

KAMEHAMEHA SCHOOLS

# Keauhou

KEAUHOU BAY MANAGEMENT PLAN  
DRAFT ENVIRONMENTAL IMPACT STATEMENT

VOLUME II: APPENDICES



G70

June 2024





KAMEHAMEHA SCHOOLS®

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**G70**



Appendix A

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# **EISPN Scoping Meeting Minutes**





# CONFERENCE REPORT

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<b>TO:</b>	Kamehameha Schools		
<b>FROM:</b>	G70		
<b>DATE:</b>	April 12, 2022	<b>LOCATION:</b>	Virtual Meeting via Zoom
<b>PROJECT:</b>	Keauhou Bay Management Plan	<b>PROJECT NO:</b>	221053-01
<b>SUBJECT:</b>	EISPN Scoping Meeting	<b>NO. OF PAGES:</b>	12
<b>THOSE PRESENT:</b>	KS: Marissa Harman, Emily Davids, Crystal Kua, Jason Jeremiah, Kaimana Barcarse, Kau'i Burgess	G70: Kawika McKeague, Steven Doo, Cody Winchester, Janice Jensen	

## COMMUNITY MEMBERS PRESENT:

Alex Roy	Jackson Bauer	Loke Davis	Sherry Bracken
Alice Ray	Jessie	Manu Powers	Tyler Swain
BC	Jim Plant	Mike Perkins	Ulu Ching
Ben Rice	Jjfetter	Moto g7 play (Sarah)	Wendy
Blhod	Jolene	Olu Campbell	
Carolyn Hui	Ka'ea Lyons	Pamela Rice	
Christina	Kalani	Pete S	
Cindi Punihaole	Kalani's iPad	Peter M	
David E Smith	Kathleen Wilson	Rebecca	
Deb S	Kathy McMillen	Rebecca Villegos	
Dr. Holeka Goro Inaba	Ka'ui Burgess	Renee Schofield	
E Janes	Kekoa Kaluhiwa	Renee Schofield	
Geoff Hand	Kimmy Gay	Ryan	
Heather and Joe Mueller	L Mikahala Roy	Ryan Roberts	
Hilarie Alomar	Leiola	S Rankin	
Hodges	Lew Brentano	Samsung (unknown)	
iPad 2 (unknown)	Lisa	Shakti Stream	
iPad 3 (unknown)	Lisa and Brent Sterritt	Shandon	

## SUMMARY:

Notification that an Environmental Impact Statement (EIS) was to be prepared, known as an Environmental Impact Statement Preparatory Notice (EISPN), was published in the Environmental Review Program's The Environmental Notice on March 23, 2022 to solicit input on the scope and topics of interest of the Keauhou Bay Management Plan. Kamehameha Schools (KS) and G70 hosted a public scoping meeting to fulfill the consultation requirements as promulgated in Hawai'i Revised Statutes §11-200.1-23(d). Due to the ongoing COVID-19 pandemic, the meeting was held virtually on April 12, 2022, from 6:00-8:30pm via Zoom.

Kaimana Barcarse (KS) opened the meeting with a pule. Marissa Harmon (KS), Emily Davids (KS), and Kawika McKeague (G70) presented a slide deck describing the purpose and need for the plan, entitlements process, the scope of the EIS, the plans management goals and strategies, and preliminary design elements. After the presentation, participants were provided with an opportunity to ask questions and provide comments regarding the scope of the project. A summary of the comments provided is provided in the following section.

Commenters Name	Comment	Response
Rebecca	<ul style="list-style-type: none"> <li>• Land used and enjoyed by locals</li> <li>• Traffic issue throughout the bay</li> <li>• There is a hotel in Keauhou already. The bay doesn't need another one a block away.</li> <li>• Concern about traffic, crowding, and noise that will take away from the beauty of the bay</li> <li>• KS should focus on offering affordable housing to residents</li> <li>• I don't understand the educational point</li> </ul>	Old Kona Road designed to help alleviate congestion. The plan is focused on bringing students and kupa'āina to the bay.
Kimmy Gay	<ul style="list-style-type: none"> <li>• We play volleyball in a league down there.</li> <li>• Are you removing the volleyball court?</li> <li>• What are the kids going to do? There is no other place to play. There are only 3 volleyball courts in West Hawaii. Kids will go back to the streets instead of having a healthy outlet</li> </ul>	The volleyball court is not in KS's present vision.
Ulu Ching	<ul style="list-style-type: none"> <li>• Mahalo for providing access</li> <li>• How much emphasis is being made on business that is not orientated towards tourism.</li> </ul>	KS has not leased any spaces yet. Targeted towards local market. There will be two commercial tenants who currently operate tours in the bay. Open to general retail / commercial businesses including a restaurant. Leases will be negotiated with KS.
Lew Brentano	<ul style="list-style-type: none"> <li>• What are you anticipating for ADA compliance? Is accessibility built into this plan?</li> <li>• What is the status on Old Kona Road? Old Kona road is a good conduit as long as it's a safe ADA route.</li> </ul>	The plan intends to increase connectivity and access throughout the bay. Specific details will be evaluated as part of the DEIS.
Shakti Stream	<ul style="list-style-type: none"> <li>• Grew up playing volleyball on that court- still go and play volleyball, so does son; VP of the volleyball association</li> <li>• Last untouched place of Kona</li> <li>• Not opposed to change, but as a cultural center, there should be something for the community, not just retail space-- volleyball court is a significant space for the community; could be more beneficial than a retail area</li> </ul> <p>Court could move. It could be placed near commercial area like at Coconut Grove in Kona. The court could benefit the area more than a retail space. Court could benefit project.</p>	KS will commit to working with the association and elected officials to find another location. We realize the importance of recreation and healthy lifestyles at the bay.
Peter M	<ul style="list-style-type: none"> <li>• Applauding educational mission and efforts to provide respect for cultural significance of area. The birth site faces the dumpster and bathrooms. Needs to be cleaned up to pay respect to ali'i.</li> </ul>	KS's objective is to steward the land in perpetuity. There are no existing revenue generating uses at Bay to fund the needed stewardship. We don't want to drain on other endowment funds set



	<ul style="list-style-type: none"> <li>• Volleyball takes up a lot of real estate but not exclusive amount. Brings opportunity to folks who don't have other opportunities. It serves families of all economic spectrum.</li> <li>• Water quality is an issue (don't jump in with a cut).</li> <li>• Bridge to beach is rickety.</li> <li>• Restrooms have been closed for years. Good things are already happening.</li> <li>• If the intent is to increase kama'āina and kupu'āina access, why is this being accomplished by putting in hotel rooms and fine dining?</li> <li>• Voicing concerns about tourists overrunning one of the last places on the coasts where locals have access.</li> <li>• Proposal doesn't make sense to include resort. What are financial metrics to meet successful mission at Keauhou Bay. Is it the same for all properties. Could bungalows at another KS owned site be used to provide financial returns needed.</li> </ul>	<p>aside for education. Acceptable rate of returns have been studied. We looked at appropriate land uses as guided by General Plan and Community Development Plan and others.</p>
<p>Moto- Sara</p>	<ul style="list-style-type: none"> <li>• Lives above the project</li> <li>• Concern of removing a canopy of trees/shrubs/veg and replacing with pavement.</li> <li>• Concern for contamination to aquifer and increased heat.</li> </ul>	<p>These concerns will be evaluated and addressed as part of the environmental review process.</p>
<p>David Smith</p>	<ul style="list-style-type: none"> <li>• Director of the Keauhou Volleyball Association, son plays and got a scholarship to college-- many other students do as well.</li> <li>• The association is interested in obtaining a lease with KS.</li> <li>• Has KS considered income generation from Volleyball tournaments / workshops?</li> <li>• Can we get a written commitment that club can use court in future? Not an exclusive use. Coexists.</li> </ul>	<p>KS does not negotiate formal agreements in public settings. There is an issue with the County right-of-way that is located under the volleyball court. KS does not own all the land.</p>
<p>Ryan Roberts</p>	<ul style="list-style-type: none"> <li>• Concern for public / shoreline access being affected throughout the process.</li> <li>• What insurances does public have that access will be provided throughout the process.</li> <li>• Concern about access to He'eia Bay.</li> </ul>	<p>Access to the shoreline will not be disrupted during construction. The management plan will increase access. He'eia Bay is outside the project area.</p>
<p>Kathy McMillen</p>	<ul style="list-style-type: none"> <li>• Just because you have zoning for resort use doesn't mean it's appropriate.</li> <li>• Concerned with water quality; several oceanfront parcels on cesspool. Resort will only add to problem.</li> </ul>	<p>Impacts to traffic, drainage, and water resources will be evaluated as part of the DIES.</p>

	<ul style="list-style-type: none"> <li>• Parking will be an issue. Vendors taking up parking spaces. People will start parking on road.</li> </ul>	
Ben Rice	<ul style="list-style-type: none"> <li>• Concerned about noise, pollution and parking and how these things will be mitigated</li> <li>• More effort should be put in outreach. Many people didn't know about meeting tonight.</li> </ul>	Noise, pollution, and parking issues will be evaluated as part of the DEIS.
Mikahala	<ul style="list-style-type: none"> <li>• First restored temple in Keauhou. Serves as Kahu.</li> <li>• KS is premature in effort. Lands are sacred. Important to all mankind.</li> </ul>	KS agrees that the cultural resources in the bay are important and should be protected. This plan is designed to preserve and emphasize important resources for education.
Ulu Ching (2nd question)	<ul style="list-style-type: none"> <li>• Appreciate that KS is creating space for parking. How would fishers access the ramp? Southside boat parking is far from boat ramp.</li> </ul>	The plan is designed to open up the bayfront area and bring the focus to the cultural heritage of the bay. The designated boat parking is the most appropriate site that was identified.
BC	<ul style="list-style-type: none"> <li>• What are the plans for the canoe club? Will the Halau will be moved?</li> </ul>	KS will engage the club with a new lease. Halau will remain in place and the club will continue to have a presence at the bay.
Sally Rankin	<ul style="list-style-type: none"> <li>• Previous resident from North side of bay off Kamehameha III. Chose to move out of the area before construction started.</li> <li>• Attended previous meetings. It was obvious that no one was listening and that our quality of life would change.</li> <li>• Only way to find out about meetings is to read the newspaper, talk to neighbors, etc.</li> <li>• Concern for increased traffic. Northside paying burden for Southside congestion. Do not connect Old Kona Road across bay.</li> <li>• Retail at Keauhou Shopping Center is half empty.</li> </ul>	A traffic study is being conducted to evaluate impacts to circulation and congestion.
Leiola	<ul style="list-style-type: none"> <li>• I see this plan as overuse of the bay.</li> <li>• Water quality has diminished. The fish are no longer there.</li> <li>• Are there plans to restore the spring?</li> <li>• Honor the mauka makai trail and the hōlua slide</li> <li>• Put something in the plan with mo'olelo, pre-contact moolelo</li> <li>• Am a beneficiary of the trust, understand the economic need, but questions if this development is the right way to achieve economic needs.</li> </ul>	All the project components must work together for the plan to be successful. The resort component is important to generate revenue to fund the KS mission to preserve cultural heritage and provide educational opportunities.

The meeting concluded at approximately 8:30pm.

**Chat (screencaps):**

Peter M to Everyone

07:04 PM

PM

Hooray for Kimmy. She truly delivers Aloha to these young children who likely otherwise will be left behind. I see her working productively with these kids: they are doing healthy exercise, there's no swearing or drugs, etc.—she volunteers time for community benefit.

bc to Everyone

B

Also wondering how commercial hotel and retail space is connected to and beneficial for furthering 'educational' aspects of this development ?

David E. Smith to Everyone

07:10 PM

DE

volleyball play and through the sport community gathering has occurred at the bay for several generations (60 to 70 years ).

bc to Everyone

B

Also as a member of Keauhou Canoe Club, will the canoes be able to remain on the beach where they currently are close to the ramp for launching ?

Lisa's computer to Everyone



I believe Kimmy provides transportation to keiki from La'i'opua and other residential areas who have no way to access their cultural lands — are they not a priority over tourists? Obviously they cannot generate income the way visitors can...

Lisa's computer to Everyone

07:31 PM



Cannot the Keauhou Shopping Center be more profitable? So many underused areas... ! Why does a Royal Birthplace have to generate income?

Lisa and Brent Sterritt to Everyone

LA

Can we please move beyond the volleyball topic so we can all ask our questions?

Kimmy Gay to Everyone

KG

volleyball is important to our keiki

moto g(7) play to Everyone

MG

comment to the county at [planning@hawaiicounty.gov](mailto:planning@hawaiicounty.gov)

Lisa and Brent Sterritt to Everyone

LA

Understood - and we have heard that from several individuals -

Alice Ray to Everyone

a

Integration of cultural education with sports education and participation - not limited to volleyball, but including kayaking, paddle board, swimming, would all rightly be consistent with your mission

Lisa's computer to Everyone



Am I hearing that KS is limiting access to He'eia Bay? And that if we who live here don't like the (now blocked? Is this true?) ability to get to the shoreline, it is the County's fault? Very confused here.

moto g(7) play to Everyone

MG

yes KS has limited access to the beach at H Bay.

David E. Smith to Everyone

DE

With all respect KS' proposed development plan is NOT taking into account the historic and customary usage and rights of locals who have continuously used Keauhou bay for recreational and cultural purposes over at least the last 60 or 70 years.

Jessie to Everyone

J

The access path to He'eia Bay is open. The water is accessible. Non-native plants have been cleared out so the overgrowth is not as lush - but beach access is there.

Alice Ray to Everyone

a

the historic path along the shoreline that has been active used for at least 60 years, was recently covered up by KSBE, treating a tremendous amount of anger against the Trust, that had otherwise begin to gather appreciation of the community. I have not seen anyone tear up the naupaka, bu have seen people stumble on the new barriers, including a mom who had to leave the stroller behind, and was in jeopardy of seriously injuring her one year old baby. We have a serious difference of opinion on what is public shoreline and what is KSBE property. The EIS and shoreline survey should help straighten it out, meanwhile, let's just hope there is no serious injury to the the recent barriers being "restored" — when they have not been there for sixty years at least.

Lisa's computer to Everyone

0



I will go see, thank you Alice. This is very concerning, and makes me wonder what will happen with this proposed project.

Jessie to Everyone



To clarify, the paved access path from the road to H Bay is not blocked. The long-time path along the shore has been covered over with rock.

Alice Ray to Everyone



Yes, that is correct.

Rebecca to Everyone



Love you Mikahala! You are beautiful! Your words are true! Thank You!

Ulu Ching to Everyone



Aloha mai, will the slide deck be put on the website? Mahalo!

Ryan Roberts to Everyone



please do a safety assessment of moving boat trailer parking further from boat ramp. DLNR access and the boat trailer parking should be adjacent as is the case in other boat harbors across the state...

David E. Smith to Everyone 08:10 PM

DE Is it possible for us participants to obtain a copy of this recording ?

Emily Davids to Everyone 08:11 PM

ED Aloha Ryan, just wanted to clarify that we do not have control over the land where the existing boat trailer spaces are now nor do we have any intent in lobbying to move it. The new boat trailer spaces you see on this plan would be something that could be a potential partnership with DOBOR to provide additional boat trailer spaces, if they wish to pursue it.

Ryan Roberts to Everyone 08:12 PM

RR thanks for clarifying relative to the boat trailer parking.

Rebecca to Everyone

R Agreed, there are a lot of empty stores in Keauhou Shopping Center. Great point!



Ryan Roberts to Everyone

RR

will county/public works be upsized to deal with wastewater from proposed addition? ocean water quality... same with rainwater runoff from 210 proposed additional parking spaces (150 + 60)....

Rebecca to Everyone

R

This plan is not for the people who live here on island and in Keauhou bay. There is a hotel at the point of Keauhou already and Time Shares as well. 150 more basically hotel houses is not needed, especially when there is already hotels there.

BEN RICE to Everyone

B

If anyone who is interested in staying in touch about this proposal wants to start an email chain please contact me. If such a group already exists, please let me know as I am putting together such a list at Keauhou Resort. Ben at: benricelaw@gmail.com together

Kathy McMillen to Everyone

KM

Leila, spot on comments. Just in 30 years water quality has gotten significantly worse. That doesn't get better if we continue with stats quo.

**Appendix B**

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# **EISPN Comment Letters**



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
<b>Agencies</b>		
<p>NPS Ala Kahakai NHT</p>	<p>Thank you for providing the Ala Kahakai National Historic Trail with the opportunity to submit comments on Prep Notice (EISPN) for the Proposed Keauhou Bay Management Plan Project, Keauhou Bay, North Kona District, Island of Hawai'i, State of Hawai'i. The National Park Service (NPS) administers the Ala Kahakai National Historic Trail (NHT), added to the National Trails System by the U.S. Congress on November 13, 2000 (Public Law 106-509). In January 2009, the Ala Kahakai NHT Comprehensive Management Plan (CMP) and EIS were adopted as policy and listed in the Federal Register. The legislation authorizing the Ala Kahakai NHT identifies an approximately 175-mile portion of prehistoric ala loa, and other trails on or parallel to the seacoast extending from Upolu Point on the northern tip of Hawaii Island down the west coast of the island around South Point to the east boundary of Hawaii Volcanoes National Park. The Ala Kahakai National Historic Trail combines surviving elements of the ala loa with segments of later alanui aupuni, which was developed on or parallel to traditional routes, mauka-makai trails, and more recent pathways and roads that create links between the historic segments. The preservation and protection of natural and cultural resources and landscapes, as well as viewscapes, are vital to the mission of the Ala Kahakai National Historic Trail.</p> <p>Ala Kahakai National Historic Trail was established to administer the preservation and protect, reestablish as necessary, and maintain the ancient coastal ala loa and associated resources and values, along with linking trails on or parallel to the shoreline. The goal is to provide high quality experience, enjoyment and education guided by Native Hawaiian protocol and etiquette while protecting the trail's natural and cultural heritage and respecting private and community interests. The 175 mile trail corridor includes those ancient and historic trail alignments found within the Keauhou Bay Project Area.</p> <p>The Keauhou Bay Management Plan Project area is located near the southern end of Ali'i Drive in North Kona. As described in the EISPN, Keauhou Bay is a small bay along the Kona Coast traditionally known as a place of ali'i residence and of pastimes such hōlua sledding and surfing. Keauhou Bay is</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We appreciate the resources and information shared. Based on recommendations in your letter as well as during the subsequent consultation meeting and site visit on October 7, 2022, two areas within the TMK: 7-8-010:044 portion of the Project Area, totaling 1.97-acres, were re-examined by Haun &amp; Associates in October, 2022, in order to locate the remains of two historic trails (Keauhou Trail: Sites 15243 and Kainaliu Trail: Site 24259). The findings of the survey are included in the 2022 Haun &amp; Associates' ARS and Site Condition Update (Appendix B) and summarized in DEIS Chapter 4.1.2.3. The historical background of these trails in relation to the overall development of the bay over time is discussed in DEIS Chapter 4.1.1.</p> <p>The two subject trails are depicted on historic maps of the area as far</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>perhaps most well known as the birth site and resuscitation site of Kauikeaouli Kaleiopapa Kuakamanalani Mahinalani Kalaninuiwaiakua Keaweawe‘ulaokalani, also known as Kamehameha III, who was the son of Kamehameha ‘Ekahi and Keōpūolani. Keauhou Bay is called out in the County General Plan as a location of natural beauty and an important coastal destination for residents and visitors alike. This is a special place.</p> <p>The primary route for the Ala Kahakai NHT from Kailua-Kona to Keauhou is Ali‘i Drive, the location of the ancient <i>ala loa/alanui aupuni</i>. Previous development of the Keauhou Bay area rerouted Ali‘i Drive from its original location to the current alignment further inland. The preferred route of the Ala Kahakai NHT in this area includes Kamehameha III Road from Ali‘i Drive to Keauhou Bay connecting back to the current Ali‘i Drive alignment via Kaleopapa Street. Ala Kahakai NHT will work with the County, Kamehameha Schools, and other stakeholders to mark this route as the Ala Kahakai NHT.</p> <p>Ala Kahakai NHT requests that the applicant acknowledges, preserves, and protects the existing ancient and historic trails within the project area and discusses the findings in the forthcoming DEIS. The alignments of the Old Government Road (OGR), The Old Road to Kainaliu, and the Keauhou Trail are known significant trails present within the project area.</p> <p><b>Old Government Road (Beach Road)</b></p> <p>Recommendation: Honor the alignment of the Old Government Road by designing better continuity for pedestrian access flow, connecting Kamehameha III Road and Kaleiopapa Road.</p> <p>Recommendation: As part of the project area trail network discussed in the EISPN and community meeting, please consider including the interpretation of the <i>alanui aupuni (OGR)/ala loa</i> as part of the overall interpretation of this special place.</p> <p><b>Old Kona Road and Old Cart Road to Kainaliu (SHPD site No. 24259)</b></p> <p>Recommendation: Verify archaeological evidence for any remnant precursor trail that escaped the construction of the Old Kona Road, combined with historical map references. Include onsite consultation with Nā Ala Hele and Ala Kahakai NHT staff.</p>	<p>back as 1885. Aerial imagery of the Keauhou Bay area taken in 1954 show that these trails alignments had remained intact until at least that time. However, the trails do not appear in any subsequent aerial images likely due to the Project Area having been mechanically disturbed and overgrown with vegetation. Using the 1954 aerial imagery, the locations of the two historic trail alignments were cleared of vegetation and systematically examined by Haun &amp; Associates archaeologists.</p> <p>An approximately 1.26-acre corridor was cleared of vegetation and surveyed along the historic Keauhou Trail alignment (Site 15243). The ground surface within this corridor showed evidence of past mechanical grubbing and no remnants of the Keauhou Trail were present.</p> <p>An approximately .71-acre corridor encompassing the alignment of the historic Kainaliu Trail (Site 24259) was cleared of vegetation and surveyed. This corridor also showed evidence of grubbing with the presence of several linear mounds created by bulldozer blades. No</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>Recommendation: Verify archaeological evidence for the remains of the Old Cart Road to Kainaliu, combined with historical map references. Consider incorporating the trail alignment into the interpretive path network.</p> <p><b>Keauhou Trail (SHPD site No. 15243)</b></p> <p>Recommendation: Verify archaeological evidence for any trail remains, combined with historical map references. Include onsite consultation with Nā Ala Hele and Ala Kahakai NHT staff.</p> <p>Recommendation: Honor the alignment of the Keauhou Trail, even if archaeological evidence has been displaced. Consider utilizing the trail corridor as a pedestrian access incorporated into the interpretive path network.</p> <p>The National Park Service thanks the Group 70 and the Kamehameha Schools for recognizing Ala Kahakai NHT in the forthcoming Keauhou Bay Management Plan DEIS. Ala Kahakai NHT is looking forward to working with the landowners and communities of North Kona to continue managed access along this unique and important section of the Ala Kahakai NHT corridor.</p> <p>Thank you for the opportunity to provide these comments. We look forward to our continuing communication on this proposed project. Please contact me, 808-217-0307, or our resource staff archeologist, Rick Gmirkin, at 808-430-5213 to discuss any questions you may have on our comments.</p>	<p>remnant of the Kainaliu Trail was observed.</p> <p>The KBMP includes actions to honor the alignments of historic trails throughout the property. The planned network of new and improved walking paths throughout the Project Area will increase pedestrian access and provide an intact north-south pathway through the entire site to help recreate the experience of walking along the historic Old Government Road. The KBMP also calls for the re-establishment of the Old Kona Road as a public access vehicular easement, thereby re-opening a historic path that had become overgrown with vegetation and fallen into disuse. The mauka-makai walking experience of the historic Keauhou Trail will also be honored through the establishment of the recreation corridor. This open space corridor area will allow for bay visitors to freely walk from the coastline up to the Old Kona Road. The open space recreation corridor also connects to the network of walking paths situated both above and below 'Ahu'ula Cliff. The history and significance of the known historic trails will be incorporated</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>into interpretive elements along the walking path network. Please see DEIS Chapter 3.2 for a detailed description of the KBMP. DEIS Chapter 4.11 discusses anticipated impacts of the KBMP on pedestrian patterns and circulation.</p> <p>Thank you for your participation in the environmental review process.</p>
State Department of Defense	<p>Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project. Should there be any questions, please contact me at 808-369-3490 or <a href="mailto:tad.t.nakayama@hawaii.gov">tad.t.nakayama@hawaii.gov</a>.</p>	<p>Thank you for your letter dated April 18, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge that the Department of Defense, Engineering Office, has no comments at this time.</p> <p>Thank you for your participation in the environmental review process.</p>
State DLNR CWRM	<p>Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167</p>	<p>Thank you for your letter dated May 6, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. The following responses are offered to your comments.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>to 13-171. These documents are available via the Internet at <a href="http://dlnr.hawaii.gov/cwrm">http://dlnr.hawaii.gov/cwrm</a>.</p> <p>Our comments related to water resources are checked off below.</p> <ul style="list-style-type: none"> <li>• We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.</li> <li>• We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <a href="http://www.usgbc.org/leed">http://www.usgbc.org/leed</a>. A listing of fixtures certified by the EAP as having high water efficiency can be found at <a href="http://www.epa.gov/watersense">http://www.epa.gov/watersense</a>.</li> <li>• We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <a href="http://planning.hawaii.gov/czm/initiatives/low-impact-development/">http://planning.hawaii.gov/czm/initiatives/low-impact-development/</a></li> <li>• We recommend the use of alternative water sources, wherever practicable.</li> <li>• We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at <a href="http://energy.hawaii.gov/green-business-program">http://energy.hawaii.gov/green-business-program</a>.</li> <li>• We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at</li> </ul>	<p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Although an operator for the resort has not yet been identified, KS will encourage the use of water efficient practices and alternative water sources whenever practical. Water conservation measures will be implemented in design of the Project and may include, but not be limited to, the following: efficient irrigation systems such a drip system and moisture sensors, utilization of non-potable water for irrigation, drought tolerant plants,</p>

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	<p><a href="http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf">http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf</a></p> <p>There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.</p>	<p>and the use of Water Sense-labeled ultra-low flow water fixtures and toilets. The County Department of Water Supply (DWS) will continue to be consulted as the Project design progresses. Final construction drawings will be reviewed and approved by DWS and the Hawai'i Fire Department.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State DLNR DOBOR</p>	<p>We have no objections.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge that the Department of Boating and Ocean Recreation has no objections at this time.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State DLNR DOFAW</p>	<p>The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your request for comments on the EISPN regarding the proposed KBMP for the subject parcels located in Keauhou, on the island of Hawai'i; TMK: (3) 7-8-012:Various &amp; (3) 7-8-010:Various. The proposed project consists of reorienting uses at the bay and establishing new place-based cultural education and revenue-generating opportunities. Management strategies include establishing a Heritage Management Corridor, repositioning and developing commercial bayfront areas and</p>	<p>Thank you for your letter dated April 25, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p>

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	<p>appropriate density resort area, reorienting recreational and community use, maintaining and establishing new place-based cultural-educational areas, and managing vehicle, boat, and pedestrian circulation and wayfinding.</p> <p>The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (<i>Lasiurus cinereus semotus</i>) could potentially occur in the vicinity of the project and may roost in nearby trees. Any required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. Barbed wire should also be avoided for any construction because bats can become ensnared and killed by such fencing during flight.</p> <p>Artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in a collision with manmade structures or the grounding of birds. For nighttime work that might be required, DOFAW recommends that all lights used to be fully shielded to minimize the attraction of seabirds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. Permanent lighting also poses a risk of seabird attraction, and as such should be minimized or eliminated to protect seabird flyways and preserve the night sky. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawai'i please visit <a href="https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf">https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf</a>.</p> <p>State listed waterbirds such as the Hawaiian Duck (<i>Anas wyvilliana</i>), Hawaiian Stilt (<i>Himantopus mexicanus knudseni</i>), Hawaiian Coot (<i>Fulica alai</i>), and Hawaiian Goose or Nēnē (<i>Branta sandvicensis</i>) the potential to occur in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any of these species are present during construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, please contact the Hawai'i Island Branch DOFAW Office at (808) 974-4221.</p>	<p>We appreciate the references you have provided relating to endangered species. A Natural Resource Assessment was conducted for the Draft EIS (DEIS) by AECOS (Appendix C). Please refer to Section 4.6 of the DEIS for discussion of native species, endangered species, and critical habitat in relation to the KBMP. The Project Area has been heavily infiltrated by non-native and invasive species. As discussed in the Natural Resource Assessment, no species listed as threatened or endangered by state or federal statutes were identified on any of the project parcels at Keauhou Bay. The potential exists that several listed species might transit or utilize the general area on occasion. For further discussion on potential impacts and mitigation measures, please refer to section 4.6 of the DEIS.</p> <p>Methods for removal of non-native species and native plant restoration along with appropriate mitigation measures for the protection of endangered species are identified in the study.</p> <p>Short-term construction related activity will involve clearing and</p>

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	<p>The State listed Hawaiian Hawk or 'lo (<i>Buteo solitarius</i>) may occur in the project vicinity. DOFAW recommends surveying the area to ensure no Hawaiian Hawk nests are present if trees are to be cut. 'lo nests may be present during the breeding season from March to September.</p> <p>The State endangered Hawaiian Monk Seal (<i>Monachus schauinslandi</i>) and threatened Green Sea Turtle (<i>Chelonia mydas</i>) may potentially occur or haul out on shore within the vicinity of the proposed project site. If either species is detected within 100 meters of the project area all nearby construction operations should cease and not continue until the focal animal has departed the area on its own accord.</p> <p>The project area falls within or is encompassed the historic range of the State listed Blackburn's Sphinx Moth (BSM; <i>Manduca blackburni</i>). Larvae of BSM feed on many nonnative hostplants that include tree tobacco (<i>Nicotiana glauca</i>) which grows in disturbed soil. We recommend contacting our Hawai'i Island Branch DOFAW office at (808) 974-4221 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. DOFAW recommends removing plants less than one meter in height or during the dry time of the year to avoid harm to BSM. If you intend to either remove tree tobacco over one meter in height or to disturb the ground around or within several meters of these plants, they must be thoroughly inspected by a qualified biologist for the presence of BSM eggs and larvae.</p> <p>The proposed project work near Ho'okūkū Pond and the Kūhalalua Spring could affect State endangered native Hawaiian damselflies (<i>Megalagrion</i> spp.) and anchialine shrimp species that might potentially occur in these water features within the project site. Therefore, DOFAW recommends that a survey be conducted by a qualified entomologist to determine if listed damselflies and anchialine shrimps are present in the project area and to assess any potential impacts to those species.</p> <p>DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens (e.g., Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coconut Rhinoceros Beetles), or</p>	<p>preparing the Project Area for the phased build out of the Project. Plant species identified within the Project Area are consistent with those found in urban environments which are common non-native introduced species and scattered weedy growth. To avoid the unintentional introduction or transportation of invasive plant species during the short-term construction period, construction equipment, materials, and personnel will be cleaned of excess soil and debris to minimize the risk of spreading invasive species. The Project has been designed to ensure that the physical attributes of new development are compatible with the existing landscape. The landscape design integrates native plants and landscaping elements that are representative of the natural and cultural landscape. The landscape design also incorporates xeriscape techniques that complements the dry climate, pays tribute to the region's agricultural past, and incorporates planting of native vegetation.</p>

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	<p>invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Big Island Invasive Species Committee (BIISC) at (808) 933-3340 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ōhi'a Death and other harmful fungal pathogens.</p> <p>To prevent the spread of Rapid 'Ōhi'a Death (ROD), if 'ōhi'a trees are present and will be removed, trimmed, or potentially injured DOFAW requests that the information and guidance at the following website be reviewed and followed: <a href="https://cms.ctahr.hawaii.edu/rod">https://cms.ctahr.hawaii.edu/rod</a>.</p> <p>DOFAW is concerned about attracting vulnerable birds to areas that may host nonnative predators such as cats, rodents, and mongoose. Additionally, improvements to the bay area are likely to increase the number of users and may generate more trash. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents and mongoose, and provide covered trash receptacles.</p> <p>DOFAW recommends using native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (<a href="https://sites.google.com/site/weedriskassessment/home">https://sites.google.com/site/weedriskassessment/home</a>). We recommend that you refer to <a href="http://www.plantpono.org">www.plantpono.org</a> for guidance on selection and evaluation for landscaping plants.</p> <p>We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions,</p>	<p>Thank you for your participation in the environmental review process.</p>

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	<p>please contact Paul Radley, Protected Species Habitat Conservation Planning Coordinator at (808) 295-1123 or paul.m.radley@hawaii.gov.</p>	
<p>State DLNR DOFAW – Na Ala Hele</p>	<p>The Nā Ala Hele Trails and Access Program within the Division of Forestry and Wildlife, Department of Land and Natural Resources, thanks you for the opportunity to comment on the subject EISPN for the Keauhou Bay Management Plan. We are pleased to see Kamehameha Schools taking actions to protect the sensitive heritage sites in the area and provide interpretation while at the same time easing the congestion and overuse of the area.</p> <p>As the project proposal will potentially impact several historic features, including trails, as well as impact public access, our recommendations are as follows:</p> <p><b>Keauhou Trail (SHPD site No. 15243):</b></p> <p>The Keauhou Trail is a historic trail that has served as one of the main mauka-makai access trails for the Keauhou ahupua‘a for centuries, as shown on boundary survey maps of the mid-1800s and even earlier though oral histories. As such, per the Highways Act of 1892 (codified into State law, HRS 264), the trail alignment continues to be owned by the State of Hawai‘i (with the exception of the portions realigned in 2003 for the Bay View Estates project). Within the subject project area, there are various historical alignments, some depicting the trail running straight, and others depicting the trail curving south above the Old Kona Road before heading mauka again. The Management Plan recommendation B4 for a “commercial kīpuka” is concerning due to the potential impacts to the trail alignment and its continual use as publicly accessible land. Additionally, there is historical record of a “Kau Cemetery” area in that same B4 zone. (See Exhibit A and B.)</p> <p><u>Recommendation:</u> Verify any archaeological evidence for any trail remains, combined with historical map references. Include onsite consultation with Nā Ala Hele staff.</p> <p><u>Recommendation:</u> Honor the alignment of the Keauhou Trail, even if archaeological evidence has been displaced. Consider utilizing the trail</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We appreciate the resources and information shared. Based on recommendations in your letter as well as during the subsequent consultation meeting and site visit on October 7, 2022, two areas within the TMK: 7-8-010:044 portion of the Project Area, totaling 1.97-acres, were re-examined by Haun &amp; Associates in October, 2022, in order to locate the remains of two historic trails (Keauhou Trail: Sites 15243 and Kainaliu Trail: Site 24259). The findings of the survey are included in the 2022 Haun &amp; Associates’ ARS and Site Condition Update (Appendix B) and summarized in DEIS Chapter 4.1.2.3. The historical background of these trails in relation to the overall development of the bay over time is discussed in DEIS Chapter 4.1.1.</p>

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	<p>corridor as a pedestrian access incorporated into the interpretive path network. Consult with Nā Ala Hele staff on interpretive signage content.</p> <p><u>Recommendation:</u> As part of the re-establishment of the Old Kona Road, mark the crossing of the Keauhou Trail with inlaid natural, native stone pavers.</p> <p><b>Old Kona Road and Old Cart Road to Kainaliu (SHPD site No. 24259):</b></p> <p>Management Plan recommendation E3 proposes to re-establish the Old Kona Road. While this will indeed alleviate vehicular congestion near the coastal sites, special care should be taken in this endeavor as a portion of this road is also a historic trail (site 24259) documented in maps as early as 1885. (See Exhibit C.) We acknowledge that the portion of this trail within the subject project area was sold by the State to Kamehameha Schools via quitclaim deed in 1969, however, the portion mauka of Ali'i Drive to the upland Kainaliu village continues to be owned by the State of Hawai'i, per the Highways Act of 1892 (codified into State law, HRS 264).</p> <p><u>Recommendation:</u> Verify any archaeological evidence for any remnant precursor trail that escaped the construction of the Old Kona Road, combined with historical map references. Include onsite consultation with Nā Ala Hele staff.</p> <p><u>Recommendation:</u> Include the re-established Old Kona Road as a public access vehicular easement.</p> <p>Just past the junction with the Keauhou Trail, the alignment of site 24259 continues mauka at a diagonal up to the old mauka village of Kainaliu, where the Old Kona Road continues to round the bay. (See Exhibits A, B, and C.). The "Boutique Resort" (Management Plan recommendation B3) will therefore impact this alignment. With modern County building codes, even with a post-and-pier design, there will need to be substantial grading to create the "Boutique Resort" and its associated infrastructure.</p> <p><u>Recommendation:</u> Honor the alignment of the Kainaliu Trail, even if archaeological evidence has been displaced. Consider incorporating the trail alignment into the interpretive path network.</p>	<p>The two subject trails are depicted on historic maps of the area as far back as 1885. Aerial imagery of the Keauhou Bay area taken in 1954 show that these trails alignments had remained intact until at least that time. However, the trails do not appear in any subsequent aerial images likely due to the Project Area having been mechanically disturbed and overgrown with vegetation. Using the 1954 aerial imagery, the locations of the two historic trail alignments were cleared of vegetation and systematically examined by Haun &amp; Associates archaeologists.</p> <p>An approximately 1.26-acre corridor was cleared of vegetation and surveyed along the historic Keauhou Trail alignment (Site 15243). The ground surface within this corridor showed evidence of past mechanical grubbing and no remnants of the Keauhou Trail were present.</p> <p>An approximately .71-acre corridor encompassing the alignment of the historic Kainaliu Trail (Site 24259) was cleared of vegetation and surveyed. This corridor also showed evidence of grubbing with the presence of several linear mounds</p>

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	<p>Incorporate the alignment as part of the pedestrian infrastructure for “Boutique Resort”. Consult with Nā Ala Hele staff on interpretive signage content.</p> <p><b>Old Government Road (Beach Road)</b></p> <p>The Old Government Road along the bay of Keauhou is an ancient trail that linked the many villages along the coast, as evidenced by many early maps, archeological features, and oral histories. Certain sections have “evolved” into modern roads (like Ali’i Drive through Kailua), while other sections are remarkably preserved (like through Kuamo’o). Within the subject area, the continuous access from north to south along this trail corridor has been obscured by auxiliary activities.</p> <p><u>Recommendation:</u> Honor the alignment of the Old Government Road by designing better continuity for pedestrian access flow, connecting Kamehameha III Road and Kaleiopapa Road. Uphold the commitments of the 2003 MOA and the resulting Cultural Trails Plan. Include onsite consultation with Nā Ala Hele staff.</p> <p><b>Consulted Parties</b></p> <p>Chapter 8 of the EISPN lists the proposed agencies to be consulted in the drafting of the DEIS. Per HRS 198-D, the Nā Ala Hele Trail and Access Program “shall serve as the centralized information agency for matters relating to the trail and access program.” Additionally, per a 2003 MOA between the DLNR and Kamehameha Schools, “NAH has a compelling public purpose to collaborate with [Kamehameha Schools] on the design, landscaping and buffer treatments, and public access for the Keauhou Historic Trail System” and “[Kamehameha Schools] will consult with the Nā Ala Hele staff and the Advisory Council as they develop the overall trail plan for the Resort.”</p> <p><u>Recommendation:</u> Add the Nā Ala Hele Trail and Access Program to the list of consulting agencies, under the Department of Land and Natural Resources. Correspondence and notifications can be directed to Jackson Bauer, Hawai’i Island Trail and Access Program Manager, as detailed below.</p>	<p>created by bulldozer blades. No remnant of the Kainaliu Trail was observed.</p> <p>The KBMP includes actions to honor the alignments of historic trails throughout the property. The planned network of new and improved walking paths throughout the Project Area will increase pedestrian access and provide an intact north-south pathway through the entire site to help recreate the experience of walking along the historic Old Government Road. The KBMP also calls for the re-establishment of the Old Kona Road as a public access vehicular easement, thereby re-opening a historic path that had become overgrown with vegetation and fallen into disuse. The mauka-makai walking experience of the historic Keauhou Trail will also be honored through the establishment of the recreation corridor. This open space corridor area will allow for bay visitors to freely walk from the coastline up to the Old Kona Road. The open space recreation corridor also connects to the network of walking paths situated both above and below ‘Ahu’ula Cliff. The history and significance of the known</p>



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	<p><u>Recommendation</u>: Present the proposed Management Plan at a meeting of the Nā Ala Hele Advisory Council, per the 2003 MOA. Contact Jackson Bauer, Hawai'i Island Trail and Access Program Manager, as detailed below, to arrange this.</p> <p>Thank you for the opportunity to comment on the subject EISPN for the Keauhou Bay Management Plan. Please feel free to contact me at 808-657-8041 or <a href="mailto:jackson.m.bauer@hawaii.gov">jackson.m.bauer@hawaii.gov</a> to discuss any questions or comments you may have.</p>	<p>historic trails will be incorporated into interpretive elements along the walking path network. Please see DEIS Chapter 3.2 for a detailed description of the KBMP. DEIS Chapter 4.11 discusses anticipated impacts of the KBMP on pedestrian patterns and circulation.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State DLNR Land Division</p>	<p>We have no comments.</p>	<p>Thank you for your letter dated March 23, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge that the Department of Land and Natural Resources, Land Division, has no comments at this time.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State Department of Health – Indoor and Radiological Branch</p>	<p>Thank you for your submittal requesting comments for the Environmental Impact Statement Preparation Notice (EISPN) for the Kamehameha Schools (KS) Keauhou Bay Management Plan, Keauhou, Hawaii Island, Hawaii.</p> <p>Project activities shall comply with the following Administrative Rules of the Department of Health:</p> <ul style="list-style-type: none"> <li>• Chapter 11-39: Air Conditioning &amp; Ventilating</li> <li>• Chapter 11-41: Lead-based Paint Activities</li> <li>• Chapter 11-45: Radiation Noise Control</li> </ul>	<p>Thank you for your letter dated March 28, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>The Project will comply with all listed Administrative Rules of the</p>

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	<ul style="list-style-type: none"> <li>• Chapter 11-46: Community Noise Control</li> <li>• Chapter 11-501 Asbestos Requirements</li> <li>• Chapter 11-504: Asbestos Abatement Certification Program</li> </ul> <p>Should you have any questions, please contact me at (808)-586-4700.</p>	<p>Department of Health in order to ensure the health and safety of bay guests as well as the environment.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State Department of Health- Wastewater Branch</p>	<p>Thank you for allowing us the opportunity to provide comments for the subject project. It is our understanding that the project area will be served by the He'eia Wastewater Treatment Plant (WWTP). A wastewater flow analysis should be conducted to ensure that the He'eia WWTP can handle the additional wastewater flows from the subject development.</p> <p>Please be informed that the proposed wastewater systems for the subdivision/development may have to include design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. All wastewater plans must conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems."</p> <p>Should you have any questions, please call Mr. Mark Tomomitsu of my staff at (808) 586-4294.</p>	<p>Thank you for your letter dated April 18, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343. The following responses are offered to your comments.</p> <p>A wastewater flow analysis has been conducted as part of the analysis for the Draft Environmental Impact Statement (DEIS). The flow projections are based on land use areas, unit counts and estimated population using demand rates from the State HAR Chapter 11-62, Appendix D. As described in DEIS Section 4.12.2, the Project is expected to generate an average daily flow of 50,925 gallons per day (GPD).</p> <p>It is expected that the He'eia Wastewater Treatment Plant (WWTP) will have capacity to accommodate the increase in wastewater flows. Further study will</p>

