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NATHALIE RAZO Associate Principal

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GREG NAKAI

BRADLEY FURUYA, AICP Associate

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#### **MEETING NOTES**

Department of Hawaiian Home Lands Hawai'i Island Plan Update Beneficiary Consultation, Round 2 Hilo & Puna – Keaukaha Elementary

**MEETING DATE:** April 7, 2025

6:00 pm - 8:00 pm

#### PRESENT:

#### **Project Team:**

- 1. Lillie Makaila, DHHL
- 2. Julie-Ann Cachola, DHHL
- 3. Kialoa Mossman, DHHL
- 4. Nathalie Razo, PBR HAWAII
- 5. Makena Bassett, PBR HAWAII

#### **Beneficiaries / Community Members:**

TOTAL ATTENDEES:	46
<b>Total Beneficiaries:</b>	33
Applicants:	14
Lessee:	19
Both:	0
Other:	3
No response:	10

**ATTACHMENTS:** A) PowerPoint Presentation, B) Proposed Land Use Designation Round 2 Maps, C) Fact Sheets, D) Comment Cards

#### 1. Meeting Overview and Highlights

This meeting was the second of three rounds of meetings to discuss and receive feedback from DHHL beneficiaries on updated land designations for the Hawai'i Island Plan Update. The purpose of this meeting was to educate the beneficiaries on the current Hawai'i Island Plan and receive input on the proposed Land Use Designations for the Hawai'i Island Plan Update, which incorporated edits suggested by beneficiaries from Round One.

Tables were set up around the cafetorium with copies of drafts of the Proposed Land Use Designation Maps for Round 2 (Attachment B) and Fact Sheets (Attachment C) for each tract. As the meeting attendees arrived, they were asked to sign in and were given comment cards (Attachment D) for attendee review and use during the rest of the meeting. The comment cards listed each tract of DHHL land and included space for beneficiaries to leave their input about the proposed land use designations. During signin, attendees were encouraged to visit the maps at each table prior to the start of the

SUBJECT: Department of Hawaiian Home Lands Hawai'i Island Plan Update Beneficiary Consultation, Round 2 Hilo & Puna – Keaukaha Elementary April 7, 2025 Page 2

formal presentation. Sticky notes and markers were also provided for beneficiaries to leave comments on each map. The meeting opened with a pule by a community member.

Lillie Makaila of DHHL led the presentation (Attachment A) and the meeting. She began the presentation with a review of the meeting agenda, as well as the overview and approach for the Hawai'i Island Plan Update. She gave background information on the original Hawai'i Island Plan (2002) and the purpose/process of the Plan Update and introduced the timeline of the project. She supplemented the explanation of the timeline with a brief description of the data, research, and analysis that PBR HAWAII conducted to create the maps for this Island Plan Update. She also explained the difference between an Island Plan (which is land focused) and a Regional Plan (which is people focused). Lillie followed this with an emphasis on the importance of incorporation of beneficiary knowledge in the Plan Update and land use designation maps and gave a brief explanation of the updated Land Use Designations from the 2022 Department of Hawaiian Home Lands General Plan Update. The presentation included a brief description of each Land Use Designation, categorized by homesteading and non-homesteading uses. Lillie emphasized that a major role of the Plan Update is to redesignate lands previously identified as General Agriculture which was removed as a category in the 2022 Department of Hawaiian Home Lands General Plan Update. It was replaced by the Stewardship designation to signify the lands could be used for homestead in the future, but something is keeping them from being used as a homestead designation right now.

Lillie also discussed the process by which the DHHL Hawai'i Island Plan Update project team incorporated beneficiary comments from Round 1 into the Round 2 maps and emphasized the importance of beneficiary feedback in creating a plan that meets the needs of beneficiaries of the present and future. She asked the beneficiaries to share any and all feedback that they have for the proposed land use designations identified in these maps for the Round 2 Beneficiary Consultation so that comments and feedback can be incorporated into the draft plan and land use designations that will be presented during the Round 3 Beneficiary Consultation. Lillie also asked beneficiaries to share which tracts and/or projects they prefer, as their feedback can be included in the Island Plan to help identify priorities to the Department. Lillie shared methods of submitting comments during the comment period which include physical mail, email, phone call, and online comment form.

Following this, she went over each DHHL tract in Hilo, Puna, and the 'Āina Mauna Legacy Lands. The presentation outlined the land use designations identified in the 2002 Hawai'i Island Plan<sup>1</sup>, the Round 1 Proposed Land Use Designation Maps, and compared them to the proposed Land Use Designation Maps produced for Round 2. Lillie explained the reason for the proposed land use designations and whether they were changed from Round 1 or remained the same. Lillie also

<sup>&</sup>lt;sup>1</sup> Note: The 2002 Hawai'i Island Plan is the main source for identified land use designations; however, some tracts are more recent acquisitions or were subject to planning efforts more recently than 2002, such as the 2009 West Hawai'i Island Plan Update which accounted for the acquisition of lands in Kona, which increased DHHL's inventory of land in Hawai'i by 605 acres or the 'Āina Mauna Legacy Program plans. In such instances the most recent reference was utilized.

SUBJECT: Department of Hawaiian Home Lands Hawai'i Island Plan Update

Beneficiary Consultation, Round 2

Hilo & Puna – Keaukaha Elementary

April 7, 2025

Page 3

explained that the DHHL Kuleana land use designation is only proposed in areas where it was expressed by beneficiaries as an interest for their community, as there is controversy and concern regarding land management practices. She spent extra time going over the changes and corrections made to the Round 2 maps based off the feedback received during Round 1 (see below for a summary of these explanations).

#### • Honomū:

• Residential and subsistence agriculture homesteading was supported during Round 1 and kept through Round 2.

#### • Lower Pi'ihonua:

- o Integrated more subsistence agriculture and pastoral designations in the previously striped area per beneficiary request.
- o Aligned residential designation along Pi'ihonua Road.

#### • Waiākea:

o 12 acres are designated as a commercial area as it is near the airport.

#### Kaūmana:

- o Special district designated along the flood zone area.
- o Community use and community agriculture designations were incorporated to reflect beneficiary feedback.
- o Increase in residential and subsistence agriculture designations to reflect beneficiary feedback.
- o Recognition of potential environmental hazards such as lava tubes and flooding to reflect the expressed concerns of beneficiaries.

#### • Pana'ewa:

- O Supplemental agriculture designations for lots that are three acres or larger and subsistence agriculture designations for lots that are three acres or less.
- O Designated the Round 1 striped areas as subsistence agriculture to address beneficiary desire for more subsistence agriculture designations.

#### • Keaukaha:

- o Kept DHHL Kuleana designation for 377.5 acres to reflect beneficiary feedback and request.
- o Round 1 striped area was switched to community use designation to reflect beneficiary feedback and request.
- o All Nene Street lots are designated as residential to reflect beneficiary request.

#### • Maku'u:

- o Round 1 60-acre striped area designated as residential to reflect beneficiary request.
- o Round 1 217-acre striped area designated as subsistence agriculture to align with existing subsistence agriculture lots to the east.

#### • Keonepoko:

o Round 1 renewable energy designation switched to the Stewardship land use designation to reflect to beneficiary request and concerns about Lava Flow Hazard Zone 2.

SUBJECT: Department of Hawaiian Home Lands Hawai'i Island Plan Update Beneficiary Consultation, Round 2 Hilo & Puna – Keaukaha Elementary April 7, 2025 Page 4

#### • Kurtistown & 'Ōla'a:

- o Community agriculture incorporated near the pastoral designations to reflect beneficiary feedback.
- 'Āina Mauna Legacy Lands—Humu'ula and Upper Pi'ihonua:
  - o Special district area designation was added to reflect the gorse located in the area
  - o The remaining designations reflect the 'Āina Mauna Legacy Program Plan.

Lillie went through each tract in Hilo, Puna, and the 'Āina Mauna lands before opening the floor for questions and comments. Beneficiaries could participate by raising their hands to provide oral comments and/or walk around the room to review the maps and leave comments on their comment cards, sticky notes, or discuss their input with the project team. Oral comments brought up during the question-and-answer period were recorded by PBR HAWAII and are summarized below. A more detailed account of beneficiary oral comments can be found in Section 5.

The meeting closed when the beneficiaries had no further comments or input to share with the project team. Beneficiaries were invited to share any additional feedback via comment card, email, online comment form, or paper mail during the forthcoming 30-day comment period, which they would be emailed by DHHL about with more information and instruction.

The following key topics were identified in oral comments:

- Desire to learn more about how the Plan will affect the awarding process and waitlist, as well as general interest in the current projects happening across the island.
- Questions and concerns about nearby hazards, such as the Hilo Airport, and inquiry about how and which DHHL funds can address them.
- Desire for finding creative solutions and opportunities to meet the needs of tomorrow and better align and perpetuate the original Hawaiian Homes Commission Act (such as community agriculture).
- General desire for an increase in communication and sharing of information regarding DHHL projects.

#### 2. Comment Card Comments

a. We received 9 comment cards at the meeting from beneficiaries with comments regarding the proposed Land Use Designations.

#### 3. Fact Sheet Comments

a. We received 0 comments on the Fact Sheets at the meeting.

#### 4. Large Map Sticky Note Comments

a. We received 40 Large Map comments and questions about land characteristics, map discrepancies, Land Use Designation suggestions, and expressed priority for projects.

#### 5. Beneficiary Question and Answer Input

MEETING NOTES
SUBJECT: Department of Hawaiian Home Lands Hawai'i Island Plan Update
Beneficiary Consultation, Round 2
Hilo & Puna – Keaukaha Elementary
April 7, 2025
Page 5

#### a. Q&A/Group Comment Period:

- 1. Asked what happens after Round 3 of the consultation process. DHHL staff shared that some projects are already in the pipeline and that project leases (also known as "paper leases") are being awarded. It was clarified that these leases make passdowns easier for families. DHHL indicated that approximately 6,000 lots are expected to be awarded over the next five years, combining both paper and actual leases.
- 2. Requested more detailed information regarding upcoming awards. It was shared that Item E1 in the commission meetings contains Land Development Division (LDD) updates relevant to upcoming awards and leases. It was clarified that the purpose of the Hawai'i Island Plan Update includes identifying and aggregating vacant lots to help expedite these lease awards.
- 3. Attendees were also interested in tracts outside of Hilo/Puna, such as Discovery Harbour. For example, there was an expressed concern that Honokaia is not currently being awarded due to unresolved water access issues. Attendees emphasized the need to resolve such infrastructure barriers before moving forward with new awards for all tracts.
- 4. Another question about tracts outside of Hilo/Puna discussed community pasture areas, asking whether parts of Maku'u or Nienie had been cleared of unexploded ordnance (UXO) and whether this information would be incorporated into the planning process. Staff confirmed UXO data could be added and invited the community to share their vision of agricultural and pasture lands to better justify non-residential uses to the Commission.
- 5. There is interest in community agriculture areas. DHHL noted that if it is an interest of the community that community members should share how large these areas should be, who would benefit, and how many families would be served in order to get the designation passed by the Commission. It was shared by a beneficiary that community agriculture areas, or spaces for Hawaiians to perform agriculture, is mandated by the Hawaiian Homes Commission Act and should be prioritized by the Department.
- 6. Inquired whether there are existing Hawai'i Administrative Rules (HAR)guidelines for issuing paper leases, specifically for transferring undivided interest leases to individuals with 25% Native Hawaiian blood quantum. Staff acknowledged this was a good question and stated they would follow up. They also noted that area-based waitlists were changed to island-wide lists in 1978, and that many of the longest-waiting beneficiaries came from those original area lists and had interest in paper leases.
- 7. Expressed concerns about the impacts of airport expansion in Keaukaha, specifically relating to noise abatement and its effects on lessees and federal funding eligibility. It was noted that hazardous noise levels (day night level DNL) could jeopardize

SUBJECT: Department of Hawaiian Home Lands Hawai'i Island Plan Update Beneficiary Consultation, Round 2 Hilo & Puna – Keaukaha Elementary April 7, 2025 Page 6

funding from Native American Housing And Self Determination Act (NAHASDA) and cited historical examples where lessees were removed from DHHL lands to make way for the Hilo (ITO) airport. They asked what DHHL's official position was on the expansion and called for more transparency on who is affected.

- 8. Suggested using DHHL trust funds—generated through land revenues—to support areas impacted by noise, flooding, lava hazards, or other barriers. They noted that NAHASDA funding was not allocated to DHHL until 2000, but DHHL had previously issued 2.1% interest loans through a revolving loan fund. Staff confirmed they would investigate whether this fund is still active.
- 9. Asked about "hash marked" areas on DHHL maps shared at the meeting and were informed by staff that these represent long-term land dispositions (20+ years). DHHL reminded attendees that there is a 30-day comment period, and Round 3 would be another opportunity to submit feedback and identify possible discrepancies represented on the maps.
- 10. Inquired why trailer home parks are not considered in DHHL housing strategies and encouraged exploration of alternative, flexible housing models. Additionally, they provided a comment that Hawaiian Telcom is currently expanding fiber optic access near the 'Āina Mauna lands, which could enhance connectivity for future lessees.

