. Japanese Market

In 2010, UH-CTAHR conducted an analysis of Hawaii's competitiveness in the Japanese market for twenty agricultural products.^{xx} CTAHR found that between 1995 and 2008 the aggregate average annual value of Hawaii's agricultural exports increased from \$31.46 million (1995-1999) to \$52.82 million (2005-2008). However, the large increase was primarily the result of the tremendous growth in deep sea water sales to Japan. Of the twenty products analyzed, eight are "traditional" crops (i.e., where the fresh product and/or the input into the processed product may be grown by farmers in Hawaii). When analyzing only these eight products, just three, unroasted coffee, roasted coffee and fresh or dried pineapple, increased market share in Japan between 1995 and 2008. The remaining five products, cut flowers/buds, fruits and nuts,

macadamia nuts (fresh or dried), papayas, macadamia nuts (processed), and pineapple (processed) had declining market shares. Table 2 shows the average value of Hawaii exports to Japan in these eight products between 1995 and 2008.

Table 2: Japanese Market Sales between 1995 and 2008 of Select Hawaii Products

Product	Average Value (US\$M)		
	1995-1999	2000-2004	2005-2008
Coffee, unroasted	2.22	2.04	3.13
Cut Flowers/Buds	2.63	1.60	0.67
Fruits and Nuts	0.18	0.22	0.15
Macadamia Nuts, Fresh or Dried	0.27	0.03	0.02
Papayas	12.14	6.47	3.50
Pineapples, Fresh or Dried	0.00	0.68	0.45
Coffee Roasted	0.51	1.08	2.04
Macadamia Nuts, Processed	1.80	1.80	1.01
Pineapples, Processed	1.98	0.92	0.53
TOTAL	21.73	14.84	11.5

As seen, the average annual value of exports to Japan in these eight products decreased from \$21.73 million (1995-1999) to \$11.5 million (2005-2008).

In conclusion, Hawaii farmers face stiff competition in local, national, and international markets for agricultural products. In the local market, off-shore suppliers dominate the market for fresh fruits and vegetables, beef, pork, chicken, eggs and milk. While Hawaii growers have slightly increased their market share of fresh vegetables and maintained their very small share of the beef market, they have lost market share in pork, chicken, eggs and milk.

In the U.S. Mainland market, Hawaii growers have had varying degrees of success but overall have sustained the aggregate value of export sales between 1995 and 2005. In

the Japanese market, exports of “traditional” agricultural crops, such as pineapple, papaya and cut flowers, have experienced a significant decrease in the value of sales between 1995 and 2008.

D. INDUSTRY CHALLENGES AND OPPORTUNITIES

1. Industry Challenges

Some of the more significant impediments to agricultural development in Hawaii are the following economic factors:

- High labor costs;
- High transportation costs;
- High energy costs; and
- High land costs.

In 2012 UH-CTAHR conducted an analysis of the economic performance and cost structure of Hawaii and U.S. Mainland farms for the year 2007.^{xxi} Among the study's significant findings are the following impacts:

- In 2007, average farm sales for Hawaii farms were less than the average cost of inputs. Each dollar spent on Hawaii farms in 2007 generated only \$0.96 of production, whereas each dollar spent on Mainland farms generated \$1.14.
- The average Hawaii farm had a net loss of \$20 per acre. The average mainland farm had a net profit of \$40 per acre.
- Small- to average-sized farms (\$10,000 to \$1,000,000) in Hawaii performed nearly as well as similarly sized mainland farms. Hawaii farms of that size had an output-input ratio of 1.21 while Mainland farms were 1.22.
- Hawaii's vegetable and melon sector and nursery/floriculture/greenhouse sector achieved net profits, while all other sectors suffered net losses.

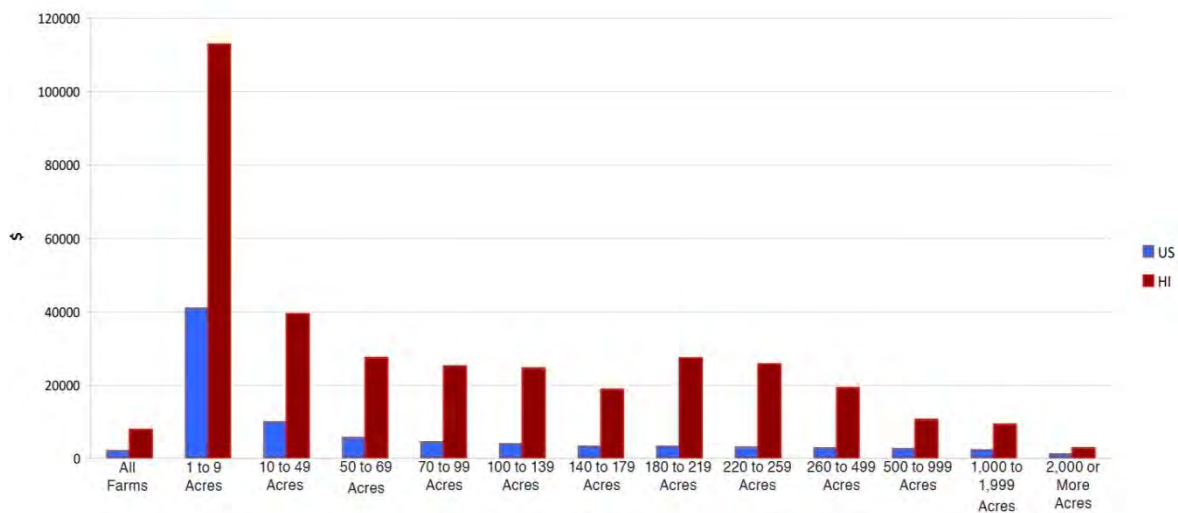
The following are among UH-CTAHR's findings related to cost structure:

- **Labor.** Hawaii labor expenditures were 43% higher than U.S. Mainland farms. For Hawaii farms that hired labor, labor costs equaled about 38% of total sales, while in the U.S. Mainland labor costs were just 9% of sales. Relative to Hawaii's U.S. Mainland market competitors (foreign suppliers), Hawaii has the highest monthly average wage. Compared to its Japanese market competitors, Hawaii has the 3rd highest average monthly wage.
- **Transportation costs.** Relative to its U.S. Mainland foreign market competitors, Hawaii has the highest per mile transportation cost to the U.S. Mainland market. Relative to its major Japanese market competitors, Hawaii farmers have the highest transportation cost.

When shipping to the Honolulu market, however, Hawaii farmers have a significant cost advantage. For Oahu farmers, this cost advantage is considerable as no air or ocean shipping is required. For neighbor island farmers, ocean shipping is relatively affordable, while airfreight is expensive. This fact was documented in a 2010 UH-CTAHR study comparing the cost of shipping between Hilo and Honolulu and Los Angeles and Honolulu. The study found the cost for ocean freight was six times less expensive between Hilo and Honolulu than between Los Angeles and Honolulu. However, the study also found that in 2010 air freight between Hilo and Honolulu was nearly twice as expensive as air freight between Los Angeles and Honolulu. At the time of the study, if the same commodity were to be shipped, it was about 114% more expensive to ship by air between Los Angeles and Honolulu than by ocean freight between Hilo and Honolulu.^{xxii}

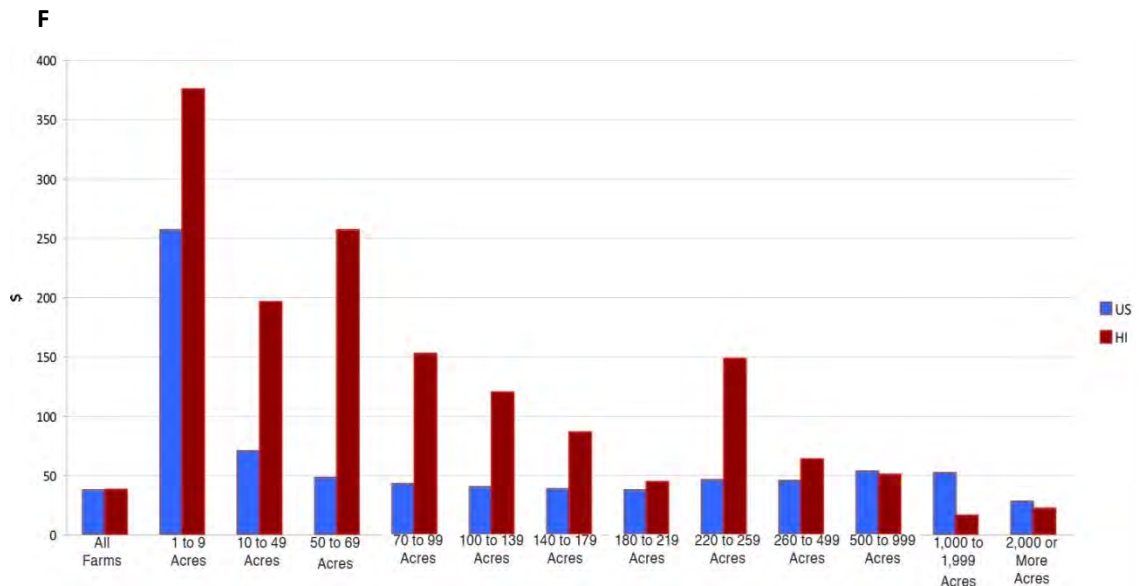
- Energy Costs.** Compared to U.S. Mainland farms, electric/gasoline costs are equivalent to 10% of input costs for Hawaii farmers, whereas they are only 6% for U.S. Mainland farmers. In a comparison of input prices between Hawaii and its major export competitors, it was found that of 52 countries with available data, Hawaii (if assumed to be a separate country) had the 5th highest electricity costs. By comparison, the U.S. Mainland was 39th.^{xxiii}
- Land.** As shown in Figure 13^{xxiv}, the value of an acre of agricultural land in Hawaii is considerably higher than the value of an equivalent acre in the U.S. Mainland. As such, it is not surprising, as shown in Figure 14, that for farms that are less than 500 acres the cost per acre to rent is considerably more expensive in Hawaii than on the U.S. Mainland.

Figure 13: Cost per Acre of Agricultural Land in Hawaii and the U.S. Mainland



The cost per acre of agricultural land in Hawaii greatly increases costs for Hawaii growers.

Figure 14: Cost per Acre to Rent Agricultural Land in Hawaii and the U.S. Mainland



Rent costs reflect the high cost of agricultural land in Hawaii.^{xxv}

2. Industry Opportunities

Although Hawaii farmers face higher input costs than their U.S. Mainland and foreign competition, Hawaii is still a significant supplier of agricultural products. In 2010, the value of all crop and livestock sales in Hawaii was approximately \$660 million,^{xxvi} and despite having relatively high input costs, the seed corn industry has demonstrated that Hawaii agriculture can develop comparative advantage in the right niches.