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		<p>be needed to find out if any capital improvements of the WWRF and facilities leading up to it will need improvements with this increase in flow. All wastewater plans will conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems."</p> <p>Thank you for your participation in the environmental review process.</p>
<p>State Office of Planning and Sustainable Development</p>	<p>Thank you for the opportunity to provide comments on the Environmental Impact Statement Preparation Notice (EISPN) for the Keauhou Bay Management Plan.</p> <p>The notification request was sent via memo dated March 18, 2022. It is our understanding that Kamehameha Schools (KS) proposes a Keauhou Bay Management Plan (KBMP) on approximately 29 acres at Keauhou Bay, Hawai'i Island. The KBMP proposes a place-based cultural educational center. In the management plan, the existing commercial operations will be relocated to new facilities in more appropriate locations. The proposed management plan will focus on cultural stewardship, bayfront access for the public, and educational opportunities.</p> <p>The Office of Planning and Sustainable Development (OPSD) has reviewed the transmitted material, and has the following comment to offer:  <u>Shoreline Setback Certification and Variances</u></p> <p>The EISPN lists the need for a SMA Use Permit from the County of Hawai'i. Based on the limited amount of information in the review material, it is unclear if any of the proposed actions will involve actions near or within the shoreline. We recommend that KS consult with the County of Hawai'i Planning Department for shoreline setback requirements regarding proposed activities, if any, that may be located in the shoreline area.</p> <p>If you have any questions or concerns regarding this comment letter, please</p>	<p>Thank you for your letter dated March 18, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes (HRS) Chapter 343. The following responses are offered to your comments.</p> <p>Chapter 3 of the Draft Environmental Impact Statement (DEIS) provides a detailed description of the proposed Project and describes actions occurring near or within the shoreline area. All proposed activities will be completed in accordance with HRS 205A, Coastal Zone Management, and County of Hawai'i SMA guidelines. KS will continue to consult with the County of Hawai'i Planning Department throughout</p>

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	<p>contact Joshua Hekekoa of our office at (808) 587-2845.</p>	<p>the HRS 343 and SMA process to determine if any development activities require a shoreline setback variance.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>County Department of Water Supply</p>	<p>We have re viewed the subject Environmental Impact Statement Preparation Notice and have the following comments.</p> <p>Please be informed that there is an existing 12-inch waterline along Kaleiopapa Street. There are four (4) existing services for some of the subject parcels (Account Nos. 850-1110, 850-11350, 850-11360, and 850-11c 90). Each service has a 5/8-inch meter, which allows an average daily usage of 400 gallons. The Department will note that the average daily water' usage for each service, over the past two (2) years, is more than the allowed amount and exceeds the capacity of the existing meter. Any usage beyond the allowed use will need to be accounted as additional water needed for the project.</p> <p>Please be informed that the applicant has assigned 101 units of water to TMK 7-8-010:044 through an executed Water Agreement with the Water Board, dated April 4, 2012. Additional water could be made available subject to the Water Board's approval.</p> <p>The Department requests that the applicant submit more detailed estimated average daily water demand calculations. The calculations must be prepared by a professional engineer licensed in the State of Hawai'i and should include the number of fixture units (and corresponding gallons per minute demand) for the proposed facilities, as recommended by the adopted Uniform Plumbing Code. The calculations should also include the total estimated average daily water demand (GPD) for the proposed facilities by each service.</p> <p>Based on the calculations provided, the Department will determine the appropriate service connection size(s), facilities charges due, and other requirements for water service.</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes (HRS) Chapter 343. The following responses are offered to your comments.</p> <p>Thank you for the information regarding the existing water utilities. Section 4.12.1 of the Draft Environment Impact Statement (DEIS) provides detailed estimates of the average daily water demand for the various project components. In total, the Project will result in an average water demand of approximately 97,466.2 GPD which is equivalent to 240 water credits from DWS.</p> <p>KS understands the current assigned water credits designated for the property and is working with</p>

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Comments	Commenter	Responses
	<p>We will also require that plans be submitted. prepared by a professional engineer licensed in the State of Hawai i, showing the appropriate service lateral installation(s). A reduced pressure type backflow prevention assembly must be installed within five (5) feet of the meter(s) on private property and the installation shall be inspected and approved before water service can be activated.</p> <p>Please note that the Department of Water Supply acknowledges that potable water is Hawai Island's most precious resource and encourages our communities to promote water conservation and reserve the highest equality of water for the most valuable end use, which is the sustenance of life.</p> <p>The Department recommends that the applicant consider appropriate landscape so that additional potable water is not required. Water for landscape irrigation should be provided by alternate methods (i.e. rainwater' catchment, reclaimed or reuse water). The County of Hawai'i, Department of Public Works, and/or State of Hawai'i, Department of Health has guidelines, recommendations. or regulations. regarding these types of systems.</p> <p>Should there be any questions, please contact Mr. Ryan Quitoriano of our Water Resources and Planning Branch at (808) 961-8070, extension 256.</p>	<p>DWS to allocate the necessary water credits for this project.</p> <p>Water conservation measures will be implemented in design of the Project and may include, but not be limited to, the following: efficient irrigation systems such a drip system and moisture sensors, utilization of nonpotable water for irrigation, drought tolerant plants, and the use of Water Sense-labeled ultra-low flow water fixtures and toilets.</p> <p>The County of Hawai'i DWS will continue to be consulted as the Project design progresses. Concept drawings will be included in Appendix H of the DEIS and also provided to DWS and HFD for review and comment. Construction documents, including construction plans and calculations of fixture units, will be submitted to DWS and HFD for review and approval after Final EIS and Special Management Area (SMA) approval.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>County Police Department</p>	<p>The above-referenced Courtesy Notification for a Planned Publication of an Environmental Impact Statement Preparation Notice (EISPN) for the</p>	<p>Thank you for your letter dated April 6, 2022, concerning the</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>Kamehameha Schools (KS) Keauhou Bay Management Plan Keauhou, Hawai'i has been reviewed and we offer no comments at this time.</p> <p>Should you have questions, please contact Captain Gilbert Gaspar Jr., Commander of the Kona District, at (808) 326-4646, extension 299, or via email at <a href="mailto:gilbert.gaspar@hawaiicounty.gov">gilbert.gaspar@hawaiicounty.gov</a>.</p>	<p>Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge that the County Police Department has no comments at this time.</p> <p>Thank you for your participation in the environmental review process.</p>
Organizations		
<p>Daughters of Hawai'i</p>	<p>Thank you for the opportunity to submit comments regarding the Environmental Impact Statement Preparation Notice for the Proposed Keauhou Bay Management Plan Project by Kamehameha Schools.</p> <p>For over a hundred years the Daughters of Hawai'i, a nonprofit 501(c)(3) organization, has upheld our mission of historic preservation, preserving and protecting places of historical and cultural significance in Hawai'i and increasing awareness of the importance of historical preservation. Since 1903, we have drawn attention to and saved from oblivion historical sites and wahi pana such as the Nu'uuanu Pali on O'ahu to commemorate the Battle of Nu'uuanu, Kūkaniloko on O'ahu one of the two birthing places throughout the islands reserved for the highest-ranking ali'i, and Ka'iulani's Banyan marking the home of Princess Ka'iulani—Hawai'i's last heir to the throne. Today, we are the caretakers of three historic sites, listed on the State and National Registers of Historic Places. Two of the sites are managed and operated as historic house museums, Hulihe'e Palace in Kailua-Kona on Hawai'i Island and Hānaiakamalama—the Queen Emma Summer Palace in Nu'uuanu, O'ahu. Our third site, Kauikeaouli Stone, the birth site of Kauikeaouli, King Kamehameha III lies within the boundaries of the proposed project area identified by the Keauhou Bay Management Plan.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We thank you for your continued commitment in the protection and preservation of Kauikeaouli's birth site. We agree that this site is a special wahi pana that should be cared for in a way that honors the history and legacy of the ali'i who once resided at Keauhou Bay. KS is committed to the continued collaboration with Daughters of Hawai'i and will continue to consult with your leadership throughout this planning process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>We are very interested in the Kamehameha Schools proposed development in this area at Keauhou Bay. The Daughters of Hawai'i has been an active and involved community member of the bay since 1911. In 1914, the Daughters with support from Queen Lili'uokalani, held a ceremony to mark the 100<sup>th</sup> anniversary of Kauikeaouli's birth and erect a bronze tablet to officially mark and preserve this historic site, a very important cultural and historical asset. This project proposes a significant change to the bay area and to the landscape and the surrounding areas of the birth site, which we have cared for and stewarded for over one hundred years, and will continue to care for today and in the future. We are taking our time to review the proposed development plan, to understand the process by which we can continue to engage in it, and to better understand how it will impact and affect the birth site and the surrounding areas.</p> <p>The Daughters of Hawai'i has a long history and a standing partnership with Kamehameha Schools. We applaud their extensive work throughout the islands and beyond to uphold the legacy of Princess Bernice Pauahi and our ali'i. Thank you for providing this opportunity to comment, we look forward to continue engaging with Kamehameha Schools to continue the preservation and commemoration of Kauikeaouli's birth site and his legacy.</p>	<p>Thank you for your participation in the environmental review process.</p>
<p>Keauhou Resort Condo AOA</p>	<p>We are writing you to share our views as neighbors at Keauhou Bay in regards to the new version of the KBMP.</p> <p>While we understand that you are working with the county of Hawaii, under the requirements to having two Tsunami Evacuation Roads out of Keauhou Bay in your plan, we would greatly appreciate your consideration on how these plans are going to irreversibly and negatively change the quality of our lives and homes, with large increases in traffic, overcrowding, and penetrating noise in such close proximity.</p> <p>We had hoped for a more open and transparent line of communication from Kamehameha Schools in the planning process, and feel as though our objections are being overlooked. Your response and cooperation in our concerns would be greatly appreciated.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>An Acoustic Study was conducted for the DEIS by Y. Ebisu and Associates (<i>Appendix F</i>). Overall, the results of the Noise Assessment indicate that no significant increases in noise levels are</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>predicted to occur as a result of traffic following the full buildout of the Project. Short-term noise impacts associated with Project construction activities may occur during the earthwork and excavation phases, when site preparation work and/or roadway construction occur. In addition to the anticipated application of State Department of Health noise permit requirements and procedures during noisy construction activities, the use of quieted portable engine generators and diesel equipment will be specified for use within 500 ft of noise sensitive properties. Heavy truck and equipment staging areas will also be located at areas which are at least 500 ft from noise sensitive properties. For further discussion, please refer to section 4.13 of the DEIS.</p> <p>KS is committed to continuing to engage with the Keauhou Resort Condo AOA and area residents throughout the planning process. You will be notified of the next public meeting for the Project as well as the opportunity to review and provide comments for the DEIS. Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
<p>Royal Order of Kamehameha</p>	<p>The Royal Order of Kamehameha I - Kona Chapter has reviewed the 84 page EISPN document. We have a few comments and concerns to share regarding the project of revitalizing Keauhou Bay and the Project Parcel area.</p> <p>We understand the need to develop the area, to be able to share the rich history of this location. Also the improvements recommended are important due to the frequent visits of community members and tourists in the area. In reviewing the EISPN and its alternative plans, the document frequently mentions the need for creating and maintaining the cultural significance of the area. Also providing a space for those to engage in place-based learning. We find the pursuit of maintaining our wahi pana and connection with our community, a worthy cause for development.</p> <p>With the focus on culture and education mentioned throughout the EISPN, we are looking for assurances that as the project progresses, the project as a whole and business ventures/expansions planned, do not become the center focus with our cultural sites becoming mere museum displays or tourist attractions. Education and place-based learning should be the focus, not a part of a shopping center. We already have that, Keauhou Shopping Center. To clarify, we have no issues with Keauhou Shopping Center, but the outcome of the Project Parcel area should not be a shopping center.</p> <p>Developing this parcel of land will no doubt receive comments by our community and organizations. Section 3.3 Archaeological and Cultural Resources, Page 34, states “despite the many changes to Keauhou Bay since 1946, the area remains significant as part of a larger indigenous cultural landscape. There are opportunities within the Project Area to reconnect the few remaining indigenous features or to restore those that have been covered or filled and ultimately enhance the integrity of the indigenous cultural landscape.” This is most important to us, the revitalization and reconnection to the land and historic sites. If the project stays true to this, it will be for the good of the community and our wahi pana. We ask that the Royal Order of Kamehameha I -Moku O Kona continue to be consulted as this project moves forward.</p> <p>The Royal Order of Kamehameha I was founded on April 11, 1865 by decree of Kamehameha V Lot Kapuaiwa in honor of his grandfather Kamehameha I.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>The mission of KS is to create educational opportunities in perpetuity to improve the capability and well-being of people of Hawaiian ancestry. KS' Vision 2040 Vision seeks to improve the well-being of 'āina and the lāhui within one generation. In that light, the lands bestowed upon Ke Ali'i Pauahi, and subsequently endowed to KS, enhance a sense of Native Hawaiian identity by maintaining its ancestrally mandated obligations and responsibility to past, present, and future.</p> <p>Moreover, KS, as the haku 'āina, has an obligation to care for these legacy lands in a manner conducive to not just fostering this relationship between kānaka and 'āina but to also ensure their long-range economic vitality as to positively meet the needs of the communities the institution invariably serves. To fulfill its mission, KS seeks to utilize its landholdings and resources to</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>We continue to honor and celebrate his legacy as chiefs of the Royal Order of Kamehameha I. The Royal Order of Kamehameha I is devoted to the continued preservation and perpetuation of the ancient culture, customs, and traditions of Hawai'i. As well as continuing to uplift the Hawaiian people through supporting projects that align with our values.</p>	<p>achieve a balanced state between educational, cultural, environmental, economic and community returns. KS recognizes that a thriving lāhui is not solely achievable through financial gains but is equally dependent upon the well-being of its learners, the greater community, and the 'āina as a whole.</p> <p>KS is committed to continuing to engage with The Royal Order Of Kamehameha I throughout the planning process. You will be notified of the next public meeting for the Project as well as the opportunity to review and provide comments for the DEIS. Thank you for your participation in the environmental review process.</p>
<p>Businesses</p>		
<p>Fair Wind Cruises</p>	<p>We have enjoyed living and working in Keauhou Bay Small Boat Harbor over the past 50 years. During the 1970's Guido Giacometti was the President of KIC and managed Keauhou with real aloha. He respected and loved the area and the people in it. He jogged through the area daily and his mother lived in a home on the bay. Once he left the position, others who took that position did not have the same aloha and were seldom if ever seen in Keauhou Bay. Soon the nursery guys who took such good care of the landscaping were no longer holding those jobs and the area started to look in shambles. The Kona Lagoon Hotel stood empty for 13 years before it was taken down. The</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>Keauhou Gardens, a planted garden with acres of plants marked by their names and uses in Hawaiian medicine and culinary went to weeds. Kamehameha Schools have left this development with little to no care for decades. Their leadership is in Honolulu and the representatives here in Kona have not had Malama 'Aina on their minds.</p> <p>As heartbreaking as this all is to those who truly love Keauhou, it is past time to give some aloha to "Keauhou The Crowned Lands". It is past time that Kamehameha Schools Malama 'aina, invested energy to maintain the grounds and make the area beautiful again. Statewide everyone else seems to be working on taking care of the land, and ocean. KS wants to build a hotel? They want a hotel now, again, why did the Keauhou Beach Hotel need to be torn down and 300 jobs taken away? Who will be given the management contract for this boutique hotel? Where do they think they are going to get employees? There are not enough employees for the jobs needing to be filled now. What we need is housing. Without housing, Hawaii Island Planning Dept should not allow or approve building permits for a hotel anywhere in Kona. We have a housing crisis and it is apparent with this development plan, KS is not thinking of the community's needs. The Executive Board needs to come here and see what their "Crowned Lands" look like and take care of this forgotten development today. The shopping center is partially empty filled mostly with medical offices, not what anyone thinks of as a shopping center.</p> <p>This plan speaks of opening the bay to more residents, but when has a hotel ever opened its oceanfront area to the public more than Keauhou is now? ..... never! There are a lot of residents using this bay, beach, and harbor. But no one from KS is ever here to know this.</p> <p>The Maui Arts and Cultural Center is something I believe could be replicated here in Keauhou in place of the "boutique hotel". A smaller version of the MACC could work and bring a rich addition to our Kona community. A place open to the public sharing family fun, arts, film, and dance. MACC is funded by grants and fees generated from some of the events they host. Maui citizens participate and enjoy the learning and culturally rich opportunities</p>	<p>We agree that greater investments are needed to maintain the grounds and make the Keauhou Bay area beautiful again. KS plans to reinvigorate and transform its lands fronting the Keauhou Bay area to become a place where culture and education is celebrated and highlighted amidst viable commercial operations, which will be repositioned but are essential to fund the cultural and educational programming within the immediate area. As described in Section 3.2.1 in the Draft Environmental Impact Statement (DEIS), the Project will establish a heritage management corridor along the bayfront. The Project will enhance the cultural landscape and history associated with the heritage corridor through enhanced physical and visual access, restoration, and interpretation. The improvements include restorative actions to ensure historic integrity and longevity of the natural and cultural resources. Improved landscaping throughout the heritage corridor will be compatible with the historic character of the bay or suitable to coastal regimes typical of the Kona area. Landscaping may also include the use of native plants that could</p>

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Comments	Commenter	Responses
	<p>offered them at MACC as would Kona citizens if Kamehameha Schools could have the vision to add something missing in Kona!</p> <p>I agree with the Marine Activity Business building built nearby with parking and restrooms for the marine activity customers. We along with a few other marine businesses in Keauhou had been leasing a parking lot for our customers to park in but since covid Kamehameha Schools has not made that available for lease again, and all of these customers, 250 or so are parking along the street every day. We need public parking for the commercial users and residents that come down to the harbor.</p> <p>The state pier and parking area on the pier are necessary for mechanical equipment to have access and deliver supplies and fuel to the vessels that are permitted to moor in the harbor. We have USACE permitted moorings in this harbor. The KS plans to relocate commercial operators away from culturally sensitive areas need to accommodate the DLNR/DOBOR permittees for access to their vessels. The harbor area is a state harbor with USCG navigational lights. This is not up to KS to redesign.</p>	<p>be utilized for select cultural demonstrations and practices related to hōlua sledding, fishing, healing practices, or hula. As part of the management of this heritage corridor, KS will strive to foster collaborations with lineal descendants, cultural practitioners, and community volunteers to cultivate opportunities for KS students and the public to engage in ‘āina based restorative efforts. Implementation of the plan will in no way limit access to the shoreline. In fact, the plan will increase the amount of open public space and improve overall access to the shoreline.</p> <p>In regards to the management of the boutique resort, KS is presently looking for a resort operator that is committed to community and place and the vision that KS and its stakeholders has established for Keauhou. KS is dedicated to implementing a new model of destination management focused on Native Hawaiian regenerative tourism and traditional models of ho’okipa. Please refer to DEIS Section 3.2.2 for information on the boutique resort.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>DEIS Section 4.14 assess economic impacts of the Project. An Economic Impact Report (EIR) was prepared by Environment &amp; Economics for the Project and included in <i>Appendix G</i>. The EIR estimates that there would be an estimated total of 159 jobs generated or sustained from Project operations annually. These jobs would primarily be in service industries such as the hotel industry (e.g., building maintenance and clerks), retail industry (e.g., retail sales), and restaurant industry (e.g., food and beverage service and cooks). Employment opportunities within the Project Area will continue to diversify and increase employment opportunities in the Kailua-Kona Region.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the</p>

**Table 7.2 DEA Summary of Comments and Responses**

<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>We thank you for the recommendation to consider the Maui Arts and Cultural Center as a model for Keauhou Bay. DEIS Section 3.2.4 discusses the plans proposal to develop a new cultural education heritage center. The rehabilitated heritage center will be utilized to support a range of activities including: 1) KS place-based educational programming, 2) key commemoration events such as the annual Kamehameha III celebration; and 3) specific culturally-related collaborations with key community partners to host events that honor the legacy of Keauhou Bay. The heritage center will be utilized to honor and enrich the history and living legacy of excellence in this wahi pana, and to provide a place of learning and connection for locals, lineal descendants, and visitors alike.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project’s proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p> <p>The Project does not propose to make any changes to existing State-owned harbor facilities nor limit access to DLNR/DOBOR permittees. Thank you for your participation in the environmental review process.</p>
Outrigger	Aloha. I would like to voice our support of the Keauhou Bay Management Plan as we feel it will enhance the area and provide additional learning experiences for our guests from all over the World.	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We appreciate your support of the Project. Thank you for your participation in the environmental review process.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Individuals		
Akiko Nakamura	We against Keahou bay planing	<p>Thank you for your letter dated April 24, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comment related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific commitments to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>

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Comments	Commenter	Responses
		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Alapa'i Kaulia	<p>I am a decendant of the aina in Keauhou. I am against the development of this area as KAMEHAMEHA schools already has the following in their Kahaluu educational location. The following is already established. I believe that this is a foot step for more progress which is not necessary in Hawaii. There needs to be alternatives to eroding and desecrating out lands for more tourism in the name of educating our kanaka.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>The income generated from activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural pieces of the Keauhou Bay Management Plan.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific commitments to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career</p>

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Comments	Commenter	Responses
		<p>pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Alice Ray</p>	<p>Aloha,                      I appreciate the major effort that has already gone into planning this next step in the life of Keauhou Bay. The Kamehameha Schools Trust has clearly tried to solicit input from many directions in order to come to the proposed plan. Nonetheless, I believe it is clearly flawed in the most fundamental way and will have a negative impact on the very people in whose interest it purports to be acting, low income Native Hawaiian people.                      It purports to be aligned with the KSBE Trust's mission "to improve the capability and well-being of people of Hawaiian ancestry." Kuhanauna, KSBE's important document of organizational intent through 2040 clearly states "We will steward our 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways (for Native Hawaiians)." Yet the plan for a 150 unit high end hotel and restaurant betrays this commitment. People of Native Hawaiian ancestry have a poverty rate almost 50% higher than the state as a whole. They have the highest employment rates, yet the lowest family income rates of any group. One big reason is dead end jobs in the hospitality industry, which loves to have Hawaiian people on display, but not to pay them a living wage. Investing in another high end restaurant and fancy hotel does not create many career pathways to the kinds of jobs that produce a resilient economy. It locks more people in poverty. And these are not the kind of places low income people, Hawaiian or not, can afford to frequent. Without a doubt the tremendous financial assets the Trust has been bequeathed need to be invested wisely to ensure fulfilling its long term</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific commitments to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community</p>

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Comments	Commenter	Responses
	<p>mission. But the current proposal makes a huge investment in two very risky businesses with little chance of a proportionately high reward, either cultural or financial. 60% of new restaurants fail within a year, 80% within five years. Location is a key factor; several have failed already at the Keauhou Bay site. If the Trust is willing to take on such a high level of risk, why not instead create an equity fund in the fast growing space of social enterprises?</p> <p>Entrepreneurial businesses led by Hawaiians and/or creating professional level careers for Hawaiians, with a double bottom line, explicitly creating social as well as financial value for the community, would seem to be a much better bet - and could be done without disrupting the aina at Keauhou Bay.</p> <p>As for the proposed road: Why not start with the much less expensive option of a semi-paved walking path between the two sides of the Bay, and then measure its utility before committing to the much greater expense, and predictably more unintended negative impacts of a county road.</p> <p>Please deny this permit. While it has been submitted by an organization with a formal commitment to protect the interests of Native Hawaiians, the actual impact on native people is more likely to perpetuate systemic economic injury and injustice to them.</p>	<p>members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>DEIS Section 4.14 assess economic impacts of the Project. An Economic Impact Report (EIR) was prepared by Environment &amp; Economics for the Project and included in <i>Appendix G</i>. The EIR estimates that there would be an estimated total of 159 jobs generated or sustained from Project operations annually. These jobs would primarily be in service industries such as the hotel industry (e.g., building maintenance and clerks), retail industry (e.g., retail sales), and restaurant industry (e.g.,</p>

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Comments	Commenter	Responses
		<p>food and beverage service and cooks). Employment opportunities within the Project Area will continue to diversify and increase employment opportunities in the Kailua-Kona Region.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Alysia Fischer</p>	<p>As an archaeologist who worked on site in Keauhou Bay for multiple impact assessment and tsunami mitigation projects, I am vehemently opposed to any development that would add more commercial or residential impact to the area. Along with the uncontrolled sea level rising, any further development would negatively impact the invaluable historical and cultural resources of the area. Kamehameha Schools, the county, and the state can do better with “fundraising” for education and the preservation of this area instead of hiding it within the guise of obtaining the funds through further “for profit” development. Preservation and improvement projects are always welcome and encouraged, but it shouldn’t come at the high cost of changing the physical and cultural landscape to this extent.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to commercial or residential development at Keauhou Bay. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career</p>

**Table 7.2 DEA Summary of Comments and Responses**

<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from commercial activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. Several recorded archaeological sites within the Project Area are in areas with overgrown vegetation and not easily accessible. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
Amanda Nixon	This is a horrible selfish idea. Our bay is small and cannot handle another resort. A'ole to more development. The beach is way too small. No no no.	<p>Thank you for your letter dated April 11, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the proposed boutique resort development. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific commitments to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision,</p>



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Comments	Commenter	Responses
		<p>the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Amy Axelrod</p>	<p>As a local resident in the Keauhou Bay area, I implore you to NOT install new commercial retail or condos. This is one of the few untouched places on our precious Kona aina. Please show this historic area the respect it deserves by keeping its untouched green spaces green and its roads quiet. Turning the Old Kona Rd into a thoroughfare is no way to preserve the bay.</p> <p>Please take seriously this request to leave our beautiful bay in peace.</p>	<p>Thank you for your letter dated April 14, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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		<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Ann Nichols	My husband and I own at Kanaloa at Kona. This project is oversized and a terrible idea for one of the last public ocean access. Not only is it defiling a	Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement

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Comments	Commenter	Responses
	<p>historic area, it will create traffic issues, congestion and ruin the community character of Keauhou Bay and Heiea Bay.</p>	<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to</p>

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		<p>achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
Arden Wilken	<p>I am an owner of a unit in Keauhou Resort at 78-7039 Kamehameha III RD just north of the proposed development at Keauhou Bay.</p> <p>We also own a small boat that we keep for our own recreational purposes at the current boat storage yard just south of Keauhou Resort and north of Keauhou Bay.</p> <p>1. You should do something to encourage both roads into the new development to be used so that traffic is not just centered on Kamehameha III.</p> <p>As well, do whatever traffic modifications are necessary to keep traffic slow on Kamehameha III below Alii Drive.</p>	<p>Thank you for your letter dated April 13, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses.</p> <p>The KBMP involves reestablishing the Old Kona Road as the primary</p>

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Comments	Commenter	Responses
	<p>2. Maintain the current boat storage yard (with the advertised improvements) as well as increase the number of boat trailer parking spaces in the launch area.</p>	<p>vehicle thoroughfare through the bay to direct traffic away from the Kamehameha III birth site. The new thoroughfare will allow vehicular and pedestrian access to the Keauhou bayfront from both Kaleiopapa Street and Kamehameha III Road. The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project’s proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new</p>

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Comments	Commenter	Responses
		parking stalls and 23 new boat trailer parking stalls).
Arden Wilken	<p>I am opposed to the current proposed KS plan for Keauhou Bay. I feel it would forever change in a negative way the landscape of the bay due to overcrowding, overdevelopment and more pollution- including sound and traffic.</p> <p>There are already many commercial spaces in Keauhou Shopping Center that are empty, there is already a hotel, The Outrigger, in the bay, and more development would upset the fragile environment of the water itself and produce more heat from current foliage being sacrificed.</p> <p>Thank you for your understanding and help.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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		<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Athena Gray	<p>It's my understanding there are plans to construct a resort at Keauhou Bay. Please do not try to build a hotel in this tiny little bay. This is an important area to keep sacred due to King Kamehameha being born there. This is also an area our community should be able to access and enjoy without having to be near a hotel or a bunch of tourists. This is just so wrong, please find another place for your hotel.</p>	<p>Thank you for your letter dated April 12, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the</p>

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		<p>bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Barbara Nobriga	<p>I have met with several of you on several different occasions and have always let you know my dissatisfaction with the development of Keauhou Bay. It is a disaster and disrespectful of our Alii and Hawaiian people.</p> <p>I grew up down there, our family had a beach house right on the site of the Fair Wind. I would sit on the sea wall at night and hook aweoweo and uu. I played in the baptismal rock and let the waves wash over me and push me</p>	<p>Thank you for your letter dated April 25, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>Into Kupalalua which is non existent today, along with our house that went out with the tidal wave.</p> <p>We shipped cattle out of the beach where the pier is. My mother used to rope and drag the pipi to the long boat with the rest of our family. We played and swam at the black sand beach where the pier is. I learned to swim in Keauhou and would take my horse in swimming.</p> <p>We could not drive from the north side to the south at high tide because there was at least a foot of water covering the road.</p> <p>The manta were always in the bay as we swam from sampan to sampan.</p> <p>Then Mr. Troy Post arrived right out of Texas. He immediately bulldozed the oldest Heiau to make a golf course. The remains are still there in the form of bougainvillea. Then came the massive “kitty litter” box also known as the volleyball court. Construction was also underway for the pier. That was the beginning of the end of beautiful Keauhou. Now Kilinehehe beach was obliterated The memory of Mary Hauanio crawling on the rocks catching opihi and aama is still etched in my mind. We watched Doc Hill build his home Now it was our turn and we built further out on the point in the 60s. We watched the Kona Surf go up as we were directly across the bay. We sold when the Bay got so crowded and run down.</p> <p>Now you folks want to restore the Historic Bay. What are you going to restore? Putting a Boutique where the canoe halau is is ridiculous . Tourist look for culture and history. A sand beach with canoes ready to go is in tune with old Hawaii, not a fancy boutique. Push the kitty litter box mauka, let the beach come back The Fair winds has totally destroyed that side of the Bay In 1973 the Daughters of Hawaii were given outright, the Kamehameha III birth place complete with open space, maintenance and the stipulation that not so much as a rock could be moved without first consulting us. That was good for a few years till a change of management went. From there it wasn't a rock being moved, it was truckloads and no contact with the Daughters. It was in the late 90s I Noticed the driveway into the Fair Winds and asked the the. CEO what happened. His response, “I guess we weren't paying attention. Which has been happening right along.</p>	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We thank you for sharing you and your family's history in the bay. Your insight and knowledge of Keauhou and its history have been invaluable during this process.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes,</p>

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	<p>If you want to do all this development, go behind the boat trailers parking, Plenty room tourist can walk from the hotel tour around your fancy boutique. The place is a fire waiting to happen.</p> <p>I could go on and on, I hope I conveyed the message and manao.</p>	<p>diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Barry Willis</p>	<p>Keauhou Bay must not be changed from its purely Hawaiian purposes which it serves now. Those include swimming, canoe paddling, volleyball, local activities.</p> <p>Please do not allow development of this precious part of Hawaii's heritage.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with</p>

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		<p>lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Implementation of the KBMP is not expected to impede the practice of any of the practices you have mentioned. Moreover, the KBMP is designed to improve access to the bayfront and enhance opportunities for cultural practices.</p> <p>Thank you for your participation in the environmental review process.</p>
Ben Rice	Thank you for the opportunity to comment on the Keauhou Bay Management Plan Environmental Impact Statement Preparation Notice (EISPN).	Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou

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	<p>As has been shown time and again the water quality of this beautiful Bay is unacceptable ... from marginal to terrible. The water which runs off the golf course above the K.S. planned site already negatively impacts the Bay. It is alarming to think about what all the polluted water running off acres of concrete from the site will do. This spot on the Big Island is culturally significant and popular <i>because</i> of the Bay. What remediation will make the Bay safe for swimming, paddleboarding and other water sports? (The pollution impacts the adjacent surf spot at Heeia Bay as well).</p> <p>The K.S. stated desire to use the space to better honor the birth of King Kamehameha III and provide a place for Hawaiian heritage to be celebrated and honored is a clever hypocrisy. The people who will take over this beautiful Bay will be the well to do who inhabit the 150 units and enjoy the “fine dining” restaurant. Few will be native Hawaiians. Another takeover of one of the last important cultural sites of this beautiful Island.</p> <p>Thank you for addressing the foregoing concerns. This is my request for additional work. Please respond to my queries as part of your public review process and to me by email.</p>	<p>Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new</p>

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		<p>development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Thank you for your participation in the environmental review process.</p>

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Comments	Commenter	Responses
<p>Betsy Gerace</p>	<p>As an owner of a condo on Kamehameha III Rd., I am writing to express my concern with the proposed development at the Bay, to include a 150 unit resort. As this is essentially a five minute walk from my house I envision a changed environment outside my door. The development of a resort in this pristine and special place does not add to our community rather it will attract hordes of visitors and all that comes with that-traffic, noise, wear and tear on our roads, over use of our waters, to name a few. I support the cultural aspects of the plan, but do not see how a resort fits in. There is already a large hotel in the vicinity-The Outrigger. Why is there a need for more hotel space?</p> <p>I appreciate that the opportunity to share during this public comment period and hope that my objections are weighed along with all the comments.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at</p>

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Comments	Commenter	Responses
		<p>Keauhou Bay – including the resort – will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Betty De Roy</p>	<p>What is the thinking of all of you who want to develop the area at Keauhou Bay? Shame on Kamehameha Schools/Bishop Estate for wanting to go ahead to develop that area into what? 150 hotel rooms for more tourists to enjoy and taking the area away from the local people. Haven’t any of you learned from our recent challenges with COVID 19 that we should NOT put all our efforts into tourism which came to a sudden halt with the COVID 19 pandemic? The area will not be able to handle the traffic that will result when another resort is squeezed into a confining area at Keauhou Bay. Am I wasting my time by letting you know I vehemently object to the proposed development of that area. Betty De Roy, born and grew up in Hawaii.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes,</p>

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		<p>diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Bobby Camara</p>	<p>I’ve read the plan and appreciate the opportunity to share comments.</p> <ol style="list-style-type: none"> <li>1. It always perplexes me that plans of this nature always seem to fail to capture correctly geology of the site and surroundings. There are readily available geologic maps that must be consulted. Though the Kona Districts seem safe from lava flow hazard, the flow on the north side of the subject property issued from Wahapele, very violently and explosively, 710 +/- 150 years ago. That eruption disrupted life of Native Hawaiians in the region.</li> <li>2. Local families have been priced out of “Staycations”. Our economy, based on tourism, has seen astronomical increases in hotel room rates.</li> </ol> <p>If KS is, as is stated, dedicated to ensuring perpetuation of Native Hawaiian culture and important cultural sites as are found on the shores of Keauhou Bay, then it seems logical and entirely reasonable that KS build overnight amenities and host local families at very affordable prices. Yes, we understand that many believe that this re-development should pay for itself and be self-sustaining. But. It’s imperative for the health and well-being of</p>	<p>Thank you for your letter dated March 30, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343. We offer the following responses.</p> <p>This Project aims to purposefully pursue the ‘Āina Aloha Economic Futures Declaration with a specific focus to “assert collective kuleana to restore degraded environments, sustainably managed human-occupied spaces, and protect the</p>



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	<p>our local populace, many of whom work in the tourist industry, that our people be able to rejuvenate near the shore. They can participate in cultural programming at the Cultural Center, learn about the rich histories of the ‘āina, kai, and people of Keauhou, and share that knowledge with friends and family. KS should be able to subsidize that Family Learning.</p> <p>Rather than building 1800 square-foot luxury bungalows and attracting more wealthy malihini who have no connection to, or aloha for, place, build small 1-bedroom hale, basic and simple, patterned after beach houses of the mid-1900s. Single-walled, post-and-pier, shutter windows, covered lānai, with pūne‘e for sleeping. And make them affordable. Campsites with central shower and restrooms should also be included.</p> <p>3. All landscaping must consist of endemic, native, or Polynesian-introduced species. Plant lots of ‘ōhi‘a, ‘a‘ali‘i, lama, wiliwili, pili, and niu. Plan plantings of niu so that trees are allowed to fruit and nuts can fall in fenced off areas to minimize injury-by-falling-coconut lawsuits. Consider exemptions for favored period plants such as tiare, laua‘e, spiderlilies, crownflower, nightblooming cereus.</p> <p>Consider construction using readily available lava and coral (lime) mortar. Thick stone walls allow interiors to stay cool. No need for air-conditioning.</p> <p>Mahalo for your consideration.</p>	<p>vibrancy of intact ecosystems.”</p> <p>However, KS further acknowledges that one aspect of Project will require an innovative approach to redefine the role of ho‘okipa (to welcome others with hospitality) in the region. Chapter 3 of the Draft Environmental Impact Statement (DEIS) describes various components of the resort inclusive of the design of the guest units in detail.</p> <p>We thank you for providing information on the geologic history of Keauhou. A description of the geology in the vicinity of the Project Area is provided in Section 4.3 of the Draft Environmental Impact Statement (DEIS).</p> <p>As described in Section 3.2.1 in the Draft Environmental Impact Statement (DEIS), the Project will establish a heritage management corridor along the bayfront. The Project will enhance the cultural landscape and history associated with the heritage corridor through enhanced physical and visual access, restoration, and interpretation. The improvements include restorative actions to</p>

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		<p>ensure historic integrity and longevity of the natural and cultural resources. Improved landscaping throughout the heritage corridor will be compatible with the historic character of the bay or suitable to coastal regimes typical of the Kona area. Landscaping may also include the use of native plants that could be utilized for select cultural demonstrations and practices related to hōlua sledding, fishing, healing practices, or hula. As part of the management of this heritage corridor, KS will strive to foster collaborations with lineal descendants, cultural practitioners, and community volunteers to cultivate opportunities for KS students and the public to engage in ‘āina based restorative efforts.</p> <p>Thank you for your participation in the environmental review process.</p>
Bobby Camara	Gotta preserve/restore site of K1’s hale, as well as K3’s birthplace.	<p>Thank you for your letter dated April 6, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p>

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		<p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
Bobby Camara	<p>I noted that the Aha Moku for this island will be consulted. Note that their map, attached, may be construed as depicting ahupuaa, but they are not. Apparently they depict “watershed boundaries” or something. The “good” accurate ahupua‘a maps are also attached.</p>	<p>Thank you for your letter dated April 8, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>Mahalo for sharing the ahupua‘a map. The DEIS includes maps of the Project Area in relation to ahupua‘a boundaries on figures 1-2 and 4-1. The ahupua‘a boundary layer was sourced from the Office of Hawaiian Affairs (October 2019).</p>

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Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Booey Hodgins Garcia	<p>What Kam Schools/Development is planning for Keauhou Bay is nothing short of rape. For Hawaiians who care about their aina and history, I am shocked and disgusted. I grew up on that bay. Back then the coral, wana/vana sp?, little shrimp on the buoys, opihi and a'ama on the rocks, and crystal clear water.</p> <p>Even now with what is currently on the bay, is a total disgrace and lacks any foresight whatsoever. Just like the mauka side of Ali'i Drive. I remember about 16 homes on the ocean in the 50s. (Could have been more. I was young. ). You could see the ocean and who was fishing.</p> <p>Don't let the same thing happen to Keauhou. Please.</p>	<p>Thank you for your letter dated April 8, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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		<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Bridget K Butler</p>	<p>I want to mahalo you for the invite to comment on this proposed development for beloved Keauhou Bay. I took time to pule, to noho, to ho'olohe, and here is my mana'o:</p> <p>We all deeply love Pauahi and her dying wishes for her po'e Hawai'i, this love expressed for nā keiki of Hawai'i through the forming of Kamehameha Schools &amp; Bishop Estates. It's a wonderful legacy that she left- quite a remarkable woman she is and inspires many of us to be. Pauahi had a vision to see the generations after her to ho'oulu thrive and she put her money where her heart was and left it all to her beloved nāpua. Many keiki who are kanaka maoli have been greatly enriched and been given wonderful opportunities and an education that couldn't have been afforded elsewhere to push them towards success. For that we are all grateful.</p> <p>My concern is that although these keiki have been well educated by Kamehameha Schools for a few generations now, and many have thrived because of KS, this upcoming generation faces new challenges, and as well educated as they might be with competitive paying jobs and careers, still cannot financially afford to buy land, own a home in their own ke 'one hānau-</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns regarding the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic</p>

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	<p>especially right here in the district of Kona. It grieves me as I know it does others that with all the rich resources that Bernice Pauahi left for this dream of hers, the best we seem to know how to do with it in order to generate income, is continue to build hotels. Hotels, surrounded by retail space that is targeted for malihini with the hopes of off-setting it with creating space for cultural areas within the development. While we can all appreciate the cultural preservation and aspect of this proposal, as we all know, Hawai'i is in a housing crisis. There is a plethora of hotels, condos, vrbo's and now million dollar homes for malihini to invest into- but what is there for the desendants of Pauahi? Where do they noho? Where is their ku'una- their wahi pana for recreation? Is another hotel and commercial retail space really in their best interest? If Pauahi was sitting with us today- would she approve another hotel to go up on one of the last rural areas on Ali'i Drive between Keauhou Bay and Kamakahonu knowing todays challenges for her lāhui?</p> <p>Whether we are koko Hawai'i or koko Haole, if we call Hawai'i home than we have kuleana to mālama i ka 'āina, ke kai, a kekahi i kekahi me ke aloha nui. With all due respect, perhaps we need to re-evaluate if another multi million dollar development for tourism is really in the best interest for kanaka at this time and for Keauhou Bay itself and all life that sustains within her. Perhaps it is time to focus on development that is generated to preserving a lāhui and its 'ike nohona before another hotel?</p>	<p>planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the</p>

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		<p>surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Bryce Groark</p>	<p>I am a business owner and our family has lived the past 20 years in Keauhou. We beg you to not push forward with this proposal that would ruin such an important place. It deserves to be cherished, not destroyed.</p> <p>We would support you in any form of stewardship in Keauhou and increasing access to its cultural significance - but for as long as we can remember, Keauhou has been perpetually neglected by KSBE.</p> <p>KSBE just tore down the hotel at Kahalu'u - admitting it should never have been built. Why repeat that mistake? How about something to actually benefit the community and children? Something towards your mission? This is a move backwards.</p> <p>Destroying the natural habitat, laying more concrete, adding more challenges to the ocean and bringing in more tourists is not in any way what Keauhou needs. And is not anywhere in line with the KS mission.</p> <p>Please reconsider and know that we are building a very public, monolithic coalition to fight this to the end if it moves forward.</p> <p><b><i>"Kamehameha Schools' mission is to fulfill Pauahi's desire to create educational opportunities in perpetuity to improve the capability and well-being of people of Hawaiian ancestry."</i></b></p> <p>Mahalo for allowing us to comment on this.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned</p>

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		<p>activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure.</p> <p>The income generated from activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural pieces of the Keauhou Bay Management Plan.</p>