This is our understanding of the topics discussed, and the conclusions reached. Please give PBR HAWAII written notification of any errors or omissions within seven calendar days. Otherwise, this report will be deemed an accurate record and directive.

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DEPARTMENT OF HAWAIIAN HOME LANDS
HAWAI'I ISLAND PLAN UPDATE
BENEFICIARY MEETING, ROUND 2
HILO & PUNA – KEAUKAHA ELEMENTARY
APRIL 7, 2025
ATTACHMENTS TO SUMMARY

# **ATTACHMENT A:** PowerPoint Presentation



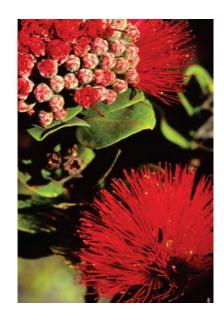
# **Agenda**

- Welina, pule, introductions
- Presentation:
  - Project Overview & Timeline
  - Background information
  - Land Inventory & Maps
- Q&A, Discussion, & Comments
- Closing & next steps

HAWAI'I ISLAND PLAN UPDATE

DEPARTMENT OF HAWAIIAN HOME LANDS

# Overview and Approach



# **Plan Purpose**

To assess and recommend future uses for DHHL lands on Hawai'i Island



YEAR TIMEFAME

IDENTIFY

**LAND USES** 



DETERMINE PRIORITIES



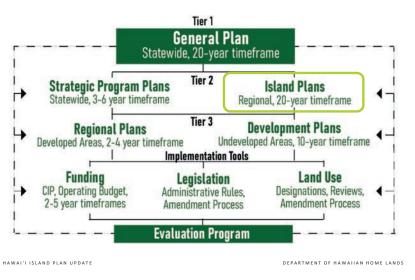
COORDINATION

HAWAI'I ISLAND PLAN UPDATE

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# About the Hawai'i Island Plan (HIP) Update



#### Last HIP occurred in 2002

- Provided an evaluation and land use plan of DHHL lands to meet beneficiary needs based on various criteria
- 10 Designations included the intent/purpose, minimum lot sizes, and minimum infrastructure required for each land use designation
- Criteria: Slope, Soil, Water/Rainfall, Proximity to Infrastructure, Parcel Size, Proximity to Town Centers, Carrying Capacity



#### • 2022 DHHL General Plan Update

- Identifies new policies, land use designations, approach to land use designations, and associated criteria
- Designations for island plans updated to include 13 designations
  - New designations: DHHL Kuleana, Stewardship, Community Agriculture, Renewable Energy
- Added Criteria: + Climate Change and Hazards, Critical Habitats, Archaeological Sites, Flood risk, State and County Land Use Designations

HAWAI'I ISLAND PLAN UPDATE DEPARTMENT OF HAWAIIAN HOME LANDS

#### **Project Schedule\*** 2024 2025 2026 EXISTING INFO / IDENTIFY CRITERIA **AUGUST** MARCH 2023 **REFINE LAND USE** DESIGNATIONS JULY SEPTEMBER **FEBRUARY** JULY BENEFICIARY ENGAGEMENT Mtg 3 SEPTEMBER AUGUST Mtg 1 Mtg 2 FINAL ANALYSIS & PLAN RECOMMENDATIONS We are here! MAY JANUARY \*Subject to change HAWAI'I ISLAND PLAN UPDATE DEPARTMENT OF HAWAIIAN HOME LANDS

#### **About the Process**

Learn about current conditions

- · Develop full inventory of known DHHL lands on Hawai'i Island and current land use designations (including acquisitions and Development Plans since 2002)
- Consider environmental aspects and DHHL land use designation criteria

Build an understanding of the desired end goal AND identify land use designations

- Iterative process: Run analysis based on criteria discuss – refine options/priorities – discuss
- Incorporating beneficiary knowledge to review and refine preliminary land use analysis and designations

Final product is a guide for future development

 Consider uses, placement, and how uses may work together overall



HAWAI'I ISLAND PLAN UPDATE

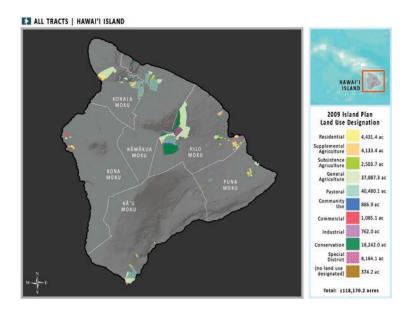
# **Incorporating Beneficiary Knowledge**

- Three rounds of touchpoints with Beneficiaries four meetings each round by area (Hilo+Puna, Kā'u, Kona, and Kohala+Hāmākua)
  - 1. Feedback on draft recommended land uses
  - 2. Feedback on refined land uses
  - 3. Feedback on final land use recommendations and plan
- Each round to be followed by a 30-day comment period with materials posted online
- Compilation of community comments and resulting changes to recommendations and plan will follow each comment period

HAWAI'I ISLAND PLAN UPDATE

DEPARTMENT OF HAWAIIAN HOME LANDS





# 2022 General Plan Update Land Use Designations

<b>Homestead Uses</b>	Description
Residential	Residential lot subdivisions built to County standards in areas close to existing infrastructure. Subdistricts may be established for multi-generational and single family housing types.
Subsistence Agriculture	Small lot agriculture in areas close to existing infrastructure. Lifestyle areas intended to allow for home consumption of agricultural products.
Supplemental Agriculture	Large lot agriculture intended to provide opportunities for agricultural production for supplemental income and home use. Agricultural plan required.
Pastoral	Large lot agriculture specifically for pastoral uses. Ranch plan and fencing required.
DHHL Kuleana	Raw (without infrastructure) lots intended for "off-grid" subsistence lifestyles to allow for more choices as to how lessees wish to develop their lots. Must participate in maintenance of the right-of-way to the Kuleana Homestead tract.

Non-Homestead Uses	Description
Community Use	Common areas for community uses and public facilities. Includes space for parks and recreation, cultural activities, community based economic development, utilities, and other public facilities and amenities.
Community Agriculture	Common areas used for the cultivation of fruits, vegetables, plants, flowers, or herbs by multiple users. The land must be served by a water supply sufficient to support the cultivation practices used on the site.
Commercial	Lands suitable for a concentration of commercial activities.
Industrial	Lands suitable for processing, construction, manufacturing, transportation, wholesale, warehousing, and other industrial activities.
Renewable Energy	Lands suitable for siting projects for the generation and transmission of renewable energy.
Stewardship	Land not currently used for homesteading. Allow uses that maintain or enhance the value and condition of the land to the benefit of beneficiaries and the Trust. May serve as an interim use until opportunities for higher and better uses become available.
Conservation	Environmentally sensitive areas. Lands with watersheds, endangered species, critical habitats, sensitive historic and cultural sites, other environmental factors. Very limited uses.
Special District	Areas requiring special attention because of unusual opportunities and/or constraints.  Subdistricts include: hazard areas, open spaces/greenways, cultural resources.

# **Your Feedback**

Your input will help refine proposed land uses

HAWAI'I ISLAND PLAN UPDATE

DEPARTMENT OF HAWAIIAN HOME LANDS

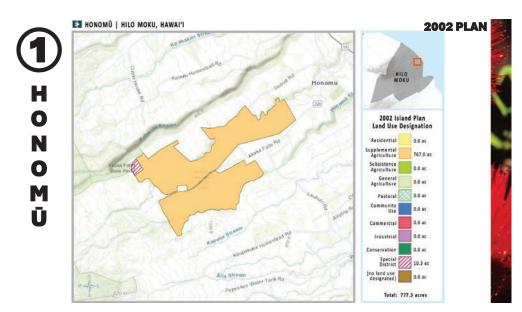


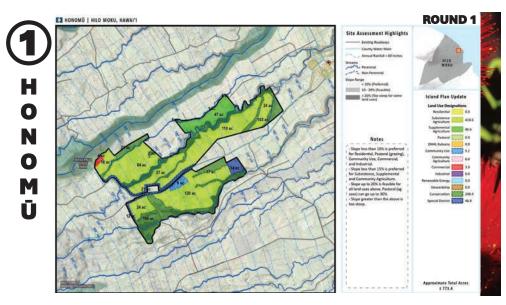
# **Concept Maps for your Consideration**

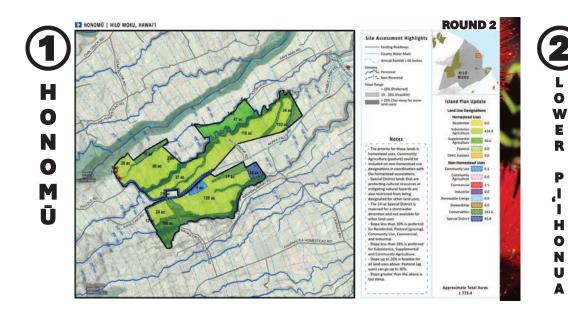
- First map is from the 2002 Hawai'i Island Plan
- Second map identifies the Round 1 Beneficiary
  Consultation proposed land use designations
  which generally add more residential
  opportunities
- Third map identifies modifications to proposed land use designations based on input and feedback to date

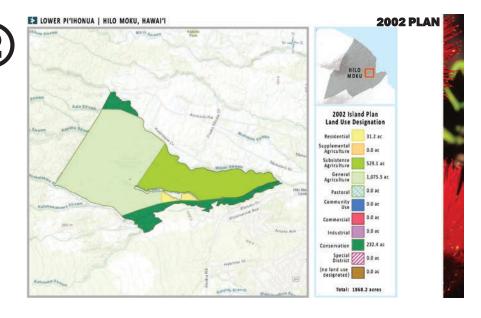
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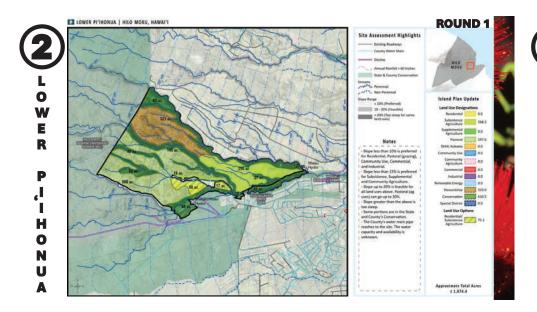
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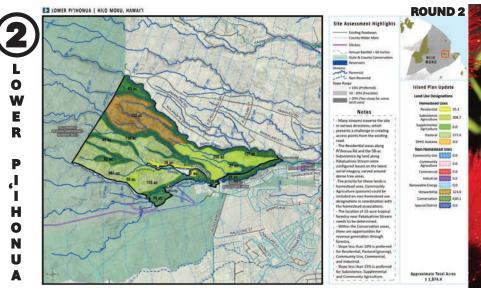