The following discusses the opportunity for Hawaii agriculture in the following three sectors:

- a. Import Replacement;
- b. Seed Crops; and
- c. Biofuel Crops.

a. Import Replacement

As noted, approximately 85% of food consumed in Hawaii is imported. Table 3 shows Hawaii's consumption and estimated production in 2005 of the following agricultural products: beef, pork, eggs, fresh milk/cream, fresh fruits, and fresh vegetables.^{xxvii}

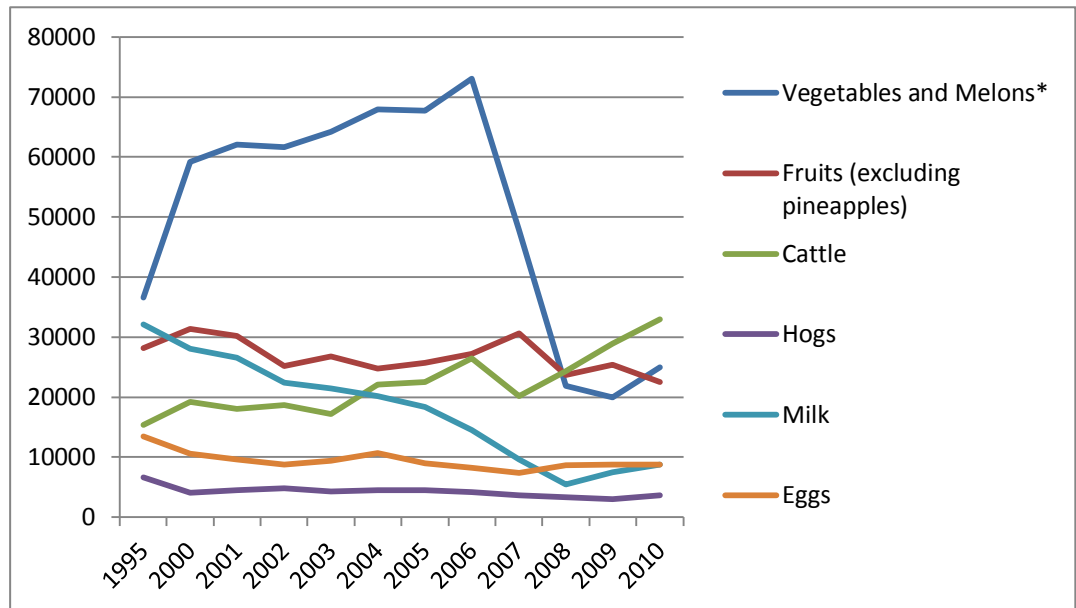
Table 3: Value of Consumption and Production of Select Agricultural Products in Hawaii (in thousands)

Agricultural Product	Total Estimated Consumption	Estimated Hawaii Production	Estimated Hawaii Market Share
Beef	112.80	5.08	4.5
Pork	116.74	4.55	3.9
Eggs	44.90	8.98	20.00
Fresh Milk and Cream	183.87	18.39	10.00
Fresh Fruits	61.54	21.40	34.78
Fresh Vegetables	180.87	60.92	33.50

There is a significant gap between foods consumed in Hawaii and those produced in Hawaii.

As shown, Hawaii has very low market share in the local beef, pork, eggs and fresh milk markets. However, Hawaii's market share in the fruit and vegetable markets is over 30%. Figure 15 shows sales of the above-referenced products between 1995 and 2010.^{xxviii} Despite having the advantage of proximity to the local market and lower shipping costs, Hawaii farmers have been unable to significantly increase the value of their production.

Figure 15: Hawaii Crop Sales between 1995 and 2010 (in thousands)²



Hawaii crop sales remained steady between 1995 and 2010. Vegetable and melon sales were not reported between 2007 and 2010.

In an October 2011 study, UH-CTAHR^{xxix} made six recommendations to help address the higher agricultural input costs faced by Hawaii farmers. These recommendations include the following items:

1. **Labor.** Substitute capital, i.e. machinery and equipment, for labor.
2. **Energy/Electricity.** Develop alternative off-grid sources of electricity, such as solar, wind and hydro, to mitigate high electricity costs.
3. **Fertilizer.** Utilize alternative sources of recyclable waste materials in lieu of imported fertilizers.

² Beginning in 2007 non-published vegetable commodities were not included to avoid disclosure of individual operations. This change produces the sharp decline in vegetable and melon sales as shown in the graph.

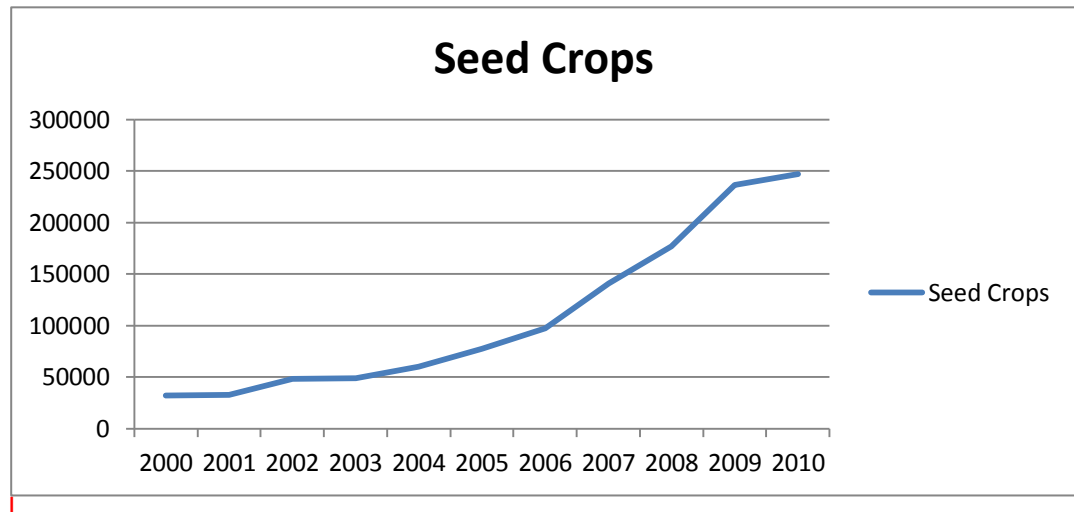
- 4. *Agricultural Land.*** Seek the designation of Important Agricultural Lands (IAL). Place additional acreage in State and County agricultural parks to improve access to affordable farmland and long-term leases.
- 5. *Transportation Costs.*** Encourage the production of crops that can be sold in local markets.

UH-CTAHR also recommends that Hawaii farmers consider shifting production to lower value fruits and vegetables, where a significant percentage of the input costs for these products is transportation costs. They also suggest production of highly perishable and niche products, since quality over price is often a consideration of consumers.

b. Seed Crops

The rapid growth of Hawaii's Seed Crop industry demonstrates that agriculture in Hawaii can be profitable. Hawaii's Seed Crop industry is dominated by 10 farms that cultivate seed corn, soybean, wheat, sunflower, and other seed crops. However, seed corn is the dominant crop and in 2011 represented approximately 95.6% of all seed crop sales.^{xxx} Figure 16 shows the dramatic growth of the industry from 2000 to 2010.

Figure 16: Value of Hawaii's Seed Crop Sales between 2000 and 2010 (in thousands)



The value of seed crop sales increased 700% from 2000 to 2010.

As shown in Figure 16, seed crop sales grew by 700%, from \$35.3 million in 2000 to \$247.22 million in 2010. In 2010, seed crop sales represented 37% of all crop and livestock sales in the state. The next largest contributor was flower and nursery products at 11%, then sugar sales at 10.6%. According to most current accounting, the seed crop industry created 1,397 jobs, which is equivalent to 20.2% of statewide agricultural jobs.^{xxxi}

According to the February, 2013 report prepared for the Hawaii Farm Bureau Federation and the Hawaii Crop Improvement Association entitled “Hawaii’s Seed Crop Industry: Current and Potential Economic and Fiscal Contributions”, the industry is successful in Hawaii for the following reasons:

- Year-round growing conditions allowing up to four crop cycles per year;
- Availability of a highly skilled agricultural workforce;
- Availability of land and water; and
- A stable political and economic environment.

During the 2005-2006 growing season, there were 4,200 acres harvested that produced 8 million pounds of seed. During the 2010-2011 growing season, there were 7,100 acres harvested that produced 9.77 million pounds of seed.^{xxxii} It is expected that the industry will continue to experience growth, but as it matures it is estimated that growth may be at a slower rate than over the past ten years.^{xxxiii}

c. Bio-Fuel Crops.

The State of Hawaii is one of the most oil dependent states in the Country. In 2008, approximately 85% of its energy came from imported petroleum. In comparison, the national average was 35.7%.^{xxxiv} In 2010, the State imported 46.3 million gallons of petroleum at a cost of approximately \$5.09 billion.^{xxxv}

In response to the State's dependency upon imported fossil fuels, it adopted Renewable Portfolio Standards in 2001 and established the Hawaii Clean Energy Initiative (HCEI) goals in 2008. The Renewable Portfolio Standards (RPS) established numeric targets for renewable energy use by Hawaii's electric companies. At present, the RPS standards for renewable energy (wind, solar, biomass, bio-fuels, etc.) have the following target dates:^{xxxvi}

- 10 percent of net electricity sales by December 31, 2010;
- 15 percent of net electricity sales by December 31, 2015;
- 25 percent of net electricity sales by December 31, 2020; and
- 40 percent of net electricity sales by December 31, 2030).

The HCEI, an agreement between the State and HECO, has a goal of increasing renewables total share of energy generation to 40 percent, while reducing overall demand by 30 percent through conservation by 2030.

HCEI envisions that locally produced bio-fuels will be a significant contributor to Hawaii's renewable energy portfolio. HCEI's fuels strategy includes these objectives:^{xxxvii}

- Evaluating local agricultural potential and supporting its development;
- Investing in key logistical infrastructure;
- Evaluating and developing renewable fuel processing infrastructure; and
- Matching potential fuel supply to sources of demand.

In its 2011 strategic plan^{xxxviii}, HCEI noted that large scale production of biofuels was approximately five (5) years away from being commercially viable. There are currently several pilot projects underway in the State. These projects are assessing the viability of various crops and bio-refinery technologies. HCEI has established goals for locally produced renewable fuels for the years 2015, 2020, 2025 and 2030. Its 2015 goals are shown in Table 4 below.

Table 4: HCEI Renewable Fuel Goals for 2015

Source of Demand	Estimated Total Green Replacement Fuel (2015)
The HECO Companies	45 MGY renewable fuel
KIUC	100,000 gal/year
The Department of Defense	TBD MGY renewable JP8 TBD MGY renewable J5 TBD MGY renewable F76 TBD MGY renewable Diesel Fuel/biodiesel
The Ground Transport Sector	Maintain current E10 standard and biodiesel usage

Goals for 2015 reflect efforts across the economic sectors.

Table 5 shows HCEI's renewable fuel goals for 2020. The 2020 goals are predicated on locally produced biofuels being commercially viable and HECO and the Department of Defense implementing plans to accelerate biofuel usage.

Table 5: HCEI Renewable Fuels Goal for 2020

Source of Demand	Estimated Total Green Replacement Fuel (2020)
The HECO Companies	80 MGY renewable generation fuel (based off estimated RPS demand)
KIUC	TBD
The Department of Defense	32 MGY renewable fuels
The Ground Transport Sector	50 MGY of renewable fuels

2020 Renewable Fuels goals show a significant increase over 2015.

In its strategic plan, HCEI states that the “future price of oil will be the deciding factor, as it will materially impact the bottom line for each of the alternative outcomes under consideration”.