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		Thank you for your participation in the environmental review process.
Charles Keaoloha Leslie	<p>It has come to our attention at the last minute that KSBE is planning to build a "boutique" hotel and additional commercial, tourist-oriented structures and areas related to recreational use at Keauhou.</p> <p>We agree with any plans that look to create a cultural site, especially a wahi so steeped in mo'olelo, history and historical significance as the birthplace of Kauikeaouli. We would have hoped that KSBE would be a little bit more judicious in its use of land and funds after having to tear down two hotels at Kahalu'u which it admits should never have been built.</p> <p>Why are you planning to go backwards? As members of the Kai Kuleana network, Kealakekua Bay Cultural Advisory 'Ohana and cultural practitioners of lawai'a traditions based at Ka'awaloa, Nāpo'opo'o and Pu'u 'Ohau we are shocked and disappointed. We are currently engaged in a Community Action Plan process at Kealakekua Bay MLCD/State Historic Park with the state, the county, federal and community members to reverse this type of thought related to our wahi. All of our Kona Hema communities (Miloli'i, Ho'okena, Hōnaunau and Nāpo'opo'o) are working to huli how our wahi are being used. The plans to return to action based on 'ike kupuna guides us in our endeavors and we hope would lead you as well.</p> <p>The cultural knowledge held in our kaiaulu kanaka maoli which also holds environmental preservation inherently within its base, needs to take precedence over this mindset that more tourism-oriented action should be happening. Why not build some affordable housing down there for kanaka maoli? That, to us, would be more along the guidelines of Pauahi Bishop's love for her people and the future of our 'ōpio.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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	<p>We trust KSBE will reconsider this immediately and stay in line with a more forward thinking, culturally based mindset that we are actively pursuing through our many hui such as Kai Kuleana, Kua‘aina, E Ala Pu, Maui Nui Makai just to name a few.</p> <p>Mahalo for allowing us the space to comment,</p>	<p>to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure. The income generated from activities at Keauhou Bay will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the</p>

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		<p>KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>Thank you for your participation in the environmental review process.</p>
Cindy Freitas	<p>My name is Cindy Freitas and I'm a Native Hawaiian descended of the native inhabitants of Hawai'i prior to 1778 and born and raised in Hawai'i.</p> <p>I am also a practitioner who still practice the cultural traditional customary practices that was instill in me by my grandparents at a young age from mauka (MOUNTAIN TO SEA) to makai in many areas.</p> <p>I Opposed for the following reasons;</p> <ol style="list-style-type: none"> <li>1. This is the birthplace of Kauikeaouli.</li> <li>2. Kamehameha have admitted that the two hotel that was remove (Kona Lagoon and Keauhou outrigger Hotel) that it should have not been due to cultural sights in that area.</li> <li>3. Native Hawaiian culture and natural resources, Ala Kahakai National Historic Trail is a 175 mile corridor encompassing a network of culturally and historically significant trails. This "trail by the sea" traverses wahi pana (storied landscapes), ancient Hawaiian sites and over 200 ahupua'a (traditional land divisions)</li> </ol>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which</p>

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	<p>The Ala Kahakai National Historic Trail passes through and provides opportunities to protect significant natural areas and ecosystems with indigenous and endemic species along its route which includes,</p> <ul style="list-style-type: none"> <li>Anchialine pools</li> <li>Caves</li> <li>endemic species habitat</li> <li>endangered and threatened species</li> <li>ecological zones</li> <li>lava forms and formations</li> </ul> <p>Therefore it is unacceptable for any DEVELOPERS to build any thing on the Ala Kahakai National Historic Trail.</p>	<p>leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>DEIS Chapter 4.1 discusses cultural, archaeological, and historic resources within the Project Area. Several recorded archaeological sites within the Project Area are in areas with overgrown vegetation and not easily accessible. The</p>

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		<p>KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Based on recommendations during consultation with Nā Ala Hele Hawai'i Trail and Access System within the DLNR Division of Forestry and Wildlife (DOFAW) and the National Park Service Ala Kahakai National Historic Trail, two areas within the TMK: 7-8-010:044 portion of the Project Area, totaling 1.97-acres, were re-examined by Haun &amp; Associates in October, 2022, in order to locate the remains of two historic trails (Keauhou Trail: Sites 15243 and Kainaliu Trail: Site 24259). The findings of the survey are included in the 2022 Haun &amp; Associates' ARS and Site Condition Update (Appendix B) and summarized in DEIS Chapter 4.1.2.3. The historical background</p>

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		<p>of these trails in relation to the overall development of the bay over time is discussed in DEIS Chapter 4.1.1.</p> <p>The two subject trails are depicted on historic maps of the area as far back as 1885. Aerial imagery of the Keauhou Bay area taken in 1954 show that these trails alignments had remained intact until at least that time. However, the trails do not appear in any subsequent aerial images likely due to the Project Area having been mechanically disturbed and overgrown with vegetation. Using the 1954 aerial imagery, the locations of the two historic trail alignments were cleared of vegetation and systematically examined by Haun &amp; Associates archaeologists.</p> <p>An approximately 1.26-acre corridor was cleared of vegetation and surveyed along the historic Keauhou Trail alignment (Site 15243). The ground surface within this corridor showed evidence of past mechanical grubbing and no remnants of the Keauhou Trail were present.</p> <p>An approximately .71-acre corridor encompassing the alignment of the historic Kainaliu Trail (Site 24259)</p>

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		<p>was cleared of vegetation and surveyed. This corridor also showed evidence of grubbing with the presence of several linear mounds created by bulldozer blades. No remnant of the Kainaliu Trail was observed.</p> <p>The KBMP includes actions to honor the alignments of historic trails throughout the property. The planned network of new and improved walking paths throughout the Project Area will increase pedestrian access and provide an intact north-south pathway through the entire site to help recreate the experience of walking along the historic Old Government Road. The KBMP also calls for the re-establishment of the Old Kona Road as a public access vehicular easement, thereby re-opening a historic path that had become overgrown with vegetation and fallen into disuse. The mauka-makai walking experience of the historic Keauhou Trail will also be honored through the establishment of the recreation corridor. This open space corridor area will allow for bay visitors to freely walk from the coastline up to the Old Kona Road. The open space recreation corridor</p>

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		<p>also connects to the network of walking paths situated both above and below 'Ahu'ula Cliff. The history and significance of the known historic trails will be incorporated into interpretive elements along the walking path network. Please see DEIS Chapter 3.2 for a detailed description of the KBMP. DEIS Chapter 4.11 discusses anticipated impacts of the KBMP on pedestrian patterns and circulation.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure. The income generated from activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Connie Olivia</p>	<p>regarding the Kamehameha Schools proposal for the Keauhou Bay area, despite the biased coverage in the Honolulu Star Advertiser, Kamehameha wants to build a commercial enterprise which would generate income to the foundation. The area doesn't "need" a boutique hotel with restaurants and spa, as much as it needs vehicular, boat and pedestrian plan for the area. The article I read meshes the two....hotel and local improvements. Historically, projects like this veer towards the commercial venture and not</p>	<p>Thank you for your letter dated March 29, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>



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	<p>the community side. I hope if and when Kamehameha Schools succeeds with its plan, the state/county holds the foundation accountable.</p>	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Cyndie Gill</p>	<p>I am writing to you to voice my opposition with plans to allow development of hotel and retail space at Keauhou Bay.</p> <p>The Bay is an area of cultural importance and it is surprising well visited by people using Canoe Club facilities, volleyball and boating excursions by existing vendors. It is such a small area with an almost non-existent beach. Introducing additional activities will surely overwhelm an already fragile area; further polluting the water, disturbing the reef and dangerously congesting the boat harbor.</p> <p>Planned traffic thoroughfares will be dangerous for Kam III Rd. neighbors and pets who use the current roadways for exercise and enjoyment of the quiet area.</p> <p>I hope local planners can appropriate assess the negative impact of increased congestion and how it will significantly disturb valuable natural and cultural resources at Keauhou Bay.</p> <p>I hope that great attention to environment and safety will be paid throughout the review process, which will ultimately result in decisions to decline additional development in this area.</p> <p>Mahalo for your mālama.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>

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		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining,</p>

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		<p>commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Darlene Paulson</p>	<p>Aloha just read this I do paddle with Keauhou Club when there is no more hotels enough .. Add my name if you can to the No list.</p>	<p>Thank you for your letter dated April 13, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS'</p>

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		<p>mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan. Thank you for your participation in the environmental review process.</p>
Dave Avery	Please do not destroy Keauhou Bay with commercialization. There currently is no monitoring down there as it is and the bay can't handle all the new construction and population.	Thank you for your letter dated April 25, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.

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		<p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>David S. Case</p>	<p>My name is David Case, and I have been a Hawai'i resident for a little over 10 years. My wife and I can see Keauhou Bay from our lanai. I steer, and paddle outrigger canoes several times per week in and around the bay in various outrigger related racing and recreational activities. I am writing this in my personal capacity and do not represent the views of any organization.</p> <p>Kamehameha Schools ("KS") is to be lauded for its planning and expenditures to create and implement the Keauhou Bay Management Plan (KBMP), which appears to dovetail with plans to develop the area around Kahalu'u Beach Park as part of a larger cultural and educational corridor between Kahalu'u and Keauhou.</p> <p>My concern is that the EISPN contains a couple of erroneous assumptions and in other respects may lead to an EIS that does not take a "hard look" and some important issues. These are discussed below.</p> <p>A. <u>Erroneous Assumptions</u></p> <p>1. <u>"Very Low Rainfall and Runoff"</u> (EISPN 3'16). The EISPN assumes that because rainfall reaches "a maximum average of 35 inches per year" that there is "very low rainfall and runoff" into the bay. This is based on a 2016 NOAA analysis and does not account for any changes in those averages in the last eight years. This must be reconsidered in light of the rapid changes brought on by climate warming. This assumption also appears to be internally inconsistent with other statements in the EISPN. See, notably EISPN 4-4 at Paragraph 11 acknowledging that "Portions of the Project Area are also located within the AE and VE Flood Zones."</p> <p>In my experience, regardless of the historic maximum rainfall average, there are several heavy rains each year that flood across the Old Kona Road onto the adjoining downslope to the bay. The force of the water is sufficient to dig a noticeable trench</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p>

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	<p>across the road and into the downslope to the bay carrying rocks and dirt from the road with it.</p> <p>The flooding also flows down Kamehameha III Hwy sufficient to overflow the curb at the end of the road, dumping silty water directly into Keauhou Bay. The bay water turns brown and is unattractive for swimming following these events. See, photo attached electronically as Exhibit A to this letter. Others are available on request.</p> <p>2. <u>No Rare, Threatened, or Endangered Species or Habitats</u> (EISPN at Paragraph 9)</p> <p>The EISPN notes that: “The Project is not expected to affect any rare, threatened, or endangered species or habitats.” I should be noted that Monk Seals have been known to haul out to rest on the old Keauhou boat ramp, south of the rock wall on the north side of the bay. See, photo attached electronically as Exhibit 8 to this letter.</p> <p>B. <u>Silt Accumulation in the Bay</u></p> <p>The federal National Oceanographic and Atmospheric Administration (“NOAA”) has listed Keauhou Bay One as a “Marine Protected Area” that is to be “permanently protected year-round” and that such “protection be in perpetuity”.<sup>1</sup> Historically, the federal Environmental Protection Agency (“EPA”) also performed a water quality analysis of various bodies of water every four years. In 2006 and 2010 the EPA found that the water in Keauhou Bay was “good”, but in 2014 it concluded that it was “good” for recreational use, it was “impaired” due to “turbidity” as it relates to “Fish, Shellfish, And Wildlife Protection and Propagation.”<sup>2</sup></p> <p>C. <u>Nitrogen Pollution.</u> An undated research study in about 2015 out of the University of Hawai’i, Manoa, Department of Botany, found that: “[O]f all the West Coast of the Big Island, the highest average percentage of tissue N [Nitrogen] and predicted N concentration was found in the surface samples of Keauhou Bay.” This study was</p>	<p>A Natural Resource Assessment was conducted for the Draft EIS (DEIS) by AECOS (Appendix C). Please refer to Section 4.6 of the DEIS for discussion of native species, endangered species, and critical habitat in relation to the KBMP. As discussed in the Natural Resource Assessment, no species listed as threatened or endangered by state or federal statutes were identified on any of the project parcels at Keauhou Bay. The potential exists that several listed species might transit or utilize the general area on occasion. The endangered Hawaiian monk seals (<i>Monarchus schauinslandi</i>) has been regularly reported from Kona waters. As stated in DEIS Section 4.6, if monk seals are detected within 300 ft of ongoing project construction, operations must cease and not continue until the animal has departed the area on its own accord.</p> <p>We are aware of the concerns related to wastewater contamination in the bay. A wastewater flow analysis has been conducted as part of the analysis for the DEIS. The flow projections are based on land use areas, unit</p>




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	<p>comprehensive and included the full West coast of the Island of Hawaii from the North tip to South Point.</p> <p>The study discusses Keauhou Bay in part as follows:</p> <p>Keauhou Bay nutrient-rich groundwater plumes demonstrated high values for nitrogen (5.0 to 5.9 615N values and high ulva (green algae) abundance in the bay. Ecologically successful green algae like <i>U. fasciata</i> are potentially invasive. Coastal waters near harbors, industrial complexes, and residential areas with nutrient- rich and/or fresh water input often have blooms of <i>Ulva</i> species that coat ships' hulls, cover pilings and shorelines, and restrict outflow pipes. <i>U. fasciata</i> is classified as a marine fouling organism, and studies in control and eradication are presently underway.</p> <p>The study further noted that:</p> <p>In Keauhou Bay the potential sources of anthropogenic nutrients include leaching cesspools, surface road and field runoff during rain events, fish biomass, golf course contribution and vessel borne and bilged biomass.<sup>3</sup></p> <p>These government and University of Hawaii analyses are admittedly dated, but as a frequent observer of Keauhou Bay and given the exhibits attached to this letter I would have the say the situation in Keauhou Bay has not improved and if anything worsened over the last eight years. The EIS should take a "hard look" at these problems and transparently assess them.</p> <p>D. <u>User Conflicts</u>. KS has developed the Keauhou Bay Management Plan ("KBMP") to "reorient uses at the bay and establish new place-based cultural education and revenue generating opportunities." The EISPN recognizes that Keauhou Bay is "highly used by residents, visitors, and community groups, which creates congestion and competing interests." KS then describes the purpose of the Project that is the subject of the EISPN is to: "develop resilient communities by stewarding the 'aina to support resilient economies, cultural landscapes, diverse learning, and career pathways." Concluding that:</p>	<p>counts and estimated population using demand rates from the State HAR Chapter 11-62, Appendix D. As described in DEIS Section 4.12.2, the Project is expected to generate an average daily flow of 50,925 gallons per day (GPD). It is expected that the He'eia Wastewater Treatment Plant (WWTP) will have capacity to accommodate the increase in wastewater flows. The All wastewater plans will conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems."</p> <p>Thank you for your participation in the environmental review process.</p>


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Comments	Commenter	Responses
	<p>“The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the Management Plan process.” (EISPN 1-1)</p> <p>Pregnant in all of this is the potential for renewed conflicts between the customers of a 156-unit “Appropriate Boutique Resort.” Estimating an average of two to four people per unit could mean a daily occupancy of between some 300 to 600 guests. These people would come from very different backgrounds and have purposes in coming to Hawai’i that could well conflict with and overwhelm the residents of Hawai’i who now use Keauhou Bay for very different purposes. The EIS must take a “hard look” at these potential conflicts and offer transparent and effective alternatives to address them, including “no action” on the resort development.</p> <p>E. <u>Wastewater</u>. The EISPN briefly describes existing KS controlled sewage system. (EISPN 3-19 at Paragraph 3.19). It also describes the potential for “Unavoidable and Unresolved Impacts. (EISPN 4-2 at Paragraph 4.6). I will just note that when we paddle canoes past the condos north of the bay we can smell and see evidence of sewage effluent in the ocean. When we paddled south we now have the benefit of a similar experience off shore from the new million-dollar homes constructed a few years ago. The EIS should take a “hard look” at the effect a 156-unit resort will have on sewage entering Keauhou Bay.</p> <p><sup>1</sup> See, National Oceanic and Atmospheric Administration, NOAA’s National Ocean Service, Management &amp; Budget Office, Coral Reef Habitat Assessment for U.S. Marine Protected Areas: State of Hawaii: NW and Main Hawaiian Islands, Special Projects (February 2009). Last consulted April 22, 2022, at: <a href="http://www.coris.noaa.gov">http://www.coris.noaa.gov</a></p> <p><sup>2</sup> United States Environmental Protection Agency, Waterbody Quality Assessment Report Water Quality Assessment and TMDL Information, 2010 and 2014 Waterbody Reports for Keauhou Bay (Kona). Last consulted April 22, 2022,</p>	

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<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
	<p>at: <a href="https://iaspub.epa.gov/waters/10/attains/waterbody/control?ipauid=HI7_13293&amp;pcycle=2014#attaininents">https://iaspub.epa.gov/waters/10/attains/waterbody/control?ipauid=HI7_13293&amp;pcycle=2014#attaininents</a></p> <p>The information at this site (now 8-years old) is listed as out-of-date, but the alternative site given for the information says that the data is not available for Keauhou Bay.</p> <p><sup>3</sup> See, Megan Daller, “Preventing the introduction and spread of nutrient driven invasive algal blooms and coral reef degradation in West Hawaii”, University of Hawai’i, Manoa, Department of Botany</p> 	

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Comments	Commenter	Responses
		
<p>David and Jeanne Markley</p>	<p>Thank you for the opportunity to comment on the Keauhou Bay Management Plan Environmental Impact Statement Preparation Notice.</p> <p>We own a condominium unit in the Keauhou Resort that we use personally a substantial portion of the year and rent out as a STVR during the remaining time. We purchased this unit with the intent of making this our primary residence.</p> <p>We are strongly opposed to the proposed development associated with the Keauhou Bay Master Plan because we believe it will result in significant adverse impacts on living conditions for ourselves and our neighbors. While we understand the Kamehameha School's desire to gain higher and better use of their property, we believe the proposed development, particularly the construction of the Old bona Road as a through road connecting Kamehameha III Road (Kam III Road) with KaleioPapa Street will result in significant adverse traffic, parking, pedestrian circulation, safety, air quality and noise impacts on us and our immediate neighbors, as well as residents west of Ali'i Drive in this area.</p> <p>We oppose this development because we feel the proposed changes and uses are incompatible with the residential character of our neighborhood, particularly areas west of Ali'i Drive. We believe the tourist- based uses proposed in this plan will overwhelm the existing neighborhood and compound existing problems. We believe the construction of Old Kona Road to connect Kam III Road with KaleioPapa Street will result in a major shift in traffic volume away from KaleioPapa Street to Kam III Road with the associated panting, safety, noise and air quality impacts. This action would significantly erode the residential character of our neighborhood. We believe the impacts associated with these elements will result in impacts that will be significant even with typical levels of mitigation.</p> <p>Accordingly, we have reviewed the Keauhou Bay Master Plan Preparation Notice. Based on this review, we find that the current description of the</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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Comments	Commenter	Responses
	<p>project and proposed environmental analysis is vague and insufficiently detailed to result in an adequate assessment of impacts and mitigation. Without this added detail, we consider the level of any environmental analysis to be programmatic. As such, further environmental analysis and mitigation will be required from the developer/contractor prior to moving forward with actual construction of any element of this master plan.</p> <p>Assuming that Kamehameha School intends to move forward with the current plan, we request that the project description be refined, the scope of environmental analysis be substantially expanded, and mitigation measures be developed and analyzed for effectiveness. This level of detail is necessary because our neighborhood incorporates a unique mix of activity. Attached is a summary of our request.</p> <p>Thank you for considering our request for additional work. Please respond to our comments as part of your public review process and to us by email.</p>	<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining,</p>

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Comments	Commenter	Responses
		<p>commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Emma Chandler</p>	<p>This is a letter in opposition to planned development in Keauhou Bay. The waters of the bay cannot sustain a surrounding growth as what is being proposed. It is having a hard time with sustaining the current usage.</p> <p>Keauhou Bay is culturally significant and deserves to be preserved as historically honored, not to be commercialized. The Bay hosts as a gathering place for our local community: fisherman, paddlers, divers and thriving volleyball community. All of these activities foster our youth development in positive ways.</p> <p>The list goes on as far as opposition goes. I personally have grown up in Keauhou Bay and have a deep gratitude and Love for the place and its consistently unchanged atmosphere. I have shared it with my family, and now my children enjoy the Bay.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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Comments	Commenter	Responses
	<p>In closing, I support the protection of Keahou Bay by strongly declining development of hotels, bungalows and shops. Protect Keauhou by preserving it for local use, for our community, for the dedicated cultivation of cultural importance.</p> <p>Thank you for your time,</p>	<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Garth and Carolyn Sime</p>	<p>Garth and Carolyn Sime live in Bayview Estates on the Big Island. We are deeply opposed to any expansion of the Keauhou Bay site. The congestion caused by additional hotel rooms will cause terrible harm to an already fragile</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>environment. The amount of tourists and the additional traffic is mind boggling.</p> <p>The additional on our water supply is a huge concern.</p> <p>Please do not proceed with any approvals on future projects in this area.</p>	<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to</p>



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		<p>achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Section 4.12.1 of the Draft Environment Impact Statement (DEIS) provides detailed estimates of the average daily water demand for the various project components. In total, the Project will result in an average water demand of approximately 97,466.2 GPD. Based on these estimates, impacts to the public water supply are not expected.</p> <p>Water conservation measures will be implemented in design of the Project and may include, but not be limited to, the following: efficient irrigation systems such a drip system and moisture sensors, utilization of nonpotable water for irrigation, drought tolerant plants, and the use of Water Sense-labeled ultra-low flow water fixtures and toilets.</p> <p>Thank you for your participation in the environmental review process.</p>

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Comments	Commenter	Responses
<p>Harlan Miyoshi</p>	<p>My name is Harlan Miyoshi and I live in Kealakekua, HI.                      I am submitting testimony as a regular user of Keuhou Bay for swimming.                      Although I agree on the corridor access and the education portion of the proposal, I am against the building of the boutique hotel at the bay considering it would commercialize the area with more tourists which I am concerned about in terms of being able to access the bay with the increase in users that would probably come with the new hotel as well as the increased traffic, litter, sewer modifications that would be needed for such a project.                      Please reconsider that portion of the plan.</p>	<p>Thank you for your letter dated April 25, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient</p>

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Comments	Commenter	Responses
		<p>economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Please refer to Chapter 4 of the Draft Environmental Impact Statement for a discussion on potential impacts and mitigation measures.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Holly Hokenson</p>	<p>I frequently go shore diving and freediving at Keauhou Bay. That is because I am a masters student studying environmental science and I am currently starting an observational study on the reef manta rays of Kona. Keauhou Bay has the most frequented cleaning station for manta rays that I have witnessed in the many countries I have been to observing manta rays. This is the original manta site in Kona and is therefore a crucial part of that community. But that is not all it is. Last time I went to Keahou I witnessed several families spread out across the grass hosting an Easter egg hunt for their children. At what point will we have no more public green spaces to share with our families in that manner? I ask you, please. Do not build more resorts, do not build a through road, do not pave over more living things. Any of these actions will definitely negatively impact this incredibly special ecosystem in the bay as well as the incredibly important system of our community.</p>	<p>Thank you for your letter dated April 26, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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	Best fishes,	<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Chapter 3 of the Draft Environmental Impact Statement provides a detailed description of the Project. The Project proposes to enhance public access and</p>

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Comments	Commenter	Responses
		<p>opportunities for public recreation by increasing open space and establishing a recreation corridor. This corridor would allow greater opportunities for gathering and family events such as those you mentioned.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Jack Wilken</p>	<p>I am an owner of a unit in Keauhou Resort at 78-7039 Kamehameha III RD just north of the proposed development at Keauhou Bay.                      We also own a small boat that we keep for our own recreational purposes at the current boat storage yard just south of Keauhou Resort and north of Keauhou Bay.</p> <ol style="list-style-type: none"> <li>1. You should do something to encourage both roads into the new development to be used so that traffic is not just centered on Kamehameha III.</li> <li>As well, do whatever traffic modifications are necessary to keep traffic slow on Kamehameha III below Alii Drive.</li> <li>2. Maintain the current boat storage yard (with the advertised improvements) as well as increase the number of boat trailer parking spaces in the launch area.</li> </ol>	<p>Thank you for your letter dated April 13, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses.</p> <p>The KBMP involves reestablishing the Old Kona Road as the primary vehicle thoroughfare through the bay to direct traffic away from the Kamehameha III birth site. The new thoroughfare will allow vehicular and pedestrian access to the Keauhou bayfront from both Kaleiopapa Street and Kamehameha III Road. The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing</p>

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Comments	Commenter	Responses
		<p>and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Kamehameha III Road is a two-lane County collector road connecting Ali'i Drive to the Hawai'i Belt Road. In the vicinity of the Project Area, Kamehameha III Road transitions to a local road with a speed limit of 25 mph makai of Ali'i Drive. As the roadway is under the jurisdiction of the County, KS does not have the authority to install traffic calming devices or other speed controls.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project's proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p>

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Comments	Commenter	Responses
<p>Jane Schmitt and Richard Crack</p>	<p>Keauhou Bay is a precious natural resource that provides recreation for countless ocean enthusiasts, including: fishers, paddlers, paddle boarders, snorkelers, divers, &amp; ocean recreation for local children &amp; their families. To sully this pristine bay with dwindling water quality, heavy traffic, run-off and an overload of humans- is nothing short of a travesty. Planning for another resort -catering to monied tourists- no matter how “boutique” it claims to be, is the antithesis of what K.S.’s management of Keauhou bay should be doing. Many of the homes and condos on the north side of Keauhou Bay have cesspools, or septic tanks with inadequate leach fields- that allow human waster to seep into the Bay. This alone needs to be rectified before any consideration of any further development next to Keauhou Bay.</p> <p>When is the appropriate time for Kamehameha Schools administration to declare that enough development has taken place on this small - but outstanding- bay? K.S. Trust is already the tenth richest charity in the U.S. (by some accounts); can you not be satisfied with all of the Hawaii holdings you already possess? Please carefully consider the long-term detrimental impacts that a 150 room resort would have on the quality of life for the residents who utilise this bay on a regular basis and for the varied marine life that call it home.</p>	<p>Thank you for your letter dated April 13, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient</p>

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Comments	Commenter	Responses
		<p>economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We are aware of the issues related to contamination caused by cesspools in the vicinity of the bay. All new facilities associated with the Project will be serviced by sewer utilizes and treated at the He'eia Wastewater Treatment Plant.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Janet Matlock</p>	<p>Mahalo for this opportunity to comment on the proposed Management Plan Overview for Keauhou Bay.</p> <p>I am a resident in Kailua Kona and live close to Keauhou Bay. As residents, my family and I utilize the bay frequently, and enjoy our interactions with others in the local community.</p> <p>I agree that the sacred birthplace of Kamehameha III is in need of honor beyond what is currently given, although I do commend the Daughters of Hawai'i for stepping forward to preserve this site when others did not.</p> <p>I emphatically do not agree that the way to elevate this historic and magical place and provide cultural education is to further degrade this precious environment. Development of high-end "bungalows" and restaurants and adding commercial spaces will only degrade the fragile ecosystem of the bay,</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to commercial development. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and</p>



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Comments	Commenter	Responses
	<p>not preserve it. So little is left for local activities (volleyball, family gatherings, canoeing, paddle boarding, swimming, etc.).</p> <p>I observed the talk story held via Zoom and am in agreement and alignment with the mana'o shared in that meeting, so will not repeat those points here, but please know they are echoed in this email by reference.</p>	<p>support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
Jeanette Espinal	<p>My daughters participated in the Keauhou canoe club all thru junior high and high school. We had picnics, family birthday parties and evening meditations at Keauhou bay. It's private, clean and quiet. Sacred.</p>	<p>Thank you for your letter dated April 28, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

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Comments	Commenter	Responses
	<p>It would be a shame to pollute this area for capital gains only a few would enjoy. In my opinion and so many, up-building such a beautiful area that still amplifies the beauty of Hawaii is absolute shame and disgrace to the land.</p> <p>Please take into account the history of this area, how the local families living and using this bay comment on such growth. There is a magic about the way it is rn! The bay is clean and clear of debris. You see mantas, and all sorts of ocean life in this bay, because its quiet and clean.</p>	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Jeanne Alford</p>	<p>Do not invest in any new commercial lodging at Keauhou Bay. This is a sacred and beautiful place that does not need more development.</p> <p>Developers want to find these gems on this island and immediately invest in them (Punalu'u, for one example).</p> <p>I get it, you're an investment company and that's your bread and butter. But don't look for places to build things where you don't belong and are not wanted.</p> <p>Keep this bay as is. Every Hawaiian beach, bay or town does not need to be built up.</p> <p>It's about the money (International Market Place, for another example).</p> <p>Seek out another place, hopefully not in the state of Hawaii, to make your money.</p> <p>Keauhou Bay deserves respect. Keep it local. Keep it country. Keep it the neighborhood paradise that it is. Just because you have the money and the mission does not mean you cannot live pono.</p>	<p>Thank you for your letter dated April 17, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision,</p>

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		<p>the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Jeff Caufield</p>	<p>Thank you for the opportunity to provide comments. My name is Jeff Caufield and I am the owner of the house located at 78-7106 Kamehameha III Drive and as such we are the closest house to the proposed activities. Unfortunately, as I was coaching volleyball during the zoom meeting, I am submitting written comments.</p> <p>I’d first like to go into my background. I have an undergraduate degree in environmental studies from the University of California, Santa Barbara. During college I worked for the Santa Barbara redevelopment agency wherein I assisted in the redevelopment design and planning of the lower State Street in Santa Barbara. Also during undergrad and law school I worked for an environmental consulting firm. I graduated from law school in 1993. During law school I interned in the legal counsel’s office at the U.S. Department of Interior. For the past 29 years my practice has specialized in environmental law, which includes an emphasis of environmental impact statements and reports. Prior Court rulings have acknowledged my expertise</p>	<p>Thank you for your letter dated April 12, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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	<p>in this area and that over the last 22 years I have never lost of case related to an environmental impact statement or report. I also lecture both nationally and internationally on various environmental topics, including lectures related to environmental impact reports and statements. You can access my law firm website at <a href="http://www.caufieldjames.com">www.caufieldjames.com</a>. In sum, I both have the education, experience and Court recognized expertise in the subjects I am addressing herein.</p> <p><b>I. THE PROJECT WILL CAUSE SIGNIFICANT NEGATIVE TRAFFIC IMPACTS</b></p> <p>With the addition of 150 resort bungalows, that average 1,800 square feet in size, and assuming, at a minimum, one to two cars per bungalow that translates to an additional 150-300 cars per day on lower Kamehameha III Drive. (Note: referring to a 1,800 square foot structure as a “bungalow” is misleading as they are significantly larger than most local 3 bedroom homes, in reality the proposal is to build 150 homes attached to a resort.) As with most vacationers, the number of car trips to/from the bungalow will typically average a minimum of 2 trips (4 going/coming) per car per day. Thus, the resort bungalows will result in a negative impact of between 600/1,200 additional cars per day on lower Kamehameha III road. Assuming that the car trips will be concentrated during primarily daylight hours (assuming 16 hour primary concentration period) the increase in vehicular traffic on Kamehameha III Drive will average between 37.5 – 75 cars per hour. In sum, the project proposes to add, at a minimum one additional car per minute everyday for 16 hours a day on lower Kamehameha III Drive. Additionally, the project proposes a further significant increase in traffic by paving and extending Old Kona Road and opening it to major vehicular traffic. Currently, boats seeking to launch and/or visitors at the Outrigger Hotel have to completely drive around the Keauhou Bay to access the intersection of Alii Drive and Kamehameha III road. The project proposes to create a “short cut” that will channel existing vehicular traffic from the south side of the bay to lower Kamehameha III Drive that will likely increase vehicular traffic substantially. With the addition of new commercial and dining in the area, the traffic will only be worse. In sum, while the project proposes to address</p>	<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was</p>

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	<p>fictional “congestion” the project does the exact opposite by likely increasing vehicular traffic on lower Kamehameha III Drive by likely an order of magnitude, if not more. As for vehicle “congestion” purportedly around boat launch area, there is very little “congestion” aside from early mornings when boats are lined up to launch. That is typically of any launch and the project cannot and does not propose to address this issue. Thus, the “scope” and notice of preparation is extremely misleading to public in what it purports to accomplish.</p> <p><b>II. THE PROJECT WILL CREATE SIGNIFICANT CONGESTION OF PEOPLE IN AND AROUND KEAUHOU BAY</b></p> <p>Having lived in the house closest to the project for the past 5 years and visited Keauhou Bay fairly regularly for the past 18 years the representation that there exists “congestion” at the Keauhou Bay from people is simply untrue and misleading. Currently, the canoe club generally has practices in the mornings at which time there may be 10-20 people that generally meet, launch canoes and paddle out within 15-20 minutes of arrival. When the paddlers return, they typically are gone within 20 minutes. On average during a typical summer day, there may be 2-4 people swimming/paddling in Keauhou Bay and maybe one or two people on the shore. It is not unusual to not see anyone on the bay or shore for several hours each day. A time when the number of visitors to the bay may increase is typically during the loading/unloading of the Fairwinds. However, the guests typically arrive roughly 30 minutes before launch, line up about 5 minutes before launch and then are gone for hours. When they return, they are typically gone within 10-15 minutes. The guests do not potentially impact cultural resources nor do they cause “congestion” of uses at the bay. Off the water there is usually adults/kids playing volleyball on the single sand court in the afternoon, people fishing from the dock area and paddling practice in the afternoons. After observing the current usage on a daily, weekly and monthly basis there is no “congestion” around the bay. Occasionally, primarily on weekends, local families do host BBQs at the south side park and that may increase the number of people using the bay. However, this should not be considered to be “congestion” but simply typical local usage and enjoyment of</p>	<p>taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility options as well as potential traffic impacts generated by the Project (<i>Appendix E</i>). The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>The mauka / makai corridor is proposed to improve public access and to enhance the areas for educational and cultural activities.</p>

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Comments	Commenter	Responses
	<p>the bay. The project proposes to add 150 bungalows, a restaurant and commercial vendors at the bay. Assuming that each bungalow has only 4 people (which is probably low based on the square footage) you'll likely have a minimum of another 600 people per day potentially in and around the bay. This will, at a minimum, at least double or quadruple the daily usage around the bay (not counting the additional crowds using the restaurant and commercial venues.) Thus, the project as proposed can only create congestion comparable to what you can see every weekend at Magic Sands but on a daily basis.</p> <p><b>III. THE MAUKA/MAKAI OPEN SPACE</b></p> <p>The Keauhou Canoe Club was built by the local volleyball players that enjoyed paddling around 40 years ago. Both the Keauhou Canoe Club and the volleyball players have paid out of pocket for 40 plus years to maintain the park area where the canoe club is located and for maintenance of the sand volleyball courts. To this day the volleyball players are always willing to help the club move canoes and many of the paddlers, and in particular the kids, will stay and play on the volleyball courts after practice. Some of the best local paddlers such as Kua Nolan grew up paddling on the bay and then playing volleyball on the sand courts right after practice. It would appear that the plan is to "reorient" the canoe club but provides no specificity upon which comment can be made. For the past 40 plus years there has been two sand volleyball courts on the east end of the bay below the canoe club. Due to both the tsunami and an episodic rainfall the western sand volleyball court was damaged and is in need of repair. Currently, the remaining sand volleyball court is used on a daily basis by locals. In particular, there are volleyball classes for the local kids on almost a daily basis. Any plan that would not include restoring both volleyball courts would be devastating to the local community and in particular the kids that are learning how to play volleyball on the court. In Kona, there is a sand volleyball court at Coconut Grove that extremely heavily used by the locals, a sand volleyball court that is primarily used by tourists at Magic Sands and the sand courts at Keauhou. Thus, it is absolutely vital for the sand volleyball courts to be restored or else the local community, and in particular the kids, would lose</p>	<p>DEIS Section 3.2.3 describes the Project's aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park through landscape improvements. Improvements aim to expand public access to the shoreline through KS-managed lands by establishing a mauka to makai recreation corridor adjacent to the existing canoe hālau; this will require a reconfiguration of the existing sprawling canoe uses and volleyball enthusiasts along the immediate bayfront area. Improvements include the removal (and potential relocation) of the unsanctioned sand volleyball court to provide a walkway with native landscaping accenting and open recreational space. The repurposed sandy volleyball area mauka of the main seawall will be regraded and planted with an irrigated grass lawn to limit erosion and create a more sustainable open-lawn environment. At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and</p>

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	<p>one of the few places they can learn and play. In areas like California, sand volleyball is a boys and girls high school sport. If the courts were to be repaired and restored, the local high schools could host matches on the Courts. This is particularly critical in that girls beach volleyball is now a collegiate sport such that girls wanting to play beach volleyball in college need a place to play and train. Currently, there is no place for the high school kids to play and train on a regular basis other than the Keauhou Courts. Hawaiian volleyball players have enjoyed success on the national and international level, including gold medals at the Olympics and it is deeply ingrained in the modern hawaiian culture. The volleyball players are always very welcoming to other locals and visitors that want to join in and play. However, in the past when there were two courts it enabled different levels of players to play at the same time with the people that wanted to play in groups on one court and the players that wanted to play more competitive doubles and/or four verses four playing on the other court. On most weekends, local families host barbeques on the east side grass park and both use the bay and the sand volleyball court. Currently, with only one court there can be a couple of players waiting to play at times. The scoping document asserts, without evidence, the following:</p> <p>“Although there is legal public access to the shoreline, canoe and volleyball activities dominate the shoreline area and create a perception of exclusivity. This, coupled with the hustle and bustle of ocean commercial operations catering mainly to visitors cause many local families, with some long-standing generational ties to the bay, to no longer feel welcomed - ultimately disconnecting them from the wahi pana.” (pg. 2-6.)</p> <p>The proposal to at least quadruple the number of visitors accessing Keauhou Bay through the 150 bungalows, new commercial venues and restaurant would take the usage, which currently is largely locals, and shift it to commercial visitor access will worsen the perceived problem, not improve it. Currently, every weekend there are local barbeques and local parties at the grassy park on the north side of the bay. In the past when the 2<sup>nd</sup> sand court was present, and there was nice sand behind the wall, there was always people setting up picnics on the weekends along the wall. However, with the</p>	<p>therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project’s proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at</p>



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	<p>sand largely gone and sharp gravel on top of the hard packed ground, the locals no longer use the area behind the wall as frequently for picnics (although there typically is at least 1 family that may use the sand/gravel area behind the east end by the volleyball court on the weekends.) If sand is brought back in and the 2<sup>nd</sup> court placed nearer to the existing court, there will be a nice 40' x 100' area behind the wall on the east end for local families to enjoy. In sum, the plan needs to re-fill in the sand area behind the south break water wall, rebuild both volleyball courts and create a nice sand/picnic area behind the wall.</p> <p><b>IV. PARKING CONGESTION IS ONLY GOING TO GET WORSE</b></p> <p>Currently, parking on the south side of the bay can be congested due in large part to the lack of parking for vehicles with boat trailers. Development of a vehicle/trailer parking lot on the south side is long overdue. The number of tourists parking on the south side is comparatively limited. On the north side of the bay there is generally street parking off Kamehameha III Drive and there is designated parking for the Fairwinds tours in an unimproved lot on the south side of the bay. The parking on the north side became more limited when someone made the decision to restripe the cul-de-sac and have only parking for 5 cars when the cul-de-sac used to regularly park 10+ vehicles. Nevertheless, even on the weekends when there are large barbeques at the park the parking on Kamehameha III Drive rarely requires parking more than a block to the water. However, with the addition of a least 300 cars through the bungalows and new commercial venues parking is going to get a lot worse. As has been experienced with the other hotels that charge \$20 or more per day for parking, guests at the hotels simply look for on-street parking to save money. Thus, while the average number of cars parked everyday on Kamehameha III drive is probably less than 10, the plan will likely place another 50-100 cars per day parking on Kamehameha III Drive with bungalow guests looking to save money on parking. As a result, the plan, as currently proposed can only lead to significantly worse parking issues on the north side of the bay.</p> <p><b>V. INCREASED POLLUTION KEAUHOU BAY</b></p>	<p>Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>DEIS Chapter 3 provides a detailed description of the Project inclusive of restoration activities of Ho'okūkū Pond. As part of the improvements in the heritage corridor, the Project will expand the remnant anchialine pond and restore ecological systems within Ho'okūkū Pond to enhance conditions for native species to thrive. DEIS Section 4.5 describes potential impacts and mitigation measures to protect surface water at the Project Area.</p> <p>Thank you for your participation in the environmental review process.</p>

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	<p>The project proposes to add significant numbers of both people and vehicles in and around Keauhou Bay. This includes large paved parking lots for both the bungalows and other parking. Currently, other than the few cars that park on the street, the cars that park to use the Fairwinds park in unimproved lots. When it rains, the unimproved lots can be a non-point source of pollutants that likely should have some runoff controls. However, the majority of time it rains there is no runoff from the existing unimproved parking as the water simply soaks into the ground. The addition of acres of paved parking lots, which are well documented sources of non-point source pollutants such as heavy metals and hydrocarbons that will be channeled into the bay is not even mentioned in the scoping document and should not be ignored.</p> <p><b>VI. THE PROJECT PROPOSES TO POTENTIAL DESTROY IMPORTANT FRESHWATER CULTURAL RESOURCES</b></p> <p>Historically, Keauhou Bay was used by the original Hawaiians, in part, due to the presence of freshwater resources from springs in the area. Springs are naturally recharged by rainwater soaking into the ground. Very little of the project area is currently paved such that the freshwater springs continue to be recharged by rainfall. However, with the addition of many acres of impervious surfaces through the resort and acres of parking lots, the potential recharge sources may be eliminated and the springs negatively impacted. The scoping document does not propose to address the negative impacts to the local springs from the project.</p> <p><b>VII. TRAFFIC IS BEING CHANNELED INTO CULTURALLY SENSITIVE AREAS</b></p> <p>The Old Kona Road paving and extension will funnel traffic directly into the areas of the project that are deemed to be culturally sensitive. Nothing in the proposed scoping document purports to address the fact that vehicular traffic is being funneled into culturally sensitive areas.</p> <p><b>VIII. CONCLUSION</b></p> <p>The scoping document appears to be very misleading in stating purported “issues” as if they were facts and then purporting to “solve” the problem when in fact the project, as proposed, will only create problems where none</p>	

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	<p>exist. The foregoing comments are just the “tip of the iceberg” with respect to the problems with the scoping document and the many misrepresentation and misleading statements.</p>	
<p>Jenn Murphioka</p>	<p>Please do not build at Keauhou Bay. There is already a resort and many timeshares down in Keauhou. Keauhou Bay is important to my family. We spend so much of our time here. It is the perfect place to cruise with my family - the beach access is perfect for children. On Sundays, we take out the paddleboard and OC-1. It is our home away from home. I paddle for Keauhou Canoe Club. Our hālau is here. I spend at least 3 days here each week. I love seeing my students and their families enjoying the beach and water at Keauhou Bay.</p> <p>I do not want to see beach "bungalows" where our hālau currently stands. We do not need anymore oceanfront beach bungalows - visitors have plenty of other beachfront options, if that is what they are looking for.</p> <p>Do not build another resort. There is one right around the corner. Stand up for the people that live here. Let our voices be heard.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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		<p>values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Chapter 3 of the Draft Environmental Impact Statement provides a detailed description of the Project. The location for the proposed boutique resort is mauka of Old Kona Road. The canoe hālau is viewed as an important community and cultural resources and will remain in its existing location.</p> <p>Thank you for your participation in the environmental review process.</p>
Joe Robinson	<p>I object to the proposal for development of a new resort area at Keauhou Bay. We have the Outrigger resort in that area for many years, and many other rentals in the area as well at under utilized Keauhou shopping center with many vacancies for retail We do not need more development in the area at this time.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to</p>