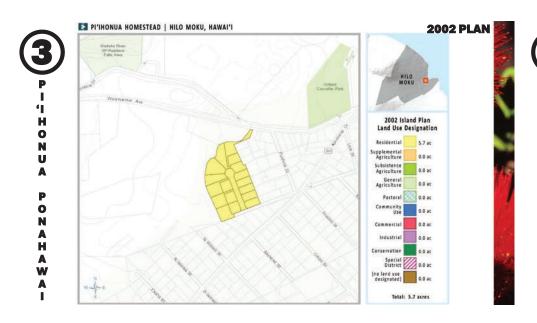


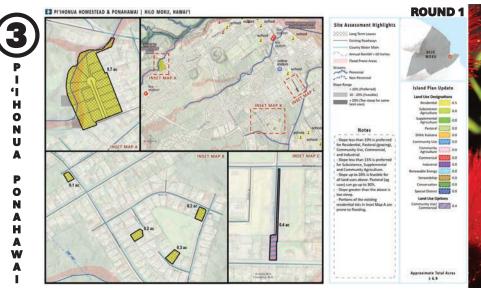


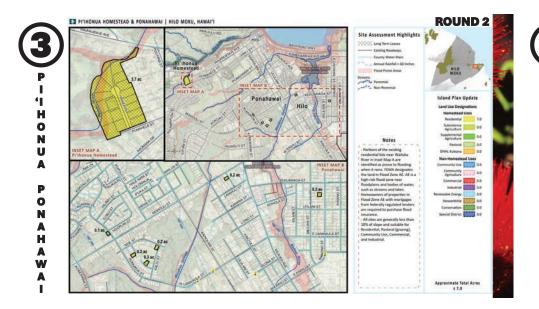


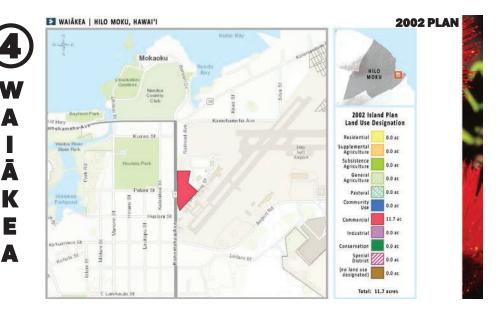


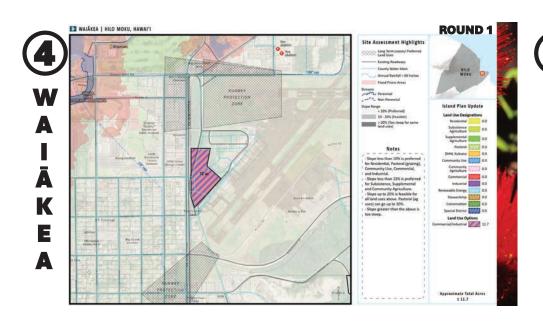


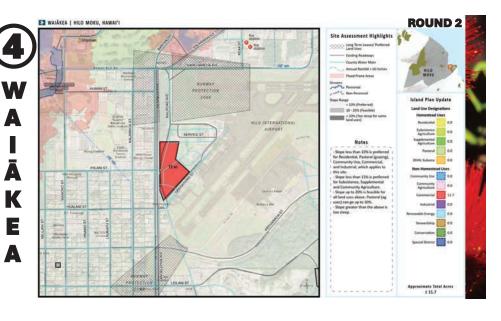


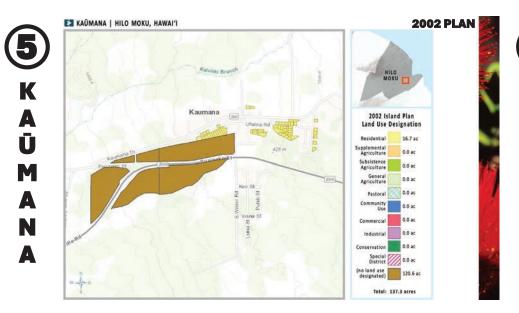


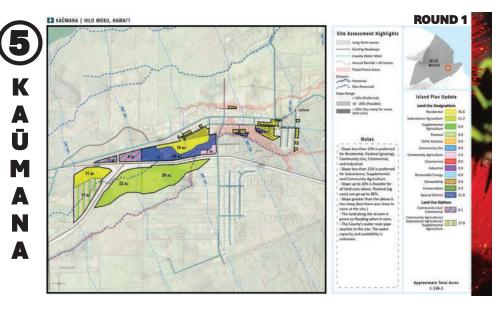


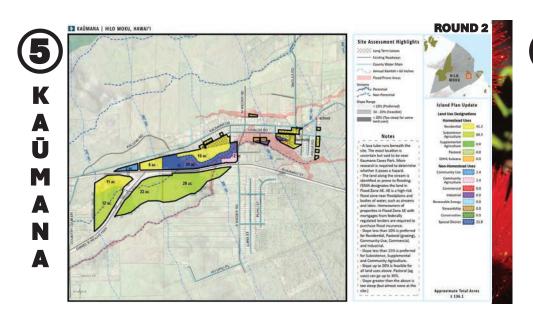


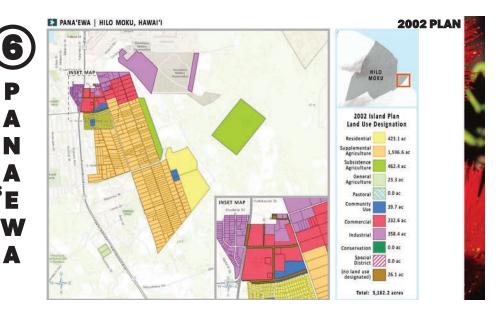


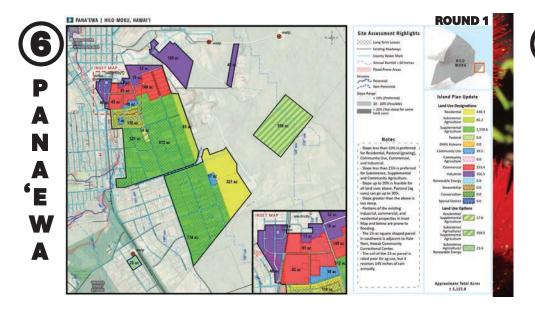


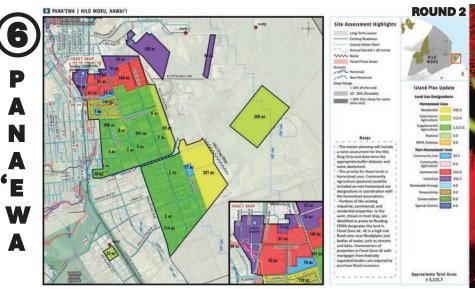


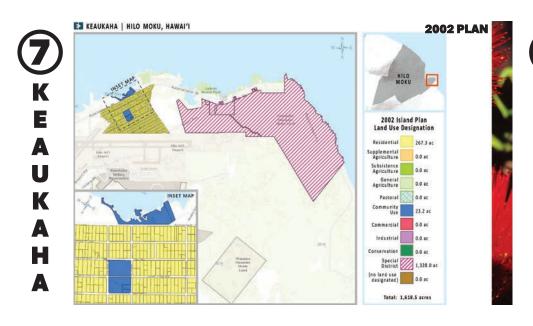


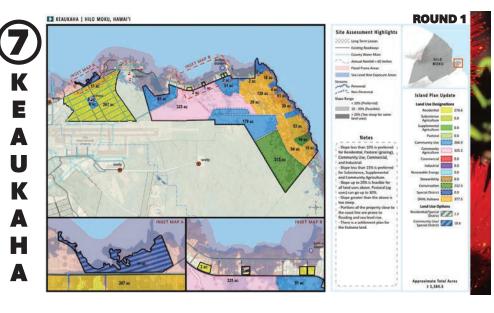


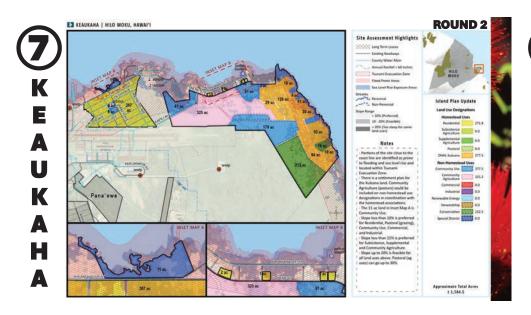


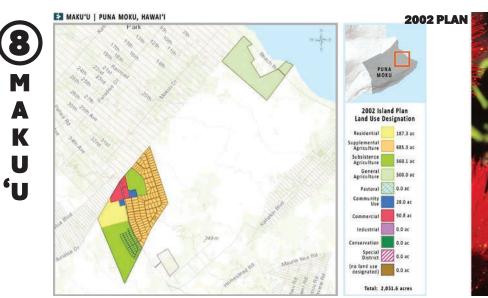


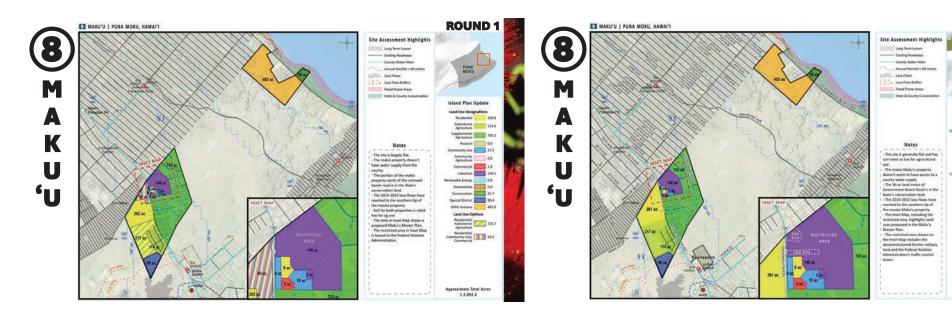












**ROUND 2** 

PUNA #

Island Plan Update
Land Use Designations
Homestead Uses
Residential 2013.7
Rence Agriculture 331.1

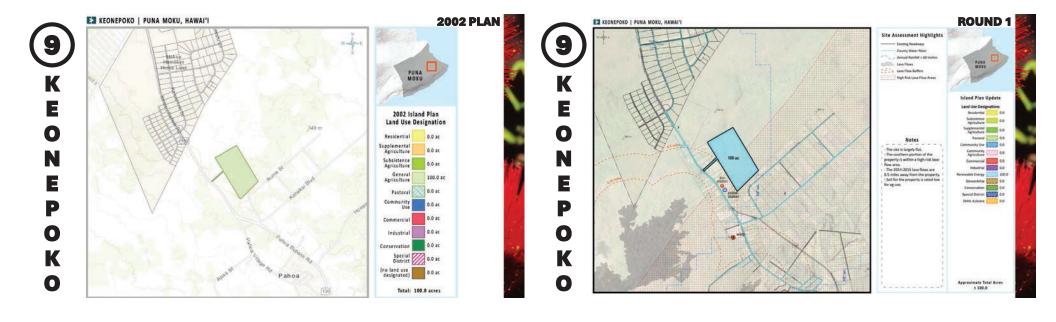
Supplemental 705.3

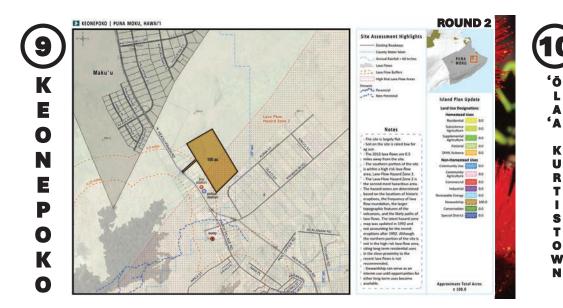
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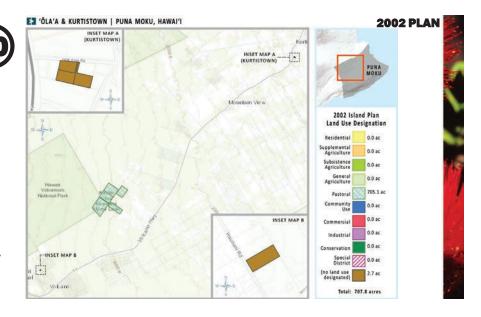
Non-Homestead Uses Community Use 23.5

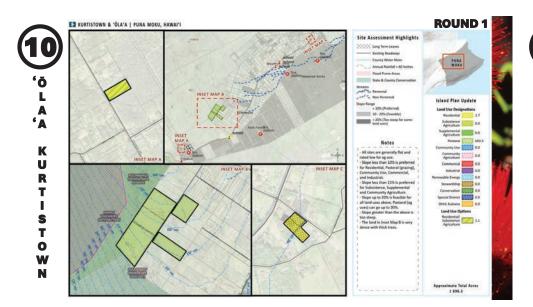
Commercial 5.3

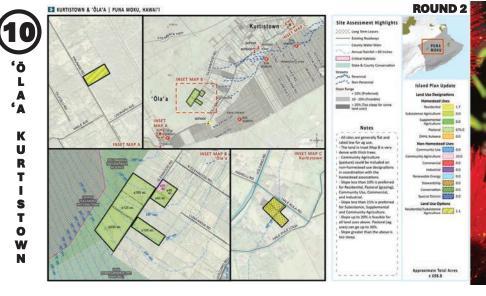
Renewable Energy 0.0
Strewardship 0.0
Conservation 35.8
Special District 90.4

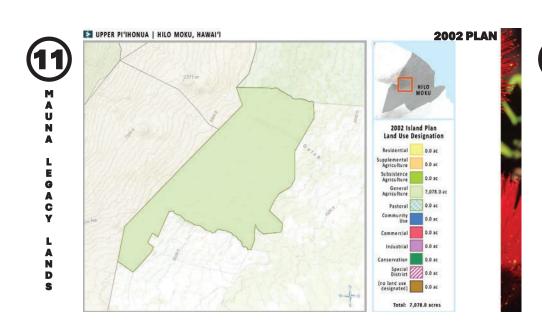


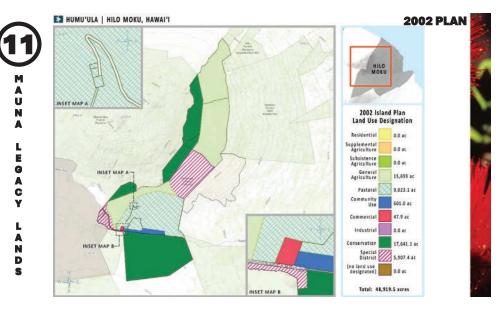


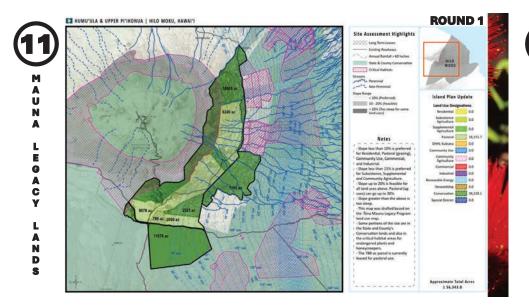


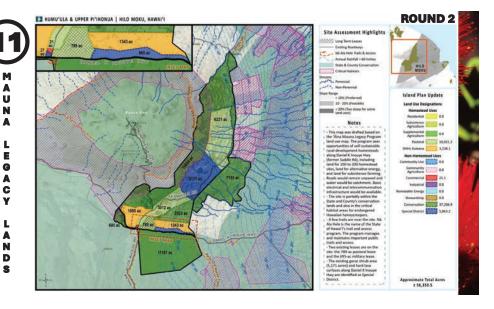




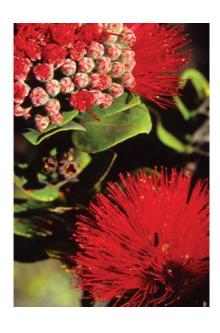








# **Next Steps**





For more information or to participate online after this meeting, visit the project website at: https://dhhl.hawaii.gov/po-hawaii-island-plan-update/