HCEI’s goal is to meet in-state demand for fuel with locally produced bio-fuels (approximately 500 MGY) by 2030. If locally produced bio-fuel is not commercially competitive, HCEI’s preferred alternative is to source such fuel from domestic U.S. suppliers and then from foreign suppliers.

Bio-Fuel Viability in Hawaii

The most comprehensive assessment of the viability of bio-fuel production in Hawaii was conducted by Black & Veatch and the University of Hawaii for the State of Hawaii’s Department of Business, Economic Development, and Tourism Strategic Industries Division (DBETD).^{xxxix} The study was completed in January 2010.

The purpose of the study was to assess the potential feedstocks, technologies, and economics of biofuel production in Hawaii to meet the State of Hawaii’s alternative fuel standards, which mandate 10% of transportation fuels from renewable sources by 2010, 15% by 2015, and 20% by 2020. The study addressed several topics, including the following factors:

- Biomass conversion technology options and issues;
- Biomass residue availability;
- Energy crop potential;
- Evaluation of energy crop economics in Hawaii; and
- Emerging and innovative options for biofuel production.

For the purpose of its analysis, the study identified approximately 300,000 acres of prime irrigated land and 800,000 acres of non-prime rainfed land that would be suitable for energy crops. The study concludes that displacing 20% of the gasoline and diesel fuel consumed in Hawaii in 2007 with bio-fuel from locally grown feedstocks would require about 10%, or 110,000 acres, of the lands studied. Therefore, displacing 100% of all gasoline and diesel fuel consumed in Hawaii would require approximately 550,000 acres.

The study estimates that based on projected future prices of retail gasoline and diesel fuels, together with potential cost improvements in alternative fuel production costs, locally produced biofuels would likely not be competitive until at least 2015 when average U.S. gasoline prices reach \$3.50/gallon or more. It should be noted that the average price of a gallon of regular gasoline in the U.S. as of July 11, 2013 was \$3.518/gallon, while the average price in Hawaii was \$4.307.

E. CONCLUSIONS

Hawaii farmers face stiff competition in local, national, and international markets for agricultural products. In the local market, off-shore suppliers dominate the market for fresh fruits and vegetables, beef, pork, chicken, eggs and milk. While Hawaii growers have slightly increased their market share of fresh vegetables and maintained their very small share of the beef market, they have lost market share in pork, chicken, eggs and milk.

In the U.S. Mainland market, Hawaii growers have had varying degrees of success but overall have sustained the aggregate value of export sales between 1995 and 2005. In the Japanese market, exports of “traditional” agricultural crops, such as pineapple, papaya and cut flowers, have experienced a significant decrease in the value of sales between 1995 and 2008.

Significant impediments to agricultural development in Hawaii include high labor costs, high transportation costs, high energy costs and high land costs. Hawaii farms face labor costs that have been documented to be 43% higher than U.S. Mainland farms. Hawaii farmers also have the highest per mile transportation cost to the U.S. Mainland market. However, when shipping to the Honolulu market, Hawaii farmers enjoy a significant cost advantage. The cost of purchasing agricultural land in Hawaii is significantly more expensive than it is in the U.S. Mainland. The cost of renting is also more expensive when the lands being rented are less than 500 acres.

Despite the major challenges that Hawaii farmers face, they are still competitive in many sectors and numerous opportunities are still available. The fact that 85% of food consumed in Hawaii is imported creates opportunities for Hawaii farmers to displace imports, thereby creating jobs and increasing tax revenues in Hawaii. UH-CTAHR recommends that Hawaii farmers consider shifting production to lower value fruits and vegetables, where a significant percentage of the input costs are transportation costs. They also suggest production of highly perishable and niche products, since quality over price is often a consideration of consumers.

Hawaii’s seed crop industry has demonstrated that Hawaii agriculture can have significant comparative advantage in the right sectors. Since 2000, seed crop sales have grown by 700%, from \$35.3 million in 2000 to \$247.22 million, in 2010. According to the industry, Hawaii is successful in this market for the following reasons:

- Year-round growing conditions allowing up to four crop cycles per year;
- Availability of a highly skilled agricultural workforce;
- Availability of land and water; and
- A stable political and economic environment.

Substituting locally grown biofuels for imported petroleum may also provide opportunities for Hawaii farmers over the next several decades. In 2008, approximately 85% of Hawaii's fuel came from imported petroleum. There are many crops, including sugarcane, which can be grown in Hawaii and converted into fuel. The Hawaii Clean Energy Initiative (HCEI) has established aggressive goals for the use of renewable fuels through 2030. One of its primary strategies is to evaluate local agricultural potential for developing bio-fuels. A 2010 study done by Black & Veatch and the University of Hawaii for the State of Hawaii found that displacing 20% of the gasoline and diesel fuel consumed for ground transportation in Hawaii in 2007 with bio-fuel from locally grown feed-stocks would require about 10% of Hawaii's agricultural lands.

IV. STATE AND COUNTY AGRICULTURAL LANDS

A. STATE OF HAWAII

The total land area in the State of Hawaii is 4,112,388 acres, approximately 47% of which, or 1,928,318 acres, is in the State Agricultural District.^{xi} Depending upon the agricultural land rating system used, it is estimated that from 21% to 46% of these lands are very productive for agriculture. Within the State of Hawaii there are four agricultural land rating systems:

1. The Land Capability Classification (LCC) system developed by the United States Department of Agriculture in 1972;
2. The Land Study Bureau's (LSB) Detailed Land Classification system developed between 1965 and 1972 by the University of Hawaii;
3. The Agricultural Lands of Importance to the State of Hawaii (ALISH) rating system developed by the State Department of Agriculture, United States Department of Agriculture, and the University of Hawaii College of Tropical Agriculture and Human Resources between 1977 and 1978;
4. The Land Evaluation and Site Assessment (LESA) system developed between 1983 and 1986 by the LESA Commission.

Hawaii Revised Statutes (HRS) Chapter 205 uses the LSB system to regulate certain uses within the State Agricultural District. Maui County Code, Title 19.30A uses the ALISH rating system as criteria to determine lands that should be given the highest priority for preservation.

The LSB system ranks lands on a scale from "A," which is very good, to "E," which is not suitable. The LSB system also provides crop productivity ratings for pineapple, sugar, vegetables, forage, grazing, orchard crops, and timber. The ALISH system groups land into three classifications: Prime, Unique, and Other. Prime lands are considered to have the best soils with physical, chemical and climatic conditions to favor mechanized field crops. Unique agricultural lands are also considered to be productive for high value crops, such as coffee, taro, and vegetables. Other agricultural lands are not as productive as Prime and Unique lands and may need greater

irrigation and field management to be productive. The following table identifies the approximate acreage of productive agricultural lands in Hawaii using the LSB and ALISH rating systems.^{xli}

Table 6: Hawaii’s Important Agricultural Lands by Rating System

<i>Hawaii’s Important Agricultural Lands by Rating System</i>	<i>Acres</i>	<i>Percentage of State Ag District</i>
University of Hawaii Land Study Bureau (LSB) Lands Lands Rated “A”, “B”, “C”	447,250	24
Agricultural Lands of Importance to the State of Hawaii (ALISH) Prime, Unique, Other	846,363	46

46% of Hawaii agricultural lands are considered Prime, Unique or Other by ALISH.

B. CURRENT AVAILABILITY OF STATE AGRICULTURAL LANDS

As discussed, there are 1.93 million acres within the State Agricultural District. Of these lands, between 21% and 46% are considered very productive. Using the LSB rating system, there are approximately 447,250 acres that are classified “A”, “B”, or “C”. These lands should be considered very suitable for agriculture. Using the ALISH rating system, there are 846,363 acres of “Prime”, “Unique” or “Other” agricultural lands that are suitable for agriculture.^{xlii}

As Table 7 shows, there has been a release of approximately 316,590 acres from crop farming, primarily sugar and pineapple, since 1960. While some of these lands have been absorbed by urban development and other agricultural uses – such as seed crops, forestry crops, macadamia nuts, and floriculture – much of the lands are fallow and are available on Oahu, Maui, Molokai, Lanai and Kauai.^{xliii}

Table 7: Acreage in Crop in Hawaii between 1960 and 2010

Crop	1960	1989	1999	2010	Difference 1960-2010
Sugarcane	287,400	170,800	67,000	34,500	-252,900
Pineapple	96,500	32,700	21,000	1,350 ^{xliv}	-96,500
Vegetables and Melons	3,445	5,000	8,200	2,700	-745
Fruits (Excluding Pineapples)	2,142	7,400	8,100	4,100	1,958
Coffee	6,188	3,000	7,700	8,000	+1,812
Macadamia Nuts	3,515	22,300	19,900	17,000	+13,485
All other crops	NA	4,800	16,200	21,100	+16,300
TOTAL ACRES					-316,590

Coffee, fruits and macadamia nuts have shown an increase in acreage use since 1960.

According to Decision Analysts Hawaii, Inc., “the acreage released from plantation agriculture has far outpaced the demand for land for diversified crops. The net decrease of land in crop amounts to about 229,900 acres. While some of the released land has been converted or is scheduled to be converted to urban uses and tree plantations, an estimated 160,000+ acres remain available for diversified crops.”^{xlv}

C. COUNTY OF MAUI

The County of Maui has approximately 402,354 acres within the State Agricultural District, approximately 244,088 of which, or 61%, are located on Maui).^{xlvi}

Table 8 identifies the approximate acreage of productive agricultural lands on the island of Maui using the LSB and ALISH rating systems:^{xlvii}

Table 8: Hawaii's Important Agricultural Lands by Rating System

<i>Hawaii's Important Agricultural Lands by Rating System</i>	<i>Acres</i>	<i>Percentage of State Ag District Lands on Maui</i>
University of Hawaii Land Study Bureau (LSB) Lands Lands Rated "A", "B", "C"	82,592	34
Agricultural Lands of Importance to the State of Hawaii (ALISH) Prime, Unique, Other	149,242	61

61% of the agricultural lands on Maui are rated Prime, Unique or Other by ALISH.

Table 9 identifies the amount of zoned agricultural acreage on Maui in each of the five LSB classifications, historical use of these lands, ALISH and LESA ratings, and other suitable agricultural uses.^{xlviii}

Table 9: Maui Island's LSB Designated Agricultural Lands

LSB Overall Productivity Rating	Acres	Dominant Historical Crop (s)	Other Historical Crop (s)	Other Ratings ALISH / LESA		Crop Suitability (P, V, S, O, F) ³	Grazing Suitability
A	31,650	Sugarcane	Field Crops	Yes	Yes	Very Suitable Highly	Very Highly Suitable
B	17,378	Sugarcane	Pineapple, Orchards, Field Crops, Animal Husbandry	Yes	Yes	Highly Suitable	Highly Suitable
C	33,554	Pineapple	Sugarcane, Orchards, Field Crops	Yes	Yes	Suitable	Highly Suitable
D	39,029	Animal Husbandry, Field Crops	Pineapple, Sugarcane	Yes; No	Yes; No	Somewhat Suitable	Suitable
E	114,845	Animal Husbandry	Sugarcane	Yes; No	Yes; No	Limited Suitability	Suitable

82,582 Acres, almost 35%, of Maui Island's LSB designated acreage is classified as A, B, or C.