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		<p>maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>

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<p>John and Kathy Arroyo</p>	<ol style="list-style-type: none"> <li>1. My wife and I live along Alii Drive, at the intersection with Kaleiopapa Street. The constant daytime <u>traffic noise</u> and air pollution has steadily worsened the past few years. Opening the concrete bypass (excellent sustainable pavement material choice) created a high-speed boulevard, despite the useless 35MPH speed limit sign. <u>Southbound vehicles</u> especially, on Alii Drive, <u>are potentially deadly</u> for all of us who need to exit the Keauhou Akahi condominium complex. (I urge you to try to exit the property turning left at that blind curve, northbound. Say your prayers.) Expanded development at Keauhou Bay will simply attract more vehicles to an area that already fosters <u>excessive car &amp; truck traffic</u> and noise.</li> <li>2. Hawaii Island does not have plentiful sources of fresh water to support further development. Decent <u>drinking water</u> supplies are <u>strained</u>.</li> <li>3. It is no secret that the Kona/Kohala (western) side of the island is in dire need of extensive expansion of <u>sewer-treatment</u> capacity.</li> </ol> <p>Maintenance and improvement of <u>existing</u> features at Keauhou Bay would make sense.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following comments:</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Section 4.12.1 of the Draft Environment Impact Statement (DEIS) provides detailed estimates of the average daily water demand</p>

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		<p>for the various project components. In total, the Project will result in an average water demand of approximately 97,466.2 GPD. Based on these estimates, impacts to the public water supply are not expected.</p> <p>Water conservation measures will be implemented in design of the Project and may include, but not be limited to, the following: efficient irrigation systems such a drip system and moisture sensors, utilization of nonpotable water for irrigation, drought tolerant plants, and the use of Water Sense-labeled ultra-low flow water fixtures and toilets.</p> <p>A wastewater flow analysis has been conducted as part of the analysis for the Draft Environmental Impact Statement (DEIS). The flow projections are based on land use areas, unit counts and estimated population using demand rates from the State HAR Chapter 11-62, Appendix D. As described in DEIS Section 4.12.2, the Project is expected to generate an average daily flow of 50,925 gallons per day (GPD). It is expected that the He'eia</p>

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		<p>Wastewater Treatment Plant (WWTP) will have capacity to accommodate the increase in wastewater flows.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>John Knoebber</p>	<p>I write to voice my opposition to any planned removal of the volleyball court at Keauhou Bay. I have lived here for 8 years; and I have enjoyed playing volleyball there on many occasions. Also, I have made friends there with people from all walks of life. Also, I believe there are already far too few, safe places like this for friends and family to gather and be active. Perhaps any renovation could leave room for at least 1-2 courts?</p>	<p>Thank you for your letter dated March 30, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>



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<p>Julia Benkofsky-Webb</p>	<p>I have recently learned that the continuation of one of our community treasures in West Hawaii is in jeopardy. It has been announced that Kamehameha Schools' plans to “reinvigorate and transform” 29 acres at Keauhou Bay will include the removal of the much used and loved beach volleyball court in this area.</p> <p>It is clear to me, from speaking with friends who play weekly at this court—one of whom has been using the facility for 30 years—that this would be a huge loss to the community. Residents of all ages play at this court daily, and tournaments have been held there. Additionally, the sand courts at Keauhou are currently being used by several different coaches to run clinics and to train children that are seeking college scholarships in beach volleyball.</p> <p>The information contained in <i>The Environmental Notice</i> of March 23 offers several ways that the proposed changes to the 29 acres at Keauhou Bay will be beneficial to the community, including: “The new reconfiguration will. . . promote high quality educational experiences for all.” The volleyball court has been providing high quality educational experiences—on the physical, mental and spiritual levels—for over five decades. I implore you to consider how you may save the court at its present location or to move it where it may continue to serve untold numbers of our residents.</p>	<p>Thank you for your letter dated April 3, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Ka'eo Bertelmann</p>	<p>Great Job folks!</p> <p>I think you're on to something truly special, and I applaud your endeavors for Keauhou.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We appreciate your support of the Project. Thank you for your</p>

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		participation in the environmental review process.
Kathleen McMillen	<p>I find it questionable that Kamehameha Schools is wrapping the development of a high-end resort in the envelope of honoring the Kamehameha III birthplace. It is smart of them to get the buy-in of the Daughters of Hawaii, who are the stewards of the Kamehameha III monument. I wonder if it was mentioned to the Daughters that once the land clearing starts for the resort area, one good rain will cause silt and debris to flow over the cliff onto the sacred monument and park, and, quite conceivably, into the adjoining ocean, fouling the already fragile waters of Keauhou Bay. There will be promises of erosion control and other mitigations but then a big rain comes along and excuses will be made that it was a 50-year or 100-year storm, so it couldn't be helped. Many times over the last 30 years I have seen failed erosion controls and silting of shoreline waters from construction projects.</p> <p>May I remind you that several waterfront homes on the north side of this bay have only cesspools. And even the few that have septic tanks are at too low an elevation and likely are too close to the ocean to have adequate leach fields, thus adding to the bacteria levels in the ocean. This problem is compounded by runoff after it rains. Absolutely no improvements should be made near Keauhou Bay until the sewage problem is resolved by getting these parcels connected to the nearby local private sewer system or the County sewer lines, if the private system is not workable.</p> <p>Recreational use of Keauhou Bay is heavy. Parking is a disaster for individuals who live in the community. The plan put forth develops slightly better boat parking but nothing specific for vehicles of the commercial boat patrons, nor locals. Many boats, both commercial and personal, launch there every day. Take a look at the boats and people who flock there between 6 and 10 am. Many outrigger canoes, paddleboarders, and swimmers use this bay every day. The State Clean Water Branch does occasional monitoring of the bay waters showing average bacteria counts are rising over the years. After very heavy rains the bay occasionally turns green from algae blooms creating unhealthy conditions for users of the bay. Added development stresses to</p>	<p>Thank you for your letter dated April 7, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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Comments	Commenter	Responses
	<p>this bay may reverse its health permanently. Do we really want to add to the already fragile and congested conditions with a resort that only one-percenters can afford to enjoy? At least the old Keauhou Beach Hotel provided affordable rooms for Kama’aina on island and for family visiting from other islands. It also was an inappropriate land use but at least it provided some benefit. Can we not learn from why the Keauhou Beach Hotel and Kona Lagoon Hotel were eventually demolished? Just because you have the zoning for resort use, doesn’t mean it is the best use of the land.</p> <p>In 2008, Kamehameha Schools said this when demolishing these hotels to add a more appropriate cultural park: “Our charter for future development here is to make things pono, or right, to solve the mistakes of the past and move ahead. We want to make sure that any and all future development in Keauhou, first and foremost, is culturally correct.” Kamehameha Schools, please put your money where your mouth is.</p> <p>I say to Kamehameha Schools, advocate for getting those parcels on the north side of the bay onto a local sewer system and then implement the management plan without building the resort. Honor the Kamehameha III monument, be good stewards of the land and ocean but find a more appropriate use of the vacant resort zoned land that honors the Hawaiian children you represent.</p> <p>Source of Kamehameha Schools quote:  <a href="https://www.travelweekly.com/Hawaii-Travel/Preservation-key-goal-in-Keauhou-redevelopment">https://www.travelweekly.com/Hawaii-Travel/Preservation-key-goal-in-Keauhou-redevelopment</a></p>	<p>to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We are aware of the issues related to contamination caused by cesspools in the vicinity of the bay. All new facilities associated with the Project will be serviced by sewer utilizes and treated at the He’eia Wastewater Treatment Plant. Please refer to Section 4.12.3 for further discussion of wastewater.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and</p>

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		<p>susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>We acknowledge your concern that additional parking is needed. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project’s proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Kathy Roney</p>	<p>I am a resident of Keauhou Bay and would like to share with you my concerns about the revised KBMP.</p> <p>For many years Kamehameha Schools has been a very poor steward of the land and irreplaceable priceless cultural heritage sites along the Keauhou/Kahaluu corridor and it bothers me that instead of changing that, you are moving on to new lands, not taking care of and managing the existing commercial space that isn’t overly success to date.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statues Chapter 343.</p>

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	<p>It is clear that this plan does not take in account the same Hawaiian values and kuleana that my Kupuna taught and ingrained in my being. In my lifetime, I went from camping at Turtle Bay with my Uncle Kaukau to watching greed pave every inch of `Oahu. I do not want to see the last peaceful island disappear and become just another Waikiki.</p> <p>What are we teaching our keiki, when we continue to cater to tourist, taking the last bay in Kona that is not overdeveloped and making it another overcrowded tourist attraction. Where does it stop? At what point does 'underachieving financially' take a back seat to our kuleana to the land, our keiki and to our future as Hawaiians.</p>	<p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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Comments	Commenter	Responses
		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Kilihea Inaba</p>	<p>My name is Kilihea Inaba, I am from Kaloko, Kona. I was hoping you could answer a few questions for me regarding the KS Keauhou Bungalows project set to go to the LPC:</p> <p>1) Where exactly is this proposed to be built? And how large is the area of which it will occupy?</p> <p>2) What are the waste/ sewage plans for these bungalows?</p> <p>3) Has no other project been proposed by KS or to KS of how to generate income in this region without having to develop more land that will likely not be utilized by kanaka/ the local population?</p>	<p>Thank you for your letter dated April 19, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses to your questions:</p> <p>The Project Area is comprised of fourteen distinct TMK parcels encompassing roughly 29 acres distributed around the historic and culturally significant Keauhou Bay. The Project Area spans two ahupua'a (traditional Hawaiian land division typically extending from mountain to sea): Keauhou 1 (located to the north) and Keauhou 2 (located to the south) in the North Kona District of the Island of Hawai'i.</p> <p>A wastewater flow analysis has been conducted as part of the analysis for the Draft Environmental Impact Statement (DEIS). As described in DEIS Section 4.12.2, the Project is expected to generate</p>

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		<p>an average daily flow of 50,925 gallons per day (GPD). It is expected that the He'eia Wastewater Treatment Plant (WWTP) will have capacity to accommodate the increase in wastewater flows.</p> <p>As the steward of approximately 54 acres at Keauhou Bay, KS has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. Multiple alternatives to the proposed Project are presented in DEIS Chapter 6.</p> <p>Thank you for your participation in the environmental review process.</p>

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Comments	Commenter	Responses
Kimmy Gay	<p>My name is Kimmy Gay and I have been playing volleyball at Keauhou Harbor since 1988. For the past 2 years I have been organizing a free quads league for teenagers 4 days a week (Sunday, Monday, Thursday, and Fridays). I pick up a lot of the kids who have no transportation. I have over 100 kids in my league consisting of ten different nationalities, but the majority of the kids are of Hawaiian descent. Sometimes we have up to 30 kids there in one day. I wonder how many of these kids would be on the streets getting into trouble if they didn't have these types of healthy outlets after school and on the weekends. I also coach a women's volleyball group on Mondays for mom's. I currently have 30 mom's signed up. They find babysitters to watch their kids so they can play volleyball once a week. They constantly thank me and tell me how much they need this outlet. They get a break from their kids and have so much fun. There is another group that plays there every Wednesday, and a doubles group that plays there on Tuesday and Saturdays. I also understand that people in the community have played volleyball at this location for over 60 years, if not longer. If you remove the volleyball courts at Keauhou Bay it will create a huge vacuum in the local community and all the kids that have been participating in daily volleyball training and play will have nowhere else to go to play and learn in a safe family atmosphere. Please feel free to call me if you have any questions 808-938-4707. I am hoping and praying that you will reconsider taking down the volleyball court at Keauhou Harbor. It is truly an asset to this community.</p>	<p>Thank you for your letter dated April 11, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We applaud you for your service to the community and helping to improve so many young peoples lives. At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
Kitty Lani	<p>There is strong opposition to development here!!! Stop please!</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>



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Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new</p>

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Comments	Commenter	Responses
		<p>development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Kristi Kranz</p>	<p>Please do not put another resort at Keahou Bay. The beach is small, it cannot support more tourists, it is already crowded with locals who use this beach to paddle, swim, play volleyball and swim. Please leave us our little slice of paradise, do not build another resort here.</p>	<p>Thank you for your letter dated April 12, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option.</p>

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		<p>Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Leslie Rae</p>	<p>Please put a stop to the development of Keauhou Bay.                      Outrigger hotel which should never have been built on sacred land sits empty.                      Keauhou shopping commercial is vacant.                      This is not necessarily and will do more harm and no good can come of this.</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its</p>

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		<p>resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>

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<p>Lew Brentano</p>	<p>I live in the Keauhou Bay area on Monaco Street major concern I want to address is making Keauhou Bay and the surrounding area, especially the side of the bay by the Outrigger Keauhou resort, ADA compliant and s accessible.</p> <p>I am a wheelchair user and applaud the proposed plan for wheelchair accessible path from north of the bay to south of the bay connecting to the road leading to the bay and the Outrigger hotel on the south side of the bay, as there is no safe access right now from north to south.</p> <p>This might be the only good thing about the development plan presented by Kamehameha schools! The proposed commercial and resort development will certainly increase automobile and truck traffic, and decrease the safety for those of us in wheelchairs, or mobility impaired, by increasing the likely hood of car/truck - wheel chair accidents.</p> <p>I urge the County or other government entities with jurisdiction over this plan to reject it.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your concerns related to traffic and safety. Street capacity, traffic circulation, and ADA accessibility were taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing an accessible linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess</p>

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Comments	Commenter	Responses
		<p>existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
Linda Bollingert	I oppose the development at Keauhou Bay. I believe it would be detrimental to the mellow local environment that exists there now.	<p>Thank you for your letter dated April 26, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community</p>

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		<p>members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Linda Groene	No on redevelopment of Keahou No on 150 condos and blocking access to ocean Save Keauhou. I lived in Kailua Kona for 14 years and shame on those who want to ruin it	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to</p>

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		<p>maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Access to the shoreline will not be impeded by the implementation of</p>



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Comments	Commenter	Responses
		<p>the Project. Improved pedestrian networks and the expansion of open space is expected to have a beneficial impact on access and recreation.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Lisa Bunge</p>	<p>As a nearly 40 year resident of the Big Island I have seen so many changes to this island. Growth is inevitable, but please let's not ruin another special place. Don't succumb to the ridiculous plans that are being made for Keauhou Bay.</p>	<p>Thank you for your letter dated April 12, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option.</p>

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		<p>Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Lisa Sterritt</p>	<p>1. Has the traffic impact on Ali'i Drive been studied or considered? Will there be an impact?</p> <p>2. Is there any consideration around the view plan impact for existing communities behind the proposed hotel space? In particular, I am an owner at Keauhou-Akahi Condominiums. Between the hotel and the proposed landscaping, the views of the existing communities will be completely blocked. Is this part of the research?</p>	<p>Thank you for your letter dated April 11, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The</p>

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Comments	Commenter	Responses
		<p>Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>As discussed in DEIS Section 4.15, a visual analysis was conducted by G70 to identify potential impacts to known visual corridors and associations within and adjacent to the Project Area. This analysis was</p>

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Comments	Commenter	Responses
		<p>based upon the conceptual layout of all facilities and proposed uses. The bungalow units themselves are designed to nestle into the natural landscape by aligning the structures along the natural sloping topography. Each unit, with a height of approximately 25 feet, is well below the 90-foot height limit allowed under the County zoning code.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Lisa Sterritt</p>	<p>I am a newer owner on the Big Island of Hawai'i and am very concerned about the proposed development at Keauhou Bay by Kamehameha Schools.</p> <p>Having attended the April 11 meeting, and reading the EIS, it is apparent this proposed development will have a negative impact on every community in the area <i>except for KS</i>. This does not align with the spirit of Aloha I have been educated about, and want to respect.</p> <p>I ask that you do all in your power to help our communities stop this development from happening. It does not respect the sacred birthplace and surrounding area, the Bay itself, or the communities that hold this place so dear.</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by</p>

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		<p>unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Louis Putzel	<p>I oppose the further development of Keauhou Bay. Enough of the space around it has already been converted to luxury resort space. KS surely has enough money to take better care of the area in the public interest and in the name of conserving Hawaiian cultural heritage without adding more resort accommodations. Efforts should be made to do a better job of taking care of the land behind the Bay, e.g. as a PUBLIC park. ALLOW some small food concessions and shops in the park to generate rental income, something everyone can enjoy. The canoe club is obviously important to the local</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>community, so give them more support! Improve the environment so that it is a more socially beneficial space for the public.</p>	<p>We acknowledge your comments related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
<p>Marianne Bickett</p>	<p>We have family on Oahu and Big Island and visit often. We love Keauhou Bay and are shocked that you are considering to develop this area. Have we not learned from the past that we must stop the insanity of development for greed and gain when the environment, and ultimately us, suffer?</p> <p>Even though you say you will provide shoreline access, you will destroy the natural beauty of this place. You will negatively impact the ecosystem and this harm is too high a price to pay for your profits.</p> <p>Please reconsider this decision. Please. What kind of a world do you want to leave for YOUR grandchildren? Can you not preserve it and develop elsewhere? We need to shift our thinking from profits/greed/growth to preservation/cooperation/health of ourselves and our planet. Especially today, Earth Day, can you not reconsider?</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient</p>

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		<p>economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Marjorie Bryant</p>	<p>I strongly object to Kamehameha Schools' plans for Keauhou Bay. Kamehameha III's birthplace is not the right place for a new resort, more commercial space, and a new road.</p> <p>Before I begin listing my concerns, I thank you, the authorities of Hawaii County, for listening to them. I realize that, because my Keauhou condo is my vacation home and not my permanent residence, my opinion may not count as much as others. But I intend to make my Keauhou condo my permanent home someday, and this proposed development will impact me greatly.</p> <p>If this planned development goes through, it will negatively impact my viewshed, my quality of life, and the value of my property, which overlooks this site. I will suffer from more traffic noise and toxic exhaust coming in my windows both during construction and after, from years of construction noise and dust, and from a hotter and drier local climate when the applicant removes all vegetation on site and replaces it with acres of asphalt and buildings.</p> <p>Thirteen additional reasons I object to the development of Keauhou Bay:</p> <p>(1) It will further endanger pedestrian safety on already-unsafe Kaleiopapa St. This is because Kaleiopapa has no sidewalk, and its shoulders are only wide enough to accommodate a parked car. And both shoulders are routinely filled with cars – sometimes the entire 1/3 mile up to Ali'i Dr is completely full, both</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. We offer the following responses to your comments.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-</p>



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Comments	Commenter	Responses
	<p>sides. This is especially acute on Wednesday market days, and at night, when manta tours operate. Because the shoulders are filled, folks walk on the road with the traffic – with the trucks towing boats and SUVs and cars and semis speeding up and down the hill (trucks and other lifted vehicles race over the speed humps and do not slow). In the daylight, this is hazardous. In the dark, for manta customers walking on the road, often til midnight and beyond, it is treacherous. No amount of parking in the space available will accommodate the additional traffic this development will bring, let alone the existing traffic. Plus, the tour operators currently operating roadside on Kaleiopapa: they aren't going to lease commercial space. Why would they, when they can operate roadside for free? So, for these reasons, the roadsides will stay crowded, despite the parking lots proposed. And pedestrians will continue to have to walk in the roadway with the traffic – way more traffic than now. Adding years of construction vehicles to this mix is only going to make it even more treacherous. People are going to get hurt or die. And, when that happens, they will sue Hawaii County for allowing this unsafe situation to exist on its road.</p> <p>(2) This development will increase traffic by hundreds of cars/day on our already clogged local roads and highways. Kailua-Kona does not need more traffic.</p> <p>(3) Kailua-Kona, and Keauhou in particular, does not need more tourist accommodations. Kailua-Kona is jammed to capacity with tourists as-is. What Kailua-Kona needs is more affordable housing, so the jobs created by its already thriving tourist industry can be filled.</p> <p>(4) This development will take a green, lush area of trees and shrubs and flowers, and replace it with pavement and buildings, permanently and negatively altering the gorgeous scenery along Keauhou Bay, as viewed from both the water and the land.</p> <p>(5) Removing the vegetation from this extensive area will also make the area hotter and less likely to attract replenishing rain. Which will over time dry up natural springs in the area. Scientific studies have proven that trees bring rainfall. And pavement and hardscape raise temperatures.</p>	<p>model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a</p>

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Comments	Commenter	Responses
	<p>(6) This development will burden the local water supply during our era of unremitting drought and increasing fires.</p> <p>(7) This development will create significant extra energy demand on an island that is completely reliant on imported oil for its electricity – during a worldwide oil shortage that has already driven up electric bills here.</p> <p>(8) This development will cause light pollution in an area treasured for its dark skies.</p> <p>(9) This applicant has already demonstrated that it is no longer interested in being a good neighbor. In Feb and March of this year, the applicant took steps to block public access to the shoreline at H Bay (which in their Keauhou Management Plan they call Pebble Beach). H Bay is shoreline public access, and its shoreline is a longstanding local surfing and fishing spot. Neighbors, with the applicant's explicit written permission, had been maintaining the grounds of H Bay and had restored its endangered pond. They were summarily told to cease. At the same time, the longstanding path along the shore was covered with rocks, and a "no trespassing under threat of prosecution" sign placed along the shore.</p> <p>(10) The applicant doesn't listen and respond kindly to community concerns, as evidenced by the April 11, 2022, meeting, which I attended. There, the applicant summarily dismissed volleyball players' and neighbors' concerns. And summarily dismissed Native Hawaiians' concerns. The applicant did not post on its website its slides from the meeting – as promised in the meeting. And the applicant never invited neighbors to participate in its planning process ahead of the meeting – only special interest groups.</p> <p>(11) The applicant is not being forthright; they are not publicizing pertinent information about their plans, nor are they directing public comments to the Hawaii County Planning Department. It is my understanding that the EIS process, and the permitting process for such projects as this, require the applicant to provide the public – especially project neighbors – with a county planning email address, so project neighbors and interested members of the public may comment on the project to the appropriate governing body during appropriate time periods. In its notice to neighbors that I received, no such email address was provided. Only the applicant's email address and their</p>	<p>residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>As discussed in DEIS Section 4.15, a visual analysis was conducted by G70 to identify potential impacts to known visual corridors and associations within and adjacent to the Project Area. This analysis was based upon the conceptual layout of all facilities and proposed uses. The bungalow units themselves are designed to nestle into the natural landscape by aligning the structures along the natural sloping topography. Each unit, with a height of approximately 25 feet, is well below the 90-foot height limit allowed under the County zoning code.</p> <p>Section 4.12.1 of the Draft Environment Impact Statement (DEIS) provides detailed estimates of the average daily water demand for the various project components.</p>

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	<p>developer's email address were provided. And no such county planning email address is provided on the applicant's website for this project. What's more, the applicant's notice to me contained no specifics on the extent of this development. And the applicant's publicly available maps continue to show no specifics for this development – even though the applicant already has very specific plans they unveiled in the April 22 meeting. Anyone who missed the April 22 meeting has no idea how dense and disruptive the applicant's development plans are.</p> <p>(12) This applicant claims its project will create jobs, but where will its employees come from, when local businesses like KTA Keauhou, Longs Keauhou, Aloha Gas Keauhou, Subway Keauhou, Kenichi restaurant, etc. are all understaffed, trying to hire – even offering hiring bonuses – but still can't find enough employees? Who can afford to live locally and work on a hotel housekeeper's salary?</p> <p>(13) And lastly, but most importantly, I believe that building a hotel, commercial space, and a new road is not preserving Kamehameha III's birthplace, but destroying it.</p> <p>I am not sending this letter to the applicant, Kamehameha Schools, on purpose. They have demonstrated to me that they do not genuinely care about anything anyone has to say. Sharing my views with them is pointless. They are not listening. I am sending this letter to you, Alex Roy and Rebecca Villegas, because I know it is your job to care about the county's environment and people and fairly administer the laws of the land, so that the people's voice may be heard, and not just powerful, rich organizations like Kamehameha Schools.</p>	<p>In total, the Project will result in an average water demand of approximately 97,466.2 GPD. Based on these estimates, impacts to the public water supply are not expected.</p> <p>DEIS Section 4.12.4 provides a detailed description of the Projects estimated energy demand. The total electrical demand for the Project is anticipated to be 3,181.86 kiloVolt Amperes (kVA). Provisions of additional electrical services are not expected to effect existing utility services in the greater Kailua-Kona Region.</p> <p>The Project includes several components aiming to conserve overall energy usage and will strive to meet a LEED silver minimum. The Project will also be implementing elements from the USEPA Energy Star Program such as efficient insulation, high performance windows, compact construction, efficient ventilation systems, or energy saving lighting and appliances.</p> <p>Various areas throughout the Project Area will be equipped with new lighting to improve nighttime safety and security. The Old Kona Road and associated walking paths</p>

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		<p>will be equipped with appropriate lighting. As of June 2021, the Hawai'i County Street Light Standards has a list of approved Light Emitting Diode (LED) roadway luminaires that are acceptable for installation within Hawai'i County. Roadway lighting system will be energized through metered electrical connections to HELCO secondary power sources situated along Old Kona Road. All roadway lighting will consist of fully shielded light fixtures and comply with Hawai'i's Outdoor Lighting Ordinances and Dark-Sky regulations.</p> <p>Consultation with community groups and stakeholders has been ongoing since 2016. KS takes the concerns of its neighbors seriously. Input from community has guided this planning process from the beginning and will continue to do so throughout the HRS 343 Environmental Review Process. A recording of the EISPN scoping meeting was posted to the Project Website for participants to view following the meeting.</p> <p>DEIS Section 4.14 assess economic impacts of the Project. An Economic Impact Report (EIR) was prepared</p>

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		<p>by Environment &amp; Economics for the Project and included in <i>Appendix G</i>. The EIR estimates that there would be an estimated total of 159 jobs generated or sustained from Project operations annually. These jobs would primarily be in service industries such as the hotel industry (e.g., building maintenance and clerks), retail industry (e.g., retail sales), and restaurant industry (e.g., food and beverage service and cooks). Employment opportunities within the Project Area will continue to diversify and increase employment opportunities in the Kailua-Kona Region.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p>

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Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Marta Barraras	Please do not build again at the culturally historic areas in Keauhou! Our island of Hawaii Needs to be a model of harmony and Malama of the land.	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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		<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Martha Denney	<p>The southern part of the community is in need of a safe place for keiki and kupuna to swim in the ocean with a sloped sand entrance. There is virtually no place to go for that except Keahou bay, but you are endangered by the boats and traffic. This use is consistent with the traditional use of the ocean for teaching swimming. It could be part of a larger community park that would include a place to shore fish.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact Statement (DEIS) Section 3.2.3 describes the Project's aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded</p>

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Comments	Commenter	Responses
		<p>shoreline park. Implementation of the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Megan Spelman</p>	<p>Aloha to county planners and developers,</p> <p>Our family has owned a home on Manukai Street near Keauhou Bay for nearly 30 years. It breaks our heart to think of another resort developed above Keauhou Bay. The bay and neighborhood can hardly manage the amount of visitors and locals using the bay as is. Please no more development! I think we should concentrate on management and letting commercial spaces open in current buildings. Through traffic to the bay via Kam III would ruin our quiet neighborhood we all treasure. Please NO MORE DEVELOPMENT at Keauhou Bay. We already have a huge resort and many commercial businesses running out of the bay. We can't handle more. Kamehameha School will have to find another income generator on their many properties. I am sure there are options. Keauhou Bay can't manage another resort! We don't need it or want it.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision,</p>



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		<p>the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Meredith Stapp Ozbil</p>	<p>I am writing to you as I am a user of Keaukou Bay, a paddler and member of KCC, a resident of Kailua-Kona and a constituent and I oppose the redevelopment project.</p> <p>1st, does the region need more Boutique Hotels? Waikoloa Resort was just approved in adding a vast number of vacation accommodations (with Zero much needed affordable housing.) Do we need more? The Earth is already in a climate crisis. Are vacancy rates at an all time low? Are we as a community taking car of what we already have?</p> <p>Second, Kamehameha Schools does not have the greatest reputation in completing projects. Per their own website the redevelopment at Kahalu'u Ma Kai has been in "final stages" since September 2020. It is still incomplete. The construcion fencing and incomplete projects are becoming an eyesore.</p> <p>Furthermore, at that same Kahalu'u site they already demo'd a hotel. Apparently to honor the cultural footprint in that location and mitigate</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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	<p>financial risk of rehabilitation. One could easily argue the cultural footprint at Keauhou's is far greater. And I am not sure how a Boutique Hotel would have less financial risk in 40 years (approx. age of the Keauhou Beach Hotel when demolished) at a time when it would also need rehabilitation. Hotels are not commodities to be thrown away in a landfill creating huge environmental waste on a small island.</p> <p>It leaves me questioning:</p> <p>Is the construction and demolition and long term maintenance of buildings owned and managed by Kamehameha Schools at the whim of whom ever is on the board at the time?</p> <p>Are they maintaining thier buildings or deferring maintenance until the buildings cease to make money and are too expensive to rehabilitate? Is that something an Island community can afford to perpetuate?</p> <p>There are already 2 derelict hotels in Downtown Kona (Kona Inn and Uncle Billy) in the future Do we need another? There are already 2 roped off, fenced in parks and cultural sites that are incomplete, overgrown, littered, and unused (Kahalu'u Ma Kai and La'aloa) Do we need more incomplete projects lingering indefinitely?</p>	<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities that KS wants to take advantage of that were not conducive with the</p>

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Comments	Commenter	Responses
		<p>previous hotel structure. The income generated from activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Michael Herbert</p>	<p>My name is Michael Herbert and I live in the Keauhou makai area with my wife and our two children. My wife and I have owned a home in Keauhou since 2004. We were married at the Keauhou hotel (when it was the Sheraton) in 2009. We are raising our two young children here in Keauhou, and our family benefits daily from the many special features of this place. I am very happy to see that Kamehameha Schools (KS) is looking at ways to restore cultural sites in this very special area and reverse some of the land use planning decisions of the past that are not consistent with the rich cultural heritage of the area. I have some suggestions that I think would improve on the current plan and better balance the proposed restoration and development activities. I respectfully encourage KS to consider these ideas and incorporate them into the next stage of your planning work:</p> <p>From North to South, I suggest:</p> <p><b>1. Restore and rebuild the holua (North).</b></p> <p>We often walk with our children and point out to them the magnificent Royal Holua. I cannot help but imagine the intense speeds obtained descending the slide and admire the bravery of those who participated in the sport. Equally impressive is the amount of resource and social coordination needed by the Hawaiian community here at Keauhou to build the slide.</p> <p>The Royal Holua should be restored as completely as possible, and should once again be a place for people to practice the sport and for spectators to enjoy it. The proposed redevelopment of this area presents a once-in-a-generation opportunity to make bold moves to reclaim this magnificent</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We appreciate your suggestions to restore the hōlua slide. Although there is no extant remains of the hōlua slide in the Project Area, the development footprint was designed to preserve the alignment of the original corridor for open space and preservation in the future. The concept behind this area is to create a physical and visual memorial to Hōlua o Kāneaka, the monumental stone slide requisitioned by Kamehameha I at the time of the birth of his son, Kauikeaouli. Interpretive signage will be included to tell the story of the hōlua and other stories. KS will</p>

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	<p>feature and revive traditions surrounding holua sled racing. Keauhou Bay could become the epicenter for the revival of the Holua. I urge KS to take advantage of the opportunity and act more fully on the vision to restore this area by bringing back the Royal Holua.</p> <p><b>2. Restore the birthplace of Kauikeaouli/Kamehameha III (Bayfront).</b></p> <p>The map excerpts and comments below are taken from Henry E.P. Kekahuna’s masterful maps of Keauhou Bay from 1949 - 1955. Kekahuna’s detailed renderings show how the birthplace used to look and his historical comments directly tie to the birth story of Kauikeaouli/Kamehameha III. Preserving his birth story was undoubtedly a strong motivation for the creation of these maps.</p> <p>Existing commercial development has paved over and covered up many remarkable features of the area. In addition to realigning the access and relocating the commercial business, I urge KS to remove the pavement and uncover the springs and birthing pool shown on the maps so that the fuller story of the birth of Kauikeaouli/Kamehameha III can be seen and appreciated, and the area stewarded in ways more fitting for such an important leader in Hawaiian history and culture. Interpretive signage would be beneficial in educating visitors to be respectful of this sacred birthplace.</p> <p>Links to KeKahuna’s Maps:  <a href="http://data.bishopmuseum.org/Kekahuna/kekahuna.php?b=closeup&amp;ID=15">hBp://data.bishopmuseum.org/Kekahuna/kekahuna.php?b=closeup&amp;ID=15</a>  <a href="http://data.bishopmuseum.org/Kekahuna/kekahuna.php?b=closeup&amp;ID=14">hBp://data.bishopmuseum.org/Kekahuna/kekahuna.php?b=closeup&amp;ID=14</a></p> <p><b>3. Focus commercial development activity on the South end of Keauhou Bay and above the cliffs. Do not include commercial activity on the North end of Keauhou Bay (South).</b></p> <p>To maximize enjoyment of the north and bayfront proposed open spaces by visitors, residents, and cultural practitioners, I strongly urge KS to consolidate the development to one area on the south side of the bay so that cars, parking, boats and commercial activity is concentrated in the area near the current Outrigger Resort and where the newer commercial harbor activities will be relocated. Doing so would create an experience where the north end of the bay, near the proposed redeveloped Royal Holua and over to the birthplace</p>	<p>also seek collaboration with community partners interested in the restoration and utilization of the corridor to reinvigorate Keauhou as an epicenter for hōlua.</p> <p>DEIS Chapter 3 provides a detailed description of the Project inclusive of restoration activities of Ho’okūkū Pond. As part of the improvements in the heritage corridor, the Project will expand the remnant anchialine pond and restore ecological systems within Ho’okūkū Pond to enhance conditions for native species to thrive. DEIS Section 4.5 describes potential impacts and mitigation measures to protect surface water at the Project Area.</p> <p>DEIS Chapter 3 also provides a detailed description of the proposed commercial spaces and boutique resort. The boutique resort will be located above ‘Ahu’ula Cliff. The area below the cliff is proposed for preservation as a heritage corridor. The new commercial facilities will be located south of the bayfront on the northwest corner of Kaleiopapa Street and Ehukai Street.</p> <p>We understand that parking and circulation has been challenging in areas surrounding Keauhou Bay. Street capacity and traffic</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>can serve as quieter, pedestrian friendly shoreline access, restored cultural sites, and quieter recrea.on including the canoe club. On the south end near the existing hotel is where any commercial development, new roadways, and new parking should be concentrated.</p> <p>Do not make the old road a thoroughfare. Extend it from the south side of the bay just as far as is needed to serve the development above the cliffs and no farther. Land use on the north end of Keauhou Bay should be focused on the physical and cultural revival of the Royal Holua.</p> <p>I strongly encourage KS to include in any proposed new commercial or hotel development a more contemporary mixed use approach, with retail on the ground floor, including holua sled builder and shop, surf/paddleboard shop with rentals, places for classes and educa.on, and tour operators on the ground floor so that guests can conveniently book activities. Throw in a couple of restaurants serving locally grown food, as well.</p> <p>I'd also strongly encourage KS to include a mix of high end and affordable residential units with any planned boutique hotel. These units could function as permanent rental units that generate revenue for KS, but also allow for the bayfront not to become dominated with visitors. Ideally, more affordable rental units could be mixed in as well, allowing local families an opportunity to live at Keauhou Bay.</p> <p>Many visitors have moved beyond the mindset when resorts nodes were developed to exclude local people; these visitors seek enriching social experiences that, while comfortable, allow an opportunity to interact with locals and feel a part of the community during their stay. The new development should reflect that evolution in the visitor industry. Similarly, most local residents are tired of being priced out of areas that are special for all of us. Local families deserve opportunities to live where they want to. KS has truly remarkable resources and the ability to realize an inclusive and transformative vision for this place.</p> <p>I would be happy to talk further with KS about any of these ideas. I plan to stay in this area and want to help make it the best it can be for present and</p>	<p>circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic,</p>

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	<p>future generations. The land and waters of Keauhou Bay have a powerful story to tell; let the story be told.</p>	<p>recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>This Project aims to purposefully pursue the ‘Āina Aloha Economic Futures Declaration with a specific focus to “assert collective kuleana to restore degraded environments, sustainably managed human-occupied spaces, and protect the vibrancy of intact ecosystems.”</p> <p>However, KS further acknowledges that one aspect of Project will require an innovative approach to redefine the role of ho’okipa (to welcome others with hospitality) in the region. The development will strive to be a destination where both local residents and visitors alike will feel welcome.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Mike Morgan</p>	<p>Im writing in strong objection to the proposed development of Keauhou. Over the last 20 years I have enjoyed the bay and pier as a place of natural and cultural beauty. It invokes what Hawaii is, and should be. The calm and quiet of the bay is a true gift to Big Island.</p> <p>Over the last 5 years Ive seen the mismanagement of the bay and resources decline. There is no longer a trash can by the beach park, the benches on the historic walking path are rotten with metal spikes sticking out of them. If the</p>	<p>Thank you for your letter dated March 30, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statues Chapter 343.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>management of the bay is in this state now why would we open the space for 150 visitors to tread upon? Its shameful.</p> <p>The Historic Alii drive district sits derelict and vacant. We do not need anymore retail space, and certainly not anymore hotel rooms by the Sheraton (Outrigger).</p> <p>Please don't allow this</p>	<p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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Comments	Commenter	Responses
		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Milton and Christina Mendes</p>	<p>We are writing to express our concern regarding the proposed hotel and commercial development at Keauhou Bay. This historic area should be preserved for posterity and the quiet enjoyment of current residents.</p> <p>Let's focus on improving the existing infrastructure and partially completed projects that already exist in Kona.</p> <p>The bay is one place that can still be enjoyed by local families. Please don't ruin it for the profit of a few.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>



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		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Nancy Lorenzo</p>	<p>Hello, I am a homeowner and registered voter in Kailua Kona.</p> <p>The projected developments will increase the damage to our Bay and the environment of our ocean and Island, further. Eroding the beauty of our island and the home of so much wildlife. Please place the value of our island home over the profit of corporations.</p> <p>Please consider the gravity and permanence of this situation before it is too late!</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which</p>

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Comments	Commenter	Responses
		<p>leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Nancy Sakamoto</p>	<p>I write this letter in support of the Keauhou Bay Management Plan. I have been a resident of Kailua-Kona, Hawaii since November 1963 and my father had a boat dock at Keauhou Bay. That has been long gone years ago.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

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	<p>I admired the insight to move the commercial activities out of the bay and over to a new section to ease both the traffic, while enhancing the historic and cultural value of the deep Hawaiian Culture that has long been missing in the bay over time. To bring these historic sites, such as the Holua Slide, the Kamehameha Birthplace marker and Mo`ikeha Cave, and Ka`Ili`ilinehe Park as preserved points of interest is much needed. These treasured places must be saved and revered.</p> <p>I fully support the efforts and insight that Kamehameha Schools is taking in the very well thought out plan for Keauhou Bay.</p>	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We greatly appreciate your support for the Project. DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance.</p> <p>Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
Nicole Cipriani	<p>This email serves as a plea to thoroughly consider the devastation, environmental impact, marine life habitat and sacredness of our beautiful Keauhou Bay and surrounding areas that are being proposed for building. Let the land rest here! This is a sacred area with not only native historical ties, but environmental impact in many areas.</p> <p>Do not let greed, power and money continue to consume our island and especially Keauhou Bay!! Enough is enough.</p> <p>Condos, commercialism, lights, chemically ridden landscaping, in and out tourists who do not protect the lands or the ocean will continuously use this</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at</p>

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	<p>sacred area as a play ground for their benefit and the developers are continuing to think only of profits and greed.</p> <p>When are we going to stand up to the continued raping and pillaging of sacred lands all for the almighty dollar??? When???</p> <p>Who are these projects helping and whose pockets are they lining???</p> <p>Please, there are vacant and run down areas that already exist that need assistance in redevelopment. Concentrate on getting those back to where they need to be.</p> <p>Leave Keauhou Bay alone!</p> <p>Please vote with the people that live, work and strive so hard to care for the 'aina here, not the developers that only want to take with promises of jobs.</p> <p>Please say NO to developing Keauhou Bay! Let's concentrate on cleaning it up, not developing to make it worse. Fix the bathrooms, get new picnic tables, create a family friendly space, not building more condos and retail space! Not necessary!</p> <p>Concentrate on building housing for the many locals that have nowhere to live, not build overpriced condos for mainland residents and AirBNB to gain profits from. Enough is enough!!!</p> <p>Please vote NO to Keauhou Bay development!!!</p> <p>Thank you for your urgent attention to this devastating matter.</p>	<p>Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p>

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Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Olivia Pasciuta	<p>My name is Olivia Pasciuta. I am a lineal descendant of Ha’anio and Kaiaieke; who lived in Keauhou Bay from the 1800’s.</p> <p>I am opposed to the planned development.</p> <p>Considering the wealth of Kamehameha in general, so much more could be done and has yet to be done for the future generations of not only Hawaiian children; but the community as a whole.</p> <p>If you are willing and plan to have a public hearing, I hope that you will send me information on attending that public meeting.</p>	<p>Thank you for your letter dated April 16, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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Comments	Commenter	Responses
		<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Pamela Myers</p>	<p>I just read through some of the above plan and was astounded and appalled! I am a member of Keauhou Canoe Club and spend a considerable amount of time in the area. The area is lovely, not congested, and the current amount of development seem quite appropriate for the size of the bay and neighborhood.</p> <p>The proposal even says that the bay is highly used by visitor and commercial groups. The above proposal would mean MORE USE! I thought that Kamehameha Schools is supposed to PROTECT not destroy their land. With guise of an education center this proposal is WAY TO LARGE AND INAPPROPRIATE FOR THIS SPECIAL HISTORIC AREA.</p> <p>If I lived in that neighborhood I would be up in arms as this will create a completely different environment. I truly hope this DOES NOT GO THROUGH. It definitely sounds like KS has sold out for money!</p> <p>I am completely opposed to this as written. A small cultural center would be fine. But not this monstrosity!</p>	<p>Thank you for your letter dated April 13, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the</p>

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		<p>bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Pat Eskenazi	I oppose possible changes to the beautiful Keauhou Bay.	Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)

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<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new</p>



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Comments	Commenter	Responses
		<p>development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Patrick Badley</p>	<p>I have reviewed the Keauhou plans for the future and consider them absurd. Let's remember 5 years ago when DLNR proposed 8 new mooring balls for the bay. They completed a \$100,000 Environmental review and found no impact. That's when things went crazy...</p> <p>In the public hearing we heard at least 50 people say:</p> <ol style="list-style-type: none"> <li>1. the bay is already too crowded with boats, kayaks, swimmers, snorkelers, and outrigger canoes from the Keauhou Canoe Club</li> <li>2. Parking areas are full now and there is no more availability in the area</li> <li>3. The local natural resources are sensitive and will be damaged</li> <li>4. The local historical resources will be affected, damaged, and insulted</li> <li>5. Keauhou Bay is a historical monument to Hawaiian history - why add restaurants, condos, kiosks, shopping, and hundreds of tourists?</li> <li>6. Traffic in the area is bad now. At night with manta ray tourists it is even worse. DLNR is adding more manta viewing mooring balls and traffic and parking will be worse.</li> </ol> <p>If adding a few mooring balls to the Bay was rejected, then this massive project idea should be rejected. The whole idea makes no sense and will destroy Keauhou Bay as we know it. Why keep adding tourist areas?</p>	<p>Thank you for your letter dated April 4, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option.</p>