HAWAI'I ISLAND PLAN UPDATE

DEPARTMENT OF HAWAIIAN HOME LANDS

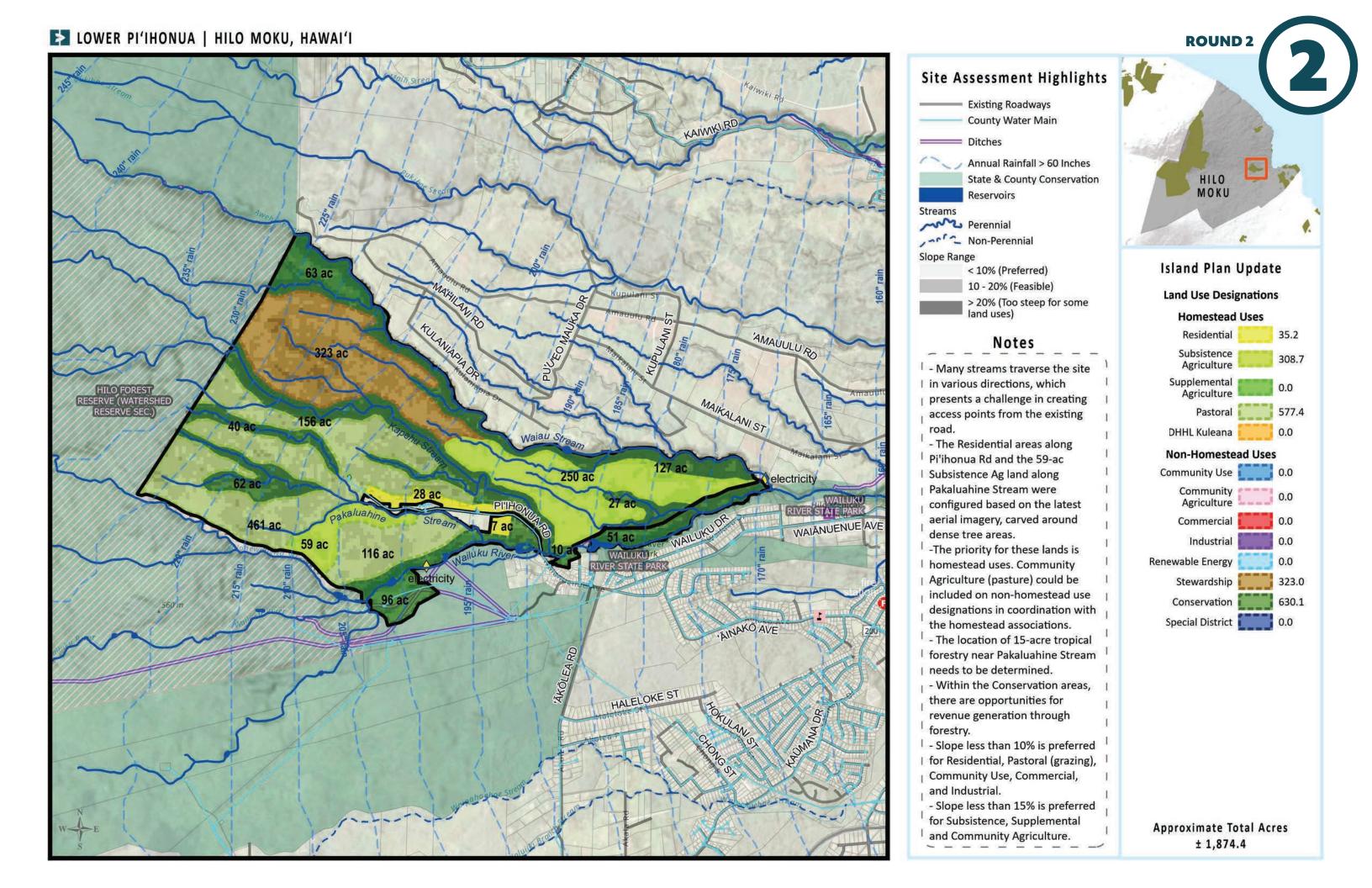
HAWAI'I ISLAND PLAN UPDATE

DEPARTMENT OF HAWAIIAN HOME LANDS

DEPARTMENT OF HAWAIIAN HOME LANDS HAWAI'I ISLAND PLAN UPDATE BENEFICIARY MEETING, ROUND 2 HILO & PUNA – KEAUKAHA ELEMENTARY APRIL 7, 2025 ATTACHMENTS TO SUMMARY

# **ATTACHMENT B:** Land Use Designation Round 2 Maps

► HONOMŪ | HILO MOKU, HAWAI'I **ROUND 2** Site Assessment Highlights **Existing Roadways** County Water Main Annual Rainfall > 60 Inches Streams Perennial HILO MOKU Non-Perennial Slope Range < 10% (Preferred) 10 - 20% (Feasible) > 20% (Too steep for some Island Plan Update land uses) **Land Use Designations Homestead Uses** Residential 0.0 103 a Subsistence 424.8 110 ac Agriculture Notes Supplemental 46.6 Agriculture - The priority for these lands is 0.0 **Pastoral** homestead uses. Community **DHHL Kuleana** 0.0 Agriculture (pasture) could be Non-Homestead Uses included on non-homestead use 88 ac Community Use designations in coordination with 9.1 FALLS STATE PARK the homestead associations. Community - Special District lands that are Agriculture protecting cultural resources or 2.5 Commercial mitigating natural hazards are 0.0 Industrial also restricted from being WAILELERD 120 ac Renewable Energy 0.0 designated for other land uses. - The 14-ac Special District is Stewardship 0.0 reserved for a stormwater 24 ac 243.6 Conservation KAHALONORO detention and not available for Special District 46.8 other land uses. 100 ac - Slope less than 10% is preferred | for Residential, Pastoral (grazing), Community Use, Commercial, KAUPAKU EA HOMESTEAD RD and Industrial. - Slope less than 15% is preferred for Subsistence, Supplemental and Community Agriculture. | - Slope up to 20% is feasible for all land uses above. Pastoral (ag uses) can go up to 30%. - Slope greater than the above is too steep. Approximate Total Acres ± 773.4

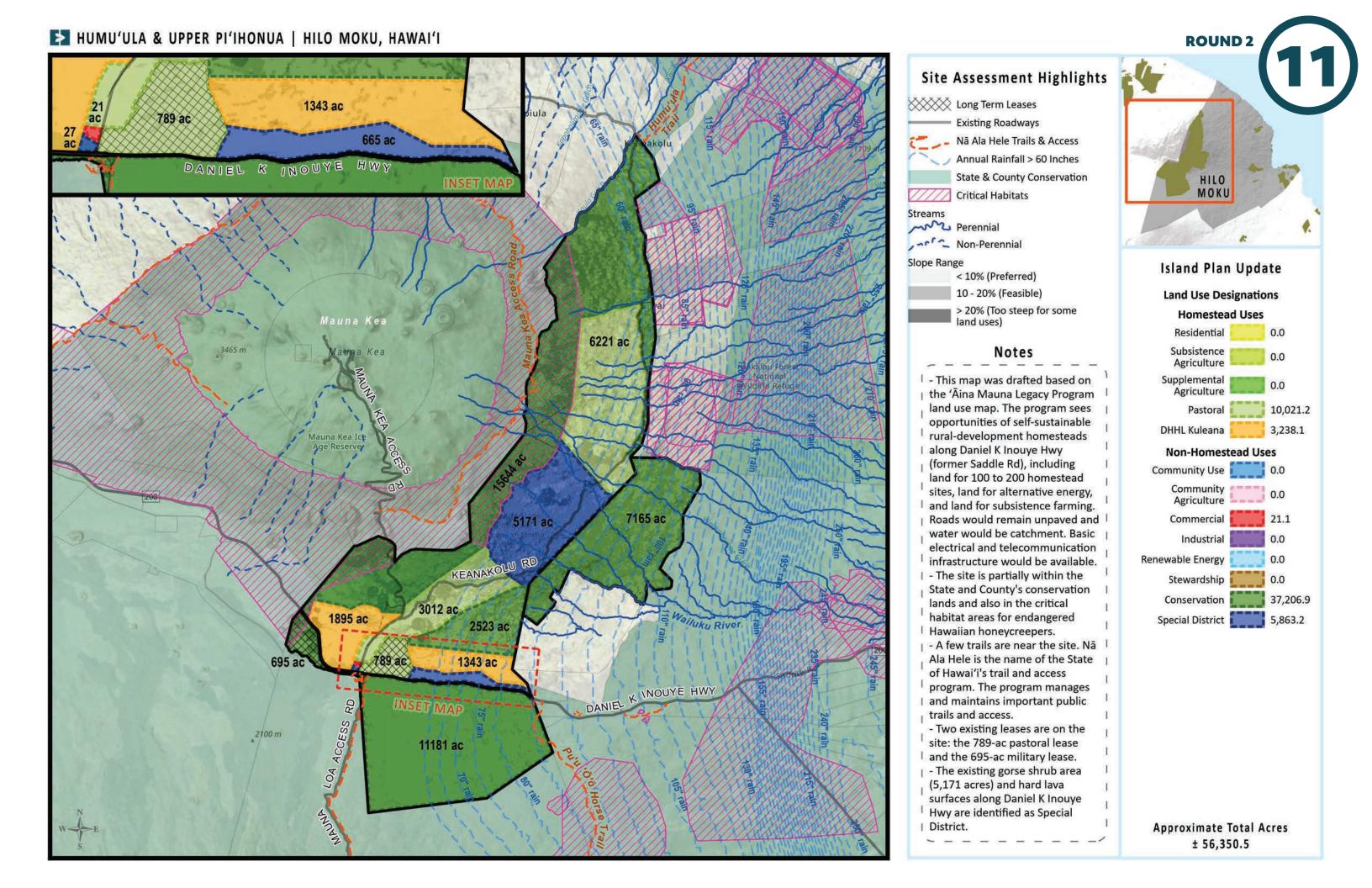


▶ WAIĀKEA | HILO MOKU, HAWAI'I **ROUND 2** Site Assessment Highlights fire station Shipman fire station Long Term Leases/ Preferred Land Uses **Existing Roadways** County Water Main KAMEHAMEHA AVE 130" rain Hawaii Belt Rd Annual Rainfall > 60 Inches HILO Waiāke MOKU Flood Prone Areas Recreation Works Streams RUNWAY WAILOA RIVER STATE Perennial RECREATION KUAWA ST PROTECTION Non-Perennial ZONE Island Plan Update Slope Range < 10% (Preferred) **Land Use Designations** 10 - 20% (Feasible) **Homestead Uses** > 20% (Too steep for some Charles "Sparky" land uses) Residential 0.0 HILO INTERNATIONAL Kawamoto AIRPORT Subsistence 0.0 Agriculture SERVICE ST Access Rd Supplemental 0.0 Notes Agriculture Kanakaole 0.0 **Pastoral** Wong Stadium - Slope less than 10% is preferred Tennis HPM Home for Residential, Pastoral (grazing), Stadium Design Center DHHL Kuleana 0.0 Community Use, Commercial, and Industrial, which applies to PIILANI ST **Non-Homestead Uses** this site. Hilo Hooganji Community Use 0.0 - Slope less than 15% is preferred Mission for Subsistence, Supplemental Community 0.0 and Community Agriculture. Agriculture Civil Air Patrol - Slope up to 20% is feasible for Commercial 11.7 all land uses above. Pastoral (ag uses) can go up to 30%. Building 456 0.0 Industrial **HUALANI ST** - Slope greater than the above is too steep. S.T. Tokunaga Renewable Energy 0.0 Stewardship 0.0 Allstate HINANO : 0.0 Conservation Affordab House Plans Special District 0.0 RUNWAY PROTECTION LEILANI ST **Approximate Total Acres** ZOWETVESS F ± 11.7

KAŪMANA | HILO MOKU, HAWAI'I **ROUND 2** Site Assessment Highlights Long Term Leases **Existing Roadways** County Water Main Annual Rainfall > 60 Inches HILO Flood Prone Areas Streams Perennial Non-Perennial Slope Range Island Plan Update < 10% (Preferred) 10 - 20% (Feasible) **Land Use Designations** > 20% (Too steep for some school **Homestead Uses** Residential 41.2 UHALOA RD Subsistence 68.3 Notes Agriculture Supplemental 0.0 - A lava tube runs beneath the Agriculture site. The exact location is 0.0 **Pastoral** uncertain but said to be near DHHL Kuleana 0.0 Kaumana Caves Park. More 20 ac 6 ac research is required to determine **Non-Homestead Uses** PUAINAKO ST whether it poses a hazard. Community Use 2.4 - The land along the stream is Community 2.4 identified as prone to flooding. Agriculture 29 ac FEMA designates the land in Commercial 0.0 Flood Zone AE. AE is a high-risk 22 ac Industrial 0.0 flood zone near floodplains and bodies of water, such as streams Renewable Energy 0.0 and lakes. Homeowners of 0.0 Stewardship properties in Flood Zone AE with Conservation 0.0 mortgages from federally regulated lenders are required to 21.8 **Special District** purchase flood insurance. - Slope less than 10% is preferred for Residential, Pastoral (grazing), Community Use, Commercial, and Industrial. - Slope less than 15% is preferred for Subsistence, Supplemental | and Community Agriculture. HO'OPILI PL - Slope up to 20% is feasible for all land uses above. Pastoral (ag Uhaloa Rd uses) can go up to 30%. - Slope greater than the above is too steep (but almost none at the Approximate Total Acres | site.) ± 136.1