³ Pineapple, Vegetable, Sugarcane, Orchards, and Forestry

D. AVAILABILITY OF AGRICULTURAL LANDS ON MAUI

As discussed, in Maui County there are 402,354 acres within the State Agricultural District and 61% of these lands, or 244,088 acres, are on Maui. Using the LSB rating system, on Maui alone there are approximately 82,592 acres that are classified “A”, “B”, or “C”. These lands should be considered very suitable for agriculture. Using the ALISH rating system, there are 82,592 acres of “Prime”, “Unique” or “Other” agricultural lands on Maui.^{xlix}

As Table 10 shows, there has been a release of approximately 64,150 acres from crop farming, primarily sugar and pineapple, since 1960 within Maui County.ⁱ While some of these lands have been absorbed by urban development and other agricultural uses – such as seed crops, forestry crops, macadamia nuts, and floriculture – much of this land is fallow and is spread throughout the islands of Maui, Molokai, and Lanai.

On the island of Maui, there were three sugar plantations in operation until the 1980s: Wailuku Sugar Company, Pioneer Mill and Hawaiian Commercial & Sugar Company (HC&S). In 1988, Wailuku Sugar Company harvested its last crop of sugar. Of the approximate 4,500 acres it had in sugar in 1979, approximately 1,350 were planted in macadamia nuts, some was urbanized, and much of the remainder was fallow, in sugar or diversified crops. Pioneer Mill had about 6,867 acres in production until 1999, when the last crop was harvested.ⁱⁱ Today, much of the 6,867 acres of former cane land remains fallow but is under pressure for urbanization and the development of two-acre rural/residential lots. In December 2009, Maui Land & Pineapple Company harvested its last pineapple crop. Of the approximate 20,000 acres that were in pineapple production in 1995, only about 1,350 acres are in pineapple production today.ⁱⁱⁱ Of the lands released from pineapple, a small amount has been transitioned to diversified crops and some has been developed as rural/residential lots or is planned for urban use. However, much of this former pineapple land is available for agricultural use in West, East and Upcountry Maui.

Table 10: Acreage in Crop in Maui County between 1987 and 2010

Crop	1960	1987	1997	2010	Difference 1960-2010
Sugarcane	53,700	43,900	43,100	34,500	-19,200
Pineapple	48,900	23,700	9,100	1,350	-47,550
Vegetables and Melons	N/A	2,200	1,400	700	-1,500
Fruits (Excluding Pineapples)	N/A	100	300	600	+500
Coffee	N/A	NA	NA	NA	NA
Macadamia Nuts	N/A	1,300 (wai ag)	NA	NA	Na
All other crops	NA	1,600	1,200	5,200	+3,600
TOTAL ACRES					-64,150

64,150 acres of agricultural land in Maui County has come out of production since 1960.

As discussed, within Maui County a significant amount of land once planted in sugar and pineapple is now fallow. Much of this land is available for diversified agriculture. On the island of Maui, HC&S is still farming over 34,000 acres of sugarcane. Most of the release of agricultural lands over the past two decades has come from the closure of Wailuku Sugar Company and Pioneer Mill and the dramatic reduction in land used for pineapple production. While some of the lands released from sugar and pineapple have been urbanized or are planned for urban development, most of this agricultural land is available for new crops.

1. Agricultural Parks in Maui County

The State Department of Agriculture currently manages 10 agricultural parks in Hawaii. These parks are located on Oahu, Kauai, Hawaii and Molokai. The County of Maui operates Maui's only agricultural park. The purpose of agricultural parks is to facilitate diversified agriculture by offering high quality agricultural lots for long-term lease at affordable rents. According to the State Department of Agriculture's website, of the State's ten agricultural parks, which comprise 3,123 acres and 227 lots, only 2 lots are currently available. These lots are at the Waianae Agricultural Park on Oahu.^{liii}

There are two public Agricultural Parks in Maui County:

- Kula Agricultural Park.

The Kula Agricultural Park comprises 445 acres in Upcountry Maui and is the only agricultural park on Maui. The Park provides farm lots that range from 10 to 30 acres. According to the County's Office of Economic Development, the Park's purpose is to "promote the development of diversified agriculture by providing appropriately sized agricultural lots at reasonable rent with long-term tenure thereby contributing to the economic growth of our agricultural industry".^{liv} There are currently 26 farmers leasing land at the park. However, there are no lots available at the park.

- Molokai Agricultural Park

The State Department of Agriculture manages the only agricultural park on Molokai. The Molokai Agricultural Park comprises 753 acres that are subdivided into 22 lots. According to the State Department of Agriculture website, there are no lots available at the park.

2. Agricultural Lands Proposed for Urban Development in the MIP

In December, 2012, Maui County adopted the Maui Island Plan (MIP)^{lv} to plan for, manage and direct growth through the year 2030. The MIP's housing projections were based on population projections prepared by the State Department of Business Economic Development & Tourism (DBEDT) and a detailed land use forecast prepared by Plan Pacific, Inc. and the Department of Planning's Long-range Planning Division. According to the Land Use Forecast, there is demand for an additional 29,589 housing units through 2030. Of these units, approximately 18,744 are already entitled (i.e. have the appropriate zoning, and 10,845 are not yet entitled).

To accommodate the projected population growth through 2030, the MIP places approximately 7,718⁴ acres of State Agricultural District lands into “Urban” and “Rural” growth boundaries.

3. Impact of the MIP on Agricultural Land Availability

Despite the MIP’s planned long-term urbanization of agricultural lands, there is still a considerable amount of agricultural land that will be available for farming and ranching on Maui. The MIP’s planned urbanization represents just three (3) percent of the agricultural lands on Maui and just 1.9% of all agricultural lands within the County. Moreover, as discussed in the prior section, since 1960 approximately 64,000 acres of productive agricultural lands have been taken out of crop production, mostly from sugar and pineapple. Much of these lands remain fallow or are being used for grazing and other low intensity agricultural uses.

The Maui Agricultural Development Plan (July, 2009), prepared by the Maui County Farm Bureau in association with the County of Maui, Office of Economic Development states in part,

“Since much of Maui’s most productive lands are used for land extensive sugarcane, pineapple⁵, and ranching, and much of what remains has experienced tremendous land value appreciation due to urban encroachment of residential uses, access to affordable long-term tenure is a significant impediment to industry growth.”

“For Maui’s agricultural industry to realize sustained growth, existing farmers wishing to expand their operations and new farmers desiring to

⁴ This includes the 502 acres of WCT lands placed within Urban and Rural growth boundaries

⁵ Since the publication of the Agricultural Development Plan, much of the production of pineapple on Maui has ceased. As noted, of the 9,100 acres of land in pineapple in 1997, just 1,350 acres remain in pineapple.

enter the market must have access to land at a cost and terms that will allow a reasonable opportunity for profitability”.

“Land must also be available with long-term tenure so that high up-front capital costs in new crops, equipment, and infrastructure can be amortized over many growing seasons.”^{lvi}

While there is an abundant supply of currently fallow and productive agricultural land on Maui and within the State of Hawaii, providing long-term and affordable tenure to these lands for small and medium sized farmers impedes agricultural development on Maui. The current shortage of available agricultural park lots is symptomatic of this issue.

E. CONCLUSIONS

There are 1.93 million acres within the State Agricultural District. Since 1960, there has been a release of approximately 316,590 acres from crop farming, primarily sugar and pineapple. While some of these lands have been absorbed by urban development and other agricultural uses – such as seed crops, forestry crops, macadamia nuts, and floriculture – much of the lands are fallow and are available on Oahu, Maui, Molokai, Lanai and Kauai.^{lvii}

The County of Maui has approximately 402,354 acres within the State Agricultural District, approximately 244,088 of which, or 61%, are located on Maui.^{lviii} Using the LSB rating system, on Maui alone there are approximately 82,592 acres that are classified “A”, “B”, or “C”. These lands should be considered very suitable for agriculture. Using the ALISH rating system, there are 82,592 acres of “Prime”, “Unique” or “Other” agricultural lands on Maui.^{lix} Since 1960, here has been a release of approximately 64,150 acres from crop farming, primarily sugar and pineapple, within Maui County.^{lx} While some of these lands have been absorbed by urban development and other

agricultural uses – such as seed crops, forestry crops, macadamia nuts, and floriculture – much of this land is fallow and is spread throughout the islands of Maui, Molokai, and Lanai.

According to the State Department of Agriculture’s website, of the state’s ten agricultural parks, which comprise 3,123 acres and 227 lots, only 2 lots are currently available. These lots are on Oahu. Within Maui County, there are no agricultural lots available at either Molokai Agricultural Park or at the County owned and managed Kula Agricultural Park.

To accommodate the projected population growth through 2030, the MIP places approximately 7,718⁶ acres of State Agricultural District lands into “Urban” and “Rural” growth boundaries. Despite the MIP’s planned long-term urbanization of agricultural lands, there is still a considerable amount of agricultural land that will be available for farming and ranching on Maui. The MIP’s planned urbanization represents just three (3) percent of the agricultural lands on Maui and just 1.9% of all agricultural lands within the County.

While there is an abundant supply of currently fallow and productive agricultural land on Maui and within the State of Hawaii, providing long-term and affordable tenure to these lands for small and medium sized farmers impedes agricultural development on Maui. The current shortage of available agricultural park lots is symptomatic of this issue.

⁶ This includes the 502 acres of WCT lands placed within Urban and Rural growth boundaries

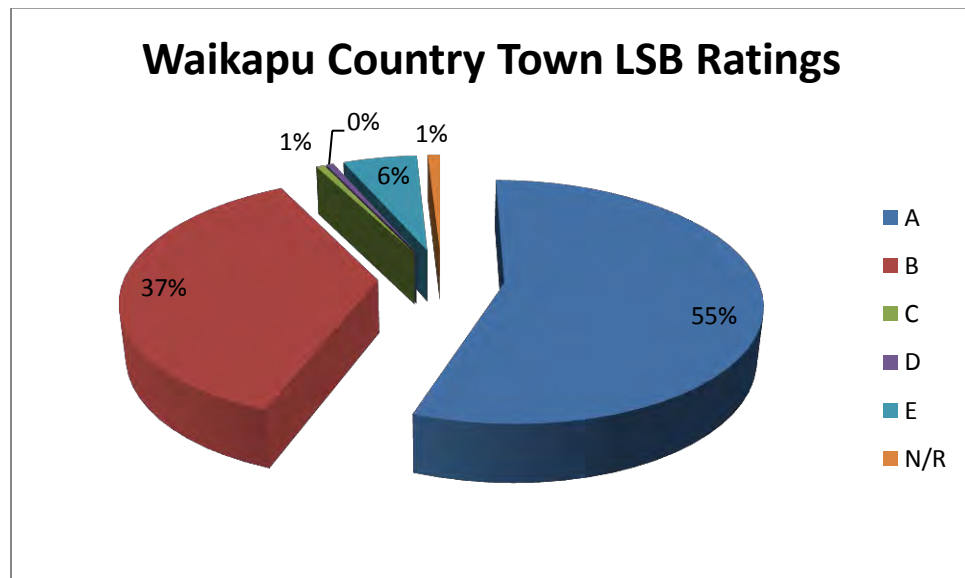
V. AGRICULTURAL IMPACT OF THE PROPOSED PROJECT

A. WAIKAPU COUNTRY TOWN'S EXISTING AGRICULTURAL RESOURCES

1. Land

The Waikapu Country Town comprises approximately 1,576 acres, 14 acres of which are within the State Urban District, and the remaining land is within the State Agricultural District. As Figures 17a-b and 18a-b show, WCT agricultural lands are rated very highly by the LSB and ALISH rating systems. Approximately 92% of WCT agricultural lands, or 1,437 acres, are rated “A” or “B” by the LSB. According to the ALISH rating system, 97%, or 1,515 acres, is “Prime” agricultural land.