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		<p>Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian</p>

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Comments	Commenter	Responses
		<p>orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>A Natural Resource Assessment was conducted for the Draft EIS (DEIS) by AECOS (<i>Appendix C</i>). Please refer to Section 4.6 of the DEIS for discussion of native species, endangered species, and critical habitat in relation to the KBMP. The Project Area has been heavily infiltrated by non-native and invasive species. As discussed in the Natural Resource Assessment, no species listed as threatened or endangered by state or federal statutes were identified on any of the project parcels at Keauhou Bay.</p>

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		<p>The potential exists that several listed species might transit or utilize the general area on occasion. Please refer to DEIS 4.6 for measures to mitigate potential impacts to natural resources.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
Paul Catanzaro	<p>I've lived in this area for 38 years and watched hotels being torn down to uncover the mistakes of the past. I've been to meetings years ago when it was always mentioned that KS was trying to bring back the history of this area That had been destroyed. It would be a shame if someday Another generation realized that what you built and designed also Needed to be torn down . There has to be a way to plan and design something that could complement the original history of this area. it would be great if this planning could be</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p>

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	<p>done in prayer and ask the Lord what he thinks is best for this area, I'm sure he will show you.</p>	<p>As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Paul Dagdag</p>	<p>I am a 30+ resident of Keauhou/Kealakekua ahupua'a - I have witnessed the influx of traffic from both locals and tourists in the area. Adding another resort would create more congestion. I oppose the development.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>

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		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining,</p>

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		<p>commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Paul Gutekanst</p>	<p>I just read in the paper about Kamehameha Schools proposal for a "boutique resort" at Keauhou Bay. The description was somewhat alarming- 150units? Relocation of existing commercial entities? This is not a good fit for Keauhou- a very special place indeed. This proposal will radically change it's character forever. I'm sure Kamehameha Schools has plenty of other properties it could build on. Let's get them to focus elsewhere.</p>	<p>Thank you for your letter dated April 3, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>



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		<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Peter and Deborah Siefert	Thank you for informing us of your plans via mail, website and zoom meeting. In general, as others, we don't approve of such massive change to the area adjacent to Keanhou Bay. Environmentally it is not a sound plan and we	Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement

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	<p>don't see any cultural improvements justifying such environmental degradation. Most specifically, we're writing because, if approved, the increased traffic from this project only exacerbates the health and safety issues we are facing from the insufficiently mitigated "bypass", now called "Alii Highway" and it's effect on our complex.</p> <p>We live on the third floor of southeast corner of the building closest to Alii Dr. (Bldg.2) at the Keauhou Akahi. Since the bypass was opened the county has consistently removed the hedge/vegetation that was previously maintained to the guardrail which is exposing us and other residents to vehicular exhaust, noise and road dirt and added access to our property.</p> <p>1). If functional vegetation cannot be maintained as a barrier here with assistance from the county, a functional wall will be needed for mitigation purposes</p> <p>The speeding along this section of Alii Dr./Hwy makes it extremely dangerous to enter Alii Dr. from our complex.</p> <p>2). At the least, the speed limit along this section needs to be reduced and enforced.</p> <p>The corners of Alii Dr./Hwy and Kaleiopapa are not curbed. There are a lot of pedestrians using these corner.s. Cars and vehicles with boat trailers cut the corner and pedestrians waiting at the crosswalk or turning the corner are in danger of being injured. The speed limit goes from 35 to 25.</p> <p>3). The west sides of Kaleiopapa and Alii need to be curbed. And the speed limit needs to be reduced on Alii.</p> <p>4). If the old road below the golf course is to be used as a through road, it needs to be open to the public....including vehicles with boat trailers coming from the trailer storage to the boat ramp....not just hotel patrons.</p> <p>Thanks for the opportunity to comment.</p>	<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to</p>

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		<p>achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr</p>

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		<p>&amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>We understand your concerns related to speed and safety along roadways within the vicinity of the Project Area. As these roadways are under the jurisdiction of the County, KS does not have the authority to install traffic calming devices or other speed controls.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Peter Matlock</p>	<p>I thoroughly applaud the educational mission of Kamehameha Schools, and its concern to bring appropriate respect to the birthplace of Kamehemeha III. That said, the proposed plan for Keauhou Bay is not appropriate.</p> <p>A stated and major rationale for the plan is to increase access to the Bay for kupu'aina and kama'aina. In fact, the plan will do the exact opposite.</p> <p>Building approximately 150 bungalow-style hotel units, adding a 3,000 square foot "fine dining" restaurant, and increasing commercial outlets will crowd out and drive away the very people those promoting this plan say they want to help.</p> <p>Keauhou Bay is used daily by a wide range of people, including many from the lower-income end of the economic spectrum, and many, many locals—from keiki to kupuna. The proposed plan will prevent them from enjoying this treasured local resource, as the area will be flooded with tourists.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its</p>

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	<p>Please don't take it away.</p> <p>Or, as was succinctly stated in the recent zoom meeting, "I don't want to live in another Waikoloa".</p> <p>Please maintain the historical and cultural sense of place that is Keauhou Bay. A new hotel and commercial development is antithetical to that objective.</p>	<p>resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>

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Radine	<p>PLEASE do not ruin this favourite locals bay. it is already crowed and no parking a lot of the time. it is used for snorkelling and scuba diving. Adding commercial and short term rental facilities will have a tremendous negative effect. WE do not want to compete with Maui and become so over crowded that people that live on the island will lose even more of the Aloha we so treasure.</p> <p>PLEASE DO NOT APPROVE THIS DEVELOPMENT!</p>	<p>Thank you for your letter dated April 26, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient</p>

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		<p>economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Randee Golden	<p>Wake up please. No boutique hotel in Keauhou bay. Have you been there? Do you recognize the site as being something appropriate to preserve as it is? It is already overbuilt there. PLEASE care for the land you are supposed to protect.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to</p>

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		<p>achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Rebecca Melendez</p>	<p>I was the first to speak at your zoom meeting. Thank you for hearing the community.</p> <p>I wrote a letter to West Hawaii Today sharing my and others' views from the zoom meeting on keeping Keauhou Bay from becoming a crowded resort.</p> <p>I am also the one who put up the petition titled Save Keauhou Bay from Becoming a Crowded Resort. I'm sure you have received my petitions emails that, as of 3:25 pm, has 1,681 signatures on this petition. This petition has only been up for 8 days. I'm sure there will be more signatures added to it going forward.</p> <p>I know you are just doing your job to help improve The Big Island. Please, you must be aware that this bay is so very small and the locals use it all the time</p>	<p>Thank you for your letter dated April 19, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to</p>



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	<p>for family gatherings, funeral services, baptisms, volleyball, paddling canoe, bbq's with the family, and... it is an extremely historical and special, not crowded Bay for everyone.</p> <p>Can you please be aware that if you build those 150 bungalows it will take this land away from the locals and visitors and bring in a huge crowd to this extremely small, historical, and sacred area can not handle because it is so very small? It will never be the special place that it is today. It will honestly take away from the quiet, loving, mother nature feel of this special bay.</p> <p>Building a cultural center for the Hawaiian people and everyone to enjoy would be very special. Updating the commercial buildings that are already there would be good and creating a walkway so the disabled can get from one side to the other side of the way would be extremely welcomed as well. All of this supports the feel of staying small and local and giving Aloha to the land and the people.</p> <p>Please, your company listened to us when your company wanted to build a new resort at Kahalu'u and you decided to build a park for everyone to enjoy instead. You heard us then, please, hear us now.</p> <p>Please, understand how special this possibly last historical place on the Big Island is to all the locals who live here, and especially the Hawaiian people.</p> <p>I know your company does the right thing because you did the right thing at Kahalu'u beach back in 2016.</p> <p>The Hawaiian people have had so much taken away from them, please let them keep this last sacred bay, the birthplace of their King Kamehameha III, and please keep it special for the rest of us who moved here as well.</p> <p>This bay needs to be preserved for generations to be able to enjoy it without a resort crowd that's like Hapuna beach. This bay is not even a quarter the size of Hapuna, it is so very small, it just can't handle a big resort crowd. It would be very uncomfortable for all of everyone, including the new crowd that would come because everyone laying out their towels to sunbathe, there's just not enough space and I honestly don't think King Kamehameha III would really have wanted his birthplace to be a crowded tourist area. I would think he would want to keep it for his people and the people who love the island.</p>	<p>maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The Project Area has been heavily infiltrated by non-native and</p>

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	<p>My petition's name is <a href="https://change.org/savetheland">change.org/savetheland</a>, in 8 days, this short amount of time has over 1,681 (and climbing) people agree to please keep this bay as it's been for decades, with just a few changes that would benefit everyone, the land included. So the locals and visitors can fully enjoy it without a resort crowd for generations more.</p> <p>I know your job must be very challenging. You have to see both sides and make a good decision about what is good for the island and the people who live here. You are Kamehameha Schools, that name represents the King who was born in Keauhou Bay. It represents the preservation of the land and the Hawaiian people's history and that is what Keauhou Bay represents. If you take this land away and give it to a crowd of tourists that will come with the 150 bungalows, it is not preserving the land for the next generations of the Hawaiian people that are to come, and the people who love this island, like me, it will take away one of the last historical areas that is fully enjoyed and loved as is by everyone.</p> <p>Plus, if you take out all those trees that help keep the temperature down by providing shade, and help keep erosion down by holding on to the land, the bay could become even more muddy after storms and throughout every day, because those trees provide safety for the bay to not have as much mud. The trees help the bay is many different ways.</p> <p>Adding more commercial builds to this small bay, especially when there are many For Lease signs in Keauhou Shopping Center, is not being sustainable and using what we already have. People don't really shop in this area and I understand wanting to add commercial boutiques for the tourists to shop who would stay in the bungalows but can't you see how this would turn this precious bay into a shopping craze and be like the island of Oahu? It would take away from the beautiful feel of The Big Island. Isn't this nature feel of The Big Island worth saving?</p> <p>I understand making a profit is important and there are many ways to make a profit besides building bungalows in one of the last historical places on the island. There must be a way to turn a profit without taking away from the land, taking away from the Hawaiian people, and everyone who loves and uses this bay daily without a crowd.</p>	<p>invasive species. The KBMP has been designed to ensure that the physical attributes of new development are compatible with the existing landscape. The landscape design integrates native plants and landscaping elements that are representative of the natural and cultural landscape. The landscape design also incorporates xeriscape techniques that complements the dry climate, pays tribute to the region's agricultural past, and incorporates planting of native vegetation.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not</p>

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	<p>I appreciate you taking the time to hear us and consider our side.</p>	<p>limited to detaining, retaining and infiltrating runoff into the ground. Thank you for your participation in the environmental review process.</p>
<p>Rebecca Melendez (Petition)</p>	<p>Donating \$ after you sign ONLY goes to promoting this petition. We will have a non-profit business to help this cause more soon.</p> <p>Keauhou Bay is historical sacred land. It's also a small commercial and quiet residential area, with a local canoe club that uses the bay daily, local volleyball groups that play there daily, families BBQ every weekend, hold funeral services, baptisms local kids enjoy swimming, and visitors enjoy paddle boarding and kayaking all the time without a crowd.</p> <p>Read their information on this link <a href="https://www.ksbe.edu/keauhou_bay/">https://www.ksbe.edu/keauhou_bay/</a></p> <p>It's possibly the last untouched historical area that has not been seriously developed and it has been a comfortable and quiet bay for locals and visitors alike for many years without a big resort crowd.</p> <p>The beach is just over the size of one volleyball court that is there, with an even smaller park on the other side. It doesn't have a crowded feel and it's not big enough to become a resort area.</p> <p>It is also the historical site of the birthplace of the Hawaiian people's King Kamehameha III. The area holds much history and is a very sacred area to everyone, especially the Hawaiian people.</p> <p>Developers are considering building this area up and putting 150 Resort-style bungalows in this very historical, quiet, charming, and small commercial and residential area that many people have enjoyed as it is for many decades.</p> <p>Not only is the area not big enough for a new resort, but there is already a nice hotel at the point of this bay and Time Share homes right next to that.</p> <p>Both of those work very well with this area and offer tourists a lot of fun places to stay without taking away from the land, its history, quietness, all the local activities, and the small commercial buildings that have been there for many years.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>

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	<p>Updating the commercial builds that are already there would be great, and adding a nice cultural center there would be nice for everyone as well, not just tourists having bungalows.</p> <p>To have a cultural center where people can learn more about the land, and the Hawaiian people can have a place of their own at King Kamehameha III's birthplace would be great.</p> <p>Creating a walkway so the disabled can get from the Northside to the Southside would be another great add, but NOT building 150 new bungalows for a lot of people who don't even live here, who will then crowd the bay because the bay will be the focus for them staying there.</p> <p>Now, besides putting another resort in this area, they want to open up the old road that has been beautifully overgrown with native plants and is located just above the canoe club and goes right through King Kamehameha III's birth site.</p> <p>This will bring a lot of traffic right through this beautiful historical place where many locals hold family funerals, baptisms, birthday parties... It will overcrowd this very small special area that locals and visitors have been using for many decades, in many different loving ways.</p> <p>Putting a road in could also increase the temperature there because of the pavement, and the traffic that will then pass through this beautiful, historical, sacred, and quiet area will be huge.</p> <p>Trees shade this area right now very well and also help keep the erosion down by helping stop a lot of mud and debries from going into the ocean after big tropical storms that the island has sometimes. Without trees the bay could be extra muddy.</p> <p>Plus, they want to add more commercial shops to Keauhou Bay, and Keauhou Shopping Center has a lot of empty For Lease stores available. To create more shops when there are shops empty and For Lease in Keauhou Shopping Center just above the bay, is not being sustainable and using what we already have.</p> <p>Please HELP SAVE Keauhou Bay from becoming a big Resort area. It is one of the last historically untouched areas on the island that has not been</p>	<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The Project Area has been heavily infiltrated by non-native and invasive species. The KBMP has been designed to ensure that the physical attributes of new development are compatible with the existing landscape. The landscape design integrates native plants and landscaping elements that are representative of the natural and cultural landscape. The landscape design also incorporates xeriscape techniques that complements the dry climate, pays tribute to the region's agricultural past, and incorporates planting of native vegetation.</p> <p>Potential land erosion due to the implementation of the KBMP has</p>

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	<p>overdeveloped and has been fully enjoyed completely by locals and visitors for many decades.</p>	<p>been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>rfpcpa perron</p>	<p>Please stop the insane idea of building a resort on sacred ground.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and</p>

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		<p>support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan. Thank you for your participation in the environmental review process.</p>
<p>Richard (Rick) Bennett</p>	<p>After a quick review of the EIS announcement for Keauhou Bay, I wish to share data that you most likely have not seen. These issues need to be addressed in the EIS.</p>	<p>Thank you for your letter dated March 30, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

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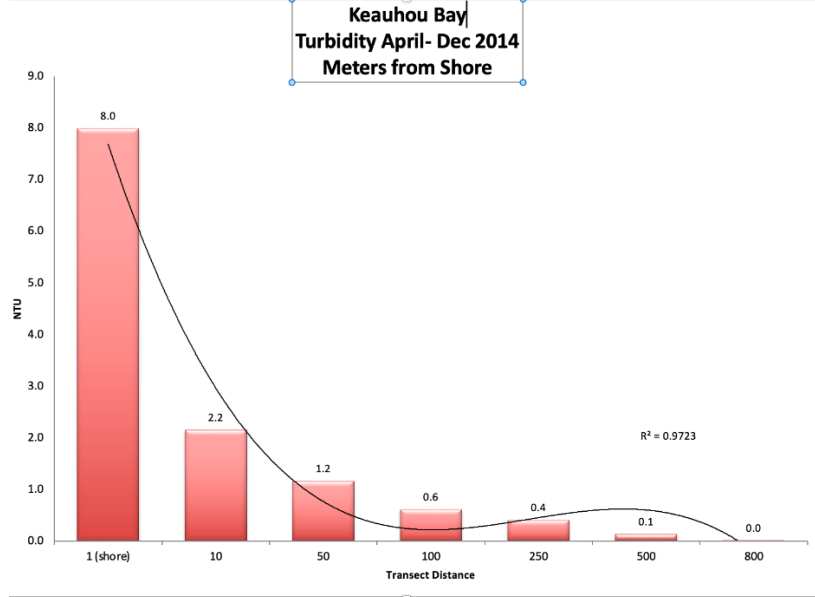
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	<p>Keauhou Bay is listed as Impaired section 303 D Clean Water Act and as such, no further impairment is allowed, and a TMDL for the watershed is required under the law.</p> <p>I alert the issue now rather than wait for the EIS comment period.</p> <p><b>2020 STATE OF HAWAII WATER QUALITY MONITORING AND ASSESSMENT REPORT:</b></p> <p>Integrated Report to the U.S. Environmental Protection Agency and the U.S. Congress Pursuant to §303(d) and §305(b), Clean Water Act (P.L. 97-117)</p> <table border="1"> <caption>Table 11. Hawaii Marine Listed Waters</caption> <thead> <tr> <th>Assessed Water Body</th> <th>Water Body ID</th> <th>Water Body Type</th> <th>Wet/Dry Criteria</th> <th>Impairment(s)</th> <th>TMDL Priority</th> </tr> </thead> <tbody> <tr> <td>Kapoho Tidepools (Vacationland)</td> <td>HI122881</td> <td>C</td> <td>Dry</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kaunali Point-Kapaa Beach Park</td> <td>HIW00201</td> <td>C</td> <td>Dry</td> <td>TN, NO<sub>3</sub>-NO<sub>2</sub>, NH<sub>4</sub>, Chl <i>a</i></td> <td>L</td> </tr> <tr> <td>Kaunali Point-Kapaa Beach Park (Oceanic)</td> <td>HIW00202</td> <td>O</td> <td>NA</td> <td>TN, TP, Turbidity, Chl <i>a</i></td> <td>L</td> </tr> <tr> <td>Kaunaloa Beach</td> <td>HI261899</td> <td>K</td> <td>NA</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kaunaloa</td> <td>HI770607</td> <td>K</td> <td>NA</td> <td>TN, NO<sub>3</sub>-NO<sub>2</sub>, NH<sub>4</sub>, TP, Turbidity, PO<sub>4</sub></td> <td>L</td> </tr> <tr> <td>Kawaihae Harbor</td> <td>HI978783</td> <td>B</td> <td>Dry</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kawaihae Harbor-Pelekane Bay</td> <td>HIW00155</td> <td>B</td> <td>Dry</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kenehe Point</td> <td>HIW00203</td> <td>K</td> <td>NA</td> <td>NH<sub>4</sub></td> <td>L</td> </tr> <tr> <td>Kaunakakai Bay</td> <td>HIW00149</td> <td>K</td> <td>NA</td> <td>TN, NO<sub>3</sub>-NO<sub>2</sub>, NH<sub>4</sub>, TP, Turbidity, PO<sub>4</sub></td> <td>L</td> </tr> <tr> <td>Kaunakakai Bay (off Curio Stand)</td> <td>HIW00183</td> <td>K</td> <td>NA</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kaunohou Bay (Kona)</td> <td>HI713293</td> <td>B</td> <td>Dry</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Kelekele Beach Co. Park</td> <td>HI693485</td> <td>C</td> <td>Wet</td> <td>Turbidity</td> <td>L</td> </tr> <tr> <td>Koko'o Bay</td> <td>HIW00154</td> <td>K</td> <td>NA</td> <td>TN, NO<sub>3</sub>-NO<sub>2</sub>, TP, Turbidity, PO<sub>4</sub></td> <td>L</td> </tr> </tbody> </table>	Assessed Water Body	Water Body ID	Water Body Type	Wet/Dry Criteria	Impairment(s)	TMDL Priority	Kapoho Tidepools (Vacationland)	HI122881	C	Dry	Turbidity	L	Kaunali Point-Kapaa Beach Park	HIW00201	C	Dry	TN, NO <sub>3</sub> -NO <sub>2</sub> , NH <sub>4</sub> , Chl <i>a</i>	L	Kaunali Point-Kapaa Beach Park (Oceanic)	HIW00202	O	NA	TN, TP, Turbidity, Chl <i>a</i>	L	Kaunaloa Beach	HI261899	K	NA	Turbidity	L	Kaunaloa	HI770607	K	NA	TN, NO <sub>3</sub> -NO <sub>2</sub> , NH <sub>4</sub> , TP, Turbidity, PO <sub>4</sub>	L	Kawaihae Harbor	HI978783	B	Dry	Turbidity	L	Kawaihae Harbor-Pelekane Bay	HIW00155	B	Dry	Turbidity	L	Kenehe Point	HIW00203	K	NA	NH <sub>4</sub>	L	Kaunakakai Bay	HIW00149	K	NA	TN, NO <sub>3</sub> -NO <sub>2</sub> , NH <sub>4</sub> , TP, Turbidity, PO <sub>4</sub>	L	Kaunakakai Bay (off Curio Stand)	HIW00183	K	NA	Turbidity	L	Kaunohou Bay (Kona)	HI713293	B	Dry	Turbidity	L	Kelekele Beach Co. Park	HI693485	C	Wet	Turbidity	L	Koko'o Bay	HIW00154	K	NA	TN, NO <sub>3</sub> -NO <sub>2</sub> , TP, Turbidity, PO <sub>4</sub>	L	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>Thank you for sharing this information related to water quality and monitoring. Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Thank you for your participation in the environmental review process.</p>
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**Table 7.2 DEA Summary of Comments and Responses**

**Comments**

**Commenter**

**Responses**



**2019 Keauhou Ortho-Phosphate Results per §11-54-6**

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.97
R Square	0.95
Adjusted R Square	0.94
Standard Error	4.14
Observations	6

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	1298.56	1298.56	75.88	0.00
Residual	4	68.46	17.11		
Total	5	1367.02			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	229.98	22.37	10.28	0.00	167.86	292.09	167.86	292.09
X Variable 1	-8.29	0.72	-8.71	0.00	-8.29	-4.28	-8.29	-4.28

Summary for Jan 2019 Data	Hawaii Department of Health Criteria for PO <sub>4</sub>
Y = -6.26x + 229.98	Y = -3.22x + 118.06
95% CI = -8.29	

Conclusion  
 -8.29 > -3.22 Jan 2019 Keauhou data exceeds HDOH criteria for PO<sub>4</sub>.



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	<p><b>2019 Keauhou Nitrate+Nitrite Results per §11-54-6</b></p> <p>SUMMARY OUTPUT</p> <table border="1"> <thead> <tr> <th colspan="2">Regression Statistics</th> </tr> </thead> <tbody> <tr> <td>Multiple R</td> <td>0.99</td> </tr> <tr> <td>R Square</td> <td>0.97</td> </tr> <tr> <td>Adjusted R Square</td> <td>0.97</td> </tr> <tr> <td>Standard Error</td> <td>40.35</td> </tr> <tr> <td>Observations</td> <td>6</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="5">ANOVA</th> </tr> <tr> <th></th> <th>df</th> <th>SS</th> <th>MS</th> <th>F</th> <th>Significance F</th> </tr> </thead> <tbody> <tr> <td>Regression</td> <td>1</td> <td>227929.74</td> <td>227929.74</td> <td>139.97</td> <td>0.00</td> </tr> <tr> <td>Residual</td> <td>4</td> <td>6513.76</td> <td>1628.44</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>5</td> <td>234443.51</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th> <th>Coefficients</th> <th>Standard Error</th> <th>t Stat</th> <th>P-value</th> <th>Lower 95%</th> <th>Upper 95%</th> <th>Lower 95.0%</th> <th>Upper 95.0%</th> </tr> </thead> <tbody> <tr> <td>Intercept</td> <td>2877.98</td> <td>218.24</td> <td>13.19</td> <td>0.00</td> <td>2272.08</td> <td>3483.91</td> <td>2272.08</td> <td>3483.91</td> </tr> <tr> <td>X Variable 1</td> <td>-83.27</td> <td>7.04</td> <td>-11.83</td> <td>0.00</td> <td>-102.82</td> <td>-63.73</td> <td>-102.82</td> <td>-63.73</td> </tr> </tbody> </table> <p>Summary for Jan 2019 Data  <math>Y = -83.27x + 2877.98</math>  95% CL = -102.82</p> <p>Hawaii Department of Health Criteria for NO<sub>3</sub>  <math>Y = -31.92x + 1100.59</math></p> <p>Conclusion   -83.27  &gt;  -31.92  2015 Keauhou data exceeds HDOH for NO<sub>3</sub></p> <p>Certified Lab Results NELHA Pamela Madden</p> <p>The bay is not listed for N and P because the state does not do chemistries on most coastal waters. It just means there is no data upon which to make the listing decision</p>	Regression Statistics		Multiple R	0.99	R Square	0.97	Adjusted R Square	0.97	Standard Error	40.35	Observations	6	ANOVA						df	SS	MS	F	Significance F	Regression	1	227929.74	227929.74	139.97	0.00	Residual	4	6513.76	1628.44			Total	5	234443.51					Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%	Intercept	2877.98	218.24	13.19	0.00	2272.08	3483.91	2272.08	3483.91	X Variable 1	-83.27	7.04	-11.83	0.00	-102.82	-63.73	-102.82	-63.73	
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<p>Richard (Rick) Bennett</p>	<p>As Na Maka o ke Kai for Kona and a 20-year resident, we have been closely tracking the challenges of the tiny inlet, Keauhou Bay. I am responding in the comment period noticed in the EISPN for the bay.</p> <p>For over a decade, the bay water has been subject to algae and limu blooms that significantly increase turbidity and limit visibility. Keauhou Bay is currently listed as Impaired under section 303(D) of the Clean Water Act. As such, landowners, and government agencies must act to limit and resolve the impairment. To date, no action has been taken by the HDOH Clean Water Branch, The County of Hawaii, or local landowners. The Clean Water Act requires a nutrient budget or TMDL for the bay, however, the state does not enforce this provision under authority granted by the EPA.</p> <p>These blooms are associated with increases in nitrate and phosphate in the water column. Phosphates are bound to soil particles and nitrates are freely water-soluble.</p> <p>The recent Lyngbia blooms in the bay suggest that rate-limiting concentrations of phosphate have been exceeded. Lyngbia is a</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>Thank you for sharing this information related to water quality and monitoring. Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak</p>																																																																				

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	<p>Cyanobacteria that can fix nitrogen from the atmosphere but requires phosphates to do so.</p> <p>Nitrates leach into the sea from regional cesspits and septic systems. In contrast, phosphates move into the bay on sediments. For the most part, sediment transfer into the nearshore waters is limited by the lack of soil along the Kona Coast. However, in the case of Keauhou Bay, sediments and fine soils are eroding from land and parking areas adjacent to Kamehameha III and the cul-d-sac end of the road. The dry well drain is commonly overwhelmed by heavy rains, and sediment flows into the well, causing the well to cease working and overflow. The overflows with significant erosive force further move sediments into the bay. The shallow end of the bay has a thick layer of sediment and no viable corals.</p> <p>I enclose a series of photos and a link to a Youtube video documenting the issue. I trust the EIS will thoroughly examine the impacts of regional land uses on the water quality of Keauhou Bay.</p> <p><a href="https://www.youtube.com/watch?v=auNHb4FK518">https://www.youtube.com/watch?v=auNHb4FK518</a></p>	<p>flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Robbie K</p>	<p>Please please please do not touch keauhou. Resident here my my whole life...</p> <p>I'm a full time commercial fisherman an I have been accessing the ramp for over a decade. With the manta dives an the influx of tourist, there has been no parking for us fisherman .To make a bungalo style resort would only take away from the people here an add money to your pockets. This is a cultural no no...some days I can't even get my trailer to the ramp because of overcrowding tourist.</p> <p>Now how dangerous has the bay become? People swimming in the boat ramp , people with no red flags or bouys. Sharks ,</p> <p>We have a canoe club that has been there for longer than I have been alive.</p> <p>The influx of cars parking on the road is crazy.. we have a farmers market on certain days at the outrigger an the cars are strewd out all the way up the shoulder.. some are parked illegally because theres no where to go.. in the</p>	<p>Thank you for your letter dated April 19, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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Comments	Commenter	Responses
	<p>last ten years I've seen keauhou go from a beautiful bay , to an over crowded(rich privileged) area.</p> <p>I can tell you that nobody local will be happy with this plan. Its absurd to even mention such a thing.</p> <p>Now, what's needed at keahou, better access and regulated swimming area. more parking for trailers , less tourist. Less manta boats. More ramp wash down because we wait for 30 minutes sometimes because theres only 4 spickets of water.</p> <p>With all of this being said I'll pray you folks dont touch this area because you had an idea of change. We dont need change. We need help. So help everyone that uses the beautiful bay of keauhou be able to use it in the future without another 1000 people down there. I also no for a fact that whoever's in on this has not seen how many people are already down there on a manta night .. this is not Oahu an let's keep it that way.</p> <p>NO To Keauhou bay !</p>	<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to</p>

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Comments	Commenter	Responses
		<p>enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project’s proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p> <p>Thank you for your participation in the environmental review process.</p>
Russell K Laros III	<p>I am writing to express my support for the Keauhou Bay Management Plan Project as it was presented to the Economic Development Committee of the Kona-Kohala Chamber of Commerce.</p>	<p>Thank you for your letter dated April 25, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We greatly appreciate your support of the Project. Thank you for your participation in the environmental review process.</p>
Sally Ann Rankin	<p>Many years ago when Kamehameha Schools held some the first ‘community meetings’ regarding the KBMP I found out through the coconut wireless, ended up attending, voiced my opinion, which sadly came upon mostly deaf ears as the updated plan did not take any of the concerns of the neighbors into real consideration.</p> <p>While community organizations were consulted and invited, there was a lack of any real effort to communicate or listen to the residents of Keauhou Bay. I’ve already been informed on multiple occasions, that you have completed what was required of KS, and that is fine, but when a majority of residents are</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward</p>

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Comments	Commenter	Responses
	<p>not aware, and the ones that are, oppose, I would hope as Hawaiians, you would feel some obligation to care and have a real responsibility to listen, wether mandated by law or not.</p> <p>The KBMP clearly does not establish a responsible stewardship or nurture a positive and enduring relationship when you insist on adding another 150 hotel rooms, more commercial space, creating through traffic in a quiet residential area, and paving multiple parking lots to an already fragile bay.</p> <p>Beginning to properly manage the existing commercial space and cultural heritage sites, which you've acknowledge has been poorly taken care of, in and around Keauhou Bay, would seem much more urgent than overdeveloping and overburdening the bay. Once you develop this 'aina, it will never be the same, and it can never be recovered.</p> <p>The only thing I can see that this development, in its current proposal, has accomplished and perpetuated is creating more extractive industry.</p> <p>Na'u me ke mahalo,</p>	<p>of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>values that were identified during the KBMP process.</p> <p>Consultation with community groups and stakeholders has been ongoing since 2016. KS takes the concerns of its neighbors seriously. Input from community has guided this planning process from the beginning and will continue to do so throughout the HRS 343 Environmental Review Process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Sarah P. Kihoi (Puna)</p>	<p>I am a retired teacher and Social Worker. I have worked for Kamehameha Schools in Extension Education and also at Queen Liliuokalani Trust, Kona Office.</p> <p>A Kona Kupuna sent word that they are planning to build a Hotel, above the birthplace of Kauikeaouli. I am opposed to this. This area is sacred. If anything it should be left as is, and the children of Hawaii be taught of the historical significance of the area, the wahi pana.</p> <p>The Kona district has many historic sites. Please, I ask that you respect this and listen to the voices of your Kūpuna.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to</p>

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		<p>achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and</p>

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		<p>implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Scott Tieche</p>	<p>Earthings,                      My wife and I own at Kanaloa at Kona where we spend a few months a year and more as time goes on. This project is oversized and a terrible idea for one of the last public ocean access. Not only is it defiling a historic area, it will create traffic issues, congestion and ruin the community character of Keauhou Bay and Heiea Bay.                      Stop this land grab.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>



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		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining,</p>

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Comments	Commenter	Responses
		<p>commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Sheila Braithwaite</p>	<p>I have downloaded your 88 page Keauhou Bay Management Plan It will take a while to try and understand. My interest was piqued by two published opinions, One by Dennis Gregory and the other written by Kathy McMillen.</p> <p>I lived on a barrier island abutting Back Bay National Wildlife Refuge. The community changed forever in the most negative way as zoning from the 1960's came to be when sewers came in 2000.</p> <p>ZONING does not make a project sensible.</p> <p>Being a recent member of this beautiful island, I drove to see the area of this project. It seems overblown and insensitive, in my opinion. Will continue to watch.</p>	<p>Thank you for your letter dated April 12, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand</p>

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		<p>and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Sierra Gomez	Hello! I Hope this email finds you well and I hope by now the closing date you understand how important this land is to locals of Kona. This space is so special and allows people to meet up daily for outdoor activities while setting	Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement

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	<p>us apart from complete tourism. Please don't tear down land that supports outdoor activities and health on people. Health is more important than profit and I hope coming out of Covid and the mess it has been that that is more apparent than ever. We need this space!!!</p>	<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to</p>

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		<p>achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact Statement (DEIS) Section 3.2.3 describes the Project’s aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park. Implementation of the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Sonja Schmidt</p>	<p>I am a resident in the Keauhou area, and have owned here for twelve years. For over 30 years my family came to Keauhou to vacation, and I learned to snorkel, dive, paddle and breathe in this bay. I learned to honor the Hawaiian history and heritage of the area, and when the time came to live here full time, I didn’t hesitate to purchase near Keauhou Bay.</p> <p>I now spend at least part of most every day by the bay, either walking my dog, paddling, or swimming. Sometimes I just sit on the rocks and listen to the waves. My granddaughters have now learned to snorkel and paddle board in</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p>

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Comments	Commenter	Responses
	<p>the bay. The small beach suits us for its proximity to our home, the respect the canoers and boaters give each other.</p> <p>I have read of some of the plans to develop the area. You should also know that I am a real estate agent, and have sold many homes in the Keauhou area. The value to most people is in its uniqueness, smallness, closeness and historical character. People value the unique character of Keauhou. I understand the challenge to be good stewards of the land, make the best use of it, but also, understand that large changes aren't usually welcomed, and in fact ends up destroying what people love about Keauhou Bay. I've watched the Kamehameha Schools act in many different ways towards this land .....once keeping the roadsides trimmed, and providing maintenance, now I among others pick up the trash along the roadway to the harbor. The citizens and small business owners here (already existing hotel Outrigger being one) take responsibility for maintaining the character and honor the nature of the place. It is with a sense of horror I think about what a second large hotel here might do. I can't pick up after any more people!!</p> <p>This letter is to ask for reconsideration of the increased thoroughfare , as traffic does not result in a better quality of the environment, and to ask for reconsideration of the proposed large hotel just above the Bay. We have adequate rental rooms with the Outrigger....who are welcomed as the next stewards of the point. Any plans should seek to minimize impact, and drawing 150 new people a day to the Bay will not minimize the impact...</p> <p>It is not lost on me that today is Earth Day....begun so long ago to remind us all that we only have one planet...one Keauhou Bay....one chance to get it right...so my unborn as yet great grandchildren can learn to paddle, and swim, and sit by the rocks some day too.</p>	<p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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Comments	Commenter	Responses
		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Steve Oliver</p>	<p>I want to voice my opposition to further development in the bay as proposed by kamehameha schools trust. This has not had enough time for public input nor adequate awareness made of what's proposed. I feel this is being rushed through with input or fine tuning from the public. We need to focus on adequate infrastructure being provided by the increased resort traffic and its affect on local residents and the greater good for the non resort using public. Kamehameha schools has unlimited resources and a deep history of corruption. I believe that's mostly in the past but Hawaii is famous for shady deals with developers and politicians and appearances are that this is more of the same. Appearances and perceptions count. KS has taken far too long to develop the other Alii drive properties and this is not good stewardship. They have the money finish these developments in short order but the drag their feet. This is not evidence of good faith for future development.</p> <p>Thanks for your consideration and please vote no or at the least allow more time for debate and modifications. KS is in a hurry to get approval but won't hurry on completion disrupting the entire neighborhood for years maybe decades.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a</p>

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		<p>strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Sylvie	I oppose this!!!!	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which</p>



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		<p>leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Tamyra Rice	<p>I appreciate the chance to comment on the Keauhou Bay Management Plan Environmental Impact Statement Preparation Notice (EISPN).</p> <p>I write as a condo owner at Keauhou Resort to raise questions about the EISPN, particularly with regard to lack of specific information contained</p>	<p>Thank you for your letter dated April 20, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

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Comments	Commenter	Responses
	<p>therein. I also question the lack of notice given to owners of nearby properties.</p> <p>This development plan will increase the demand for water (given the 150 unit resort, pool, and additional commercial buildings). How will local water sources be impacted? What measures will be taken to secure and protect water resources given the decrease of water in the area’s aquifers and operational issues with some of the wells?</p> <p>With respect to the 150 unit resort, how many employees will there be and where will all of the employees park? I pose the same query with respect to the employees of the restaurant, other commercial enterprises, and the cultural center? Where will all of the visitors, who are embarking on boats, park? What measures will be taken to ensure the safety of pedestrians?</p> <p>How will this new development impact the health of Keauhou Bay? The water quality is bad some days now according to the frequent testing done by the Keauhou Canoe Club. The increase of blacktop will increase polluted runoff. What mitigation measures will be taken to safeguard the water quality of the Bay?</p> <p>Additional blacktop, which will replace the existing forested land, will change the climate of the area, raising the temperature. What mitigation measures are envisioned to address this issue?</p> <p>This proposed development, in part, will take place at the shores of the Keauhou Bay. What mitigation measures are going to be taken to address sea level rise and other tidal events?</p> <p>Have studies been conducted to ensure that there are no rare, endangered or threatened wildlife species or habitat given the anticipated replacement of the forested land with blacktop?</p> <p>This development plan does not include the popular volleyball court. What measures will be taken to replace this healthy activity for local children?</p> <p>How will the traffic patterns be designed in this plan? What will the traffic flow look like during construction of the major facilities such as the 150 unit</p>	<p>prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the ‘āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new</p>

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	<p>resort? Will traffic studies be done to document current traffic levels and establish a baseline?</p> <p>Has a qualified noise consultant been retained? What will be the increase in ambient noise levels in the surrounding neighborhoods? Will noise level studies be done to document current noise levels and establish a baseline?</p> <p>This plan, if implemented, will result in a substantial increase in traffic, noise, and vehicular emissions. What mitigation measures will be taken in the surrounding neighborhoods to reduce these impacts?</p> <p>Thank you for addressing the foregoing concerns. Kindly respond to my queries as part of your public review process and to me by email.</p>	<p>development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Section 4.12.1 of the Draft Environment Impact Statement (DEIS) provides detailed estimates of the average daily water demand for the various project components. In total, the Project will result in an average water demand of approximately 97,466.2 GPD. Based on these estimates, impacts to the public water supply are not expected.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those</p>

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		<p>strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>DEIS Section 4.7.3 discusses flood hazards and mitigation measures. New construction and substantial site improvements will require compliance with the County's floodplain management regulations (Section 27 of the County Code). Therefore, the risk of potential damage from these flood hazards should be minimized by compliance with County requirements.</p> <p>Portions of the project site will experience passive flooding as a result of 3.2 feet of global sea level rise predicted by 2100. KS is committed to proactively planning and designing the Project to be resilient to ensure the ongoing successful, safe, and sustainable operation of the bay for the foreseeable future.</p> <p>A Natural Resource Assessment was conducted for the Draft EIS (DEIS) by AECOS (Appendix C). Please refer to Section 4.6 of the DEIS for discussion of native species, endangered species, and critical habitat in relation to the KBMP. The Project Area has been heavily infiltrated by non-native and</p>

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		<p>invasive species. As discussed in the Natural Resource Assessment, no species listed as threatened or endangered by state or federal statutes were identified on any of the project parcels at Keauhou Bay. The potential exists that several listed species might transit or utilize the general area on occasion. Please refer to DEIS Section 4.6 for further discussion on potential impacts and mitigation measures.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact Statement (DEIS) Section 3.2.3</p>

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<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>describes the Project's aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park. Implementation of the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-modal transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis</p>

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		<p>Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>An Acoustic Study was conducted for the DEIS by Y. Ebisu and Associates (<i>Appendix F</i>). Overall, the results of the Noise Assessment indicate that no significant increases in noise levels are predicted to occur as a result of traffic following the full buildout of the Project. Short-term noise impacts associated with Project construction activities may occur during the earthwork and excavation phases, when site preparation work and/or roadway construction occur. In addition to the anticipated application of State Department of Health noise permit requirements and procedures during noisy construction activities, the use of quieted portable engine generators and diesel equipment will be specified for use within 500 ft of noise sensitive properties. Heavy truck and equipment staging</p>

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		<p>areas will also be located at areas which are at least 500 ft from noise sensitive properties. For further discussion, please refer to section 4.13 of the DEIS.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Tiara HewLen</p>	<p>I am writing on behalf of our 'ohana. We have 7 keiki with my Kane and I. My Kane and keiki are all beneficiaries of Kamehameha Schools.</p> <p>We do not support the adding of boutique resorts especially above cultural significant areas.</p> <p>Adding a resort of any kind will add more traffic, congestion, and depletion of our natural resources for commercial activity on our delicate shorelines.</p> <p>This also deters beneficiaries of KS to access culturally sacred places.</p> <p>Our only public Hawaiian Immersion school is in need of adequate facilities as they are overcapacity with current enrollment (175% this year). Could KS not make more opportunity for our keiki to form a better relationship with this 'āina instead of it being overrun with tourists desecrating the birth place of our Ali'i?</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting</p>



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		<p>uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS’ mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Tom Fetter</p>	<p>Thank you for providing both the EISPN Document and for hosting the informative virtual public meeting on April 11,2022. The public outreach is appreciated.</p> <p>My wife and I have owned a home at 78-120 Holua Rd, on the north side of Keauhou Bay since 2013. This has allowed us to observe the use and issues involving the Bay first hand. Our comments and opinions follow:</p> <p>As you are well aware, Keauhou Bay is an historic and unique site. It is also heavily used by tourist-serving ocean activities. The three primary commercial vessels, the Holu Nui, Tradewinds II, and the Hula Kai may average a total of as many as 100 passengers a day. The boat ramp is very active with fishing boats, fishing rental trips, group kayak excursions and inflatable boats taking passengers daily on snorkeling and diving excursions. The Bay access is used by paddle boarders, kayakers, surfers, snorkelers, swimmers and canoe paddlers from the Keauhou Canoe Club and the local high school teams. Attracting substantially more users will diminish the enjoyment of all.</p> <p>Based on its limited size one could easily conclude that the Bay is near capacity for recreational users.</p>	<p>Thank you for your letter dated April 17, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343.</p> <p>We acknowledge your concerns related to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. Guided by KS’ mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to</p>