PANA'EWA | HILO MOKU, HAWAI'I **ROUND 2** Site Assessment Highlights wwtp wwtp KEKUANAOP Long Term Leases Existing Roadways LEILANI ST County Water Main 188 ac Annual Rainfall > 60 Inches **VVV** Noise HILO INSET MAP 52 ac Flood Prone Areas police electricity Streams Perennial ELIPÕHAKU RD Non-Perennial 149 ac Slope Range Island Plan Update < 10% (Preferred) 43 ac 16 ac 10 - 20% (Feasible) E PUAINAKO ST **Land Use Designations** > 20% (Too steep for some 110 ac land uses) **Homestead Uses** Residential 430.3 6 ac 359 ac Subsistence 513.4 Agriculture 308 ac Supplemental 1,522.6 85 a Agriculture KINO. 501 ac **Pastoral** 0.0 2 ac Notes DHHL Kuleana 0.0 3 ac I - The master planning will include 3 ac **Non-Homestead Uses** 5 ac a noise assessment for the Hilo Community Use 39.5 Drag Strip and determine the appropriate buffer distance and Community 0.0 Agriculture noise abatement. 17 ac 321 ac - The priority for these lands is 2 ac Commercial 253.4 I homestead uses. Community 356.5 Industrial Agriculture (pasture) could be 0.0 Renewable Energy included on non-homestead use MAKALIKAST designations in coordination with Stewardship 0.0 LAMAST the homestead associations. Conservation 0.0 - Portions of the existing 52 ac | industrial, commercial, and Special District 0.0 residential properties to the west, shown in Inset Map, are 2 ac 16 ac identified as prone to flooding. FEMA designates the land in 13 ac 714 ac Flood Zone AE. AE is a high-risk 149 ac I flood zone near floodplains and 61 ac bodies of water, such as streams and lakes. Homeowners of E MAKAALA ST properties in Flood Zone AE with mortgages from federally 43 ac I regulated lenders are required to 16 ac purchase flood insurance. Approximate Total Acres PAIPAL ST E PUAINAKO S ± 3,115.7 110 ac

KEONEPOKO | PUNA MOKU, HAWAI'I **ROUND 2** Site Assessment Highlights KA'OHUWALU DR **Existing Roadways** County Water Main PUNA MOKU Annual Rainfall > 60 Inches Lava Flows Maku'u Lava Flow Buffers ::::: High Risk Lava-Flow Areas Streams Perennial Non-Perennial Island Plan Update **Land Use Designations** 250 m **Homestead Uses** Lava-Flow Residential 0.0 Hazard Zone 2 Subsistence 0.0 Notes Agriculture Supplemental 0.0 340 m - The site is largely flat. Agriculture - Soil on the site is rated low for 0.0 **Pastoral** ag use. DHHL Kuleana 0.0 - The 2015 lava flows are 0.5 100 ac miles away from the site. **Non-Homestead Uses** - The southern portion of the site Community Use 0.0 is within a high risk lava-flow Community Agriculture 0.0 area, Lava-Flow Hazard Zone 2. - The Lava-Flow Hazard Zone 2 is Commercial 0.0 the second most hazardous area. Industrial 0.0 | The hazard zones are determined based on the locations of historic Renewable Energy 0.0 eruptions, the frequency of lava Stewardship 100.0 flow inundation, the larger Conservation 0.0 topographic features of the volcanoes, and the likely paths of Special District 0.0 I lava flows. The latest hazard zone map was updated in 1992 and KEALANANI RD not accounting for the recent eruptions after 1992. Although the northern portion of the site is not in the high risk lava-flow area, siting long-term residential uses in the close proximity to the recent lava flows is not recommended. - Stewardship can serve as an interim use until opportunities for other long-term uses become | available. Approximate Total Acres ± 100.0



DEPARTMENT OF HAWAIIAN HOME LANDS
HAWAI'I ISLAND PLAN UPDATE
BENEFICIARY MEETING, ROUND 2
HILO & PUNA – KEAUKAHA ELEMENTARY
APRIL 7, 2025
ATTACHMENTS TO SUMMARY

**ATTACHMENT C:** Fact Sheets



# | HONOMŪ | Hilo Moku, Hawaiʻi |

2002 Hawai'i Island Plan



ACREAGE: +/- 777.3 acres

**LAND USE** +/-767ac Supplemental Agriculture **DESIGNATION:** +/-10.3ac Special District

PROPOSED USE: Recommended for Homestead Supplemental

Agriculture and Special District Use.

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

The tract can be awarded for the recommended Supplemental Agriculture uses with minimal improvements.

#### TOPOGRAPHY/ELEVATION:

Elevation ranges from approximately 500 feet at the parcel's northeast (makai) edge to approximately 1250 feet at its southwest (mauka) end.

Slope is between zero and ten percent. Elevation ranges from 500 to 1250 feet.

#### **ENVIRONMENTAL CONDITIONS**

SOILS: Soil types in the area include various Hilo and Kaiwiki silt loams, clay loam, and

rocky outcrops. Most of the land area in the tract contains soils classified for agriculture, either by the Land Study Bureau (LSB) or the Agricultural Lands of Importance to the State of Hawai'i (ALISH). Most of the tract is rated Prime ALISH with a small portion of land area at the southwest rated Other ALISH. Additionally,

most of the tract is rated C (Fair) by the Land Study Bureau.

The tract has a history of sugar cane cultivation, with the soil and climate

conducive to agriculture and pastoral uses.

**GROUND COVER:** Ground cover for the area consists mainly of Hawaii Lowland Rainforest with some mixed agriculture and Hawaiian Introduced Perennial Grassland found

toward the northeastern areas of the tract.

Temperatures in the area range between 73°F in the eastern makai areas to CLIMATE/TEMP: approximately 62°F in the western mauka areas.

**RAINFALL:** Rainfall is significant for this entire tract, with the levels increasing as you move southwest and mauka along the tract. The northeastern makai edge of the tract

receives approximately 150 inches of rain annually, scaling up to 225 inches of annual rainfall at the southwestern end of the tract.

Rainfall is significant, with an annual range of 150 to 250 inches.

WIND: Wind speeds and direction for tract vary, with prevailing daytime tradewinds

reaching up to 7 mph and nighttime/early morning winds ranging between 3 and 4

mph originating from mauka and moving offshore. The heavy rainfall is associated with interaction between prevailing daytime

northeasterly trades and nighttime offshore land breezes.

**SOLAR** Solar radiation ranges from approximately 6.5 kWh/m2/day in the eastern makai RADIATION:

regions to approximately 3.2 kWh/m2/day in the western mauka regions of the

STREAMS/

**TSUNAMI** 

**HUMIDITY**: Relative humidity ranges from approximately 65% to 91%, with humidity tending to be lower during the midday hours and higher during night to early morning.

Tributaries of Pāhe'ehe'e Stream run through tract and along its northern bounds

WETLANDS: while Honomū Stream runs along the southern edge of the tract. Wetland types that accompany these streams are mainly Riverine with some Freshwater

Forested/Shrub Wetland along Honomū Stream at the southeastern edge of the tract.

FLORA/FAUNA: The tract is not classified as critical habitat.

The tract is designated as X: Outside 0.2%-Annual-Chance Floodplain under the FLOOD ZONE:

Flood Insurance Rate Map.

**SEA LEVEL RISE:** The tract is not projected to be affected by sea level rise.

**VOLCANO HAZARD:** the tract is designated as 3 on the Volcano Hazard Zone map

This tract is not affected by tsunami evacuation zones. **EVACUATION ZONE:** 

# **PUBLIC SERVICES**

SCHOOLS:

PARKS/REC: 'Akaka Falls State Park, Honomū Park, Kula'imano Park/Community

SEWER/WASTEWATER:

FIRE/POLICE:

MEDICAL FACILITIES:

#### | PI'IHONUA (lower) | Hilo Moku, Hawai'i | 2002 Hawai'i Island Plan



ACREAGE: +/-11.7 acres

LAND USE +/-31.2 ac Residential

**DESIGNATION:** +/-529.1 ac Subsistence Agriculture

+/-1,075.5 ac General Agriculture +/- 232.4 ac Conservation

PROPOSED Recommended for residential use, USE: conservation, subsistence, and

general agriculture use.

#### CLIMATE/TEMP:

The average annual temperature for the tract is 73°F with low temperatures of 70°F and highs of up to 77°F.

The climate is warm and humid, especially during summer.

#### **ENVIRONMENTAL CONDITIONS**

**ELEVATION:** 

**TOPOGRAPHY**/ The parcel is relatively flat with slopes ranging from zero to five

percent. Elevation ranges from 20 to 30 feet.

**SOILS:** Soil for the tract is identified as Opihikao-Urban land complex. The tract is unclassified by both the Land Study Bureau (LSB) and Agricultural Lands of Importance to the State of Hawai'i (ALISH).

Soils are classified as unweathered bedrock.

**GROUND COVER:** Ground cover for the tract is identified as high intensity

development.

**RAINFALL:** The tract receives between 130 and 135 inches of rainfall annually.

Annual rainfall ranges between 125 to 150 inches per year.

WIND:

The average annual wind speed for the tract is 3.6 mph with highs up to 5.9 mph in the afternoon and lows of 2.4 mph at night/early morning. Daytime tradewinds come from offshore and move southwest through the area while nighttime winds originate west of

the tract and flow offshore to the east.

SOLAR RADIATION:

Average annual solar radiation for the tract is approximately 4.7 kWh/m2/day. Average solar radiation peaks during the summer at

approximately 5.6 kWh/m2/day and reaches lows of about 3.5 kWh/

m2/day during the winter.

**HUMIDITY:** Average annual relative humidity is 70% for the area. Humidity tends to be stable year-round. The tract experiences lows of about 57% during the midday hours and highs of about 80% in the

evenings and mornings.

STREAMS/

The tract falls between the Waiau steam and the Wailuku river. There are other streams that fall within the tract that flows out to

Hilo Bay.

WETLANDS:

FLORA/FAUNA: There are no identified critical habitats within the area.

FLOOD ZONE:

Most of the tract is identified as X under the Flood Insurance Rate

Map, which is subject to a less than 0.2% chance of annual flood risk and is considered low- to moderate- risk.

**TSUNAMI** 

The entire tract is located within the tsunami evacuation zone.

**EVACUATION ZONE:** 

VOLCANO HAZARD: This tract is designated 3 on the Volcano Hazard Zone, which is

considered the third highest risk level for volcanic activity.

**SEA LEVEL RISE:** The tract is not anticipated to be impacted by sea level rise.

#### **PUBLIC SERVICES**

SCHOOLS: The tract has good access to educational facilities with Waiākea Ele-

Miles west of the tract.

**PROXIMITY TO AIRPORT:** The tract is directly adjacent to Hilo International Airport.

ACCESS/ROADS:

WATER: Water, electric, and sewer service are available to serve the parcel,

PARKS/REC: There are many parks and recreational facilities near the

**RESIDENTIAL:** The tract is at the eastern end of Hilo and has an expanse of



# | PI'IHONUA (Homestead) - PONAHAWAI |

Hilo Moku, Hawai'i | 2002 Hawai'i Island Plan



**ACREAGE:** +/-5.7 acres

LAND USE +/-5.7 ac Residential

**DESIGNATION:** 

PROPOSED USE: Recommended for residential use.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:**  This tract is about 1.5 miles from the coast at an elevation just under 500 feet.

SOILS:

Soil within the Pi'ihonua Tract:

- Hilo hydrous silty clay loam 0-10%
- Pana'ewa-Urban land complex 2-10% (only along easterm edge of tract). Soils within Ponahawai Tract:
- Keaukaha-Urban land complex, 2-10% slope

**GROUND COVER:** 

The land cover for the area is mostly developed between low and medium densities. Natural land covers include Hawaiian Introduced Perennial Grasslands. Hawai'i Lowland Forest, and Hawaiian Introduced Wet-Mesic Forest.

CLIMATE/TEMP:

The average annual temperature for the tract is approximately 71°F. The area experiences average low temperatures of 68°F and highs of up to 74°F.

RAINFALL:

Average annual rainfall for the tract ranges between 155 and 160 inches.

WIND:

Average annual wind speeds for the tract range from 2.5 mph to 3.5 mph. Wind speeds are typically higher during midday, with wind speeds reaching up to 5.6 mph and with lows down to 1.7 mph. Daytime tradewinds come from offshore and move southwest through the area while nighttime winds originate west of the tract

and flow offshore to the east.