Figure 17a: Waikapu Country Town LSB Ratings



Approximately 92% of WCT agricultural lands are rated A or B by LSB.

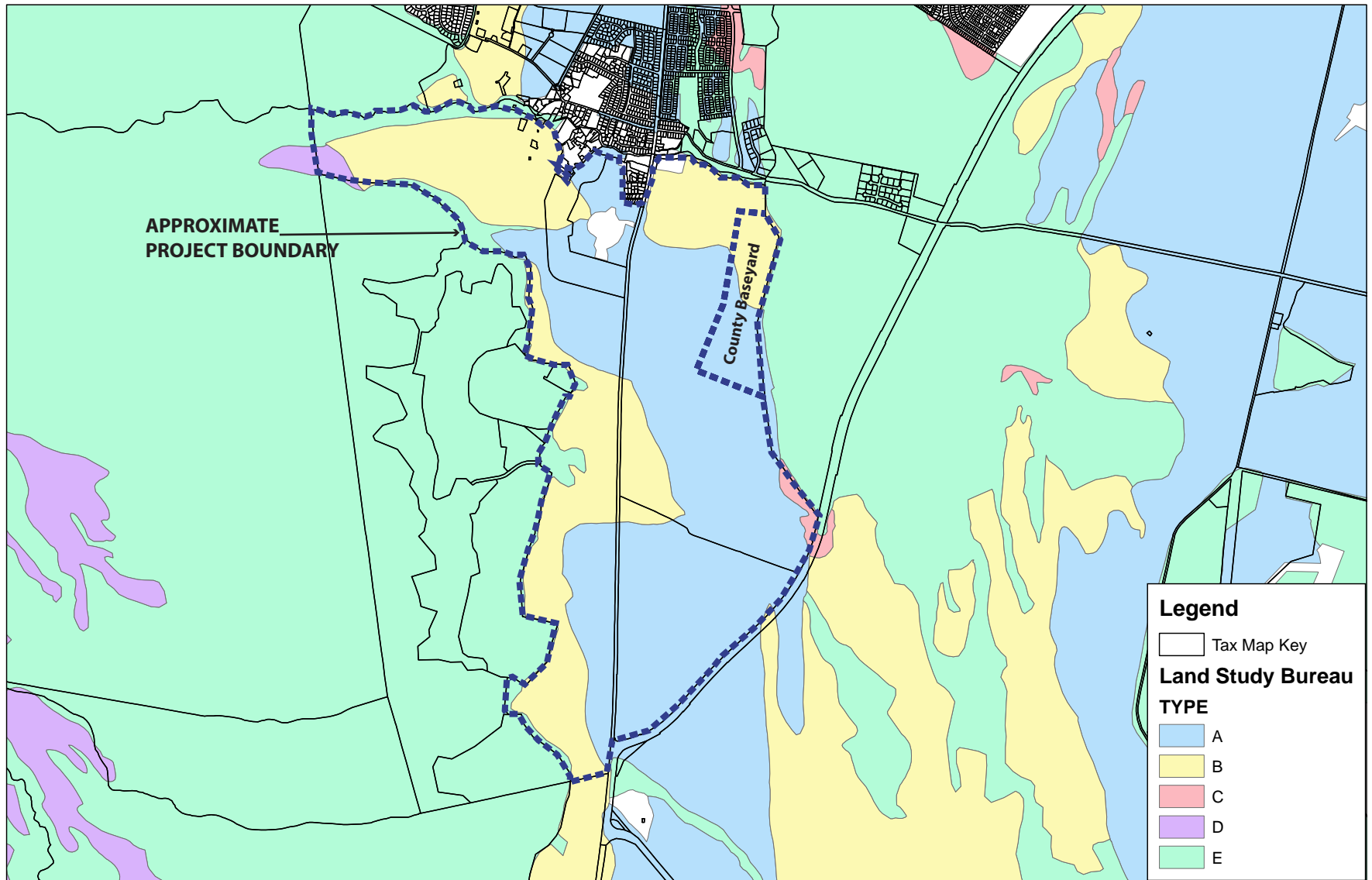


FIGURE 17b
 LAND STUDY BUREAU
 DETAILED LAND CLASSIFICATION



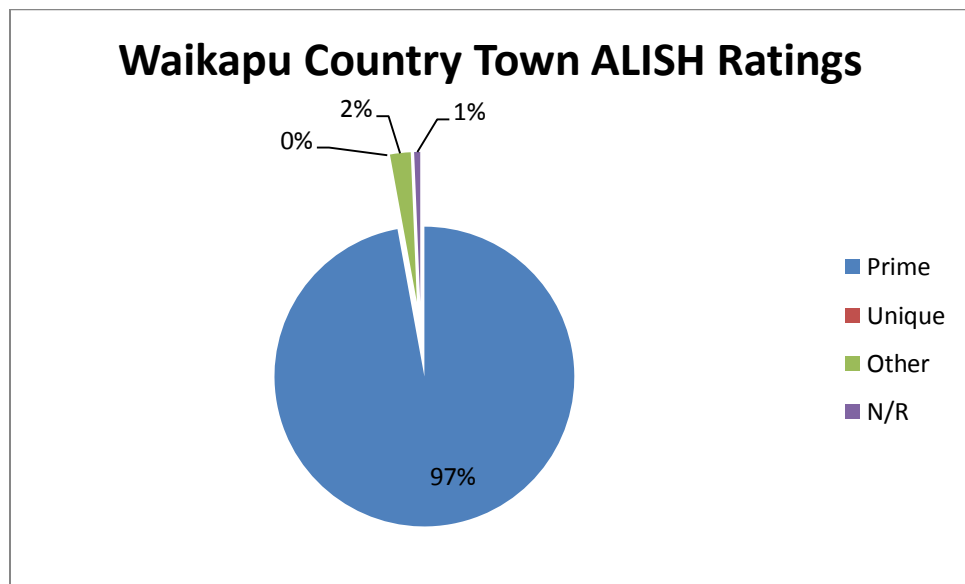
Not to Scale

WAIKAPU COUNTRY TOWN



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 HAWAII, LLC**

Figure 18a: Waikapu Country Town ALISH Ratings



97% of Waikapu Country Town agricultural acres are designated Prime by ALISH.

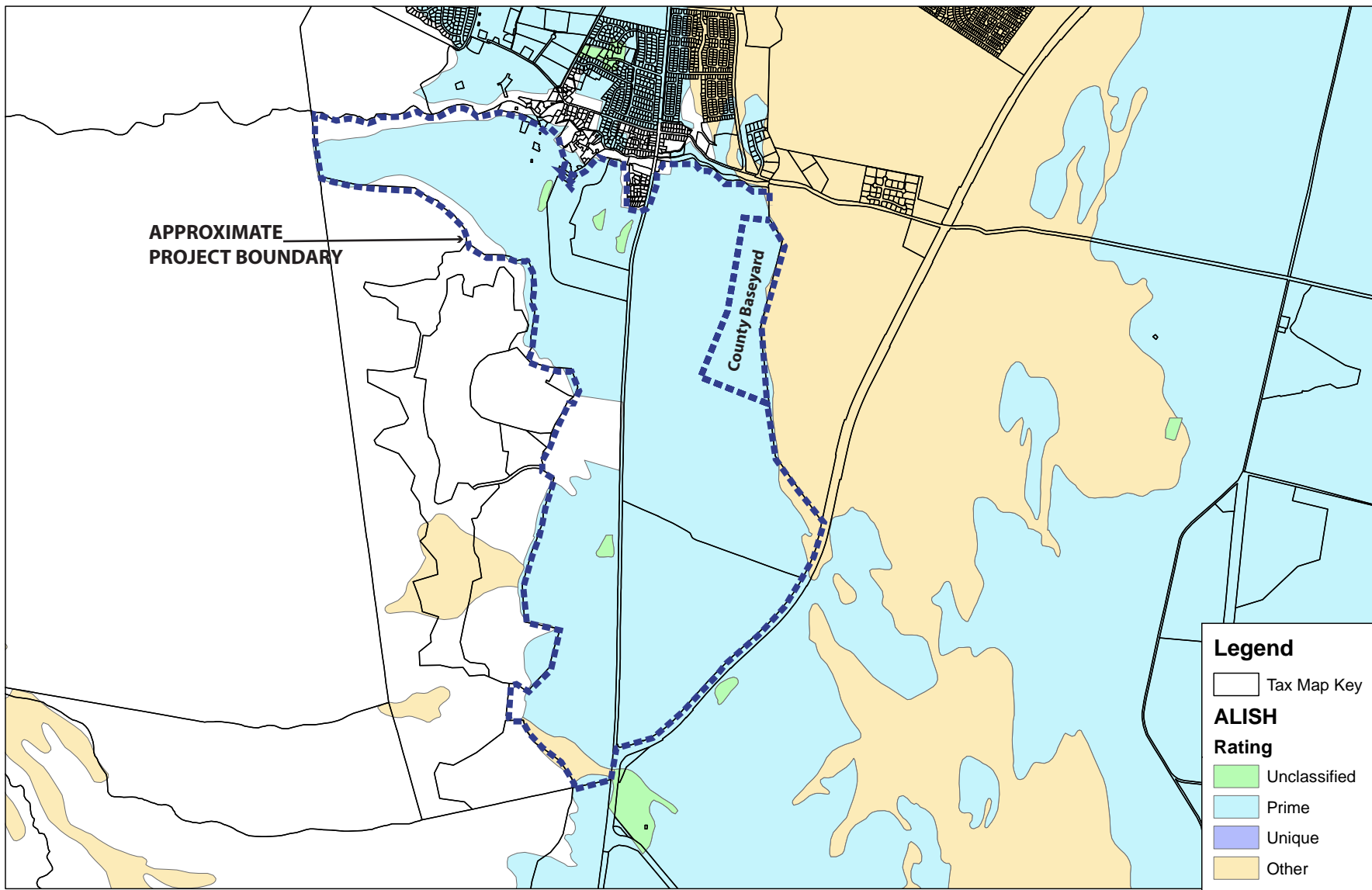


FIGURE 18b

AGRICULTURAL LANDS OF
IMPORTANCE TO THE STATE OF HAWAII



Not to Scale

WAIKAPU COUNTRY TOWN



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2. Soil Types

As shown in Figure 19, the project site consists of 11 soil types. Table 11 describes each soil type.^{lxi}

Table 11: Waikapu Country Town Soil Types

Waikapu Country Town Soils Types	
Ewa silty clay, 3 to 7 percent slopes (ESB)	
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 150 feet with slopes that range from 3 to 7 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 18 inches of Silty clay and 18 to 60 inches of Silty clay loam. The available water capacity is moderate at about 7.8 inches.	
lao clay, 3 to 7 percent slopes	
This is considered prime farmland if irrigated. It occurs at elevations of 100 to 500 feet with slopes that range from 3 to 7 percent. It is a well-drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 15 inches of Clay, 15 to 48 inches of Clay, and 48 to 60 inches of Silty clay. The available water capacity is moderate at about 8.4 inches.	
Pulehu silt loam, 0 to 3 percent slopes (PpA)	
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 0 to 3 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Silt loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 8.4 inches.	
Pulehu silt loam, 3 to 7 percent slopes (PpB)	
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 3 to 7 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Silt loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 8.4 inches.	