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	<p>The historical significance of the site is appropriately noted in the EISPN. The Royal Birthplace deserves to be appropriately honored and improved. Ideally this would be accomplished not only by the improvements outlined in the EISPN but also by replacing most of the parking the lot adjacent to the pier (on the waterfront) with grass. Obviously a small loading/unloading zone adjacent the pier for the commercial vessels would be necessary as well as a few ADA parking spaces, but ideally most of this area would be turned into a grassy park to further enhance the area around the Royal Birthplace. As you have suggested present office and retail spaces that crowd the landing area could be relocated.</p> <p>KS does own land here with potential economic value, provided that it could be developed without detriment to the public. In our opinion, the proposed resort hotel and commercial development that KS plans would in fact constitute a severe negative impact as a result of overcrowding this tight site. The resort hotel should not be approved or allowed by the County in order to protect the Public's interests.</p> <p>The mission of KS should be fulfilled by maximizing income from other properties where there will be a greater return on investment and less detriment to the public. These opportunities exist.</p>	<p>achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project's proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new</p>

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		<p>parking stalls and 23 new boat trailer parking stalls).</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. Several recorded archaeological sites within the Project Area are in areas with overgrown vegetation and not easily accessible. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Tony Tate</p>	<p>Aloha - I am opposed to the Keauhou Bay Management Plan as presented in the recommendations. I am greatly in FAVOR of restoring the cultural landscape and creating pedestrian areas and areas for all persons in Hawaii to educate themselves on the history of the Hawaiian people. I am OPPOSED to the recommendations of creating a boutique resort, new commercial areas, and new automobile roadways.</p> <p>As one of the few ocean bays on the west side of Hawaii that is not developed, it is imperative that this bay and surrounding area be preserved.</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p>

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	<p>There is no need for another hotel in Kona given that many are already decrepit and remain unused. Further, there are plenty of store fronts that are vacant in the nearby Keauhou shopping center for commercial activities with ample parking.</p> <p>In looking at the will of Bernice Pauahi Bishop, it is hard to understand how the trustees could believe she would have wanted yet another hotel for foreigners and the commercial development of the birthplace of Kamehameha III. Her stated wishes were to advance the educational attainment of the Hawaiian people.</p>	<p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

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		<p>values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Tyler Cathey</p>	<p>Im saddened to hear the volleyball court is in jeopardy again. Seems like the court has constantly been threatened with removal despite the routine, weekly use of the court by locals. Keauhou is the best court in all west Hawai'i. Coconut Grove is busy and can be dangerous. Magic Sands court is shallow, rocky, and can be a dangerous area.</p> <p>The Keauhou volleyball court is the perfect home for many volleyballers who just want peaceful, aloha volleyball. There are many keiki who learn to play here. And there are multiple groups who use this court on an ongoing regular, weekly basis.</p> <p>We have lots of money-making structures around here. Can you please leave the volleyball court for us? I promise it is loved by many.</p>	<p>Thank you for your letter dated March 30, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Vic Ferro</p>	<p>I am one of many who oppose what has been submitted by those wanting to make drastic changes to Keauhou Bay. I live at the corner of Ali'i and Kaliopapa. The traffic, noise and engine pollution continue to create an unhealthy environment. Imagine what it will be like when the proposed drastic changes take place. Hotel, restaurants, commercial shops, through roads and</p>	<p>Thank you for your letter dated April 21, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>new roads are built. Our aina will be forever scarred. The sacred sites at Keauhou Bay will suffer. Please act for all the people.</p>	<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Vicki Hunter</p>	<p>I am writing to express my opposition to the proposed resort in Keauhou Bay. I live on Kam III and the traffic here is already out of control with people speeding down our road constantly. It is dangerous. In addition, parking is already difficult in and around the bay. The project will only increase traffic.</p> <p>The space currently used by locals and visitors at the base of Kam III needs to be preserved.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-model transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>Thank you for your participation in the environmental review process.</p>
Victoria Reynolds	<p>Our family is completely against the plan to build yet another boutique hotel on a culturally sensitive site on the Big Island. This is the birthplace of Kauikeaouli!!!!</p> <p>It's bad enough that the community, kumu and ohana had to deal with the building and tearing down of 2 hotels at Kahau'u as it was admitted it wasn't appropriate to build at sensitive sites. Do we need to do this again?</p> <p>Culturally sensitive sites, once destroyed, are never to be repaired and replaced. We've seen that on the mainland, in Australia, in NZ.</p> <p>Save our sites!!! We have enough hotels and boutiques.</p>	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343.</p> <p>We acknowledge your concerns realted to the boutique resort. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>specific kuleana to maintain and support the management of the bay and its resources. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process. The income generated from activities at Keauhou Bay – including the resort – will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure. The income generated from activities at</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Keauhou Bay will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Vince Costanzo</p>	<p>I have recently learned that there are possible plans to modify the historic and natural beauty at Keauhou Bay. Owning property in the immediate area I am very strongly against any such action(s) as this would be a desecration to the area. I am against this, the additional traffic it will bring, the additional commercial spaces and 100% against the addition of a single hotel room added to this currently tranquil area.</p>	<p>Thank you for your letter dated April 26, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
Vince Mott	Keauhou Bay should stay as it is!	<p>Thank you for your letter dated April 22, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
<p>Wendy Malabuyo</p>	<p>I listened tonight and I am excited to see improvement plans for this special and historic site.</p> <p>Given the popularity of the volleyball court and the positive impact it has on the local community, it seems like a very low-cost feature that can provide goodwill and bring in money. Maybe relocate to a different spot from the current space.</p> <p>Anyway, you all have a challenging road ahead from the sound of the feedback but I am very excited to see the improvements.</p> <p>Appreciate your time to reading my comments.</p>	<p>Thank you for your letter dated April 11, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Whit and Jo Parker</p>	<p>We have carefully reviewed the EISPN for Keauhou Bay and have concerns about this development. We currently spend a few months in Kona and are considering retiring to our Keahou Akahi condo full-time this year. However, should the development be approved, we would need to reconsider the decision to reside here full time and will likely sell and find a home out of this impact zone.</p> <p>One of the reasons we love the area is that it's relaxed and non-resort-like, despite being a stones-throw from the Outrigger, which does not impact our quality of life – they have sufficient parking, a massive grass area...something</p>	<p>Thank you for your letter dated April 7, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward</p>

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Comments	Commenter	Responses
	<p>the Keauhou Bay developers are not adequately planning for. The last thing we need is more cars and more overnight lodging. Add to that the gigantic restaurant, tick-tacky tourist sales huts and more, and it's a bad plan.</p> <p>As we are certain others will address the myriad issues wrong with the proposed development, we offer the following for consideration:</p> <ul style="list-style-type: none"> <li>- Does Kamehameha Schools need this sort of investment vehicle to meet its mission?</li> <li>- Is a resort development in the shadow of King Kamehameha II's birthplace any way to honor his legacy and the heritage of the Hawaiian people? (Seems to us he'd be rolling over in his grave with this plan)</li> </ul> <p>We urge the Planning Commission to rule on the side of true preservation and work toward development plans focused on protecting a community gathering area and not creating another resort.</p>	<p>of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>values that were identified during the KBMP process.</p> <p>We acknowledge your concern that additional parking is needed for commercial users and residents. One objective of the Project is to improve existing parking areas to enhance their capacity, safety, and security. DEIS Section 3.2.5 discusses the Project's proposed parking improvements. After full build out of the Project, the supply of parking for both the general public and for boat trailers is expected to increase (88 new parking stalls and 23 new boat trailer parking stalls).</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Winston	Please do not change the way keauhou bay is presently used	<p>Thank you for your letter dated April 23, 2022, concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343.</p> <p>We acknowledge your comments related to the KBMP. As the steward of approximately 54 acres at Keauhou Bay, Kamehameha Schools (KS) has specific kuleana to maintain and support the management of the bay and its resources. The significant demand and utilization of the bay can and often does create congestion which leads to user conflicts along the bayfront. KS lands at the bay are also significantly impacted by unauthorized uses, trespassing, vandalism, and other unsanctioned activities. Through consultation with lineal descendants and community members it was determined that doing nothing is not a viable option. Guided by KS' mission and vision, the Project aligns with the current KS Strategic Map 2025 which is a strategic planning document aimed</p>

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Comments	Commenter	Responses
		<p>to achieve the goal of developing resilient communities by stewarding the 'āina to support resilient economies, cultural landscapes, diverse learning, and career pathways. The Project aims to achieve this goal by reorienting uses and directing new development in appropriate areas around Keauhou Bay based upon community and organizational values that were identified during the KBMP process.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Petitioners</p>		
<p>Aaron Lanuza</p>	<p>This is a wonderful space for volleyball and beach time with my family</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.</p>
<p>Aka 002</p>	<p>I love this court! would be a shame to get rid of it.... one of the very few nice beach courts on the kona side.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
Alex Dullam	I play volleyball down here on the weekends and I don't want to lose something that makes me happy	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further</p>

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Comments	Commenter	Responses
		<p>complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
Alexis MacLeod	I'm signing because there are not enough unspoiled places left in the world.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Amanda Nixon	Keauhou does not need and cannot handle more condos or resorts. No no no to more development on our already fragile over crowded coast.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Ana Tuppein	<p>The ocean is a sacred place, especially keahou bay. The increase of tourism in that area will be detrimental to marine life, especially the manta rays that reside in that area.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Ann nichols	<p>This is a terrible idea for this historic area creating traffic, congestion and ruining community character. Owner at Kanaloa at Kona.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
ANTHONY RODRIGUES	<p>These are luxury condos. A bungalow is a single level unit. Why don't they build it at the former Keauhou Beach Hotel? Or Kona Lagoon. No major development should be allowed till the Alii Highway is installed.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>The former Keauhou Beach Hotel (Kahaluu Ma Kai) is a different site. There are educational opportunities we want to take advantage of that were not conducive with the previous hotel structure.</p> <p>The income generated from activities at Keauhou Bay will be used to support KS' mission as well as the educational and cultural components of the Keauhou Bay Management Plan.</p> <p>Thank you for your participation in the environmental review process.</p>
Asha Keddy	I want to preserve the beauty and history for all	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Austin Llanes	Too much buildings	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Barbara Celello	<p>The Keauhou Bay Area is a favorite area for locals and has been for years. The many activities that occur regularly begin and end there. Making unneeded changes would spoil its existence, not to mention robbing those who continue to honor Hawaiian legacy.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Beverly Connelly	<p>I've experienced this sacred park &amp; beach and see the history and benefit of it being easily available for locals and visitors alike. Over developing is a fine line and a new proposal of additional resort dwellings would be a tipping point for preserving access to this space. Please consider this pocket to be important enough to protect</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>

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Comments	Commenter	Responses
braxston bailey	Stop the Building!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Brooke Morrow	No more building	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Bryan Gazau	Less is more, keep the beaches cleaner save water sacred beaches keep sacred	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Caleb Hoffman	Keep Hawaii's natural beauty!	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Carolina Medina	Please sign. When is enough going to be ENOUGH!??若	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
cathy costa	This is our history and culture No desecration	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your

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Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Christine Tucci	We vacation there	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Cindy Holton	Maintain local traditions and protect waterfront beaches!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Darlene Daboling	Please keep Keauhou Bay the way it is. PLEASE PRESERVE. Please respect Hawaii and not give to greedy people who care not about us.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
David Locke	Enuf! Don't turn this place into a Joni Mitchell song.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Davin Long	I really don't want it to go I love the volleyball court and another resort hell nah!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and</p>

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Comments	Commenter	Responses
		<p>therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
Debbie Hecht	Keep Keahou Bay accessible. The cess pools along the north side need to be replaced by sewers.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>We are aware of the issues related to contamination caused by cesspools in the vicinity of the bay. All new facilities associated with the Project will be serviced by sewer utilizes and treated at the He'eia Wastewater Treatment Plant.</p> <p>Thank you for your participation in the environmental review process.</p>
Deborah Heun	We have enough big resorts don't take away another bay	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou</p>

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Comments	Commenter	Responses
		<p>Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Deby Quandt	Another resort is not needed, this peaceful place is needed.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Deeson patterson	It's good	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Deni Alley	This is a sacred area and not big enough for more tourism. Respect the Āina and the folks living here. A'ole development!	<p>Mahalo for your comment in the petition concerning the</p>

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Comments	Commenter	Responses
		<p>Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Diane Neuman	This is outrageous. There are plenty of resorts already.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Edwin Gaspar	The area is Historical we dont need any more hotels let alone more people moving here and squeezing out local people native to Hawaii.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Elisha Vierra	I want to keep keauhou bay the way it is and all it's artifacts	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. Several recorded archaeological sites within the Project Area are in areas with overgrown vegetation and not easily accessible. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Eliza Wille	This area does not have the infrastructure to support more development and run off into the bay will further compromise the reef and water quality.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Potential land erosion due to the implementation of the KBMP has been addressed in the Draft Environmental Impact Statement (DEIS). DEIS Section 4.5, describes stormwater runoff peak flow estimates for both existing conditions and with project implementation. At present, portions of the KS properties at Keauhou Bay are unmanaged and susceptible to runoff and erosion. The Project is expected to result in long-term benefits as permanent sediment control measures and stormwater infrastructure would minimize runoff and erosion. Those strategies may include but are not limited to detaining, retaining and infiltrating runoff into the ground.</p> <p>Thank you for your participation in the environmental review process.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Ellie Tyler	Keep Hawaii the way it is!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Erin Hamar	My brother's and grandmother's ashes are in this bay. I go here to be with them. If they build a resort here how can I? Plus I paddled for Keauhou canoe club. Where will they paddle? I am strongly against this! No no no!!!!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact Statement (DEIS) Section 3.2.3 describes the Project's aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park. Implementation of</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline. The canoe club will remain in operation at its existing position. Thank you for your participation in the environmental review process.</p>
<p>Esther Quam</p>	<p>This bay needs to be left just the way it is. It's one of our only playing grounds left for the local people of and our keikis to enjoyed without all the mainland humbug , and crowds.. There going to destroy the ocean. Leave it be!!!!</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.</p>
<p>Evan Curry</p>	<p>I have lived here all my Life we can not let our island get over run with this kind of stuff. How about tear down the condos and build more volleyball courts</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statues Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.</p>
<p>Francis Hogue</p>	<p>Historical! Leave it alone</p>	<p>Mahalo for your comment in the petition concerning the</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
Frida Marie	I NEED TO AND THATS NOT OKAY TO DO !	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>Gabrielle Provencher</p>	<p>This is a sacred place for the Hawaiian people that should be left alone and not developed.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
<p>GinnyJo Minamishin</p>	<p>This is King Kamehameha the third birth place and hold significant historical and sacred mana to the island of Hawaii.</p> <p>There is no more need to take and replace what is already there !!!! This piece of Hawaii, that still is used by keauhou canoe club and and an area for little family gathering, such as Picnics and paddle boarding. Not to mention the boat ramp for fisherman and fishing grounds around the area. This place is well taken care of by the locals of the big island and hold significant Hawaiian history!!!</p> <p>We don't need any more hotels, condos, homes on this beach front property. It is a respectable play ground for our children and adults as well from land to water.</p> <p>Please save hawaii and our sacred land and history from being over built for greed and control.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>DEIS Section 4.1 discusses cultural, archaeological, and historic resources within the Project Area. The KBMP proposes to establish a new cultural heritage corridor with the aim to preserve and protect the most culturally significant and vulnerable sites while enhancing</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>opportunities for the public to engage and learn about their importance. Implementation of the Project is anticipated to generate long-term benefits by preserving sensitive archaeological sites and implementing a plan to steward the sites in perpetuity.</p> <p>Thank you for your participation in the environmental review process.</p>
gretel pate	This is sacred land. Get yer paws off it!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Heather Harvey	<p>This is my favorite local spot to still swim, boat, and surf. If we over populate it, it will kill off the local wildlife and human life. Please stop killing the coral <input type="checkbox"/> and livelihood. It's the first place I ever played volleyball on the island. Its where I go to meditate and swim in clean water. Away from the tourist</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Heather Johnson	Ua mau, ke ea o ka aina, i ka pono, o Hawaii The life of the land is perpetuated in righteous.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Jacque Green	I am handicapped and elderly.. I can't get in the water where there is waves. This is one of the few places I can go!♥	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact Statement (DEIS) Section 3.2.3 describes the Project's aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park. Implementation of

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline.</p> <p>Thank you for your participation in the environmental review process.</p>
Janie Workman	Keeping ancient Hawaiian culture is important!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Janis Prinslow	I'm signing because there aren't any places left on the Kona side of the island that aren't overcrowded!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Jasmin McCracken	Just wrong... no. please don't pave paradise to put up a parking lot. There is PLENTY of places for tourists to stay already. Too many.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Jasper Felipe	volleyball	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
Jeanne Alford	We need to protect and embrace these sacred, neighborhood places and not allow big money and commercial developments to come in and destroy them.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Jeanne Roberts	Kam Schools Capital has a monopoly on bays and access in Keauhou and a pattern of taking away access from the community. Look at what they have done to Heeia Bay!	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Access to the bay will not be impeded by the implementation of the Project. The KBMP will enhance access with improvements to pedestrian networks, wayfinding, and parking. Thank you for your participation in the environmental review process.
jennifer Murphioka	I'm signing this because Keauhou Bay is important to my family. We spend so much of our time here. It is our home away from home. The beach is perfect to take out the paddle board and swim with our daughter. I paddle for Keauhou Canoe Club whose hālau is here. I do not want to see beach	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	<p>"bungalows" where our hālau currently stands. We do not need anymore oceanfront beach bungalows - visitors have plenty of other beachfront options, if that is what they are looking for. Do not build another resort. There is one right around the corner.</p>	<p>Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Chapter 3 of the Draft Environmental Impact Statement provides a detailed description of the Project. The location for the proposed boutique resort is mauka of Old Kona Road. The canoe hālau is viewed as an important community and cultural resources and will remain in its existing location.</p> <p>Thank you for your participation in the environmental review process.</p>
Jordan Bever	Resorts are gross	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Jordan Shack	No more resorts at Keauhou. Save the bay	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Joseph Jardin	I've paddle there for so long you can't just take that down	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Joshua Pickering	Keep Keahou Bay natural!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Julia Donath	No more unjust, unsustainable development that displaces the local community, negatively alters the land, erases Native Hawaiian culture, &	Mahalo for your comment in the petition concerning the

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Comments	Commenter	Responses
	<p>threatens the island’s environmental security. I don’t know how anyone who sees the pervasive displacement &amp; homelessness across Hawaii on a daily basis could propose more investment in unsustainable infrastructure for visitors, and this proposal represents a stifling rejection of truth.</p> <p>Before more development for visitors, meet the needs of the local community. If you can invest this much money in unnecessary development, then I don’t believe it when it’s said that there’s “not enough money” to meet the basic needs of people who live here, &amp; combat what is probably the most significant &amp; interconnected threat we face: climate change.</p> <p>I don’t know where visitors will “visit” when there is no longer land to sustain life, because it was exploited, disrespected, &amp; destroyed by a vision of development that prioritizes profit over life.</p>	<p>Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Julie Steinbach	I love this island because it’s not over crowded and all resorts. We love it the way it is.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Kandie Kato	I love Hawaii, not developing every square inch	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai’i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Kathy Roney	In my lifetime, I've witnessed Oahu go from a peaceful tropical oasis to an overpopulated tourist site. Allowing this development will take away why many of us chose to live on Hawaii Island and at Keauhou Bay. We don't always need to cater to the tourist and greed. Malama `Aina!	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Katie Lynn	Keauhou Bay is a precious and sacred place. It deserves to stay that way. The focus should be on housing solutions for residents (in appropriate areas) and land stewardship. Not more resorts destroying the natural and historical sites.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>generation opportunities to support area programming, however, a residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>Thank you for your participation in the environmental review process.</p>
Katie McKillop	Please keep Keauhou just as it is. This is a historical area that needs to be kept natural with care. Aloha.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Kaulahoolai Pilago	The resort on Keahou point is way more than enough. The entire Alii drive is hotels, resorts, condos, vacation rentals, and multimillion dollar properties. Why must our community always conform to the greedy desires for people to exploit Hawaii. When you build stuff like this, the area that we all grew up in	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	and have cherished memories in turns into a sad perversion of what it once was.	prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Kevin Yates	As a local Born and raised on the Big island Of Hawaii in Kona town, I can remember so many because of public access being taken away from the People who live the Hawaiian ways. If they build this will only be another public access being denied to the locals of Hawaii.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Kimberly Kekina	We don't need another resort !	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Kylee-Anne Kihe	I'm signing because we have so much resorts! Not only do we have so much resorts but there is so much history behind keahou and putting a resort there	Mahalo for your comment in the petition concerning the Environmental Impact Statement

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
	would just the defeat the purpose of why keahou bay is there and why it's so important	Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Lakin Ferris	We don't need another resort on this island. That's a significant tourist and local spot where plenty people go to have fun. Putting a resort there would ruin it.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Laurie Teitelbaum	I love the place to congratulate with friends. I feel that we need to keep it available for all of hawaiian residents to congregate. Please keep it for our children.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
LaVerne Curry	We have enough developments. We need places for our local residents to gather and enjoy our Aina. We need to keep the volleyball courts and the canoe hale for locals.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>At present, KS does not have an agreement with any entity for use of the volleyball court. Further complicating the matter, a portion of the land underneath the court is within the County right-of-way and therefore outside of KS ownership. KS is committed to the continued consultation with elected officials and representatives of the Kona area to discuss how outdoor recreational activities such as volleyball can be planned in more appropriate areas.</p> <p>Thank you for your participation in the environmental review process.</p>
Leslie Rae Schmitz	This development is completely unnecessary and will do no good only harm. The existing hotel Outrigger sits half empty and the Keauhou Shopping center commercial space is mostly vacant. The traffic corridor will be hugely disruptive. This cannot be built.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your

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Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Linda Mutch	<p>Appalling plan for this land. We have more than enough resort developments. Please show respect and keep Keauhou Bay sacred and peaceful.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Linda` Ronske	<p>Save this beautiful historic site. Build your bungalows somewhere else. This public site will then become off limits to everyone but the rich living there.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Lori Watson	<p>Save the historical areas before it's gone.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

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Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Luis Pagan	Kolohe	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Maile Silva	This place is an amazing place that we love and don't want it gone	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Makanani Kaaua	Enough development for visitors use.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement</p>

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Comments	Commenter	Responses
		<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Marquesa Calderon	Respect the locals!!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Mary E Wilson	Development of these beautiful bays and coastlines has to stop! It's ruining the ecosystems of the ocean	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>

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Comments	Commenter	Responses
Matthew Idom	There's no need for a resort, it's only greed.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Matthew Kerr	Why ruin a good thing?	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Michele Vinz	We need to preserve more land on the islands.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Mike Dennis	I love Keauhou Bay and raised my kids there. I have paddled there for almost 30 years. It's a treasure.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Molly Smyth	We don't even have enough staffing on the island to accommodate another resort. Take a look around at all the help wanted signs and vacant buildings in Kona. The last thing we need is more development.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Mystery-Lynn Freitas	Hawaii needs more HOUSING for Hawaiians before we desecrate more land to serve tourists who don't live here. We need to preserve the land and beach space and act as stewards of the land - not pave over paradise and put up more parking lots.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your

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Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>Thank you for your participation in the environmental review process.</p>
nathan percifield	Keauhou Bay i sacred	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your</p>

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Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Pamela Welden	<p>There is already an Outrigger Resort there. It needs renovation and reopening of its restaurant venues - that's plenty for that small little bay.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Patti Donohue	<p>I want to save this area from further development.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Paul Dagdag	<p>30 + resident of the Kealakekua/Keauhou ahupua'a and have witnessed the influx of traffic on both Alii and Hwy 19 roads. Adding another resort will only add more congestion to a problem of poor infrastructure.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>



**Table 7.2 DEA Summary of Comments and Responses**

<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-modal transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>as well as potential traffic impacts generated by the Project</p> <p>Thank you for your participation in the environmental review process.</p>
Paul Dagdag	The place is already crowded. We need better roads and alternative routes before more development is built!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Paula Goleta	I'm an outrigger paddler and enjoy the sport. This club lent us canoes to race in Hawaii.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Rachel Curnel Struempf	Save our beach! Please don't develop it!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Rhys Ward	I grew up there and don't want to see it change in a negative way.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Robin Akau	I believe there should be recreational spaces in our community.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>The KBMP proposes to create a mauka / makai corridor to improve public shoreline access and to enhance the area for educational, recreational, and cultural activities. Draft Environmental Impact</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>Statement (DEIS) Section 3.2.3 describes the Project’s aim to visually and spatially consolidate the mauka and makai recreation areas to create an expanded shoreline park. Implementation of the plan is expected to enhance opportunities for ocean recreation and cultural use of the shoreline.</p> <p>Thank you for your participation in the environmental review process.</p>
Rochelle Morais	This is a beautiful bay that should be protected and not be overrun by a resort	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Sabrauna Hedenberg	KEEP HAWAII IN HAWAIIAN HANDS	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai‘i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		Thank you for your participation in the environmental review process.
Sally Rankin	When is enough, enough!?! Kamehameha Schools claims to be ashamed of how they have managed the `aina at the bay, but this plan clearly proves they have no shame when it comes to properties they consider financially underachieving, no matter the cost.	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
Sarah Kamanu	Keauhou bay already has a perfect balance of visitors and locals. There is no space for yet another resort of any kind to be built! The harbor is small, it is already maxed out on tourists, boats and humans	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded. Thank you for your participation in the environmental review process.
sharon willeford	A sacred place for the local people!!! Don't OverDevilop Kona !!!!	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Sheila Braithwaite	<p>Because I have lived on a barrier island that was ridiculously over built causing all kinds of traffic issues and environmental trauma to the National Park it abutted. Spaces like this are so important for residents and guests. Celebrate it...don't destroy it</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
siobhan radway	WTF!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Stephen Dossey	Aloha aina keep Kona country	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Susan Girouard	I'm concerned about the increased traffic on lower Kam III, and what will be done to protect existing residents from the increased noise.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>We understand that parking and circulation has been challenging in residential neighborhoods surrounding Keauhou Bay. Street capacity and traffic circulation was taken into consideration during the development of alternatives. The Project involves multiple design elements to improve overall circulation and alleviate congestion. The Project proposes to improve the Old Kona Road to support multi-modal transportation options while also providing a linkage across the two sides of the Bay. The roadway is intended to be pedestrian orientated to serve as a key walking route for residents and resort</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>guests to access the dining, commercial, and recreational activities throughout the area.</p> <p>The Draft Environmental Impact Statement (DEIS) provides an analysis of potential traffic impacts in Section 4.11. A Mobility Analysis Report (MAR) was prepared by Fehr &amp; Peers to identify and assess existing and future mobility option as well as potential traffic impacts generated by the Project (<i>Appendix E</i>).The MAR found that the implementation of the Project would not result in significant traffic impacts.</p> <p>An Acoustic Study was conducted for the DEIS by Y. Ebisu and Associates (<i>Appendix F</i>). Overall, the results of the Noise Assessment indicate that no significant increases in noise levels are predicted to occur as a result of traffic following the full buildout of the Project. Short-term noise impacts associated with Project construction activities may occur during the earthwork and excavation phases, when site preparation work and/or roadway construction occur. In addition to the anticipated application of State Department of Health noise permit</p>



**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>requirements and procedures during noisy construction activities, the use of quieted portable engine generators and diesel equipment will be specified for use within 500 ft of noise sensitive properties. Heavy truck and equipment staging areas will also be located at areas which are at least 500 ft from noise sensitive properties. For further discussion, please refer to section 4.13 of the DEIS.</p> <p>Thank you for your participation in the environmental review process.</p>
Susie Cysewski	That area needs to stay natural. Enough condos and shops already in Keauhou. Use the money to help Naive Hawaiians build homes.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Teah Van Bergen	This land belongs to the people	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Teddy Alejandro	Stop corporations.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Thomas Owens	Leave our Bay alone!!!	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Thomas Pinkert	Let's get more affordable housing for local people instead.	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)</p>

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>The provision of housing on the KS owned lands at Keauhou Bay was considered as an alternative and discussed in DEIS Section 6.3. Based on the analysis of alternatives, the Housing Alternative would fail to meet the objectives of the Project. Under this scenario, the KS lands would improve income generation opportunities to support area programming, however, a residential development may result in adverse impacts to the surrounding environment, particularly with regards to view planes, infrastructure, traffic, recreational activities, and open space. Additionally, the provision of housing would not be cost effective for KS to develop at this location and could be cost prohibitive for local buyers.</p> <p>Thank you for your participation in the environmental review process.</p>
Trina Alapai	Enough is enough!!! Listen to the Hawaiian people and do right by them. Respect. 🙌	Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP)

**Table 7.2 DEA Summary of Comments and Responses**

Comments	Commenter	Responses
		<p>prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Tyler Wood	<p>My brother and I grew up there, I still come back when I go see my family. It's been through (and is going through) enough tourist abuse. Leave it be.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Valerie Vaughan	<p>Not every beautiful bay needs a resort ❤️</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Vickie Pruitt	<p>We already have way too many resorts on this island, This island will end up just like the rest, overcrowded with tourists.</p>	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement</p>

**Table 7.2 DEA Summary of Comments and Responses**

<b>Comments</b>	<b>Commenter</b>	<b>Responses</b>
		<p>Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>
Vivianmalia Faagata	Ancestral connection	<p>Mahalo for your comment in the petition concerning the Environmental Impact Statement Preparation Notice for the Keauhou Bay Management Plan (KBMP) prepared pursuant to Hawai'i Revised Statutes Chapter 343. Your comments have been administratively recorded.</p> <p>Thank you for your participation in the environmental review process.</p>



**Appendix C**

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# **Cultural Impact Assessment**





# Cultural Impact Assessment for Kamehameha Schools' Keauhou Bay Management Plan

TMK: (3) 7-8-010 and 012 various parcels

Keauhou 1<sup>st</sup> and 2<sup>nd</sup> Ahupua'a  
North Kona District  
Island of Hawai'i



Historic aerial of Keauhou Bay ca. pre-1960s. ASM collection.

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April 2022  
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# **Cultural Impact Assessment for Kamehameha Schools' Keauhou Bay Management Plan**

TMK: (3) 7-8-010 and 012 various parcels

Keauhou 1<sup>st</sup> and 2<sup>nd</sup> Ahupua'a  
North Kona District  
Island of Hawai'i





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## 1. INTRODUCTION

At the request of Group 70 International, Inc. (G70), on behalf of Kamehameha Schools (KS), ASM Affiliates (ASM), has prepared this Cultural Impact Assessment (CIA) in support of the Environmental Impact Statement (EIS) being prepared in accordance with Hawai'i Revised Statutes (HRS) Chapter 343 for the proposed Keauhou Bay Management Plan (KBMP) (referred to hereafter as the 'proposed project'). The proposed project area includes multiple Tax Map Key (TMK) parcels, all of which are owned by KS and Kamehameha Investment Corporation, and totals approximately 29 acres in the vicinity of Keauhou Bay (Figures 1, 2, and 3). The purpose of the KBMP is to provide near (10 years) and long-term (20 years) management and land use recommendations that are consistent with KS Strategic Plan 2020 – Kūhanauna and the Draft West-Hawai'i Regional Action Plan, while also responding to community issues within KS responsibility. The KBMP will guide and prioritize KS actions for future planning, improvement, and operation at Keauhou Bay.

This CIA, which is intended to inform an EIS conducted in compliance with HRS Chapter 343, is being prepared pursuant to Act 50 and in accordance with the Environmental Review Program (formerly known as the Office of Environmental Quality Control [OEQC]) *Guidelines for Assessing Cultural Impacts*, adopted by the Environmental Council, State of Hawai'i, on November 19, 1997 (OEQC 1997). Act 50, which was proposed and passed as Hawai'i State House of Representatives Bill No. 2895 and signed into law by the Governor on April 26, 2000, specifically acknowledges that State's responsibility to protect native Hawaiian cultural practices. Act 50 further states that environmental studies “. . . should identify and address effects on Hawaii's culture, and traditional and customary rights” and that “native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the 'aloha spirit' in Hawai'i. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on governmental agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.”

The current report is divided into four main chapters. Chapter 1, the introduction, includes an overview of the proposed project as well as a physical description of the project area. To provide a cultural context of the project area, Chapter 2 includes cultural-historical background information specific to the project area and the broader geographical region of Keauhou 1<sup>st</sup> and 2<sup>nd</sup>, and at times the greater North Kona District. This chapter also includes a summary of prior archaeological and cultural studies that have been conducted within or in the immediate vicinity of the project area. The methods and results of the consultation process are then presented in Chapter 3. Lastly, Chapter 4 includes a discussion of potential cultural impacts as well as actions and strategies that may help to mitigate any identified impacts.

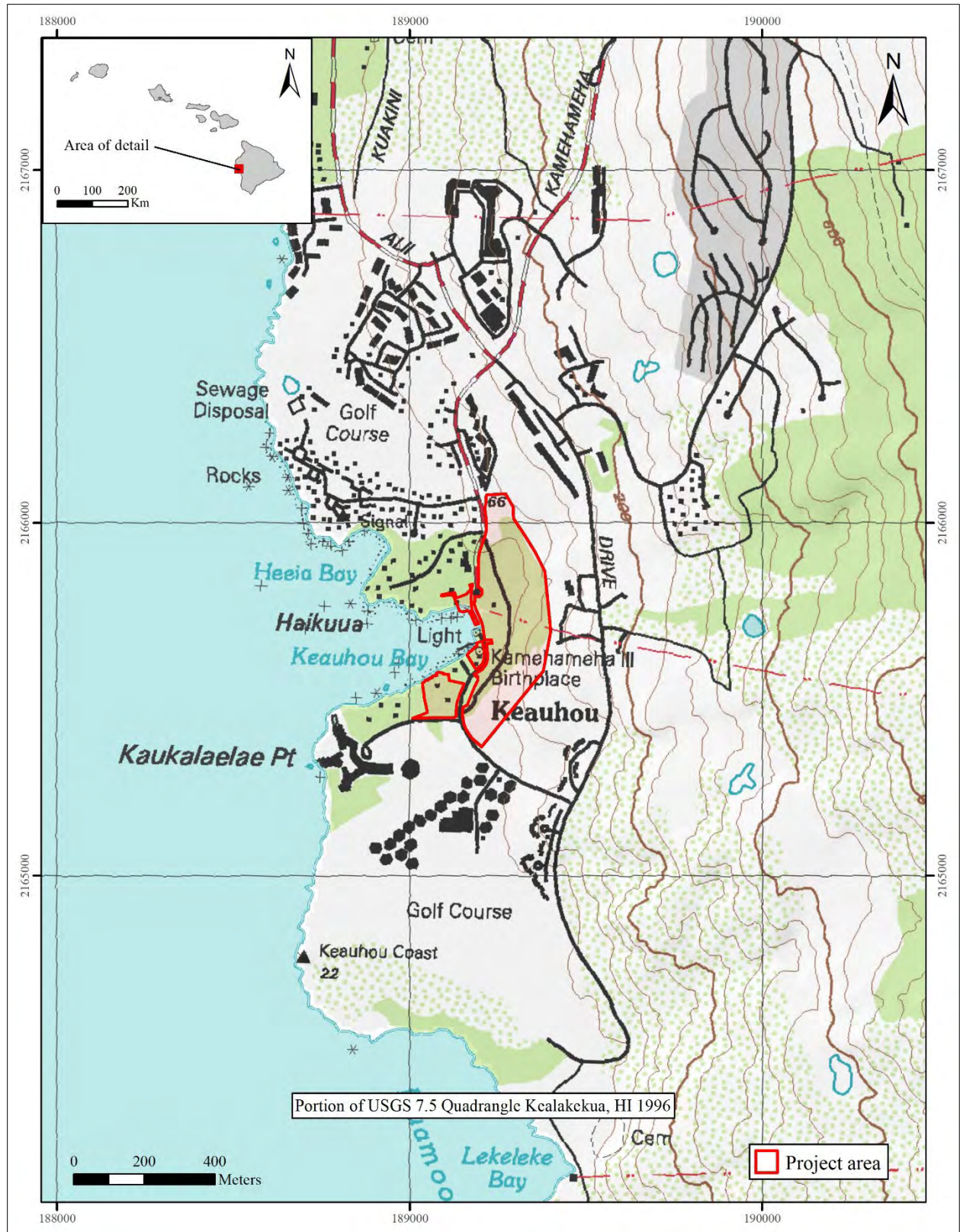


Figure 1. Project area location.

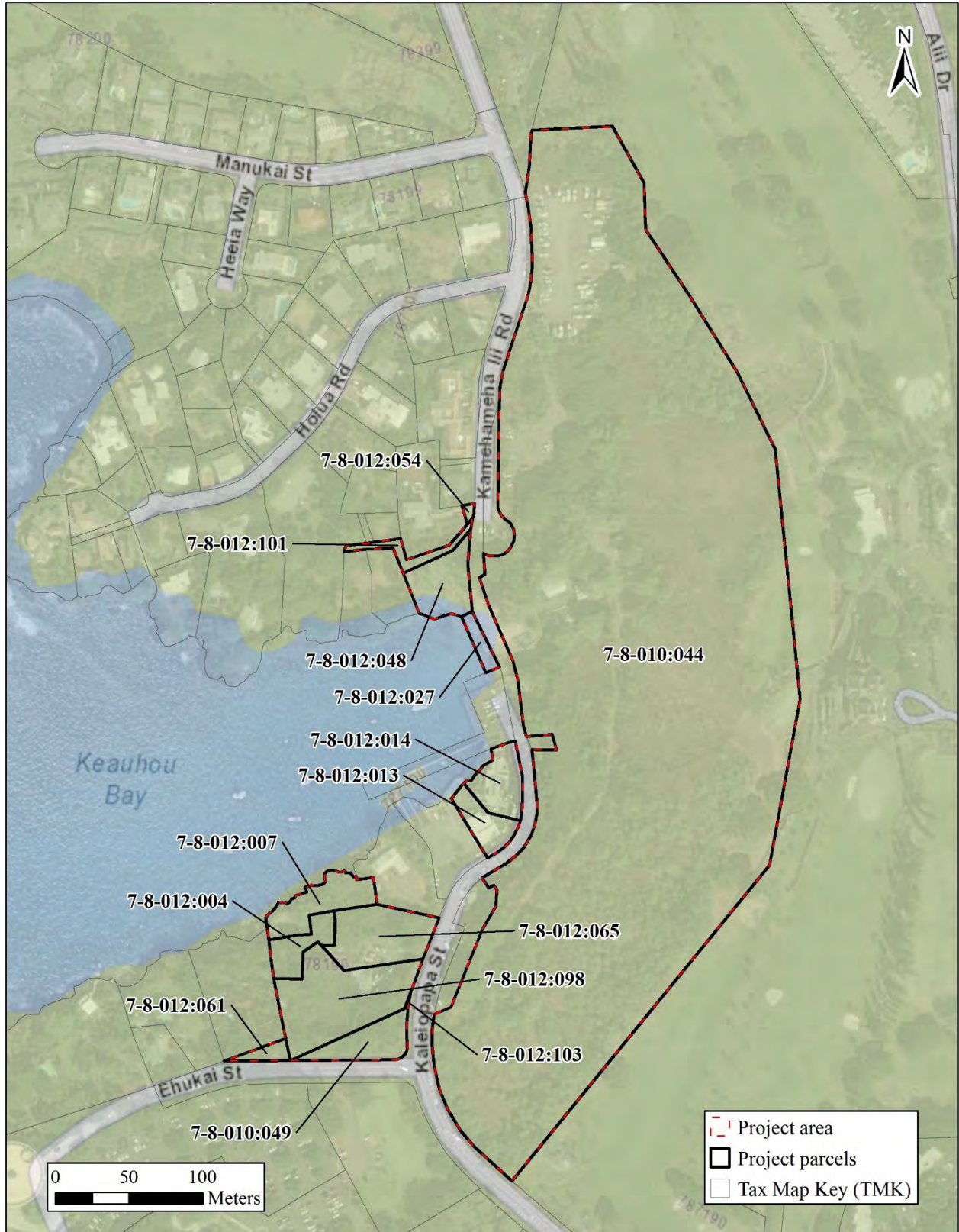


Figure 2. Tax Map Key parcels associated with the proposed project.

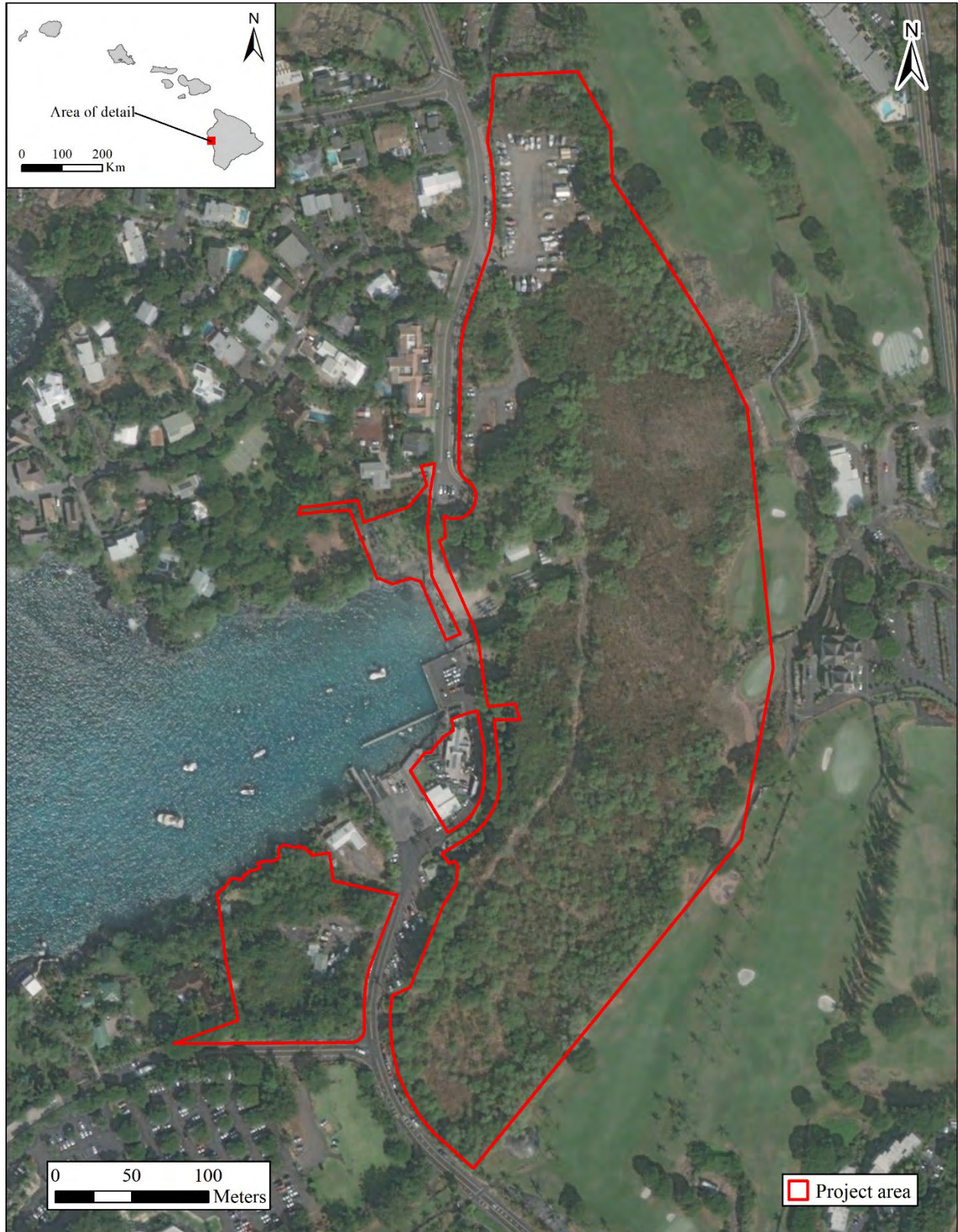


Figure 3. Google Earth™ satellite image showing project area location.