**SOLAR** RADIATION: Average annual solar radiation for the tract is about 4.6 to 4.7 kWh/m2/day. Average solar radiation peaks during the summer at approximately 5.8 kWh/m2/

day and reaches lows of about 3.9 kWh/m2/day during the winter.

**HUMIDITY**:

The average annual relative humidity for the tract is approximately 74%. The tract experiences lows of about 62% during the midday hours and highs of about 83% in

the evenings and mornings.

STREAMS/ WETLANDS: A tributary of Wailuku River runs along the western and northern boundaries of Pi'ihonua, which includes accompanying Freshwater Forested/Shrub Wetlands. The Wailoa riverine flows along the southern and eastern edge of the residential

parcels of Ponahawai.

FLORA/FAUNA:

There are no identified critical habitats within the area.

FLOOD ZONE:

Most of the tract is identified as X under the Flood Insurance Rate Map, which is subject to a less than 0.2% chance of annual flood risk and is considered lowto moderate- risk. Portions of the tract at its north and west boundaries along Wailuku River are identified as AE and may be subject to base flood elevation. Areas identified as AE are considered high-risk and require home and business

owners to purchase flood insurance.

**TSUNAMI EVACUATION ZONE:** 

The tract is not located within the tsunami evacuation zone.

**VOLCANO HAZARD:** 

The entire tract is designated 3 on the Volcano Hazard Zone, which is considered

the third highest risk level for volcanic activity.

**SEA LEVEL RISE:** The tract is not anticipated to be impacted by sea level rise.

# PUBLIC SERVICES

ACCESS/ROADS:

FIRE/POLICE: Kaumana Fire Station is located less than a half mile southwest of

MEDICAL FACILITIES:

ELECTRICITY: (~1 mi NW) Waiau Hydro Substation



# | WAIĀKEA | Hilo Moku, Hawaiʻi |

2002 Hawai'i Island Plan



ACREAGE: +/-11.7 acres

LAND USE +/-11.7 Commercial **DESIGNATION:** 

PROPOSED USE: Recommended for commercial use

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

The small size of the parcel and airport noise serve to constrain priority residential, pastoral, and agriculture development potential. Commercial and/or Industrial uses are recommended.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:**  The parcel is relatively flat with slopes ranging from zero to five percent. Elevation

ranges from 20 to 30 feet.

SOILS:

Soil for the tract is identified as Opihikao-Urban land complex. The tract is unclassified by both the Land Study Bureau (LSB) and Agricultural Lands of

Importance to the State of Hawai'i (ALISH).

**GROUND COVER:** 

Ground cover for the tract is identified as high intensity development.

CLIMATE/TEMP:

The average annual temperature for the tract is 73°F with low temperatures of

70°F and highs of up to 77°F.

The climate is warm and humid, especially during summer.

RAINFALL:

The tract receives between 130 and 135 inches of rainfall annually.

Annual rainfall ranges between 125 to 150 inches per year.

WIND:

The average annual wind speed for the tract is 3.6 mph with highs up to 5.9 mph in the afternoon and lows of 2.4 mph at night/early morning. Daytime tradewinds come from offshore and move southwest through the area while nighttime winds

originate west of the tract and flow offshore to the east.

**SOLAR** RADIATION: Average annual solar radiation for the tract is approximately 4.7 kWh/m2/day. Average solar radiation peaks during the summer at approximately 5.6 kWh/m2/

day and reaches lows of about 3.5 kWh/m2/day during the winter.

**HUMIDITY**:

Average annual relative humidity is 70% for the area. Humidity tends to be stable year-round. The tract experiences lows of about 57% during the midday hours and

highs of about 80% in the evenings and mornings.

STREAMS/ WETLANDS: There are no streams or wetlands identified in the tract.

FLOOD ZONE:

X - subject to a less than 0.2% chance of annual flood risk and is considered low-

to moderate- risk.

**TSUNAMI** 

The entire tract is located within the tsunami evacuation zone.

**EVACUATION ZONE: SEA LEVEL RISE:** 

The tract is not anticipated to be impacted by sea level rise.

FLORA/FAUNA:

There are no identified critical habitats within the area.

This tract is designated 3 on the Volcano Hazard Zone, which is considered the third highest risk level for volcanic activity.

**VOLCANO HAZARD:** 

# PUBLIC SERVICES

PROXIMITY TO AIRPORT: The tract is directly adjacent to Hilo International Airport

MEDICAL FACILITIES: (~3.5 mi west) Hilo Medical Center

FIRE/POLICE:

RESIDENTIAL:

PARKS/REC:

WATER:

**ELECTRICITY**:



# | KAŪMANA | Hilo Moku, Hawai'i |

2002 Hawai'i Island Plan



ACREAGE: +/-137.3acres

LAND USE +/-16.7ac Residential **DESIGNATION:** +/-120.6ac No land use designation

PROPOSED USE: Recommended for Homestead Residential

Use

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

The Tract is now being developed as part of a project of 76 lots scattered in the Hilo area, which should be available for residential awards in 2003.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:**  Elevation for the tract ranges between approximately 1,250 and 1,500 feet. Elevation is about 1,100 feet, with slopes averaging about eight percent.

SOILS:

Soil types for this tract are mostly Kaiwiki hydrous silty clay loam with some Keei slightly decomposed plant material and Keaukaha highly decomposed plant material in the northern portions of the tract. Most of the tract contains soil suitable for agricultural uses. Most of the central and southern portions of the tract are rated 'C' (Fair) by the Land Bureau (LSB) and 'Prime ALISH' by the Agricultural Lands of Importance to the State of Hawai'i (ALISH).

Soils here are classified as unweathered bedrock.

**GROUND COVER:** 

Ground cover for the tract is variable and includes low level development, mixed

agriculture, Hawai'i Lowland Rainforest.

CLIMATE/TEMP:

The average temperature for the tract is approximately 67°F with annual temperatures ranging between 64°F and 71°F depending on time of year and time

of day. Temperatures ranging from 55 to 80 degrees F.

RAINFALL:

The Kaūmana tract receives between 195 inches and 210 inches of rainfall annually,

with the western portions of the tract receiving slightly more rainfall.

Annual rainfall ranges from 120 to 160 inches.

WIND:

Wind speeds for this tract are relatively low and vary between 2 mph and 4 mph with the tract experiencing higher wind speeds during the day. Daytime tradewinds come from offshore east of the parcel and move westward/mauka while nighttime and early morning winds originate west of the tract and move east through the

tract and offshore.

**SOLAR** RADIATION: Solar radiation ranges for tract remains relatively stable at approximately 4.2 kWh/m2/day. Solar radiation reaches as low as 3.3 kWh/m2/day during the winter

months and experiences a maximum of 5.1 kWh/m2/day in the summer months. Relative humidity averages between 80% and 83% for the tract with humidity

**HUMIDITY**:

reaching as low as 70% during the midday hours and as high as 90% during the evening to early morning.

STREAMS/ WETLANDS: Two tributaries of Alenaio Stream run through the parcel and include Riverine wetlands along these corridors.

There are no designated critical habitats within the tract.

FLORA/FAUNA: FLOOD ZONE:

X - subject to a less than 0.2% chance of annual flood risk and is considered low-

to moderate- risk.

SEA LEVEL RISE:

The tract is not projected to be affected by sea level rise.

The tract is designated as 3 on the Volcano Hazard Zone map

**TSUNAMI EVACUATION ZONE:**  This tract is not affected by tsunami evacuation zones.

# PUBLIC SERVICES

SCHOOLS:

PARKS/REC:

**SEWER/WASTEWATER:** The nearest Wastewater Treatment Plant is located approximately 3

**ELECTRICITY**:

**MEDICAL FACILITIES:** 

PROXIMITY TO AIRPORT: (~6 mi NE) Hilo International Airport



# | PANA'EWA | Hilo Moku, Hawai'i |

2002 Hawai'i Island Plan



**ACREAGE:** +/-3,162.2 acres

LAND USE +/-423.1 ac Residential

**DESIGNATION:** +/-1,596.6 ac Supplemental Agriculture

+/-23.3 ac General Agriculture +/-462.4 ac Subsistence Agriculture

+/-39.7 ac Community Use

+/-232.6 ac Commercial

+/-358.4 ac Industrial

+/-26.1 ac No land use designation

PROPOSED USE: Recommended for residential, agriculture, community use, commercial use, and

industrial use

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

Beneficiaries support residential uses on the property, and the tract is located in a well established rural Hilo residential community. Proximity to Hilo affords a range of public services and opportunities. Although a drag strip abuts the site, its noise effects may be minimized and mitigated with appropriate Development Plan strategies over time.

## ACCESS/ROADS:

The tract is mostly accessible via existing roadways including Mamalohoa Highway, Māmaki Street, Auwae Road, Puna Trail for the northern parcels, and multiple developed roadways in the northwestern portion of the tract. The eastern portions of the tract adjacent to the Hilo Drag Strip and Skeet Range lack formalized roadways.

Access to the property is via Māmaki Street.

#### RESIDENTIAL:

The northwestern portion of the tract contains developed commercial centers and residential neighborhoods. Other portions of the tract are slightly removed from Hilo and are up to 2.5 miles away from these existing commercial centers and residential neighborhoods.

Located about five miles from downtown Hilo. South Hilo and Puna Districts are southwest

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:** 

**GROUND COVER:** 

SOILS:

The area is close to sea level and about one mile from the coast. Elevations for the tracts are under 500 feet.

Soil in the area varies but consists of mostly Papai extremely cobbly highly decomposed plant material throughout most of the tract and some Opihikao highly decomposed plant material in the eastern parts of the tract. Part of the northwestern portion of the tract features Papai-Urban land complex. Most of the tract is rated 'E' (Very Poor) by the Land Study Bureau and 'Other ALISH' by the

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

The land cover for the area varies due to the size of this tract. The northwestern portion of the tract is highly developed with some lower intensity development and agricultural ground cover as you move south and east along the tract. Natural ground cover includes Hawai'i Lowland Forest, Hawaiian Introduced Perennial

Grassland, and Hawaiian Introduced Mesic Forest. 'Ōhi'a Lehua forest and dense shrub covers the tract.

CLIMATE/TEMP: The average annual temperature for the tract is relatively stable, ranging from 72°F to 73°F. The area experiences average low temperatures of 69°F and highs of

up to 76°F.

The climate is warm and humid, especially during summer months

Annual rainfall for the tract ranges from 130 to 145 inches, with southwestern RAINFALL:

portions of the tract receiving the most rainfall and northeast portions receiving the least.

with annual rainfall between 125 to 150 inches

WIND: Average annual wind speeds for the area range from lows of about 2.5 mph to 4.2

mph. Wind speeds are higher during the day, with wind speeds reaching up to 6.7 mph and as low as 1.7 mph. Daytime tradewinds come from offshore and move southwest through the area while nighttime winds originate west of the tract and

flow offshore to the east and southeast.

Average annual solar radiation for the tract ranges from 4.5 kWh/m2/day to 5.2 SOLAR RADIATION: kWh/m2/day. Average solar radiation peaks during the summer at approximately

6.3 kWh/m2/day and reaches lows of about 3.5 kWh/m2/day during the winter. Average annual relative humidity ranges from 70% to 73% for the area. Humidity **HUMIDITY**:

tends to be stable year-round. The tract experiences lows of about 57% during the

midday hours and highs of about 82% in the evenings and mornings.

STREAMS/ There are no streams present within the tract, however Ka'ahakini Stream runs

adjacent and south of Mahi'ai Street between portions of the tract. This riverine WETLANDS: resource along with a few freshwater ponds are the only identified wetlands in the

FLORA/FAUNA: There are no designated critical habitats within the tract.

**VOLCANO HAZARD:** The entire tract is designated 3 on the Volcano Hazard Zone, which is considered

the third highest risk level for volcanic activity.

**TSUNAMI EVACUATION ZONE:** FLOOD ZONE:

This tract is not affected by tsunami evacuation zones.

Most of the tract is identified as X under the Flood Insurance Rate Map, which is subject to a less than 0.2% chance of annual flood risk and is considered low-to moderate- risk. Portions of the tract at its northwestern edge are identified as XS and AE and may be subject to base flood elevation. Areas identified as XS are considered low- to moderate- risk for flooding but do not require owners to purchase flood insurance. Areas identified as AE are considered high-risk and require home

and business owners to purchase flood insurance.

**SEA LEVEL RISE:** The tract is not anticipated to be impacted by sea level rise.

# **PUBLIC SERVICES**

SEWER/

PROXIMITY TO AIRPORT: (~5 mi north from southern point of tract) Hilo International Airport.



# | **KEAUKAHA** | Hilo Moku, Hawai'i |

2002 Hawai'i Island Plan



ACREAGE: +/-1,618.5acres

LAND USE +/-267.3ac Residential **DESIGNATION:** +/- 23.2ac Community Use

+/-1,328ac Special District

**PROPOSED USE:** Recommended for Special District Use

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

Beneficiaries recommend a Kuleana-type homestead award

similar to Kahikinui on Maui.

#### **SEA LEVEL RISE:**

The coastal regions of both tracts are anticipated to be impacted by 3.2 feet of sea level rise. Total economic losses from sea level rise tend to stay under \$250,000 with only one area in Tract-1 reaching between \$250,000 and \$2,000,000 in potential economic loss.