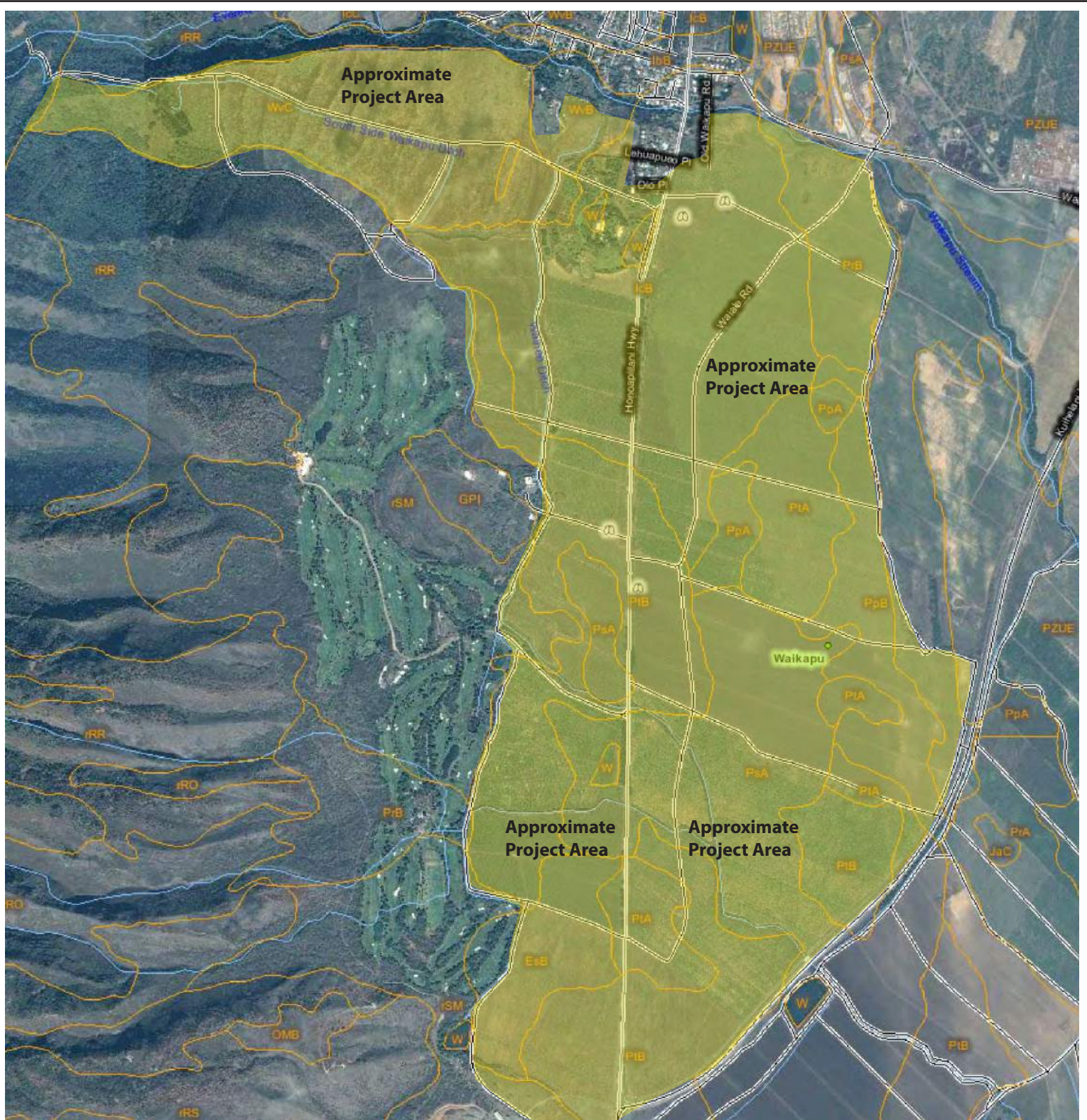


Figure 19
Maui Island Plan
USDA Soils Map



Not to Scale

WAIKAPU COUNTRY TOWN



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HAWAII, LLC**

Pulehu cobbly silt loam, 3 to 7 percent slopes (PrB)
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 3 to 7 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Cobbly silt loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 7.5 inches.
Pulehu clay loam, 0 to 3 percent slopes (PsA)
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 0 to 3 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Clay loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 8.4 inches.
Pulehu cobbly clay loam, 0 to 3 percent slopes (PtA)
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 0 to 3 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Cobbly clay loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 7.5 inches.
Pulehu cobbly clay loam, 3 to 7 percent slopes (PtB)
This is considered prime farmland if irrigated. It occurs at elevations of 0 to 300 feet with slopes that range from 3 to 7 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 21 inches of Cobbly clay loam and 21 to 60 inches of Silty clay loam. The available water capacity is moderate at about 7.5 inches.
Water > 40 acres (W)
Water bodies greater than 40 acres.
Wailuku silty clay, 3 to 7 percent slopes

This is considered prime farmland if irrigated. It occurs at elevations of 50 to 1000 feet with slopes that range from 3 to 7 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 12 inches of Silty clay and 12 to 60 inches of Silty clay. The available water capacity is moderate at about 8.4 inches.

Wailuku silty clay, 7 to 15 percent slopes

This is considered prime farmland if irrigated. It occurs at elevations of 50 to 1000 feet with slopes that range from 7 to 15 percent. It is a well drained soil that is more than 80 inches in depth. The typical soil profile is 0 to 12 inches of Silty clay and 12 to 60 inches of Silty clay. The available water capacity is moderate at about 8.4 inches.

3. Elevation and Slopes

The project site generally slopes from west to east with a high elevation of approximately 200-feet at the northwest corner of the property to a low point of approximately 20-feet above mean sea level at the southeastern corner of the property.

Slopes across most of the property are mild and range from 3% to 7%. At the higher elevations the slopes increase to about 10%.

4. Solar Radiation

The project site receives a significant amount of sunshine throughout the year. The average daily solar radiation received across the project site ranges from a low of approximately 350 solar calories per square centimeter per day at the higher elevations to a high of 450 solar calories per square centimeter per day at the lower elevations.

5. Rainfall

The project site receives its highest rainfall during the winter and lowest rainfall during the summer. Throughout the year rainfall is relatively low, averaging approximately 20- to 30-inches per year, with the monthly average ranging from 0.25 inches in August to approximately 5-inches in January.

6. Temperatures

Central Maui's coldest month is February when the average nighttime temperature drops to 63.1°F. The warmest month is September with the average day time temperature rising to 88.1°F.

7. Winds

The project site experiences relatively strong trade winds that blow from north to south across the isthmus and out to sea. At 30-feet above the ground, wind speeds across the site range from approximately 5.5 meters per second to 7.5 meters per second, which is approximately 12 to 17 miles per hour.

8. Irrigation Water

The MTP currently receives its agricultural water from the Wailuku Water Company (WWC). WWC delivers water to MTP and HC&S from the Iao-Waikapu Ditch via the Waihee Ditch, the Waihee Ditch below the Hopoi Chute, and the South Waikapu Ditch. Water to irrigate HC&S's fields that are leased from the Atherton Group, approximately 1,230 acres known as the "Iao-Waikapu Fields", is from the Iao Stream via the Iao-Waikapu Ditch and Waikapu Stream via the South Waikapu Ditch and Waihee Ditch. HC&S reportedly uses between 8 and 10 mgd of ditch water to irrigate its Iao-Waikapu fields.

9. Road Access

Access to the property is from Honoapiilani Highway. Within the highway, agricultural roads provide access throughout the site.

B. PRIOR AGRICULTURAL USE

Historically, WCT's lands were owned by Wailuku Agribusiness before being sold to the current owner in 2006. WCT land has been farmed since pre-contact, with taro cultivation occurring along the Waikapu Stream. During the sugar boom of the late 1800s, WCT land was placed into

sugar production. Wailuku Sugar Company grew sugarcane on the lands until 1988. Thereafter, the Maui Land & Pineapple Company leased land for pineapple production and HC&S leased land both mauka and makai of Honoapiilani Highway to supplement its sugar production. Pineapple ceased to be farmed on the property in about 1997. Meanwhile, HC&S continues to lease 1,230 acres for sugarcane.

C. CURRENT AGRICULTURAL USE

1. HC&S.

Alexander & Baldwin (A&B), owners of HC&S, began producing sugar in Central Maui as far back as 1870. Today, HC&S is Hawaii's sole sugar plantation and the state's largest farm, with over 36,000 acres in cultivation and approximately 754 employees. The firm's business pursuits include growing and milling sugar cane, producing raw sugar and specialty food grade sugars, producing molasses and generating and selling electricity generated from cane fiber.

In 2010, HC&S produced 171,800 tons of raw sugar, which was equivalent to 5% of the U.S. production. The farm also produced 52,800 tons of molasses, which it sells as feedstock for the livestock industry. HC&S also generates power by burning residual cane fiber in its generating plants

HC&S owns 32,400 acres and leases 1,450 acres from the State and approximately 1,230 acres from the Applicant (Waikapu Properties LLC and Waiale 905 Partners LLC). HC&S is a major water user using approximately 200 million gallons per day (MGD) for irrigation.

2. Kumu Farms

Kumu Farms was established in Hawaii in 1980. Its founder and owner, Mr. Gram Schmlle, first established the farm on Oahu's North Shore, but quickly moved his operation to the Molokai Agricultural Park.

Today, Kumu Farms is one of the largest certified organic producers in the State of Hawaii and the only exporter of fresh organic papaya to the U.S. Mainland Market. The Molokai farm spreads over 120 acres and produces over 20,000 pounds of papayas, 4,000 pounds of sweet basil, 500 pounds of fresh herbs, and specialty fruit and vegetable crops. Kumu Farms also produces value added products, including lotion and a pesto line. Kumu products are sold on Maui, Oahu and the U.S. Mainland. Products are marketed directly to consumers at the Farm's on-site store as well as on-line. Products are also sold to wholesalers and retailers such as Armstrong Produce and Whole Foods.