## PROJECT AREA DESCRIPTION

The project area encompasses roughly 29 acres distributed around the historic and culturally significant Keauhou Bay and spans the *ahupua'a* of Keauhou 1<sup>st</sup> (located to the north) and Keauhou 2<sup>nd</sup> (located to the south), North Kona District, Island of Hawai'i. The project area is comprised of fourteen distinct TMK parcels, which are depicted above in Figure 2 and listed below in numerical order in Table 1.

Vehicular access into the project area is from two paved roads; Kamehameha III Road which leads to the northern part of the project area (Figure 4) and Kaleiopapa Street which leads to the south part of the project area (Figure 5). A portion of the old Kona Road extends from Kamehameha III Road and bisects the western portion of the project where it connects with Kaleiopapa Street (Figure 6).

The majority of the project area is largely undeveloped (Figure 7), however, those areas fronting Keauhou Bay are either partially or fully developed and include trailer parking, the new Keauhou boat ramp, commercial spaces, a pier, public parking, and the old Keauhou boat ramp (Figure 8). The new Keauhou Bay boat ramp is one of three State managed small boat harbors within the North Kona District, thus much of the daily activity in the vicinity of the bay involves various boating activities including commercial charter, private, or commercial fishing operations and other types of marine recreation including but not limited to kayaking, snorkeling, stand-up paddle boarding, one man and outrigger canoe paddling, swimming, and fishing (Figures 9 and 10).

The project area also includes several historically significant places located along the base of 'Ahu'ula Cliff (Figure 11), including the birth place of King Kamehameha III (Kamehameha III), marked by a commemorative plaque (Figure 12) and remnants of Ho'okūkū Pond (Figure 13).

**Table 1. Tax Map Key parcels comprising the project area.**

<i>Tax Map Key Parcel</i>	<i>Ahupua'a</i>	<i>Acres</i>	<i>Property Class</i>
(3) 7-8-010:044	Keauhou 1 <sup>st</sup> and 2 <sup>nd</sup>	25.239	Hotel & Resort
(3) 7-8-010:049	Keauhou 2 <sup>nd</sup>	0.3132	Hotel & Resort
(3) 7-8-012:004	Keauhou 2 <sup>nd</sup>	0.25	Residential
(3) 7-8-012:007	Keauhou 2 <sup>nd</sup>	0.4	Residential
(3) 7-8-012:013	Keauhou 2 <sup>nd</sup>	0.2297	Commercial
(3) 7-8-012:014	Keauhou 2 <sup>nd</sup>	0.3295	Commercial
(3) 7-8-012:027	Keauhou 1 <sup>st</sup>	0.09	Conservation
(3) 7-8-012:048	Keauhou 1 <sup>st</sup>	0.37	Conservation
(3) 7-8-012:054	Keauhou 1 <sup>st</sup>	0.02	Residential
(3) 7-8-012:061	Keauhou 2 <sup>nd</sup>	0.071	Residential
(3) 7-8-012:065	Keauhou 2 <sup>nd</sup>	0.6	Residential
(3) 7-8-012:098	Keauhou 2 <sup>nd</sup>	1.0791	Residential
(3) 7-8-012:101	Keauhou 1 <sup>st</sup>	0.1222	Residential
(3) 7-8-012:103	Keauhou 2 <sup>nd</sup>	0.01	Residential



Figure 4. Aerial showing Kamehameha III Road leading to the northwestern portion of the project area.



Figure 5. Aerial showing Kaleiopapa Street leading to the southwestern portion of the project area.





Figure 6. Old Kona Road extending through the western portion of the project area.



Figure 7. Aerial showing the western and largely undeveloped portion of the project area.



Figure 8. Aerial showing Kaleiopapa Street leading to trailer parking, new boat ramp, commercial spaces, pier, and public parking located in the southwestern portion of the project area.



Figure 9. Marine recreation at Keauhou Bay viewed from old boat ramp on north side of existing pier, view to the west.



Figure 10. Outrigger canoes belonging to Keauhou Canoe Club, view to the northeast.



Figure 11. Aerial image of 'Ahu'ula Cliff, note interpretive walking path at the base of cliff.



Figure 12. Birth place of King Kauikeaouli (Kamehameha III) located along the western side of road leading to pier, view to the northeast.



Figure 13. Remnants of Ho'okūkū Pond, view to the east.

## Geology and Soil

The geology underlying the project area is comprised of volcanic flows originating from both Hualālai and Mauna Loa. The northern portion of the project area, which is made up entirely of Hualālai volcanics, is mapped in Figure 14 below as Qh4 dating between 560-860 years ago and Qh dating between 11,000 and 30,000 years ago. The central section of the project area includes a small pocket of Hualālai volcanics (Qh) along the eastern edge, however, the majority is comprised of Mauna Loa volcanics shown below as Qk dating between 11,000-30,000 years ago. Along the southwestern section of the project area, the geology transitions back to Hualālai volcanics mapped below in Figure 14 as Qh2 dating between 1,500 and 3,000 years ago (Sherrod et al. 2007).

The soil types found within the project area varies and as depicted in Figure 15, Keauhou Bay serves as a converging point for the soil types found therein. The northern tip of the project area is comprised entirely of soil type 10, well-draining ‘a‘ā with 2 to 20 percent slopes. The central section of the project area is comprised of three soil types including 245, ash deposits overlaying an ‘a‘ā flow and designated as Waiaha cobbly medial silt loam with a 10 to 20 percent slopes; 243, ash deposits overlaying a *pāhoehoe* flow and described as Waiaha medial silt loam with a 10 to 20 percent slopes; and 122, a *pāhoehoe* flow identified as Punalu‘u lava flow complex with 10 to 20 percent slopes. The southwestern tip of the project area is comprised of soil type 121, another *pāhoehoe* flow described as Punalu‘u lava flow complex with 2 to 20 percent slopes (Soil Survey Staff 2020).

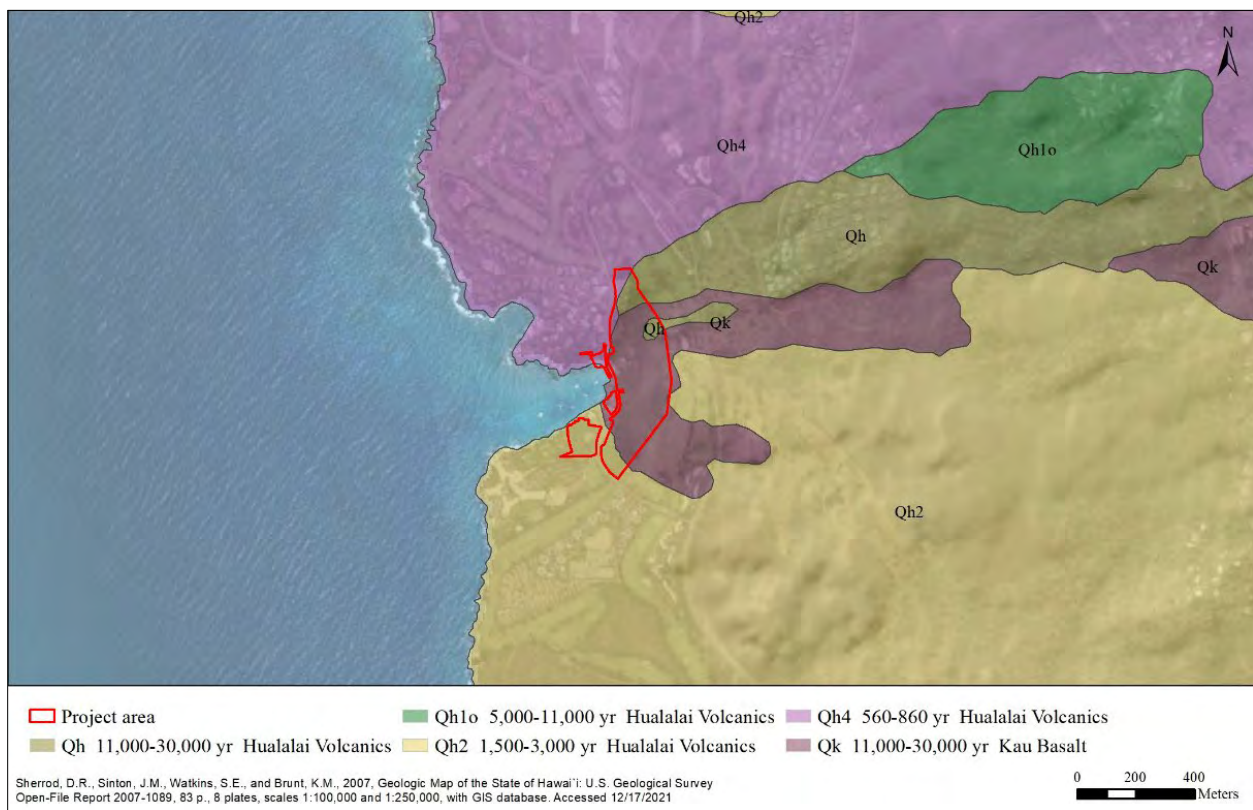


Figure 14. Geology underlying the project area.

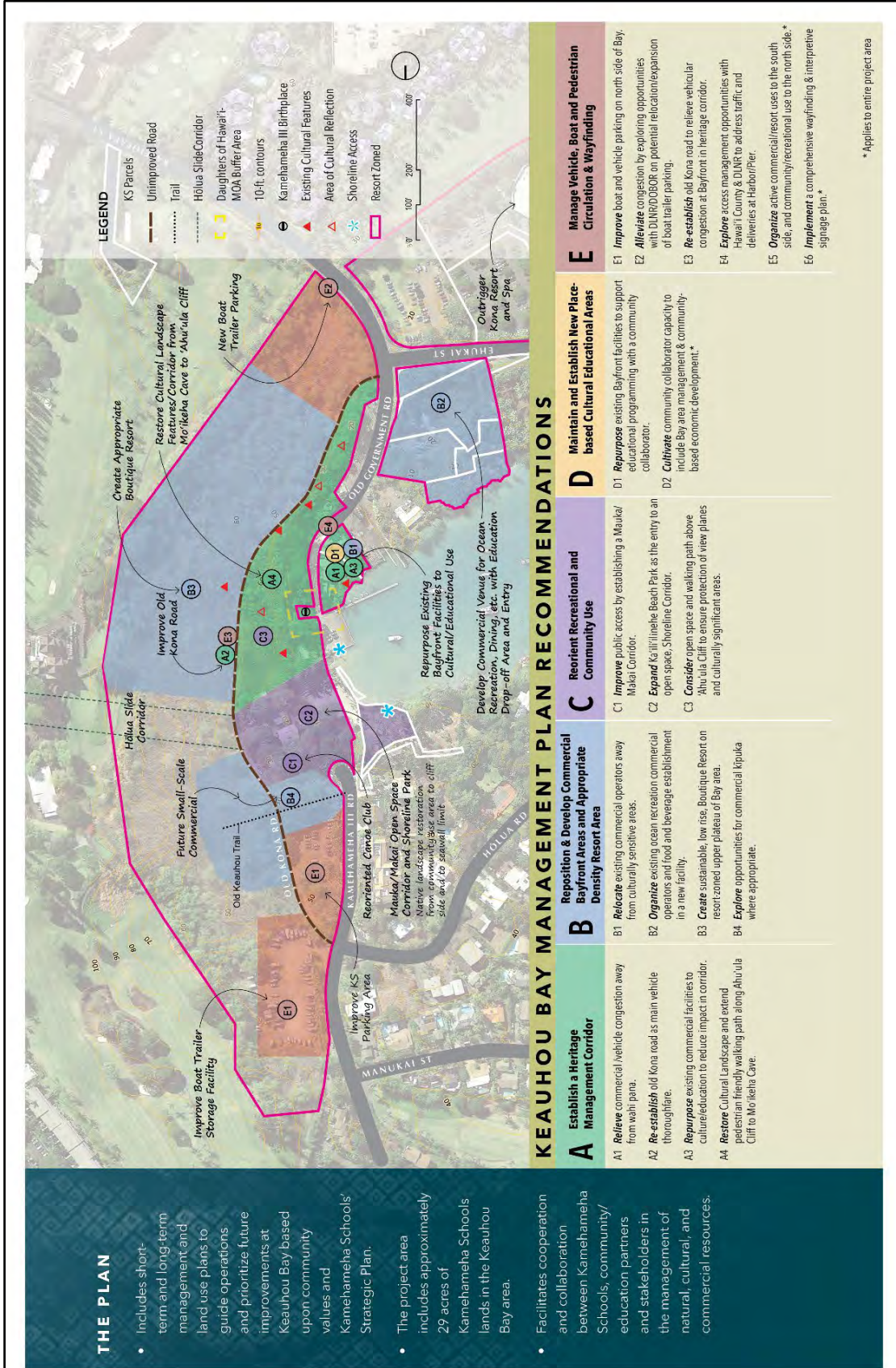


Figure 15. Soils underlying the project area.

## PROPOSED PROJECT DESCRIPTION

The KBMP includes short and long-term management and land use plans to guide operations and prioritize future improvements at Keauhou Bay based upon community values and KS’s Strategic Plan. The plan is also intended to facilitate cooperation and collaboration between KS, community/education partners, and stakeholders in the management of the area’s natural, cultural, and commercial resources. The proposed plan includes the following five areas (Area A-E) which are depicted in the KBMP conceptual plan included below as Figure 16: A) establish a heritage management corridor; B) reposition and develop commercial bayfront areas and appropriate density resort area; C) reorient recreational and community use; D) maintain and establish new place-based cultural-educational areas, and; E) manage vehicle, boat, and pedestrian circulation and wayfinding.

The recommendations for Area A include relieving commercial and vehicular congestion away from *wahi pana*; re-establish the Old Kona Road as the main vehicle thoroughfare; repurposing the existing commercial facilities to culture/education as a way to reduce impact in the heritage corridor, and; restoring the cultural landscape and extend pedestrian-friendly walking path along ‘Ahu‘ula Cliff to Mo‘ikeha Cave. The Area B recommendations include relocating existing commercial operations away from culturally sensitive areas; organizing existing ocean recreation commercial operators and food and beverage establishments in a new facility; creating sustainable, low rise, boutique resort on the resort-zoned upper plateau of the bay area; and explore opportunities for commercial *kīpuka* where appropriate. Area C recommendations include improving public access by establishing a *mauka-makai* corridor; expanding Ka‘ili‘ilinehe Beach Park as the entrance to an open space, shoreline corridor; and considering open space and walking path above ‘Ahu‘ula Cliff to ensure the protection of view planes and culturally significant areas. The recommendations for Area D include repurposing existing bayfront facilities to support educational programming with a community collaborator and cultivating community collaborator capacity to include bay area management and community-based economic development. The Area E recommendations include improving boat and vehicular parking on the north side of the bay; alleviating congestion by exploring opportunities with DLNR-DOBOR on potential relocation/expansion of boat trailer parking; re-establish old Kona Road to relieve vehicular congestion at bayfront heritage corridor; explore access management with Hawai‘i County and DLNR to address traffic and deliveries at harbor/pier; organize active commercial/resort uses to the south side, and community/recreational use to the north side; and implement a comprehensive wayfinding and interpretive signage plan.



**THE PLAN**

- Includes short-term and long-term management and land use plans to guide operations and prioritize future improvements at Keauhou Bay based upon community values and Kamehameha Schools' Strategic Plan.
- The project area includes approximately 29 acres of Kamehameha Schools lands in the Keauhou Bay area.
- Facilitates cooperation and collaboration between Kamehameha Schools, community/education partners and stakeholders in the management of natural, cultural, and commercial resources.

**KEAUHOU BAY MANAGEMENT PLAN RECOMMENDATIONS**

A Establish a Heritage Management Corridor	B Reposition & Develop Commercial Bayfront Areas and Appropriate Density Resort Area	C Reorient Recreational and Community Use	D Maintain and Establish New Place-based Cultural Educational Areas	E Manage Vehicle, Boat and Pedestrian Circulation & Wayfinding
<p>A1 Relieve commercial vehicle congestion away from wahi pana.</p> <p>A2 Re-establish old Kona road as main vehicle thoroughfare.</p> <p>A3 Repurpose existing commercial facilities to culture/education to reduce impact in corridor.</p> <p>A4 Restore Cultural Landscape and extend pedestrian friendly walking path along Ahu'ula Cliff to Mo'ikeha Cave.</p>	<p>B1 Relocate existing commercial operators away from culturally sensitive areas.</p> <p>B2 Organize existing ocean recreation commercial operators and food and beverage establishment in a new facility.</p> <p>B3 Create sustainable, low rise, Boutique Resort on resort-zoned upper plateau of Bay area.</p> <p>B4 Explore opportunities for commercial kipaika where appropriate.</p>	<p>C1 Improve public access by establishing a Mauka/Makai Corridor.</p> <p>C2 Expand Kōi'i line/Ke Beach Park as the entry to an open space; Shoreline Corridor.</p> <p>C3 Consider open space and walking path above Ahu'ula Cliff to ensure protection of view planes and culturally-significant areas.</p>	<p>D1 Repurpose existing Bayfront facilities to support educational programming with a community collaborator.</p> <p>D2 Cultivate community collaborator capacity to include Bay area management &amp; community-based economic development.*</p>	<p>E1 Improve boat and vehicle parking on north side of Bay.</p> <p>E2 Alleviate congestion by exploring opportunities with DUNEDUNEDOR on potential relocation/expansion of boat trailer parking.</p> <p>E3 Re-establish old Kona road to relieve vehicular congestion at Bayfront in heritage corridor.</p> <p>E4 Explore access management opportunities with Hawai'i County &amp; DUNR to address traffic and deliveries at Harbor Pier.</p> <p>E5 Organize active commercial/resort uses to the south side, and community/recreational use to the north side.*</p> <p>E6 Implement a comprehensive wayfinding &amp; interpretive signage plan.*</p>

\* Applies to entire project area

Figure 16. Keauhou Bay Management Plan conceptual plan.

## 2. BACKGROUND

As specified in the *Guidelines for Assessing Cultural Impacts*, "...the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment" (OEQC 1997:1). For this CIA, the *ahupua'a* of Keauhou (inclusive of both Keauhou 1<sup>st</sup> and 2<sup>nd</sup>) is considered the 'study area', while the roughly 29-acre is referred to as the project area.

To generate a set of expectations regarding the nature of cultural resources that might be encountered within the current project area and to establish a context within which to assess the significance of such resources, the background section begins with a general culture-historical context. This is followed by culture-historical background information concerning the history of Keauhou. Limited background information for North Kona, the broader regional designation in which Keauhou is situated, also falls within the parameters of the OEQC CIA guidelines and ensures that a broader set of cultural practices and histories are considered. Following this background section is a discussion of relevant prior archaeological and cultural studies that have been conducted within and in the immediate vicinity of the project area.

### RESEARCH METHODS

The culture-historical context and summary of previously conducted archaeological and cultural research presented below are based on research conducted by ASM Affiliates at various physical and digital repositories. Primary and secondary English language resources were found at various state agencies, including the State Historic Preservation Division, Hawai'i State Archives, the Department of Accounting and General Services Land Survey Division, the Hawaiian Mission Houses Historic Site and Archives, the County of Hawai'i Planning Department, Kamehameha Schools Land Information Management and Services, and at ASM's library collection. Primary Hawaiian language resources were obtained from select ethnographic studies as well as the Office of Hawaiian Affairs' Papakilo Database, a digital repository.

### CULTURE-HISTORICAL CONTEXT

While the question of when Hawai'i was first settled by Polynesians remains contested, scholars working in the fields of archaeology, folklore, Hawaiian studies, and linguistics have offered several theories. With advances in palynology and radiocarbon dating techniques, Kirch (2011), Athens et al. (2014), and Wilmshurst et al. (2011) have argued that Polynesians arrived in the Hawaiian Islands sometime between A.D. 1000 and A.D. 1200. This initial migration on intricately crafted *wa'a kaulua* (double-hulled canoes) to Hawai'i from Kahiki, the ancestral homelands of Hawaiian deities and peoples from southern Pacific islands, occurred at least from initial settlement to the 13<sup>th</sup> century. According to Fornander (1969), Hawaiians brought from their homeland certain Polynesian customs and beliefs: the major gods Kāne, Kū, Lono, and Kanaloa (who have cognates in other Pacific cultures); the *kapu* system of political and religious governance; and the concepts of *pu'uhonua* (places of refuge), *'aumakua* (ancestral deity), and *mana* (divine power). Archaeologist Kenneth Emory who worked in the early to mid-20<sup>th</sup> century reported that the sources of early Hawaiian populations originated from the southern Marquesas Islands (Emory in Tatar 1982). However, Emory's theory is not universally accepted, as Hawaiian scholars in the past and present have argued for a pluralistic outlook on ancestral Hawaiian origins from Kahiki (Case 2015; Fornander 1916-1917; Kamakau 1866; Kikilo'i 2010; Nakaa 1893; Poepoe 1906).

While stories of episodic migrations were widely published in the Hawaiian language by knowledgeable and skilled *kū'auhau* (individuals trained in the discipline of remembering genealogies and associated ancestral stories), the cultural belief that living organisms were *hānau 'ia* (born) out of a time of eternal darkness (*pō*) and chaos (*kahuli*) were brought and adapted by ancestral Hawaiian populations to reflect their deep connection to their environment. As an example, the *Kumulipo*, Hawai'i's most famed *ko'ihonua* (a cosmogonic genealogical chant), establishes a birth-rank genealogical order for all living beings (Beckwith 1951; Liliuokalani 1978). One such genealogical relationship that remains widely accepted in Hawai'i is the belief that *kalo* (taro) plants (in addition to all other plants, land animals, and sea creatures), are elder siblings to humans (Beckwith 1951). This concept of hierarchical creation enforces the belief that all life forms are intimately connected, evidencing the cultural transformations that occurred in the islands through intensive interaction with their local environment to form a uniquely Hawaiian culture.

In Hawai'i's ancient past, inhabitants were primarily engaged in subsistence-level agriculture and fishing (Handy et al. 1991). Following the initial settlement period, communities clustered in the *ko'olau* (windward) shores of the Hawaiian Islands where freshwater was abundant. Sheltered bays allowed for nearshore fisheries (enriched by



numerous estuaries) and deep-sea fisheries to be easily accessed (McEldowney 1979). Widespread environmental modification of the land also occurred as early Hawaiian *kanaka mahi'ai* (farmers) developed new subsistence strategies, adapting their familiar patterns and traditional tools to work efficiently in their new home (Kirch 1985; Pogue 1978). Areas with the richest natural resources became heavily populated over time, resulting in the population's expansion to the *kona* (leeward) side of the islands and to more remote areas (Cordy 2000).

### Overview of Traditional Hawaiian Land Management Strategies

Adding to an already complex society was the development of traditional land stewardship systems, including the *ahupua'a*. The *ahupua'a* was the principal land division that functioned for both taxation purposes and furnished its residents with nearly all subsistence and household necessities. *Ahupua'a* are land divisions that typically include multiple ecozones from *mauka* (upland mountainous regions) to *makai* (shore and near-shore regions), assuring a diverse subsistence resource base (Hommon 1986). Although the *ahupua'a* land division typically incorporated all of the eco-zones, their size and shape varied greatly (Cannelora 1974). Noted Hawaiian historian and scholar Samuel Kamakau summarized the ecozones that could be found in a given *ahupua'a*:

Here are some names for [the zones of] the mountains—the *mauna* or *kuahiwi*. A mountain is called a *kuahiwi*, but *mauna* is the overall term for the whole mountain, and there are many names applied to one, according to its delineations ('*ano*). The part directly in back and in front of the summit proper is called the *kuamauna*, mountaintop; below the *kuamauna* is the *kuahea*, and makai of the *kuahea* is the *kuahiwi* proper. This is where small trees begin to grow; it is the *wao nahele*. Makai of this region the trees are tall, and this is the *wao lipo*. Makai of the *wao lipo* is the *wao 'eiwa*, and makai of that the *wao ma 'ukele*. Makai of the *wao ma 'ukele* is the *wao akua*, and makai of there is the *wao kanaka*, the area that people cultivate. Makai of the *wao kanaka* is the '*ama'u*, fern belt, and makai of the '*ama'u* the '*apa'a*, grasslands.

A solitary group of trees is a *moku la'au* (a “stand” of trees) or an *ulu la'au*, grove. Thickets that extend to the *kuahiwi* are *ulunahale*, wild growth. An area where *koa* trees suitable for canoes (*koa wa'a*) grow is a *wao koa* and mauka of there is a *wao la'au*, timber land. These are dry forest growths from the '*apa'a* up to the *kuahiwi*. The places that are “spongy” (*naele*) are found in the *wao ma 'ukele*, the wet forest.

Makai of the '*apa'a* are the *pahe'e* [*pili* grass] and '*ilima* growths and makai of them the *kula*, open country, and the '*apoho* hollows near to the habitations of men. Then comes the *kahakai*, coast, the *kahaone*, sandy beach, and the *kalawa*, the curve of the seashore—right down to the '*ae kai*, the water's edge.

That is the way *ka po'e kahiko* [the ancient people] named the land from mountain peak to sea. (Kamakau 1976:8-9)

The *maka'ainana* (commoners, literally the “people that attend the land”) who lived on the land had rights to gather resources for subsistence and tribute within their *ahupua'a* (Jokiel et al. 2011). As part of these rights, residents were required to supply resources and labor to *ali'i* (chiefs) of local, regional, and island chiefdoms. The *ahupua'a* became the equivalent of a local community with its own social, economic, and political significance and served as the taxable land division during the annual *Makahiki* procession (Kelly 1956). During the time of *Makahiki*, the paramount *ali'i* sent select members of his/her retinue to collect *ho'okupu* (tribute and offerings) in the form of goods from each *ahupua'a*. The *maka'ainana* brought their share of *ho'okupu* to an *ahu* (altar) that was marked with the image of a *pua'a* (pig), serving as a physical visual marker of *ahupua'a* boundaries. In most instances, these boundaries followed mountain ridges, hills, rivers, or ravines (Alexander 1890). However, Chinen (1958:1) reports that “oftentimes only a line of growth of a certain type of tree or grass marked a boundary; and sometimes only a stone determined the corner of a division.” These ephemeral markers, as well as their more permanent counterparts, were oftentimes named as evidenced in the thousands of boundary markers names that are listed in Soehren (2005).

*Ahupua'a* were ruled by *ali'i 'ai ahupua'a* or chiefs who controlled the *ahupua'a* resources. Generally speaking, *ali'i 'ai ahupua'a* had complete autonomy over the *ahupua'a* they oversaw (Malo 1951). *Ahupua'a* residents were not bound to the land nor were they considered property of the *ali'i*. If the living conditions under a particular *ahupua'a* chief were deemed unsuitable, the residents could move freely in pursuit of more favorable conditions (Lam 1985). This structure safeguarded the well-being of the people and the overall productivity of the land, lest the chief loses the principal support and loyalty of his or her supporters. In turn, *ahupua'a* lands were managed by an appointed *konohiki*, oftentimes a chief of lower rank, who oversaw and coordinated stewardship of an area's natural resources (Lam 1985). In some places, the *po'o lawai'a* (head fisherman) held the same responsibilities as the *konohiki* (Jokiel et al. 2011).

When necessary, the *konohiki* took the liberty of implementing *kapu* (restrictions and prohibitions) to protect the *mana* of an area's resources from environmental and spiritual depletion.

Many *ahupua'a* were divided into smaller land units termed *'ili* and *'ili kūpono* (often shortened to *'ili kū*). *'Ili* were created for the convenience of the *ahupua'a* chief and served as the basic land unit which *hoa'āina* (caretakers of particular lands) often retained for multiple generations (Jokieli et al. 2011; MacKenzie 2015). As *'ili* were typically passed down in families, so too were the *kuleana* (responsibilities, privileges) that were associated with them. The right to use and cultivate *'ili* was maintained within the *'ohana*, regardless of the succession of *ali'i 'ai ahupua'a* (Handy et al. 1991). Malo (1951) recorded several types of *'ili*, including the *'ili pa'a* (a single intact parcel) and *'ili lele* (a discontinuous parcel dispersed across an area). Whether dispersed or wholly intact, *'ili* required a cross-section of available resources, and for the *hoa'āina*, this generally included access to agriculturally fertile lands and coastal fisheries. *'Ili kūpono* differed from other *'ili* lands because they did not fall under the jurisdiction of the *ahupua'a* chief. Rather, they were specific areas containing resources that were highly valued by the ruling paramount chiefs, such as fishponds (Handy et al. 1991).

*Ali'i 'ai ahupua'a*, in turn, answered to an *ali'i 'ai moku* (chief who claimed the abundance of the entire *moku* or district) (Malo 1951). Hawai'i Island is comprised of six *moku* (districts) that include Kona, Ka'ū, Puna, Hilo, Hāmākua, and Kohala. Although a *moku* comprises multiple *ahupua'a*, *moku* were considered geographical subdivisions with no explicit reference to rights in the land (Cannelora 1974). While the *ahupua'a* was the most common and fundamental land division unit within the traditional Hawaiian land management structure, variances occurred, such as the existence of the *kalana*. By definition, a *kalana* is a division of land that is smaller than a *moku*. *Kalana* was sometimes used interchangeably with the term *'okana* (Lucas 1995; Pukui and Elbert 1986), but Kamakau (Kamakau 1976) equates a *kalana* to a *moku* and states that *'okana* is merely a subdistrict. Despite these contending and sometimes conflicting definitions, what is clear is that *kalana* consisted of several *ahupua'a* and *'ili 'āina*.

This form of district subdividing was integral to Hawaiian life and the product of advanced natural resource management systems. As populations resided in an area over centuries, direct teaching and extensive observations of an area's natural cycles and resources were retained, well-understood, and passed down orally over the generations. This knowledge informed management decisions that aimed to sustainably adapt subsistence practices to meet the needs of growing populations. The *ahupua'a* system and the highly complex land management system that developed in the islands are but one example of the unique Hawaiian culture that developed in these islands.

### Intensification and Development of Hawaiian Land Stewardship Practices

Hawaiian philosophies of life in relation to the environment helped to maintain both natural, spiritual, and social order. In describing the intimate relationship that exists between Hawaiians and *'āina* (land), Kepā Maly writes:

In the Hawaiian context, these values—the “sense of place”—have developed over hundreds of generations of evolving “cultural attachment” to the natural, physical, and spiritual environments. In any culturally sensitive discussion on land use in Hawai'i, one must understand that Hawaiian culture evolved in close partnership with its' natural environment. Thus, Hawaiian culture does not have a clear dividing line of where culture and nature begins.

In a traditional Hawaiian context, nature and culture are one in the same, there is no division between the two. The wealth and limitations of the land and ocean resources gave birth to, and shaped the Hawaiian world view. The *'āina* (land), *wai* (water), *kai* (ocean), and *lewa* (sky) were the foundation of life and the source of the spiritual relationship between people and their environs. (Maly 2001)

The *'ōlelo no'eau* (proverbial saying) “*hānau ka 'āina, hānau ke ali'i, hānau ke kanaka*” (born was the land, born were the chiefs, born were the commoners), conveys the belief that all things of the land, including *kanaka* (humans), are connected through kinship links that extend beyond the immediate family (Pukui 1983:57). *'Āina* or land, was perhaps most revered, as noted in the *'ōlelo no'eau* “*he ali'i ka 'āina; he kauwā ke kanaka*,” which Pukui (Pukui 1983:62) translated as “[t]he land is a chief; man is its servant.” The lifeways of early Hawaiians, which were dependent entirely from the finite natural resources of these islands, necessitated the development of sustainable resource management practices. Over time, what developed was an ecologically responsive management system that integrated the care of watersheds, natural freshwater systems, and nearshore fisheries (Jokieli et al. 2011).

Disciplined and astute observation of the natural world became one of the most fundamental stewardship tools used by the ancient Hawaiians. The vast knowledge acquired through direct observation enabled them to detect and record the subtlest of changes, distinctions, and correlations in the natural world. Examples of their keen observations are evident in the development of Hawaiian nomenclature to describe various rains, clouds, winds, stones, environments, flora, and fauna. Many of these names are geographically unique or island-specific, and have been

recorded in *oli* (chants), *mele* (songs), *pule* (prayers), *inoa āina* (place names), and *‘ōlelo no ‘eau* (proverbial sayings). Other Hawaiian arts and practices such as *hula* (traditional dance), *lapa ‘au* (traditional healing), *lawai ‘a* (fishing), *mahi ‘ai* (farming) further aided in the practice of knowing the rhythms and cycles of the natural world.

Comprehensive systems of observing and stewarding the land were coupled by the strict adherence to practices that maintained and enhanced the *kapu* and *mana* of all things in the Hawaiian world. In Hawaiian belief, all things natural, places, and even people, especially those of high rank, possessed *mana* or “divine power” (Pukui and Elbert 1986:235; Pukui et al. 1972). *Mana* was believed to be derived from the plethora of Hawaiian gods (*kini akua*) who were embodied in elemental forces, land, natural resources, and certain material objects and persons (Crabbe et al. 2017). Buck (1993) expanded on this concept noting that *mana* was associated with “the well-being of a community, in human knowledge and skills (canoe building, harvesting) and in nature (crop fertility, weather etc.)” (c.f. Else 2004:244).

To ensure the *mana* of certain resources, places, and people, *kapu* of various kinds were implemented and strictly enforced to limit over-exploitation and defilement. Elbert and Pukui (1986:132) defined *kapu* as “taboo, prohibitions; special privilege or exemption.” Kepelino noted that *kapu* associated with *akua* (deities) applied to all social classes, while *kapu* associated with *ali ‘i* were applied to the people (in Beckwith 1932). As *kapu* dictated social relationships, they also provided “environmental rules and controls that were essential for a subsistence economy” (Else 2004:246). The companion to *kapu* was *noa*, translated as “freed of taboo, released from restrictions, profane, freedom” (Pukui and Elbert 1986:268). Some *kapu*, particularly those associated with maintaining social hierarchy and gender differentiation were unremitting, while those *kapu* placed on natural resources were applied and enforced according to seasonal changes. The application of *kapu* to natural resources ensured that such resources remained available for future use. When the *ali ‘i* or the lesser chiefs (including *konohiki* and *po ‘o lawai ‘a*) determined that a particular resource was to be made available to the people, a decree was proclaimed indicating that *kapu* had been lifted, thereby making it *noa*. Although transitioning a resource from a state of *kapu* to *noa* allowed for its use, people were expected to practice sustainable harvesting methods and pay tribute to the paramount chief and the *akua* associated with that resource. *Kapu* were strictly enforced and violators faced serious consequences including death (Jokiel et al. 2011). Violators who escaped execution sought refuge at a *pu ‘uhonua*, a designated place of refuge or an individual who could pardon the accused (Kamakau 1992). After completing the proper rituals, the violator was absolved of his or her crime and allowed to reintegrate back into society.

In summary, the layering and interweaving of beliefs, land stewardship practices, and the socio-political system forms the basis of the relationship shared between the Hawaiian people and the land. It is through the analysis of these dynamic elements that we develop an understanding of the complexity of place.

## CULTURAL SETTING OF KEAUHOU AHUPUA‘A

The project area extends across the coastal section of Keauhou 1<sup>st</sup> and 2<sup>nd</sup>, both of which are *ahupua ‘a* in the central region of the traditional *moku* of Kona—one of six *moku* that make up Hawai‘i Island. Historically, during Hawai‘i’s conversion to a Euro-American style of fee-simple land ownership in 1848, many of Kona’s larger *ahupua ‘a* were subdivided into two or more independent *ahupua ‘a*. However, for Keauhou, Kamakau (1992) implies that its division into two *ahupua ‘a* had been recognized since at least 1782. The *moku* of Kona extends from the coast across the volcanically active mountain of Hualālai and continues to Moku‘āweoweo, the summit caldera of Mauna Loa (Juvik and Juvik 1998). Due to its sheer size, Kona has been geographically divided into two subdistricts, Kona ‘Ākau (North Kona) and Kona Hema (South Kona). Kona ‘Ākau (where the project area is located), has been geographically defined as the area extending from Keahualono, an alter located at the north in Waikōloa to Pu‘uohau, a large *pu ‘u* (hill) in Kanaeue Ahupua‘a that marks the southern boundary (Pukui 1983; Soehren 2004). The *moku* of Kona contains over 100 *ahupua ‘a*, and approximately forty-four of these are within the fertile central region of Kona, including Keauhou 1<sup>st</sup> and 2<sup>nd</sup>. While many of the *ahupua ‘a* that make up the central Kona region are fairly narrow and do not extend to the mountain summits, Keauhou stands in stark contrast. It extends well into the district’s interior mountainous and subalpine regions where it joins with the districts of Hāmākua, Hilo, and Ka‘ū (Handy et al. 1991; Figure 17). Containing well over 100,000 acres, Keauhou 2<sup>nd</sup> is the largest *ahupua ‘a* in all of Kona (Cordy 1995). Keauhou, whose literal translation is “the new era or the new current” was one of several chiefly centers located along the Kona coast, thus it has a rich and well-recorded history (Pukui et al. 1974:104). Historical records often describe a close relationship between Keauhou and Kahalu‘u, the lands laying to the north. Keauhou Bay was a choice settlement location and as Handy et al. (1991:287) point out, such areas typically contained a “cluster of houses where the families of fishermen lived.” Its *‘ili ‘ili* (pebble) shoreline was also a famed feature of the bay. As such the famed saying “*ka iliili nehe o Keauhou*” or “*nehe iliili o Keauhou*” translated roughly as the rustling pebbles of Keauhou was used as a term of endearment to refer to Keauhou’s youth (Kahoiwai 1888; Kalawaiaopuna 1888).

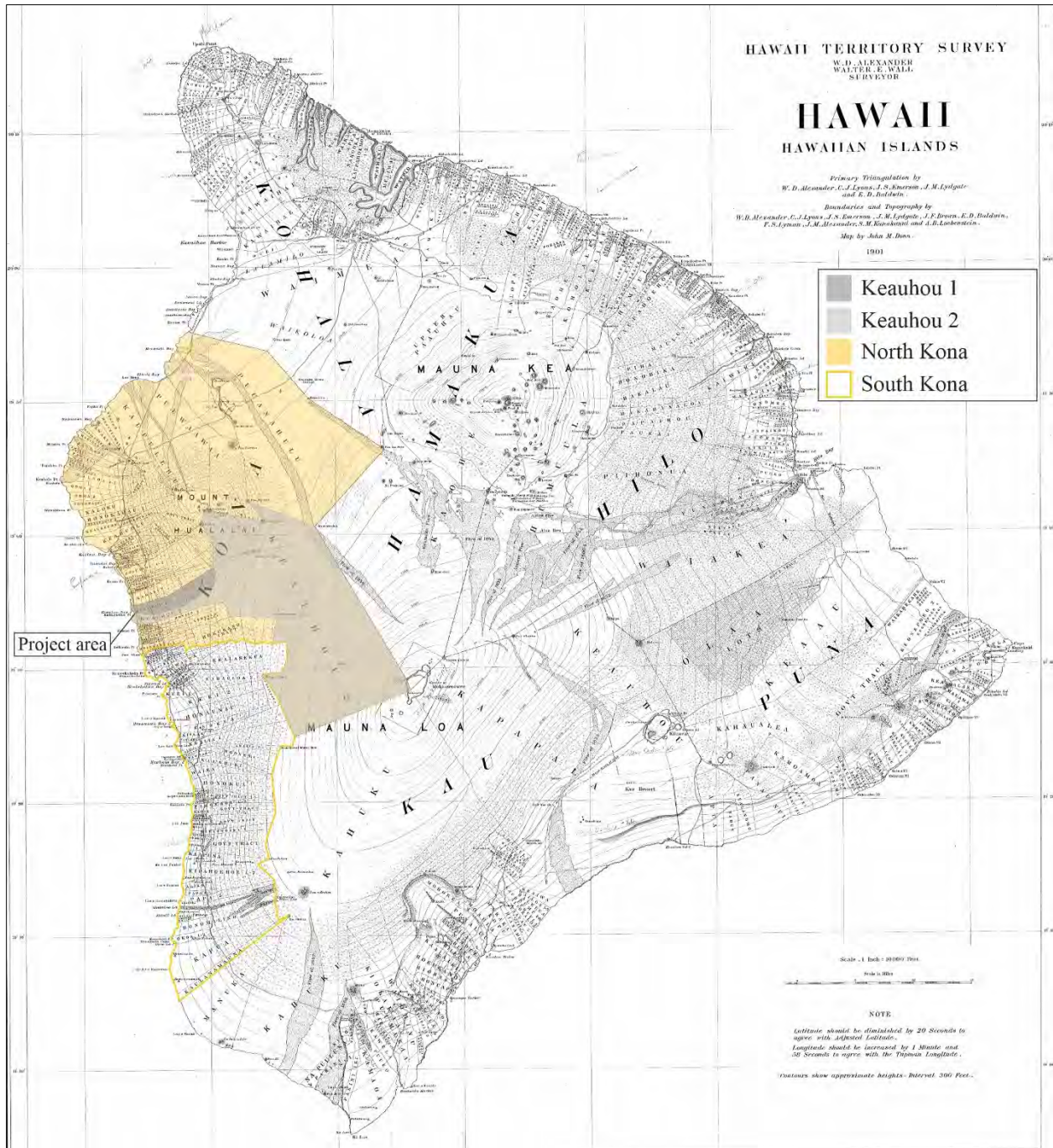


Figure 17. Hawai'i Registered Map No. 2060 by J. M. Donn (1901) showing project area in Keauhou Ahupua'a, North Kona District.

## TRADITIONAL MO'OLELO FEATURING KEAUHOU

Traditional Hawaiian *mo'olelo* are key entry points to understanding the history and ideologies that have been attached to a specific place. The term *mo'olelo*, which means “succession of talk,” has many meanings, including story, tale, myth, history, tradition, literature, and legend (Pukui and Elbert 1986:254). For this study, the term *mo'olelo* is used in reference to Hawaiian narratives that are mythological or legendary in nature. In some cases, *mo'olelo* can be expansive, detailed, and are sometimes interconnected to other *mo'olelo* though certain characters or events. A review of *mo'olelo* that feature Keauhou is important because *mo'olelo* aid in tracking important social change and are nuanced with *'ike kūpuna* (ancestral knowledge) and perspectives that remain relevant to a living

culture (Kikiloi 2012). Prior to these *mo'olelo* being inscribed in textual form, which began in the early 19<sup>th</sup> century following the arrival of missionaries, such knowledge was passed down orally from one generation to the next. Keauhou is featured in multiple *mo'olelo* however, in some instances the name is mentioned in passing with little to no details about the area. For example, the name Keauhou appears in the legend of Kepaka'ili'ula recorded by (Fornander 1916-1917), in which Keauhou is the name of the wife of Kahalu'u (also the name of the *ahupua'a* situated to the north of Keauhou 1<sup>st</sup>). Similarly, in *Mo'olelo Ho'onau Pu'uwai no Kuaiali'i* Keauhou is the name of a young female noted for her exceptional skills in surfing (Rula 1910). In writing about a great flood known as Kai-a-ka-hinalii Malo (1903) notes that there are two version of this story, one of which tells of a woman who lived in the sea at a placed called Lalohana. Regarding the location of Lalohana, Malo (1903:307) states:

There are two version of this story given by the ancients. One tradition has it that the place where the woman lived was on a reef, named *Mauna*, situated in the ocean outside of Keauhou, in Kona, and that Lono was the name of the king who reigned over the land at that time.