## **SEWER/WASTEWATER:**

There are multiple wastewater treatment plants in the area including the Hilo Wastewater Treatment Plant, the Hilo Airport Wastewater Treatment Plant, and the Aloha Petroleum Hilo West Wastewater Treatment Plant.

#### ELECTRICITY:

The nearest electrical substations are Shipman Substation, about 1 mile west of Tract-1 and Kanoelehua Substation, about 1.5 miles southwest of Tract-1

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:** 

The tracts are located close to the shore with elevations close to sea level.

Slopes on the parcel range from zero to five percent, with elevation ranging from sea level at the coastline to approximately 30 feet at the southern portion of the

property.

SOILS:

The soil type within Tract-1 is mainly Opihikao-Urban land complex while Tract-2 is mainly Opihikao highly decomposed plant material. Soils for this area may be unsuitable for agriculture, as all land area within the tracts are rated 'E' (Very Poor) by the Land Study Bureau and only a small portion of tract-2 are rated 'Other ALISH' by the Agricultural Lands of Importance to the State of Hawai'i

**GROUND COVER:** 

Land cover for Tract-1 is mostly low-intensity development. Tract-2 ground cover is made up of mainly Hawai'i Lowland Rainforest with some Hawaiian Introduced Wet-Mesic Forest.

The site currently is overgrown with dense ground cover, shrubs, and trees.

CLIMATE/TEMP:

The average temperature for both tracts is approximately 73°F with annual temperatures ranging between 70°F and 77°F depending on time of year and time

of day.

**RAINFALL:** 

Annual rainfall ranging between 125 and 150 inches.

WIND:

Wind speeds for the area are variable depending on location but are typically low, varying between 2 mph and 5 mph at in-land portions of the area. Wind speeds along the coast can reach up to 9 mph. Daytime tradewinds come from offshore and run southwest through the tracts while nighttime and early morning winds originate inland and move east through the tracts and offshore.

**SOLAR** 

**RADIATION:** 

Average solar radiation for the area ranges between 4.9 kWh/m2/day and 5.3 kWh/ m2/day, with Tract-2 receiving slightly more solar radiation throughout the year. Solar radiation reaches as low as 3.6 kWh/m2/day during the winter months and experiences a maximum of 6.6 kWh/m2/day in the summer months.

**HUMIDITY**:

Average relative humidity is stable for the area at around 70% for the tracts with humidity reaching as low as 53% during the midday hours and as high as 80%

STREAMS/

during the evening to early morning.

WETLANDS:

There are no streams located in or around either tract. A small portion at the northwest of Tract-2 is identified as a Freshwater Emergent Wetland. Other nearby wetlands include Freshwater Ponds, Estuarine and Marine Wetlands, and Estuarine and Marine Deepwater.

FLORA/FAUNA:

There are no designated critical habitats within the tract.

**VOLCANO HAZARD:** 

The tract is designated as 3 on the Volcano Hazard Zone map

**TSUNAMI EVACUATION ZONE:** 

This tract is not affected by tsunami evacuation zones.

FLOOD ZONE:

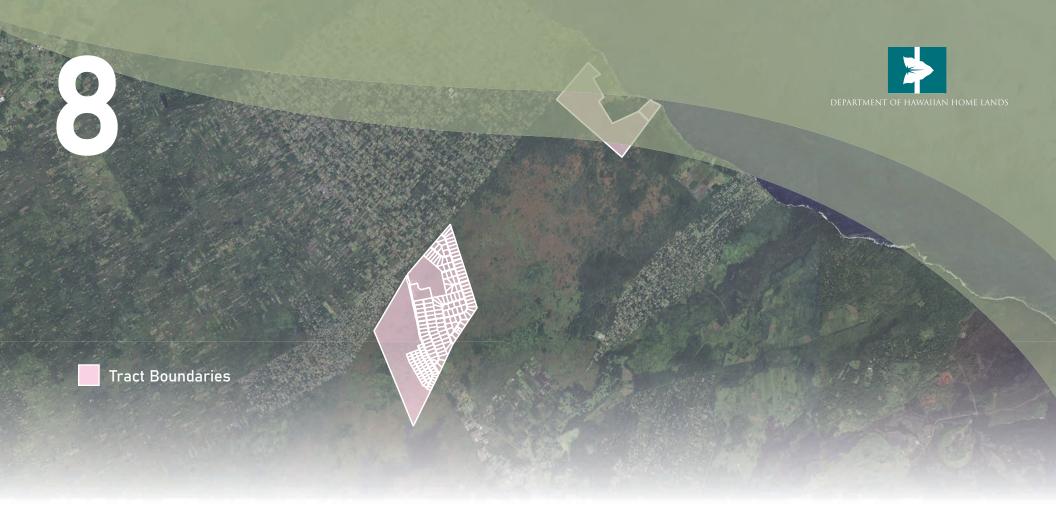
The majority of both tracts are identified as 'X' under the Flood Insurance Rate Map, which is subject to a less than 0.2% chance of annual flood risk and is considered low- to moderate- risk. However, coastal areas within the area are designated as 'AE' and 'VE' and are prone to additional risk from base flood elevation. These areas are considered high-risk and would require home and business owners to buy flood insurance.

# PUBLIC SERVICES

SCHOOLS:

MEDICAL FACILITIES: The nearest medical facility is Hilo Medical Center, approxi-

PROXIMITY TO AIRPORT: Both tracts are directly adjacent to Hilo International Airport.



# | MAKU'U | Puna Moku, Hawai'i |

2002 Hawai'i Island Plan



**ACREAGE**: +/-2,051.6ac (GRE)

LAND USE Residential: +/-187.3ac

DESIGNATION: Supplementail Agriculture: +/-685.3ac

Subsistence Agriculture: +/-560.1ac General Agriculture: +/-500ac Community Use: +/-28ac Commercial: +/-90.8ac

PROPOSED USE: Makai: recommended for General

Agriculture Use

Mauka: Recommended for Homestead Residential, Subsistence Agriculture, Community, and Cultural Uses

# BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

Makai: Water and sewer system needs and associated costs constrain priority development at this time.

Mauka: A mix of Homestead Subsistence Agriculture,
Homestead Residential, and Commercial uses are
recommended for the tract, but significant infrastructure
issues need to be addressed prior to development. Analysis of beneficiary preferences indicates more interest in homesteads closer to Hilo.

# TOPOGRAPHY/ELEVATION:

The elevation of the makai tract is close to sea level, ranging up to about 100 feet. The elevations of the mauka tract ranges from about 400 feet at its northern end to 700 feet at its south

Makai: Slopes in this area range from zero to five percent, with elevation ranging from sea level to 118 feet at the mauka boundary.

Mauka: Slope ranges from zero to five percent, with elevations ranging from sea level to 118 feet.

#### **ENVIRONMENTAL CONDITIONS**

SOILS: Soils within the makai tract are mainly highly decomposed plant material, with most of the tract being Opihikao and the southern edge being Keaukaha. The entirety of the mauka tract is made up of Keaukaha highly decomposed plant material. Both tracts may be unsuitable for agriculture,

as all lands are rated 'E' (Very Poor) by the Land Study Bureau and do not have lands identified by the Agricultural Lands of Importance to the State of Hawai'i (ALISH).

Makai: Soil is classified as lava and unweathered bedrock Mauka: The soil is primarily volcanic material.

**GROUND COVER:** The land cover for the area is mixed, with various types of shrubland, forest, and grassland throughout both parcels. The mauka tract has some existing low-density development.

Makai: The site is presently overgrown, with lowland shrubs and sparse tree cover predominat-

ing

**CLIMATE/TEMP:** The average temperature for the makai tract is approximately 73°F while the average temperature for the mauka tract ranges between 70°F and 72°F. The area experiences low temperatures

of 68°F and highs of about 76°F.

Makai: Temperatures average between 59°F and 80°F

Mauka: Average temperatures range between 59°F and 80°F

RAINFALL: The makai tract receives between 120 and 125 inches of rainfall annually. The mauka tract receives

between 135 and 140 inches of rainfall annually.

Makai: average annual rainfall is between 100 and 150 inches.

Mauka: annual rainfall between 150 and 200 inches

WIND: Wind speeds for the area range from lows of about 2.7 mph up to 8.1 mph, with higher speeds during the day and lower wind speeds at night. Daytime tradewinds come from offshore and

move southwest through the area while nighttime winds originate from the northwest and flow to

the southeast.

SOLAR RADIATION: Average solar radiation for the makai tract is approximately 5.3 kWh/m2/day, with lows of 3.8 kWh/m2/day during the winter and highs of about 6.5 kWh/m2/day during the summer. The mauka

tract receives slightly less sun, averaging about 4.5 kWh/m2/day with highs of 5.7 kWh/m2/day

during the summer and lows of approximately 3.8 kWh/m2/day in the winter.

HUMIDITY: Average relative humidity is lower for the makai tract, which has an average annual humidity

of about 71%. Average annual humidity for the mauka tract is about 75%. Both tracts experience lower humidity during the afternoon and higher humidity at night.

STREAMS/ There are no streams or wetlands located in the area. Estuarine and Marine Deepwater resources exist in the ocean offshore of the makai tract.

FLORA/FAUNA: There are no designated critical habitats within the area.

**FLOOD ZONE:** X/VE - subject to a less than 0.2% chance of annual flood risk and is considered low- to moderate- risk. A very small coastal portion of the makai tract may be within the 'VE' zone, which

erate- risk. A very small coastal portion of the makai tract may be within the 'VE' zone, which is considered high-risk for flooding and would require home and business owners to buy flood

insurance.

SEA LEVEL RISE

**TSUNAMI EVACUATION**The mauka tract is not within or near the tsunami evacuation zone. The makai tract is partially within the tsunami evacuation zone, which extends slightly mauka of Government Beach Road.

VOLCANO HAZARD: Lava Zone: 3 - Areas less harzardous than zone 2 because of greater distance from recently active

vents and/or because of topography. One to 5% of zone 3 has been covered since 1800 and 15-75%

has been covered within the last 750 years.

The mauka tract is not anticipated to be impacted by sea level rise. The makai tract is only anticipated to be affected at its eastern most edge where it extends to the coast. The severity of economic loss

to be affected at its eastern most edge where it extends to the coast. The severity of a from sea level rise in this area is expected to be remain below \$250,000.

# **PUBLIC SERVICES**

ACCESS/ROADS: The mauka tract is easily accessible via Kea'au-Pāhoa Road, which runs north-south through the tract and connects Kea'au to Pāhoa. There are also multiple roadways

Both tracts are directly adjacent to Hawaiian Paradise Park, which is low-density residential development to the northwest. Pāhoa is approximately 1 mile south of the

mauka tract and 5 miles south of the makai tract. Kea'au is approximately 7 mile northwest of both tracts.

SCHOOLS: (~2 mi east from Mauka tract & ~3 mi south from Makai tract) Keonepoko Elementary

and Pāhoa High and Intermediate Schools

MEDICAL FACILITIES: (~16 mi NW) Hilo Medical Center

PARKS/REC: William "Billy" Kenoi District Park is approximately 2 miles so and 6 miles south of the makai tract EWER/WASTEWATER: Water and sewer service is currently not available for the tract. The nearest waste water treatment plant to the makai tract is located at Hawaiian Shellfish LLC, 3

is located at Puna Kai Shopping Center approximately 1 mile south of the tract.

sewer system needs and associated costs constrain priority development at this time.

Mauka: Existing DHHL agriculture lots in the tract are currently using water catchment systems and sewer service is not readily available for residential use.

**ELECTRICITY:** The nearest electrical substation to the mauka parcel is Ainaloa Substation, less than 0.5 miles west. The Hawaiian Beaches Substation is nearest to the makai tract, about 3 miles south of the tract and about 2 miles east of the mauka tract.

OXIMITY TO AIRPORT: Hilo International Airport is located approximately 13 miles north of the mauka

RE/POLICE: Pāhoa Police Station is approximately 1 mile south of the mauka tract and 5 miles

south of the makai tract. Pāhoa Fire Station is located 1 mile south of the makai tract. Hawaiian Paradise Park Fire Station is nearest to the makai tract, about 2.5 miles west of the narrel



# | KEONEPOKO | Puna Moku, Hawai'i |

2002 Hawai'i Island Plan



ACREAGE: +/- 100 acres

LAND USE +/-100ac General Agriculture

**DESIGNATION:** 

PROPOSED USE: Recommended for General Agricultural

Use

#### BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

Beneficiaries support agricultural uses on the property despite marginal soil quality.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:** 

The elevation of the tract is approximately 500 to 600 feet.

The property is relatively flat, with maximum slope approaching five percent.

Elevation ranges from 540 to 600 feet.

SOILS:

Soil within the tract is made up of Keaukaha highly decomposed plant material. Soils for this area may be unsuitable for agriculture, as all land within the tract is rated 'E' (Very Poor) by the Land Study Bureau and are not identified by the

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

**GROUND COVER:** 

Land cover for the area is a mix of Hawaiian Introduced Perennial Grassland, Hawaii Lowland Forest, and Hawaiian Introduced Deciduous Shrubland. 'Ōhi'a Lehua trees, shrubs, and scrub grass cover the majority of the property.