In 2012 Mr. Schmlle expanded his farm to the MTP. The MTP farm is on 75 acres and grows mixed-fruits, vegetables, and herbs. Like the Molokai farm, the MTP's products are sold on-site at a farm stand as well as on-line and directly and indirectly to restaurants and retail stores.

3. Hawaii Taro Farm LLC

Hawaii Taro Farm LLC is owned by Robert Pahia. Mr. Pahia was an agricultural researcher at the University of Hawaii for over 20 years. He has 20 years of farming experience in a variety of crops, including taro, vegetables, banana, sweet potato and melons.

Hawaii Taro Farm LLC has been at the MTP since 2009. The 68 acre farm is producing dry-land taro, sweet potato, and banana. Its primary market is Maui, but products are also sold on Oahu.

4. Mr. Michael Atherton, Coffees of Hawaii; Cerro de Jesus Coffee Plantation Nicaragua; Part Owner of the MTP and abutting Agricultural Lands

Mr. Atherton comes from a farming and ranching family in northern California. He established the Cerro de Jesus (Jesus Mountain) coffee plantation in Nicaragua in 1972. The plantation produces specialty coffee, including several Arabica varieties, like Bourbon, Caturra, Catuai Rojo and Pacamara, on approximately 1,000 acres with over a million trees

planted. Mr. Atherton also owns Coffees of Hawaii, which sells coffee from Molokai, Maui and Kona, as well as blends that utilize his Nicaraguan beans. Mr. Atherton owns approximately 100 acres of coffee trees on Molokai.

In addition to coffee farming, Mr. Atherton has experience raising cattle. Mr. Atherton has a small herd of Texas Long-horn cattle that graze on the MTP.

D. IMPACT OF THE PROJECT ON AGRICULTURE

1. Loss of State and County Agricultural Lands

As discussed, the project will result in the conversion of approximately 488 acres of prime agricultural land to urban and rural use. It should be assumed that once urbanized the opportunity to use these lands for commercial agriculture will be irrevocably lost.

As described, the loss of approximately 488 acres of prime agricultural land caused by the subject development represents a very small percentage of agricultural lands statewide and on Maui, as is shown below:

- There are approximately 2 million acres in the State Agricultural District. The subject development represents just .024% of this area.
- There are approximately 846,363 acres of agricultural lands state-wide rated by ALISH as Prime, Unique or Other. The subject development represents just .058% of these lands.
- There are approximately 447,250 acres of agricultural lands state-wide rated by the LSB as A, B, or C. The subject development represents just .11% of these lands.
- On Maui, there are approximately 82,582 acres of agricultural lands rated by the LSB as A, B, or C. The subject development represents just .59% of these lands.

- Within Maui County, approximately 64,150 acres has been released from crop production since 1987. The subject development represents just .76% of these lands.

However, to mitigate the loss of prime agricultural lands caused by urbanization, the Applicant will permanently protect 800 acres of prime farm land through a conservation easement. As noted above and in Sections III.B and IV of this report, there is a considerable amount of agricultural land throughout the state that is fallow. However, despite the availability of land, the ability of farmers to secure access to affordable lands for long-term tenure is still an impediment to agricultural development. High land costs, coupled with high labor costs, transportation costs, and energy costs are among the most significant barriers to Hawaii's agricultural development.

By establishing an agricultural park on agricultural lands surrounding the proposed Waikapu Country Town, the project will provide farmers with long-term access to agricultural land at an affordable rate. As noted, there are 3,123 acres and 227 lots within the State of Hawaii's agricultural parks, but only two lots are currently available. In Maui County there are no agricultural park lots available at either the Molokai Agricultural Park or the Kula Agricultural Park. The proposed agricultural park will expand the opportunity for Maui farmers to gain access to highly productive Central Maui agricultural lands. These lands provide easy market access to Maui's primary population centers and to major air and seaport facilities.

2. Impact of the Project on Existing Agricultural Operations

On May 17, 2013, Kumu Farms, Hawaii Taro LLC, and land owner and farmer Michael Atherton were interviewed to determine the potential impact of the project upon their agricultural operations. On June 26, 2013, an interview was conducted with HC&S to discuss the impact of the project on their sugar business.

During the interview it was explained that no lands would be urbanized for at least three years while entitlements and building permits are being obtained. Thereafter, urbanization would occur in phases at a rate determined by market demand. It was acknowledged that lands currently being farmed could be impacted by the development over the next five to 10 years.

Both Kumu Farms and Hawaii Taro LLC desire to shift their farms to the MTP's private agricultural park as urban development is phased in. They anticipate that, together with other farmers, the Park could encompass several hundred acres. Most of each farm's future production will be sold to the Maui market, but production is also expected to be shipped to Oahu and the Mainland.

Land owner Michael Atherton is grazing Texas Long-Horn cattle on the property. Mr. Atherton indicated that the herd will likely remain on the mauka agricultural lands above the existing MTP even after urbanization occurs on the makai lands. Mr. Atherton also intends to plant an orchard of coffee trees. The orchard will be located outside of the urban and rural growth boundaries on existing agricultural lands. The beans will be marketed and sold under the Coffees of Hawaii label.

HC&S is farming 1,230 acres of MTP lands. These lands are leased on a 10-year term, which is due to expire for some of the lands, but is being renegotiated for a new 10-year term. MTP leased lands comprise approximately 3.6% of HC&S lands that are in production. Of the 1,230 acres leased by HC&S, approximately 330 acres will eventually be urbanized over an approximate 20-year build-out. In addition, about 75 acres currently in cane production may be used to establish a portion of the agricultural park discussed in this report. The agricultural park would also comprise agricultural lands not currently in cane production, which are located mauka (west) and south of the existing MTP.

HC&S desires to continue farming MTP lands. The farm's General Manager, Mr. Rick Volner, noted that MTP lands are highly productive with access to a reliable source of water. Mr. Volner noted that the amount of acres to be urbanized is very small relative to the total number of acres being farmed by HC&S. However, since HC&S is a commodity farmer the profitability of the plantation depends upon having sufficient economy of scale in its production. The incremental loss of agricultural land is therefore a concern to the plantation; however, Mr. Volner noted that HC&S has access to other, currently fallow, lands and that the Plantation's viability will not be significantly impacted by the urbanization of the subject MIP lands.

An additional concern of the Plantation is urban development that is located within close proximity of its fields. Land use conflicts, such as the impact of dust, noise, and smoke from cane burning, can be a problem if not carefully managed. However, Mr. Volner noted that the subject property is upwind of its fields and that the consistent trade winds will help to mitigate such impacts. Mr. Volner also noted that cane burning is carefully managed in order to minimize its impact to neighboring residential communities.

3. Impact of the Project on Future Agricultural Opportunities

As discussed in this report, the impact of the proposed urbanization on future agricultural opportunities should be minimal since other lands are currently available throughout the State and County.

As noted, a significant impediment to agricultural development on Maui, and throughout the State, is the scarcity of affordable agricultural land that is readily available and affordable for long-term lease to diversified farmers. The project's agricultural component includes nearly 1,100 acres of agricultural land, 800 acres of which will be permanently dedicated to agricultural use with no residential structures to be permitted. The long-term vision for this land is to establish a private agricultural

park. This park will be anchored by highly qualified farmers, such as Kumu Farms, Coffees of Hawaii and Hawaii Taro LLC. Future agricultural users will have the opportunity to grow crops ranging from fresh vegetables and fruits, to taro, coconuts, coffee and kakau. It is expected that sugarcane, bio-fuels or cattle will also be major agricultural land users.

E. CONCLUSIONS

The Waikapu Country Town comprises approximately 1,576 acres, of which 14 acres are within the State Urban District and the remaining land is within the State Agricultural District. Approximately 92% of WCT agricultural lands, or 1,437 acres, are rated “A” or “B” by the LSB. According to the ALISH rating system, 97%, or 1,515 acres, is “Prime” agricultural land. The MTP, and surrounding HC&S fields, currently receive agricultural water from WWC. HC&S’s lao-Waikapu fields, which are leased from the Atherton Group, reportedly use between 8 to 10 mgd of irrigation water.

The loss of approximately 488 acres of prime agricultural land caused by the subject development represents a very small percentage of agricultural lands statewide and on Maui. There are approximately 2 million acres in the State Agricultural District. The subject development represents just .024% of this area. On Maui, there are approximately 82,582 acres of agricultural lands rated by the LSB as A, B, or C. The subject development represents just .59% of these lands. Within Maui County, approximately 64,150 acres has been released from crop production since 1987. The subject development represents just .76% of these lands.

There are currently three commercial farms farming MTP lands. These include Kumu Farms, Hawaii Taro LLC, and HC&S. The proposed urbanization will require both Kumu Farms and Hawaii Taro LLC to relocate their agricultural operations to the proposed agricultural park. It is anticipated that this might occur in about five to ten years. The

project will also impact the current lands being leased by HC&S. It is anticipated that these lands will gradually begin to be impacted in about five to ten years. Over the long-term, HC&S may lose approximately 330 acres to urbanization and up to 75 acres for a private agricultural park. According to HC&S General Manager Mr. Rick Volner, HC&S would desire to continue farming its lands to maximize its current economy of scale in production. However, Mr. Volner acknowledged that HC&S has additional lands available that are currently fallow and the subject project will not impact the Plantation's long-term viability.

A significant impediment to agricultural development on Maui, and throughout the State, is the scarcity of affordable agricultural land that is readily available and affordable for long-term lease to diversified farmers. The project's agricultural component includes nearly 1,100 acres of agricultural land, 800 acres of which will be permanently dedicated to agricultural use with no residential structures to be permitted. Several hundred acres of MTP agricultural lands may be developed as a private agricultural park to help facilitate Maui's agricultural development. The establishment of a strategic and centrally located agricultural park, with the availability of highly productive agricultural land and affordable irrigation water, should significantly bolster the ability of Maui farmers to compete in local, mainland and international markets.

VI. CONSISTENCY WITH STATE AND COUNTY AGRICULTURAL POLICIES

A. STATE AGRICULTURAL LAND USE POLICY

1. Hawaii State Plan and Hawaii State Functional Plans

The Hawaii State Plan and Hawaii State Functional Plans establish policy to protect the viability of the State's sugar and pineapple industries, support the growth of diversified agriculture, and protect productive agricultural lands from development. Hawaii State Plan policies that are directly relevant to the proposed action include those listed below:

Hawaii State Plan, Chapter 226, HRS Part 1. Overall Themes, Goals, Objectives and Policies
<u>Chapter 226-7 Objectives and policies for the economy-agriculture.</u>
<u>Objectives:</u> Planning for the State's economy with regard to agriculture shall be directed toward achievement of the following objectives:
Objectives:
(1) Viability of 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.
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.
(12) Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.
(13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency.
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:
Priority Guidelines:
(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.
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.
(10) Support the continuation of land currently in use for diversified agriculture.
<u>Chapter 226-104, HRS, Population Growth and Land Resources Priority Guidelines</u>
(a) Priority guidelines to effect desired statewide growth and distribution:
Priority Guidelines:
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.
<u>Chapter 226-106 Affordable housing. Priority guidelines for the provision of affordable housing:</u>
Priority guidelines for the provision of affordable housing:
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.

The Hawaii State Plan directs State agencies to prepare functional plans for their respective program areas. There are fourteen (14) State Functional Plans that serve as the primary implementing vehicle for goals, objectives and policies of the Hawaii State Plan. Hawaii State Functional Plan policies directly relevant to the proposed action include those listed below:

Hawaii State Functional Plans
Agriculture State Functional Plan
Objectives:

- | |
|-------------------------------------------------------------------------------------------------------|
| g. Achievement of effective protection and improved quality of Hawaii's land, water, and air. |
| h. Achievement of productive agricultural use of lands most suitable and needed for agricultural use. |

Analysis: The Hawaii State Plan and State Functional Plans establish policy to protect the viability of the sugar and pineapple industries, protect agriculturally suitable lands for future needs, and promote the growth of diversified agriculture.

The proposed action will result in the urbanization of approximately 450 acres of productive agricultural land that are currently in sugar production. However, as documented in this report, the following provides sufficient justification for the proposed action:

- Approximately 245 acres, or 54% of the area, will be impacted by the County's planned Waiale By-pass Road. Once constructed, the by-pass road will make large-scale sugar farming considerably more difficult on those lands.
- A considerable amount of sugar and pineapple land throughout the State and within Maui County has been released from sugar and pineapple production over the last two decades. Within Maui County, the acreage released from crop production since 1987 is approximately 64,150 acres. The subject development represents just .76% of these lands. Thus, alternative agricultural lands are available to support future agricultural development.
- In consultation with HC&S, the Plantation's General Manager indicated that HC&S's financial viability will not be significantly impacted by the development and that other A&B lands, as well as former pineapple lands, can be utilized to make up for the lost sugar production.
- The recently adopted Maui Island Plan places the subject property within an urban growth boundary because of its proximity to infrastructure, public facilities, and employment. The Plan's population projections and land use forecast demonstrate a need for additional urban land through 2030.

- The land owner has committed to establishing an agricultural conservation easement, or similar mechanism, to permanently protect approximately 800 acres of prime agricultural land adjoining the south and western boundaries of the subject development; an additional 300 acres will remain within the State agricultural district and will be restricted to large lots.
- The land owner intends to establish a private agricultural park. The agricultural park will offer affordable and highly productive agricultural lots to diversified farmers.
- The existing diversified farmers, Kumu Farms and Hawaii Taro LLC, will be relocated to the agricultural park as development is phased in over the next 10 to 20 years.

B. COUNTY AGRICULTURAL LAND USE POLICY

The County of Maui's General Plan is comprised of the County-wide Policy Plan, Maui Island Plan and nine Community Plans. The County-wide Policy Plan is the overarching policy document for the County. The Maui Island Plan is a regional plan for the Island of Maui and is responsible for directing the island's future population growth, protecting the Island's natural and cultural resources, and locating large-scale intraregional infrastructure and public facility investments. The Community Plans define the character of community development, priority of sub-regional infrastructure and public facility investments, and needed policies and actions to protect sensitive environmental and cultural resources within each community plan area.

1. County-wide Policy Plan

The County-wide Policy Plan establishes a list of county-wide goals, objectives, policies, and implementing actions related to key strategies. The following County-wide Policy Plan goals, objectives and actions are directly relevant to the proposed action:

Countywide Policy Plan
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 agricultural lands for sustainable and diversified agricultural activities.
d. Assist farmers to help make Maui County more self-sufficient in food production.
e. 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.
<u>J. Promote Sustainable Land Use and Growth Management</u>
Goal: Community character, lifestyles, economies, and natural assets will be preserved by managing growth and using land in a sustainable manner.
(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.
Implementing Actions:
a. Inventory and protect prime, productive, and potentially productive agricultural lands from competing non-agricultural land uses.

2. Maui Island Plan

The Maui Island Plan serves as the regional plan for the Island of Maui. The Plan is comprised of the following ten elements: 1) Population; 2) Heritage Resources; 3) Natural Hazards; 4) Economic Development; 5) Housing; 6) Infrastructure and Public Facilities; 7) Land Use; 8) Directed Growth Plan; 9) Long Range Implementation Plan; and 10) Monitoring and Evaluation. Each element contains goals, objectives, policies and implementing actions. The Directed Growth Plan is intended to guide the location and general character of future urban

development and will direct zoning changes and guide the development of the County's short-term and long-term capital improvement plan budgets.

Maui Island Plan policies directly relevant to the proposed action include those listed below:

GOAL, OBJECTIVES, POLICIES, AND ACTIONS

Goal:

4.3 Maui will have a diversified agricultural industry contributing to greater economic, food, and energy security and prosperity.

Objective:

4.3.1 Strive for at least 85 percent of locally-consumed fruits and vegetables and 30 percent of all other locally-consumed foods to be grown in-State.

Policies:

4.3.1.a Strive to substitute food/agricultural product imports with a reliable supply of locally produced food and agricultural products.

4.3.1.b Facilitate and support the direct marketing/sale of the island's agricultural products to local consumers, through farmers markets and similar venues.

4.3.1.c Encourage growing a diverse variety of crops and livestock to ensure the stewardship of our land while safeguarding consumer safety.

Implementing Actions:

4.3.1-Action 1 Encourage the development of community gardens, including gardens on greenbelts that separate communities.

Objective:

4.3.2 Maintain or increase agriculture's share of the total island economy.

Policies:

4.3.2.c Encourage the continued viability of sugar cane production, or other agricultural crops, in central Maui and all of Maui Island.

GOAL, OBJECTIVES, POLICIES, AND ACTIONS

Goal:

7.1 Maui will have a prosperous agricultural industry and will protect agricultural lands.

Objective:

7.1.1 Significantly reduce the loss of productive agricultural lands.

7.1.1.e Focus urban growth, to the extent practicable, away from productive and important agricultural lands.

7.1.1.f Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.

Implementing Actions:

7.1.1-Action 1 Implement the Maui Island Directed Growth Strategy.

Objective:

7.1.2 Reduction of the island's dependence on off-island agricultural products and expansion of export capacity.

Policies:

7.1.2.c Actively look to acquire land and provide infrastructure to expand agricultural parks and establish new agricultural parks.

7.1.2.g Consider appropriate subdivision requirements (gravel roads, above-ground utilities, etc.) in those subdivisions creating Agricultural Parks where lots are limited to agricultural production with no dwellings.

Implementing Actions:

7.1.2-Action 1 Identify and acquire productive and community agricultural lands that are appropriate for the development of agricultural parks and community gardens in each community plan area.

3. Wailuku-Kahului Community Plan

Within Maui County, there are nine (9) community plan regions. Each region is governed by a Community Plan. The Waikapu Country Town is located within the Wailuku-Kahului Community Plan region that was adopted by Ordinance No. 3061 on June 5, 2002. Wailuku-Kahului Community Plan policies directly relevant to the proposed action include those listed below:

GOAL, OBJECTIVES, POLICIES, AND IMPLEMENTING ACTIONS

ECONOMIC ACTIVITY

Goal:

A stable and viable economy that provides opportunities for growth and diversification to meet long-term community and regional needs and in a manner that promotes agricultural activity and preserves agricultural lands and open space resources.

Objectives and Policies:

1. Support agricultural production so agriculture can continue to provide employment and contribute to the region's economic well-being.
9. Support the establishment of agricultural parks for truck farming, piggery operations, bee keeping and other diversified agricultural operations within larger unsubdivided agricultural parcels and in locations that are compatible with residential uses.

ENVIRONMENT

Goal:

A Clean and attractive physical and natural environment in which man-made developments or alterations to the natural environment relate to sound environmental and ecological practices, and important scenic and open space resources are maintained for public use and enjoyment.

Objectives and Policies:

1. Preserve agricultural lands as a major element of the open space setting that borders the various communities within the planning region. The close relationship between open space and developed areas is an important characteristic of community form.

HOUSING

Goal:

A sufficient supply and choice of attractive, sanitary and affordable housing accommodations for the broad cross section of residents, including the elderly.

Objectives and Policies:

2. Provide sufficient land areas for new residential growth which relax constraints on the housing market and afford variety in type, price, and location of units. Opportunities for the provision of housing are presently constrained by a lack of expansion areas. This condition should be relieved by a choice of housing in a variety of locations, both rural and urban in character.
3. Seek alternative residential growth areas within the planning region, with high priority given to the Wailuku and Kahului areas. This action should recognize that crucial issues of maintaining important agricultural lands, achieving efficient patterns of growth, and providing adequate housing supply and choice of price and location must be addressed and resolved.

LAND USE

Goal:

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the social and economic well-being of residents and the preservation and enhancement of the region's environmental resources and traditional towns and villages.

Objectives and Policies:

1. Ensure that adequate lands are available to support the region's present and future agricultural activities.
2. Identify prime or productive agricultural lands, and develop appropriate regulations for their protection.
6. Establish an adequate supply of urban land use designations to meet the needs of the community over the next 20 years.

Analysis: The Maui County General Plan (County-wide Policy Plan, Maui Island Plan, and Wailuku-Kahului Community Plan) seek to preserve productive agricultural lands and facilitate agricultural self-sufficiency in food production. The Plans also recognize the need to provide sufficient land areas to accommodate future population growth. Goal 7.1.1.f of the Maui Island Plan states, *“Strongly discourage the conversion of productive and important agricultural lands (such as sugar, pineapple, and other produce lands) to rural or urban use, unless justified during the General Plan update, or when other overriding factors are present.”* Although the area to be urbanized is considered prime farmland, other overriding considerations include the desire to locate future growth within close proximity of the Central Maui employment center; and to take advantage of existing and planned infrastructure and public facility improvements, such as the proposed Waiale Bypass road that bisects the subject property, the County’s proposed 100-acre Central Maui baseyard located along the eastern boundary of the project, and the approximate 200-acre Central Maui regional park proposed on abutting A&B lands along Kuhilani Highway. Other important factors include the availability of potable and non-potable water on-site to serve the development, the suitability of the land and its location for affordable housing, and the project’s close proximity to the small town of Waikapu and A&B Properties’ proposed Waiale Development. Moreover, the landowner’s willingness to permanently protect approximately 800 acres of prime agricultural lands to serve as a permanent open space separation between Waikapu and the small coastal community of Maalaea was an important consideration.

In addition, as documented in this report, the urbanization of the subject lands will not significantly impact the future viability of the sugar or pineapple industries or the growth of diversified agriculture. As noted, there has been a tremendous amount of land released from sugar and pineapple over the last thirty years. Much of this land is available for agricultural use. Moreover, the land owners desire to establish an agricultural park will directly address the difficulty that many farmers have when trying to lease productive agricultural lands at an affordable rate for long-term tenure. With successful diversified farmers, such as Kumu Farms and Hawaii Taro LLC, being key tenants at the Park, the island of Maui should be able to become

more self-sufficient in food production, while also diversifying and growing the island's agricultural economy.

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