CLIMATE/TEMP:

The average temperature for the tract is approximately 71°F with annual temperatures ranging between 68°F and 74°F depending on time of year and time

of day.

The climate is typically cool in the winter and warmer during the summer, with

average temperatures between 59°F and 80°F.

RAINFALL:

Annual rainfall in Puna District averages between 150 to 200 inches, enabling use

of water catchment systems.

WIND:

The average wind speed for the area is approximately 4 mph with higher wind speeds during the day and lower wind speeds at night. Daytime tradewinds come from offshore and move southwest through the tract while nighttime winds

originate from the northwest and flow to the southeast.

**SOLAR RADIATION:** 

Average solar radiation for the area is approximately 4.5 kWh/m2/day. Solar

radiation reaches as low as 3.4 kWh/m2/day during the winter months up to

approximately 5.2 kWh/m2/day in the summer months.

**HUMIDITY**:

Average relative humidity is stable for the area at around 76% for the tract with

lows of about 64% during the midday hours and as high as 84% during the evening

to early morning.

STREAMS/ WETLANDS: There are no streams located in the tract. Keonepoko Stream and identified

Riverine resources are located south of the parcel.

FLORA/FAUNA:

There are no designated critical habitats within the area.

The area is not anticipated to be impacted by sea level rise.

FLOOD ZONE:

V - 1% annual chance coastal flood, no BFE (Base Flood Elevation).

**SEA LEVEL RISE: VOLCANO HAZARD:** 

**EVACUATION ZONE:** 

The northern half of the tract is designated 3 on the Volcano Hazard Zone map

volcanic activity.

while the southern half is designated 2, which are considered high-risk areas for

**TSUNAMI** 

The area is not within or near the tsunami evacuation zone.

# PUBLIC SERVICES

MEDICAL FACILITIES: (~18 mi north) Hilo Medical Center,

SEWER/WASTEWATER:

**ELECTRICITY**:

PROXIMITY TO AIRPORT:

FIRE/POLICE: The tract is adjacent to both Pāhoa Fire Station and



# **KURTISTOWN & 'ŌLA'A**

Puna Moku, Hawai'i



ACREAGE: +/- 707.8 acres LAND USE Pastoral: +/- 705.1 ac

**DESIGNATION:** No land use designated: +/-2.7ac

PROPOSED USE: Recommended for Homestead Pastoral Use, alternative use may involve sustainable forestry for the purpose of generat-

ing DHHL income.

# BENEFICIARY SURVEY INPUT FOR INTEREST IN THE AREA?

Limited access, significant rainfall, and surrounding pastoral uses underlay recommendations for pastoral or agricultural use rather than residential use.

#### FLOOD ZONE:

X - subject to a less than 0.2% chance of annual flood risk and is considered low- to moderate- risk.

#### **SEA LEVEL RISE:**

None of the tracts are anticipated to be affected by sea level

#### **VOLCANO HAZARD:**

All tracts are designated 3 on the Volcano Hazard Zone, which is considered the third highest risk level for volcanic activity.

#### **TSUNAMI EVACUATION ZONE:**

None of the tracts are within the tsunami evacuation zone.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ ELEVATION: Elevations range from 2,700 to 3,200 feet. The terrain is undulating, with rolling hills that slope up toward Mauna Loa. Slope averages zero to five percent, with portions up to ten percent.

Main Tract: Elevation ranges between approximately 2,800 and 3,300 feet, with lower elevations at the east side of the parcel

Inset A: Elevation for this parcel is about 800 feet.

Inset B: This parcel is located at approximately a 4,200 foot elevation.

SOILS:

Main Tract: Soils are mainly Hao medial loam, with some Puaulu-Hao complex at the west of the tract and Ohia hydrous silt loam in the east portions of the tract. The westernmost portions of the tract are rated 'C' (Fair) by the Land Study Bureau (LSB), while the rest of the tract is rated 'D' (Poor). The entirety of the tract is rated 'Other ALISH' by the Agricultural Lands of Importance to the State of Hawai'i (ALISH).

Inset A: Soil in this tract is comprised of 'Ōla'a cobbly hydrous loam. No lands within this tract are identified by ALISH or LSB.

Inset B: Soil within this tract is made of Manu medial silt loam. No lands within this tract are identified by ALISH or LSB

**GROUND COVER:** 

Main Tract: Ground cover for this tract consists mainly of Hawai'i Lowland Forest.

Inset A: Ground cover for this tract is partially developed open space with some Hawai'i Lowland

Inset B: Ground cover in this tract is low-density development among mainly Hawaiian Introduced Perennial Grassland.

CLIMATE/TEMP:

Main Tract: The average annual temperature for this tract is  $62^{\circ}F$  with average highs of  $64^{\circ}F$  in the summer months and lows of 59°F in the winter months.

Inset A: The average annual temperature for this tract is approximately 70°F with relatively stable fluctuations up to 72°F in the summer and down to 68°F in the winter.

Inset B: The average annual temperature for this tract is 60°F with summer months reaching an average temperature of 62°F and winter months reaching 57°F.

RAINFALL:

Main Tract: This tract receives an average annual rainfall of approximately 210 to 240 inches, with

the northern portions of the tract receiving more rainfall.

Inset A: This tract receives approximately 160 inches of rain annually. Inset B: This tract receives an average annual rainfall of approximately 120 inches.

WIND:

Main Tract: The average wind speed of the main tract ranges between 4.1 and 4.7 mph. Daytime winds reach up to 6.2 mph while nighttime winds are as low as 3.5 mph.

Inset A: Average wind speed for this tract ranges between 3.0 and 4.1 mph with daytime highs of 6.3 mph and nighttime lows of 2.1 mph

Inset B: Average wind speeds at this tract are about  $5.1\,\mathrm{mph}$  with highs up to  $6.5\,\mathrm{mph}$  during the

afternoon and lows of about 4.3 mph in the mornings and nights. For all tracts, daytime tradewinds come from offshore and move southwest through the area while

nighttime winds originate from the north or northwest and flow to the south or southeast.

SOLAR RADIATION:

day during the winter and highs of 5.1 kWh/m2/day during the summer.

Inset A: Average solar radiation for this tract is approximately 4.3 kWh/m2/day, with lows of 3.4 kWh/m2/day during the winter and highs of about 5.1 kWh/m2/day during the summer.

Inset B: Average solar radiation at this tract is slightly higher at 4.9 kWh/m2/day with lows of 3.81 kWh/m2/day during the winter and highs of 6.0 kWh/m2/day during the summer

HUMIDITY:

Main Tract: Average relative humidity for this tract is approximately 86% with lows of 76% in the

Tract A: Average relative humidity for this tract is approximately 77% percent. Humidity is lowest at noon and highest at night and in the mornings. Highs can be up to 86% and lows can reach 66%.

Tract B: Average relative humidity for this tract is approximately 85%. Highs and lows at this tract are similar to the main tract.

STREAMS/

WETLANDS

There are no streams or wetlands located within any of the tracts.

# **PUBLIC SERVICES**

# **PUBLIC SERVICES**



# **HUMU'ULA & UPPER PI'IHONUA**

Hilo Moku, Hawai'i



**ACREAGE**: +/-48,919.5acres (+/-32,475ac - 2002 HIP)

LAND USE +/-15,699ac General Agriculture **DESIGNATION:** +/-9,023.1ac Pastoral +/-601ac Community Use

> +/-47.9ac Commercial +/-17,641.1ac Conservation

+/-5,907.4ac Special District

PROPOSED USE: Recommended for Homestead Pastoral, General Agriculture/Pastoral, Commercial,

Conservation, and Special District Uses

#### FLORA/FAUNA:

The northern and western portions of the tract near Mauna Kea are designated as critical habitats for the critically endangered Palila (Hawaiian honeycreeper), which can only be found on the slopes of Mauna Kea. Downstream of the tract to the east and southeast are critical habitats for 'Oha wai, Kiponapona, Haha, 'aku'aku, Maunaloa silversword, Ha'iwale, and the Hawaiian picture wing fly.

The property harbors several rare and endangered species such as the Hawaiian Hawk (I'o), Hawaiian Duck (Koloa), Hawaiian Goose (Nënë), and native honeycreeper species (Mamane and Palila). Koa trees are also present.

#### **SEA LEVEL RISE:**

The tract is not projected to be affected by sea level rise.

#### **VOLCANO HAZARD:**

In Upper Pi'ihonua, most of the tract is designated 8 on the Volcano Hazard Zone map with a southwest portion of the tract designated 7, which are among the lowest tiers for volcano hazard.Humuʻula is designated as 3 on the Volcano Hazard Zone map.

# **TSUNAMI EVACUATION ZONE:**

This tract is not affected by tsunami evacuation zones.

#### **ENVIRONMENTAL CONDITIONS**

TOPOGRAPHY/ **ELEVATION:** 

The tract is located at a high elevation near the peak of Mauna Kea. The elevation ranges from approximately 5,000 feet at the tract's eastern and southern boundaries up to approximately 9,500 feet at the tract's northern and western boundaries toward the peak of Mauna Kea.

This is high country, with elevations varying from approximately 5,800 feet at the southeast end of the property to 9,500 feet at the west boundary. Slopes in both parcels range from 10 to 15 percent.

SOILS:

Soil types within the tract vary and include Pu'u O'o silty clay loam for most of the eastern portion of the tract. Other soil types include Pu'u O'o rock outcrop and various Laumaia silt loams and toward the western portions of the tract. Huikau ashy sandy loam and various lava flow complexes are present at the southern end of the area as well as at the western edge of the northern portion of the tract. The soil within the tract is could potentially be suitable for agriculture, with most of the land classified as 'Other ALISH' by the Agricultural Lands of Importance to the State of Hawai'i (ALISH) and some of the lands on the eastern fringes classified 'C' (Fair) by the Land Study Bureau (LSB).

**GROUND COVER:** 

Ground cover for the area consists mainly of Hawaiian Introduced Shrublands with some subalpine forest and woodland.

Vegetation in the area is mostly shrubs and gorse. If the gorse continues to grow

and cover the land, it could disturb the ecological balance and the growth of other plants, resulting in loss of productive use of the area.

CLIMATE/TEMP:

Average temperatures in the area range between approximately 46°F and 56°F, with colder temperatures in the winter months and higher elevations and higher temperatures in the summer months and lower elevations.

RAINFALL:

Average low temperatures range from 58°F at 5,000 feet to 45°F at 9,000 feet. Average annual rainfall varies from 120 inches in the lower elevations to 40 inches in the upper elevations. The land above 7,000 feet elevations is very dry most of the year due to high evaporation rates.

WIND:

Wind speeds and direction for the tract vary highly, with minimum wind speeds of about 2.5 mph in the eastern and lower-altitude portions of the tract and maximum wind speeds of about 10 mph at the southwestern end of the tract. Wind speeds tend to be higher with higher elevations. Nighttime and early morning winds originate east of the tract and move offshore as well as westward through the tract and around the peak of Mauna Kea. Daytime winds mainly take the shape of tradewinds, coming from offshore to the east and moving westward/mauka.

**SOLAR** RADIATION:

**HUMIDITY**:

Solar radiation ranges from approximately 6.5 kWh/m2/day to approximately 4.5 kWh/m2/day, with more solar radiation in the western and mauka areas of the tract. Solar radiation reaches as low as 3.7 kWh/m2/day during the winter months.

Relative humidity ranges from approximately 58% to 81%, with humidity tending to be higher during the midday hours and lower during night to early morning. Relative humidity is lower at higher elevations and higher in lower elevations of the tract.

STREAMS/ WETLANDS: Multiple tributaries of Wailuku River run through the tract, originating towards the peak of Mauna Kea. Tributaries of Umauma, Kolekole, and Kapue Streams originate within the tract and run west to east (mauka to makai). Ka'ula Gulch originates near Mauna Kea Peak and runs along the northern end of the tract, constituting its northern boundary. There are multiple Freshwater Ponds throughout the tract as well as Riverine wetlands along all stream corridors.

FLOOD ZONE:

Most of the tract is designated as 'X' under the Flood Insurance Rate Map, which is subject to a less than 0.2% chance of annual flood risk and is considered low- to moderate- risk. Portions of the tract at its southern end and southwest are designated as 'D,' or unstudied.

# **PUBLIC SERVICES**

SEWER/WASTEWATER: (~10 miles SE) Kulani Correctional Facility Wastewater Treatment

PROXIMITY TO AIRPORT: (~18 mi east) Hilo International Airport

MEDICAL FACILITIES: (~15 mi east) Hilo Medical Center

**ELECTRICITY:** There are two substations north/northwest of the tract

DEPARTMENT OF HAWAIIAN HOME LANDS
HAWAI'I ISLAND PLAN UPDATE
BENEFICIARY MEETING, ROUND 2
HILO & PUNA – KEAUKAHA ELEMENTARY
APRIL 7, 2025
ATTACHMENTS TO SUMMARY

**ATTACHMENT D:** Comment Cards



# Comments:













<u>HONOMŪ</u>

PI'IHONUA (LOWER)

PI'IHONUA - PONAHAWAI

WAIĀKEA

KAŪMANA

PANA'EWA

# Comments:

**HUMU'ULA + UPPER PI'IHONUA** 