Malo (1903) explains that the other version states that Lalohana was in the ocean outside of Waiākea, Hilo and that Konikonika was the king at that time. Many of the accounts that feature Keauhou have been recorded by Abraham Fornander and included in his series *Fornander's Collection of Hawaiian Antiquities and Folk-lore*. The *mo'olelo* recorded by Fornander and other authors have been summarized below.

### **Ka'ao Ho'onuia Pu'uwai No Ka-Miki**

In the legendary account titled *Ka'ao Ho'onuia Pu'uwai no Ka-Miki* as reported by Maly and Maly (2004a), the lands of Keauhou are briefly mentioned including its bay, its chief, and its *'ōhi'a* (*metrosideros polymorpha*) grove named Moku'aikaua. The legend, which is believed to have been set sometime in the 1300s, tells of the journey of two brothers, Maka'iole and Ka-Miki who challenge local *'ōlohe* (skilled fighters), priests, and chiefs. In a portion of the story, the brothers arrive at the *kahua* (contest arena) at Hōlualoa where they meet with Kahalu'u-kai-ākea, the chief of Kahalu'u and the “priest Keahiolo, for whom the *heiau* near the Kahalu'u-Keauhou 1<sup>st</sup> boundary, is named” (Maly and Maly 2004:18). After defeating Palau'eka in Hōlualoa, Ka-Miki and Maka'iole left for the compound of Kahiolo near the Kahalu'u-Keauhou 1<sup>st</sup> boundary. According to this story, Kahiolo was a high priest who secured and maintained peace on the land. He also served under the chief, Pōhaku-nui-o-Kāne, who ruled over the lands laying between Keauhou and Mā'ihī. That portion of the account telling of the battle between the two brother and Kahiolo reads thusly:

This powerful priest [Kahiolo] was jealous of the abilities of Ka-Miki and Maka'iole, and he sought to kill them. Keahiolo called the brothers to share *'awa* with him, at the same time he picked up his *pīkoi* (tripping club) which he had hidden in a mat, and prepared to attack them. (Maly and Maly 2004a:18)

Ka-Miki knew the nature of Keahiolo, and Ka-Miki used the *'olohū* (and *'ulu maika* tripping stone) called Ka'akuamā'ihī to strike at the feet of Keahiolo, and thus defeated the *'ōlohe* priest. Keahiolo apologized for his deception, but Ka-Miki told him there was no value in his repentance, as it was made in fear of his death. Ka-Miki told Keahiolo, “your god has departed from you and taken our side. And so you have seen that *Uli* is a two – fold deity, looking for that which is right, and that which is wrong; as it is said in a prayer.”

“Because you have leapt first, your transgressed against your god and your god has left you. You have set aside the unwavering laws of the powerful gods and *'aumākua* which came down from ancient times, from antiquity of *Waiololī* and *Waiololā*. And so *Nana-i-ke-kihi-o-Kamalama* and *Kahuelo-i-ke-kihi-o-Kā'elo*, the descendants of *Ka-uluhe-nui-hihi-kolo-i-uka* and *Lani-nui-ku'i-a-maomao-loa* have come before you.” (Maly and Maly 2004a:19)

Maka'iole pleaded with his brother to have compassion and spare Keahiolo from death. Ka-miki obliged and Keahiolo proceeded to prepare *'awa* and a feast. Keahiolo then took the brothers to Kahō'e'e, a *kahua* in Keauhou 2<sup>nd</sup>. This field was sometimes known as Ka'awale “because of the manner by which competitors and spectators were separated” (Maly and Maly 2004:19). Keahiolo took the brothers to the contest official and introduced them as his *mo'opuna* (grandchildren), which allowed them to enter the competition. It is here at Kahō'e'e that Ka-Miki challenged Haumanomano and 'Ōhi'amukumuku.

The chiefs of Keauhou offered a *lei-o-manō* (sharks tooth knife) as the victory's trophy. The *lei-o-manō* was made by lashing sharks teeth to the wooden handle with *olonā* (*Touchardia latifolia*) cordage, and was one of the foremost and most highly coveted weapons of ancient times. *Haumanomano* thought he would win easily, and leapt onto the *kahua*, grabbing Ka-Miki. Ka-Miki

promptly threw Haumanomano out of the *kahua*. This occurred ten times, and all the local competitors were angry that Haumanomano had been so easily defeated by this stranger whom Keahiolo called his grandson.

The officials then called Kuhia, the chiefs' runner to take the *lei-o-manō* to Ka-Miki as his prize for victory over Haumanomano, and 'Ōhi'amukumuku was called as the next contestant. (Maly and Maly 2004a:19)

'Ōhi'amukumuku was an *'ōlohe* for the chief Pōhaku-nui-o-Kāne, and a *heiau* in the neighboring land of Kahalu'u was named for this *'ōlohe*. Angered by Ka-miki's victory over Haumanomano, 'Ōhi'amukumuku sought to return the prized *lei-o-manō* to the local competitors. A contest between Ka-Miki and 'Ōhi'amukumuku was arranged and the chiefs offered Lawalawa-ku'i-a-ho'i, the name of a *pīkoi* as the prize. The contest commenced and 'Ōhi'amukumuku was thrown, some five times from the arena, thus Ka-Miki triumphed over his competitor. The two defeated *'ōlohe* were angered and humiliated and agreed to kill both Ka-Miki and Maka-'iole.

Another contest was arranged, only this time, there was no prize and victory could only be had by death of the opponent. Ka-Miki and Haumanomano took to the arena. Swinging his war club Haumanomano called out to Ka-Miki, who was without his war club. Ka-Miki called to his brother to fetch his war club and in a flash, Maka-'iole returned with his brothers magical war club. Using his skill, Ka-Miki delivered a hard blow and Haumanomano was thrown out of the arena. 'Ōhi'amukumuku quickly jumped into the arena and challenged Ka-Miki in a spear fighting contest. Again, Ka-Miki struck 'Ōhi'amukumuku on his thigh with his spear and tossed him from the arena. The contest officials called for a break and the crowd surged forward to see the champion, Ka-Miki.

Ka-Miki and his crew quickly departed Keauhou and headed for the *hālau ali'i* (royal compound) in Hōnalo. Concerning other features that were within Keauhou, the story identifies La'a-hiwa-mai-Kahiki, the name of a taro plantation between Keauhou and Kaināliu. In addition to taro, this plantation contained *'awa* and many other plants.

### **Ka'ao No Kalaepuni and Kalaehina**

In the account titled, *Ka'ao no Kalaepuni a me Kalaehina* (Legend of Kalaepuni and Kalaehina) recorded by Abraham Fornander (1918-1919), Keauhou is described as the place where Kalaepuni stationed himself while his younger brother Kalaehina brought over canoes from Kapu'a in South Kona. In this account, the two brothers were born during the reign of Keawenui-a-'Umi and during their lifetime, sought to kill the island's chiefs to become the paramount ruler of the island. As the story says, Kalaepuni killed off many of the island's chiefs but spared Keawenui-a-'Umi because of his old age. During Kalaepuni's rampage, it is said that Keawenui-a-'Umi in an attempt to evade certain death, took refuge at Ahu A 'Umi, a *heiau* located in the uplands of Keauhou 2<sup>nd</sup> that was constructed by 'Umi, the father of Keawenui-a-'Umi. The location of Ahu A 'Umi relative to the current project area is shown in Hawai'i Registered Map No. 1264 prepared by J. M. Alexander in 1885 (Figure 18).

### **The Legend of Namakaokapaoo**

In Fornander's (1918-1919) version of the *Legend of Namakaokapaoo*, Keauhou, particularly its boundary, is noted as the place where the fierce and young Namakaokapaoo of Hō'ae'ae, 'Ewa, O'ahu, was set to challenge some boys from Keauhou in a competition of *ke'a pua* (bow and arrow). After killing several of O'ahu's district chiefs and placing his mother as ruler of that island, Namakaokapaoo sought to subjugate the chiefs of Hawai'i Island.

Departing from Hanauma Bay, as a stowaway on a canoe owned by the king of Hawai'i Island, Namakaokapaoo made his way to Keauhou, Kona where Namakaokalani, the king of Hawai'i had stopped. Namakaokapaoo escaped from the canoe unseen by the king's men and eventually came upon a group of boys engaged in *ke'a pua*. Namakaokapaoo observed the boys and their bow and arrows and began hurling insults at them. Angered by Namakaokapaoo's slights and audacity, the boys decided to challenge the young lad of O'ahu in a shooting competition. A wager was made, and the boys began to walk to the boundary of Keauhou. While en route, Namakaokapaoo was met by Namakaokaia, the son of Hawai'i Island's ruling chief. Excited by his presence, Namakaokaia praised Namakaokapaoo for his deeds on O'ahu by uttering a chant. Instead of competing against the boys in *ke'a pua*, Namakaokapaoo befriended Namakaokaia and his father and together they sought to challenge their main rival, Kū who ruled over Puna and Ka'ū. After a few days, the three traveled to Kawaihae where Kū was staying and in a sudden and swift attack, Namakaokapaoo entered Kū's home, grasped his head and snapped his neck, instantly killing the chief. After placing the father and son back into power, Namakaokapaoo returned home to O'ahu.

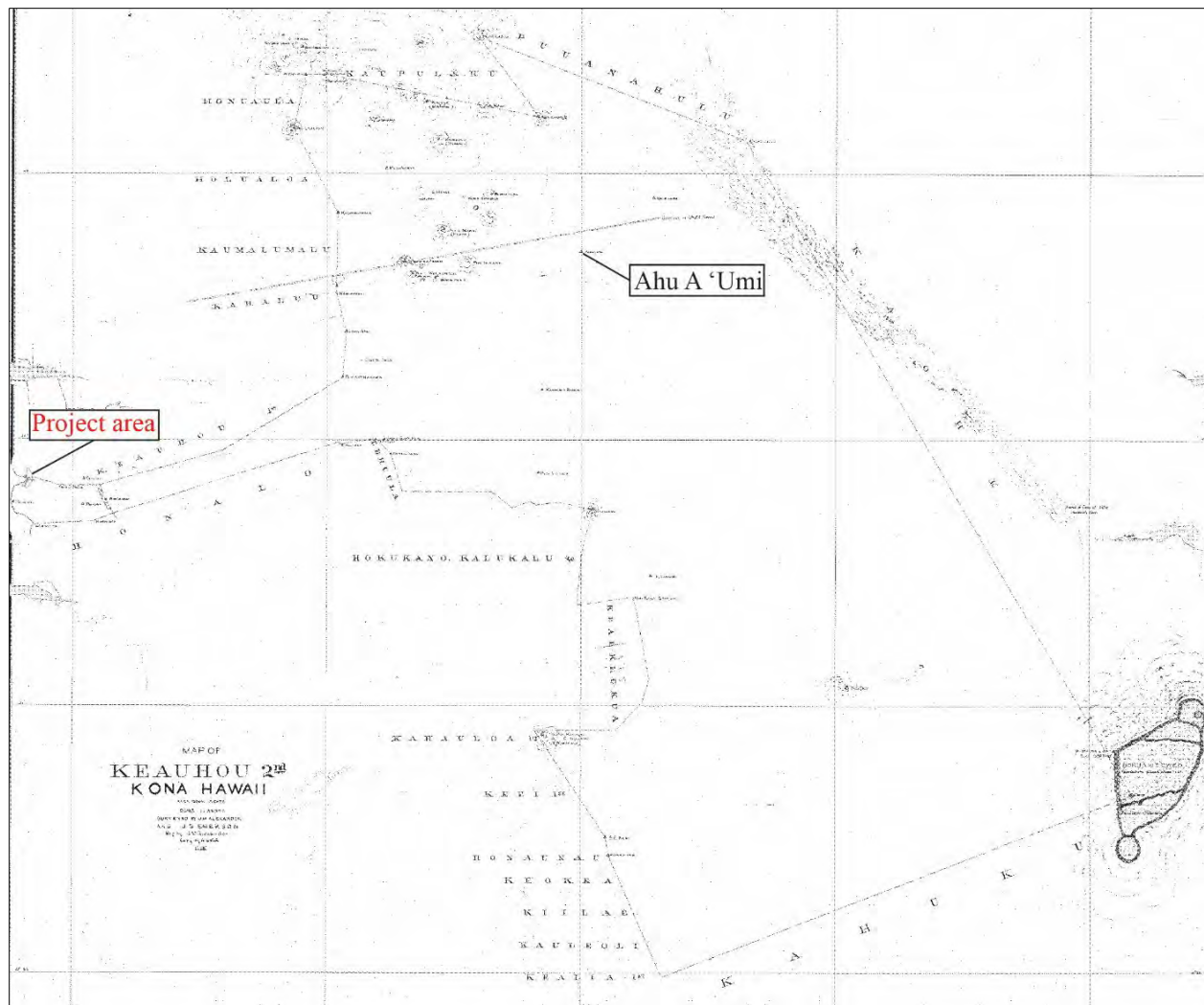


Figure 18. Hawai'i Registered Map No. 1264 by J. M. Alexander in 1885 showing project area relative to Ahu A 'Umi.

### The Legend of Nihooleki

In Volume IV of Fornander's (1916-1917) *Collection of Hawaiian Antiquities and Folklore*, Keauhou is featured as the birthplace of Nihooleki, a great *aku* (bonito) fisherman and chief who traveled throughout the Hawaiian Islands. This great fisherman was known by two names, Nihooleki, which was the name of his spirit body and Keahaikiaholeha, the name that he assumed during his lifetime. After his birth, Keahaikiaholeha moved to Kuukuuu [Pu'u Ku'ua] in Pu'ukapolei in Wai'anae where he became the most renowned fisherman who knew all the fish and fishing grounds in this district. Keahaikiaholeha then moved to Waimea, Kaua'i, where he met his wife, and the pair became the chief and chiefess of Kaua'i. As part of his daily practice, Nihooleki loaded his double-hauled canoe and using Pahuhu, his great mother-of-pearl fishhook, took to the ocean depth and let down his hook until his canoe was filled with *aku*.

After his death, Keahaikiaholeha's body was brought back to Kuukuuu, Waianae where it was placed in a tomb. As custom dictated, his parents proceeded to worship his spirit which caused it to grow so strong that it was able to take the form of a living person. In his spirit form, Nihooleki returned to Kaua'i to be with his wife, however, his behavior became of great concern for he slept day and night, unable to attend to his favorite pastime and leaving his wife with no food. His wife would travel to her brothers' home to ask for some fish. Although the brothers willingly gave their sister a portion of fish, they inquired:

“Where is your husband?” The sister replied: “He is at home asleep.” “You have a queer husband. All he does is sleep at home. How is he to satisfy his wife’s hunger? Except we help you, you will not be able to live.” (Fornander 1916-1917:490)

As the conversation unfolded, Nihooleki in his spirit form overhead everything and when his wife returned home, he asked her to check if her brothers had his beloved mother-of-pearl fishhook. After several unsuccessful trips to secure her husband’s fishhook, Nihooleki told her to check near the gable end of the brother’s house where the small black *noio* bird perches. The wife returned to her brother’s house and found Pahuhu, the beloved mother-of-pearl fishhook next to the black *noio*, which was the supernatural bird sister of Nihooleki. Having returned home with her husband’s prized fishhook, Nihooleki became invigorated and asked his wife to track down his large double-hauled canoe from her brothers. Having secured his fishhook and canoe, he asked his wife to secure twenty paddlers from her brothers, to which they provided. The canoe was made ready and the following morning the paddlers rose before the first crow of the chicken only to find Nihooleki missing. The paddlers waited, however, Nihooleki was at home asleep. His wife called out to awaken him from his sleep and Nihooleki gathered his belongings and made his way down to the beach. The paddlers arrived and they took to the ocean on an extended fishing trip. They fished the waters off Kaua‘i with his brothers-in-law sailing alongside. When his brothers-in-law saw his well-formed body, they called him Puipuikalawaia, making this his third name. They arrived on O‘ahu then sailed for Lāna‘i and back to Nihooleki’s birthland, Keauhou, Kona. While adrift off the coast at Keauhou, Nihooleki told the twenty paddlers:

“You may all go ashore here while I remain with our canoe. When you go ashore, take each of you one *aku* piece. There are twenty of you, making twenty *aku*. When you get to that shed of coconut leaves in front of that house, where women are seated, throw down the fish, but don’t look back.”

The paddlers headed the instructions of Nihooleki and returned to the double-hauled canoe where they made sail for Kaua‘i to continue fishing. So productive was their fishing trip that the weight of their catch had nearly submerged the hulls of the canoe and the men only had standing room. When they returned ashore to Waimea, Nihooleki took up two *aku* and offered them to the male and female spirits. Extended fishing trips were undertaken for many days and the catch was distributed to everyone on Kaua‘i. Word of Nihooleki’s great fishing expeditions quickly spread and had reached Kamapua‘a, one of Nihooleki’s dear friends. Kamapua‘a arrived at the home of Nihooleki and his wife and the two friends made plans to leave for Kuukuu on O‘ahu. When the two men were preparing to leave Waimea, Nihooleki turned to his now pregnant wife and told her, “When you give birth to the child within you, call him by my name Keahaikiaholeha” (Fornander 1916-1917:496). As tears fell from his wife’s face, Nihooleki turned to her and said, “Here are the token by which I shall know him [the child] should he search for me, my club and my feather cape (Fornander 1916-1917:496). Kamapua‘a and Nihooleki dove into the sea until they came up at the coast of Kuukuu in Wai‘anae and drew near the home of his parents and sister and near the tomb where his body was laid. Nihooleki made one last request to Kamapua‘a to secure his war helmet, feathered cape, a *lei palaoa* (whale tooth pendant), and a *kahili* (feathered standard). Nihooleki also requested that Kamapua‘a take his sister and his wife. Kamapua‘a complied with the request and Nihooleki entered his tomb and disappeared.

## KEAUHOU, HE HĀLAU ALI‘I

As an important *hālau ali‘i* (royal compound), Keauhou’s history is deeply entwined with generations of Hawaiian royalty. Keauhou was not merely a place where various Hawaiian royalty established their residence but became a preferred locale for *ali‘i wahine* (chiefess) to birth and raise their royal offspring. Because of this, the *‘ōlelo no‘eau* (poetical expression) “*Keauhou i ka ‘ihi kapu*” (Keauhou, where strict *kapu* were observed) recognizes that with the presence of Hawaiian *ali‘i* came the need to observe the many *kapu* that maintained their sanctity (Pukui 1983:181). Pukui (1983:181) expounds on the meaning stating that “[t]his was the place where many of the highest chiefs resided and where Kamehameha III was born.” In an article written by historian Theodore Kelsey and Maui-born native cartographer, Henry Kekahuna, and published in the March 20, 1954, edition of the *Hawaii Tribune-Herald*, they share another saying, *‘Ena‘ena ke kapu o Keauhou*, which can be translated as the *kapu* of Keauhou burns red-hot (Kekahuna and Kelsey 1954b:4).

## ‘Umi and Lonoikamakahiki in Keauhou

As demonstrated in the legendary accounts presented above and by association with certain figures mentioned in these accounts, Keauhou’s history can be traced to a time when Hawaiian *akua* roamed and populated the islands. Furthermore, we know from the legendary accounts that Keauhou was significant to both Hawai‘i Island *ali‘i* as well as those from the outer-island chiefdoms. Another early reference to Keauhou can be traced to the *ali‘i* ‘Umi-a-Līloa (‘Umi), who briefly united the various districts of Hawai‘i Island under his rule during the early 1600s (Cordy 2000). Like many rulers before and after his reign, ‘Umi constructed, expanded, and rededicated many *heiau* during his rule



(Cordy 2000; Kalākau 1972). We know from Kamakau (1992:19) that after ‘Umi consolidated his kingdom, he “desired to dwell in Kona where the climate was warm.” While in Kona, Kamakau (1992:19) adds that “‘Umi did two things with his own hands, farming and fishing...farming was done on all the lands...and that much of this was done in Kona.” Concerning ‘Umi’s association with the lands of Keauhou, Ahu-a-‘Umi (previously mentioned in the Legend of Kalaepuni and Kalaehina), located in upland Keauhou (see Figure 8), is one of the most famous *heiau* constructed by ‘Umi. ‘Umi relocated his court to Ahu-a-‘Umi (sometimes spelled as Ahua-‘Umi), the remains of which can still be found today, far from the coast at an elevation of about 5,200 feet, in the plateau between Hualālai and Mauna Loa (Cordy 2000). This site contains three main parts, a central enclosure, eight *ahu* irregularly spaced around the central structure, and a smaller enclosure. Da Silva and Johnson (1982) report that after consolidation, ‘Umi undertook a census and that the priest who participated in the king’s census was responsible for calibrating and setting the dates of significant ceremonial events.

After ‘Umi’s death, his island kingdom was divided between his two sons, with Keawenui-a-‘Umi ruling over the eastern half of the island including the districts of Hilo, Puna, and a portion of Hāmākua, and Keli‘i-o-Kāloa ruling over the northern half including Kona, Kohala, and a section of Hāmākua. Keawenui-a-‘Umi eventually defeated his brother and seized control of the island (Cordy 2000; Kamakau 1992).

Other *ali‘i* associated with Keauhou include Lonoikamakahiki, whose royal residence was set up in the vicinity of Pueo Cove on the north side of the bay (Kekahuna and Kelsey 1954c). In addition to his residence at Pueo Cove, Lonoikamakahiki also had a massive royal residence (SIHP Site 50-10-37-01576) at a place known as ‘Umihale located at the coast near the Kahalu‘u-Keauhou 1<sup>st</sup> boundary. Fornander (1916-1917) reported that Lonoikamakahiki, a 17<sup>th</sup>-century chief, was the grandson of ‘Umi-a-Līloa by way of his son Keawenui-a-‘Umi who courted Kaihalawai. Kamakau (1992) related that Lonoikamakahiki ruled over the districts of Puna and Ka‘ū but while living with his wife, Kaikilani, they left Ka‘ū and settled in Kealakekua, Kona along with other Ka‘ū chiefs. The written history of Lonoikamakahiki describes him as ill-tempered and a chief that did not heed the advice of his priest or counselors (Kamakau 1992). At one point during his reign, the district chiefs of Kona, Kohala, Hilo, and Hāmākua rose in a rebellion against Lonoikamakahiki, however, with the help of the Puna chief, the rebellion was quelled and his authority as *ali‘i nui* of Hawai‘i Island was bolstered (Kamakau 1992). Also during his reign, Kamalālāwalu, a chief of Maui invaded Hawai‘i but he was defeated and sacrificed at either one of two *heiau* (‘Ōhi‘amukumuku and Ke‘ekū) in the neighboring land of Kahalu‘u (Barrera 1971; Kamakau 1992). According to Fornander (1916-1917), Lonoikamakahiki commissioned the construction of several *heiau* in the Kahalu‘u-Keauhou vicinity including Makole‘ā, Kapuanoni, and Keahiolo; the latter of which sits on the boundary of Kahalu‘u and Keauhou 1<sup>st</sup> (Stokes and Dye 1991).

### **Keauhou During the Reign of Kalani‘ōpu‘u**

Another Ka‘ū chief known to have resided at Keauhou included Kalani‘ōpu‘u, who ruled over Hawai‘i Island in 1754 following the death of Keawe‘ōpala in the battle of Kaiomo and Mokukohekohe which took place between the lands of Ke‘ei and Hōnaunau (Kamakau 1992). Kalani‘ōpu‘u was a fierce chief, who according to Kamakau (1992:79) “...had one great fault; he loved war and display and had no regard for another’s right over land.” During his reign, he led several major war campaigns including one that began in 1759 against the chiefs of East Maui, where he managed to capture the lands of Hāna and Kipahulu. Inter-island warfare with the Maui chiefdom is one of the hallmarks of Kalani‘ōpu‘u reign and as Kamakau (1992:84) reported, between “1775 to 1779 there was continual fighting between Ka-lani-‘ōpu‘u of Hawaii and Ka-hekili [chief of Maui].” When Kalani‘ōpu‘u embarked on his war campaign to invade Maui, he (along with Kamehameha) came to Kahalu‘u periodically for ceremonial purposes. After his defeat in 1775, he retreated to Kona to build *heiau* “for his war god Ka‘ili, ‘Ōhi‘amukumuku at Kahalu‘u and Keikipu‘ipu‘i at Kailua as heiaus against sedition and for vengeance upon the chief of Maui” Kamakau (1992:180).

Kalani‘ōpu‘u’s reign is of particular importance for he was the ruling chief of Hawai‘i Island when contact was made with the first Europeans at Kealakekua Bay on January 17, 1779, thus marking the end of Hawai‘i’s Precontact period and isolation from the Western world (Kamakau 1992). Following the death of Captain James Cook on February 14, 1779, Kalani‘ōpu‘u is said to have “moved to Kainaliu near Honua‘ino and, after some months, to Keauhou where he could surf in the waves of Kahalu‘u and Holualoa, and then to Kailua.” Fornander (1969:200) makes a similar report stating that Kalani‘ōpu‘u “dwelt some time in the Kona district, about Kahalu and Keauhou, diverting himself with *Hula* performances.” Fornander (1969) added that Kalani‘ōpu‘u’s court remained in Kona until a scarcity of food obliged the king to move his court to Kapa‘au, Kohala.

While in Kohala, Kalani‘ōpu‘u proclaimed that his son Kīwala‘ō would be his successor and gave the guardianship of the war god Kūkā‘ilimoku to his nephew, Kamehameha. As custom dictated, it was the duty of the newly appointed *ali‘i* to execute a land division process known as a *kālai‘āina* (lit. to carve the land), thereby dividing

and redistributing the lands of the kingdom to his closest chiefs, priests, and supporters. However, Kamehameha and a few other chiefs including Keōuakū‘ahu‘ula, (son of Kalani‘ōpu‘u and *ali‘i* of Ka‘ū) were concerned about their land claims, which Kīwala‘ō did not seem to honor (Fornander 1996; Kamakau 1992). Keōua approached Kīwala‘ō and inquired about specific lands, one of which included Keauhou:

“Are Ola‘a and Kea‘au ours?” The chief [Kīwala‘ō] answered, “They have been given away; they are not ours.” “How about Waiakea and Ponahawai?” “They have been given away; they are not ours.” “Waipi‘o and Waimea are ours?” “They are not ours; they have been given away.” Pololu and Makapala are ours? “They have been given away; they are not ours.” “The two Napu‘u and the two Honokohau are ours?” “They have been given away; they are not ours.” Kāhalu‘u then, and the two Keauhou?” They have been given away; they are not ours.” “Then I am to have nothing in this division?” “You and I are left without land in this division. Our uncle has taken it. Our old lands you will have.” (Kamakau 1992:120)

Keōua returned to Ka‘ū and prepared his army for battle and his army sailed to Kona and made land fall at Ke‘ei and proceeded to cut down coconut trees at Ke‘ei, which symbolically marked the beginning of a war. After four days of skirmishes, the real battle began and Kīwala‘ō was killed in this battle known as Moku‘ōhai in July of 1782 (Kamakau 1992).

### **Keōpūolani Raised in Keauhou**

Keauhou figures prominently in the life story of the distinguished *ali‘i wahine*, Keōpūolani who because of her high rank was known as Kamehameha I’s most sacred wife. Born at Wailuku, Maui in 1780, her father was Kīwala‘ō, the son of Kalani‘ōpu‘u and her mother was chiefess Keku‘iapoiwa Liliha. Although her father and grandfather served as *ali‘i* of Hawai‘i Island, Malo stated that she is generally identified as an *ali‘i* of Maui (Malo in Langlas and Lyon 2008). After her birth she remained on Maui until the age of nine or ten, at which time the battle at ‘Iao Valley on Maui forced her and some of her relatives to escape to Moloka‘i (Kamakau 1992). Kamakau elaborated that it was not until after the death of the chiefess Kalola (wife of Kalani‘ōpu‘u and grandmother to Keōpūolani), that Kamehameha brought the young Keōpūolani to Keauhou to be raised:

After the death of Ka-lola Kamehameha took Ke-opu-o-lani to Hawaii together with the chiefesses, Ke-ku‘i-apo-iwa, Ka-lani-kua, and Ka-haku-ha‘akoi, and their households. At Keauhou in North Kona Ke-opu-o-lani was brought up under the name of Wahine-pio until she was a grown girl. With her mother she accompanied Kamehameha on his expedition to make war upon Ka-lani-ku-pule on Oahu, where in 1795 was fought the battle of Nu‘uanu. Here one of the Oahu chiefs gave her the name of Ke-opu-o-lani in place of that of Ka-lani-kau-i-ka-‘alaneo by which she had been previously called. (Kamakau 1992:260)

### **Kaluaikonahale Kuakini, Ke‘eaumoku, and Miriam Kekāuluohi in Keauhou**

Kamakau (1992) reported that Kuakini (also known as Kuaikonahale and John Adams Kuakini), who was born in the neighboring land of Kāhalu‘u in 1791 and later served as governor of Hawai‘i Island between 1820-1844, was raised in Keauhou by Kamehe‘aiku (female cousin of Ke‘eaumoku). At his birth, Kuakini was given the name Kaluaikonahale but when his half-brother Kuakini died, he took on his name and became known as Kaluaikonahale Kuakini. He was also known as John Adams Kuakini to foreigners. Kamakau (1992:388) stated that:

At the birth of the child [Kua-kini] there was a great hula at Kāhalu‘u, and the name hula (*hula inoa*) was being danced for the birth of the new son to Na-mahana and Ke‘e-au-moku. Visitors came to bring gifts (*ho‘okupu*), and among them was Ka-mehe-‘ai-ku who had gone away and hidden in the country and slept with a man and given birth to a child. She was a cousin of Ke‘e-au-moku, and when she was discovered among the spectators at the hula Ke‘e-au-moku gave the child to her to suckle and gave with him the land of Keauhou; and Ka-mehe-‘ai-ku took the little chief [Kuakini] to Keauhou and there nourished him until he was grown.

Ke‘eaumoku’s ability to hand over the lands of Keauhou to his cousin during the birth of his son, Kaluaikonahale Kuakini, hints at his power and role in the political system of this time. We know that he served as the district chief of Kona and Kohala during the reign of Alapa‘inui (*ali‘i nui* prior to Kalani‘ōpu‘u). He later sided with Kalani‘ōpu‘u during his feud with Alapa‘inui but he eventually revolved against Kalani‘ōpu‘u and fled to Maui where he stayed for some time (Tomonari-Tuggle 1985). Ke‘eaumoku, was one of a handful of Kona *ali‘i* who showed unwavering support during Kamehameha I’s rise to power. When Archibald Menzies (1920), the acting surgeon and naturalist on board the *H.M.S. Discovery* landed in Keauhou in 1794, he stated, “we entered a small cove surrounded by a scattered

village belonging to Keeaumoku.” At the request of Ke‘eaumoku, Menzies stopped into Keauhou to visit Ke‘eaumoku’s son who had been injured during a spear-throwing practice and lay fatally ill.

The *ali‘i wahine* Miriam Kekāuluohi was born at Keauhou on July 27, 1794 (Kamakau 1992). Born as the only child to her mother and high chiefess Kalākua Kaheiheimalie of Maui and her father Kala‘imamahu (younger half-brother of Kamehameha I), Kekāuluohi was *lawe hānai* (adopted) by her maternal grandparents Namahana and Ke‘eaumoku “who fondled her as if she were a feather lei made from the precious *mamo* bird” (Kamakau 1992:394). To be raised by one’s grandparents was, according to Kamakau (1992:347) “regarded as a great honor” and that “this made the chiefs beloved.” Kekāuluohi went on to serve as premier of Hawai‘i from 1839-1845 and was a revered chiefess above all the others of her generation, due in part to her genealogical connection to numerous chiefly ancestral lines of Kaua‘i, O‘ahu, and Hawai‘i (Kamakau 1992). In 1809, she married Kamehameha I at ‘Apuakehau in Waikīkī and after his death in 1819, she took Kamehameha’s eldest son and heir of his father’s kingdom, ‘Iolani Liholiho (Kamehameha II) as husband. In a display of friendship, Liholiho gave Kekāuluohi to his *aikāne* (dear friend), Charles Kana‘ina. From their union and at the age of forty-two, Kekāuluohi gave birth to their son, William Charles Lunalilo who went on to serve as Hawai‘i’s sixth reigning monarch between 1873-1874.

### **Davida Malo Born in Keauhou**

On February 18, 1795, Davida (David) Malo, Hawaiian intellect and historian was born at Keauhou to his mother Heone and father ‘Ao‘ao, who served in Kamehameha’s army (Alexander in Malo 1903). According to Kekahuna and Kelsey (1954c), Malo was born in the vicinity of the old school house. Raised by his grandfather under the traditional religious system, Malo was also a proficient farmer and fisher (Arista 1998). Although both of Malo’s parents were considered *maka‘āinana*, he was introduced to the life of the *ali‘i* when he joined the *aloali‘i* (court) of Kuakini, the brother of Ka‘ahumanu, Kamehameha’s favorite and politically active wife (Arista 1998; Lyon 2020). By 1823, at the invitation of Keōpūolani, Malo moved to Lahaina, Maui and became a pupil of Reverend William Richards at Lahainaluna Seminary (Alexander in Malo 1903). Because of the period in which he was born, his upbringing, and the people he associated with, Malo became a prolific writer, publishing in great detail the traditions and culture of ancient Hawai‘i, with particular attention given to *mo‘okū‘auhau* (genealogies), *mele* (songs), and *hula* (dance) (Arista 1998). Arista (1998:vi) points out that “because of his knowledge of tradition and his own intelligence, Malo became a relied upon counselor of chiefs and served them through the coming of Christianity and the transformation of the kingdom to a constitutional monarch.” Despite his knowledge of the ancient ways, his Christian education greatly influence his writings. Nonetheless, Alexander comments, he is “universally regarded as the great authority and repository of Hawaiian lore” (in Malo 1903:6)

### **Birth of King Kauikeaouli and Princess Nāhi‘ena‘ena**

Perhaps, one of the most famed and well-recorded *ali‘i* births to have occurred at Keauhou is that King Kauikeaouli. Born as the third child of Kamehameha I and his high-ranking wife Keōpūolani, Kauikeaouli served as the third and longest-reigning monarch between 1825 and 1854. While there is no debate concerning Kauikeaouli’s birthplace, his exact birth date has been the subject of much debate amongst Hawaiian historians, which has summarized by Cummins (1973:3) thusly in the National Register of Historic Places Nomination Form for Kamehameha III’s birthsite:

David Malo believed it was in June or July of 1814. Fornander, armed with evidence from other Hawaiian sources, said it was on August 11, 1814. Stephen Reynolds, basing his information on a journal kept by a Captain Jennings who was supposedly with Kamehameha I at the time of Kauikeaouli’s birth, set the date at March 17, 1814. March 17 was the day twice proclaimed as a national holiday in honor of Kamehameha III; first in 1846, then again in 1883. Emme [Emma] Lyons Doyle, saying she had seen unpublished portions of John Young’s journal, quoted Young in the August 24, 1958 Honolulu Advertiser as follow: “Kawaihae, March, 1813. News came by bearer a few days hence of the birth of a child who will be declared kapu as an heir to this kingdom’s throne.”

Historical notes provided by Henry Kekahuna, who drew his information from Kauikeaouli’s *kahu*, Emilia Keaweamahi, gave August 11, 1813, as his actual birthdate, but it was later changed to March 17, 1814. According to *kama‘āina* and long-time members of the Daughter of Hawai‘i, Barbara Nobriga, who was interviewed as part of this study, Kauikeaouli changed his birthdate from August to March 17 to honor his admiration of Saint Patrick of Ireland.

Kamakau (1992:263) recorded the following story describing the events leading up to the birth of the royal child and mentions that Kaluaikōnahale (also known as Kuakini) was residing at Keauhou at this time:

While she was carrying the child [Kau-i-ke-aouli] several of the chiefs begged to have the bringing up of the child, but she refused until her *kahu*, Ka-lua-i-konahale, known as Kua-kini, came with the same request. She bade him be at her side when the child was born lest some one else get possession of it. He was living this side of Keauhou in North Kona, and Ke-opu-o-lani lived on the opposite side. On the night of the birth the chiefs gathered about the mother.

In detailing the birth of Kauikeaouli, (Kekahuna and Kelsey 1954b:4) published the following account:

The queen-mother [Keōpūolani] had just bathed in the cold water near the southern extremity of Ke-au-hou's formerly picturesque white sand-beach, and a few steps into the sea, where slowly gushed the now mostly destroyed sea-spring of Ku-hala-lua. There in a shallow seat formed by a hollow in the top of a large rock, the mother had sat as she enjoyed her bath. Suddenly she was seized with her birth-pains. Aided by her attendants (kahus) she struggled to the near-by shore. There, grasping the trunk of a cocoanut-tree to support and sustain her, she gave birth where the commemorative tablet now stands. The place was then located in the northeast corner of the heiau of Ka-leio-papa, now entirely destroyed, by which name the king was later sometimes known.

The still little body, with navel-cord and afterbirth attached, was immediately taken to a flat place on the pahoehoe lava, just north of the one-time pool of Ho'okuku, also in the heiau, where the afterbirth ('iewe) was passed back and forth over a fire to warm it (ua 'olala 'ia i ke ahi). Just in time, through powerful prayers by the high-priest Ka-pihe-nui, and assisting priests, and with the aid of revivifying massage, the wandering spirit of the frail body was snatched back to the life of this world. When returning life's faint rooster-crow was heard ('o'o a moa) wildest joy prevailed. Most heartfelt thanks was offered to the gods. King Ka-mehameha III was spared to Island history!

Kamakau's version of the birth story offers a little more insight into the Kapihe, the prophet/high priest and the chant said to have been used to revive the stillborn:

Early in the morning the child was born but as it appeared to be stillborn Kua-kini did not want to take it. Then came Kai-iki-o-'ewa from some miles away, close to Kuamo'o, and brought with him his prophet who said, "The child will not die, he will live." This man, Ka-malo-'ihi or Ka-pihe by name, came from the Napua line of kahunas descended from Makua-kau-mana whose god was Ka-'onohi-o-ka-la... The child was well cleaned and laid upon a consecrated place and the seer (*kaula*) took a fan (*pe'ahi*), fanned the child, prayed, and sprinkled it with water, at the same time reciting a prayer...

<i>Huila ka lani i ke Akua,</i>	The heavens lighten with the god,
<i>Lapalapa ka honua i ke keiki</i>	The earth burns with the child,
<i>E ke keiki e, hooua i ka punohu lani,</i>	O son, pout down the rain that brings the rainbow,
<i>Aia i ka lani ka Haku e,</i>	There in heaven is the Lord,
<i>O ku'u 'uhane e kahe mau,</i>	Life flows through my spirit,
<i>I la'a i kou kanawai.</i>	Dedicated to your law.

(Kamakau 1992:263-264)

Kamakau (1992) explained that after the stillborn was restored to life, Kaikio'ewa took Kauikeaouli to 'O'oma in the Kekaha portion of North Kona where he was raised in the presence of other chiefs. Kauikeaouli spent the first five years of his life at 'O'oma and when his elder brother Liholiho had set sail for England in 1823, he assumed the affairs of the kingdom at the age of nine. Unfortunately, while on his trip Liholiho succumbed to measles and died leaving Kauikeaouli as the heir. However, because of his age, his guardians Ka'ahumanu and Kalanimoku took control of his kingdom until he came of age.

The last of Keōpūolani and Kamehameha's children to be born at Keauhou was their daughter, Nāhi'ena'ena. Born in 1815, there are but few details surrounding her birth. Unlike her brother and as custom dictated, Nāhi'ena'ena was not *hānai* rather she was raised by her biological mother (Sinclair 1976). Her time at Keauhou appears to have been brief as historical writings say that by 1823 she and her mother traveled to Maui where she came under the instruction of Maui missionaries, Charles Stewart and William Richards. (Sinclair 1976)

### Accounts of Keauhou as Told by John Papa 'Ī'ī

John Papa 'Ī'ī, who was born on O'ahu in 1800 and raised under the traditional *kapu* system related a short story of Akalele, a famed paddler from Kaua'i who resided for some time in Kamehameha I's court. 'Ī'ī's story does not

describe Keauhou in any great detail, nonetheless he does make mention of the area. As the story is told, while at Kawaihae, Akalele in a single haul canoe accompanied by Kamehameha and his crew in double-haul canoes set sail for Ka'awaloa. The canoes made a stop at Kailua and the area residents brought gifts including sweet potatoes, fowls, and pigs for Kamehameha. The canoes, fully loaded with vegetables and animals, departed Kailua and upon approaching Keauhou and Kahalu'u, Akalele began to challenge the king and his men to a race. The canoes raced down the coast and upon approaching 'Awili in Ka'awaloa, Kamehameha called out to Akalele to turn his canoe into the narrow entrance and Akalele's canoe was the first to reach their destination, making him the winner of the impromptu competition (Ii 1993).

'Ī'i also tells a story of how the *ali'i wahine* Kamāmalu (wife of Kamehameha II) made a trip (ca. 1812) from Ka'ū into Kona where she and a few others stopped at Keauhou. 'Ī'i also related information about the smallpox epidemic that had arrived in Kona which was wreaking havoc on the native population:

They [Kamāmalu and Kaohe] were greeted with the news that smallpox had reached Haleili, about ten *ahupua'a* way from Papa, where death was making havoc. It was said that some people from Oahu had caused the spread of the disease...

Early Monday morning they departed and paused at Keauhou and Kahaluu for food. They moved on comfortably until they arrived at Kailua the same day. (Ii 1993:171)

### Famed Royal Pastimes-Hōlua & He'enalu

As a royal center and as demonstrated in the accounts above, Keauhou was favored by Hawaiian *ali'i* who often engaged in some of the more pleasurable activities of life including *he'enalu* (surfing), *hula*, and *he'e hōlua* (*hōlua* sledding). Detailed accounts describing celebrated surf spots and *hōlua* slides are well documented for Keauhou, in fact, some narratives tell of contest where surfers competed against *hōlua* sledders to see who could reach the coast first. As pleasurable as such activities can be, participating in any contest or sport was also very deliberate as it allowed one to further develop their skills and observe the capabilities of their opponents—skills that were also useful in the battlefield. Concerning the *hōlua* slides in Keauhou, Kamakau (1992:242-243) tells of Kāneaka:

Sledding (*he'e hōlua*) was another favorite sport, carried on sometimes over a cliffside, sometimes on the slope of a hill over a course either laid out on the ground or artificially built up, like that at Kaneaka at Keauhou in North Kona, Hawaii. This was a vigorous sport in which beginners suffered, but those who were accustomed to it guided the board with legs and arms and could keep their balance and breathe lightly as they sped faster than a racehorse or a railroad train. The runners were made of hard wood like the *koai'e*, *uhiuhi*, or *mamani*, about two and a half fathoms long and a half inch thick, tapering upward, and some four inches high. They were set in pairs six inches apart and fastened together neatly and firmly with cord of coconut fiber. In front they turned straight up and then pointed outward like the beak of a duck. The top where the person lays was woven over with fine matwork leaving space between it and the runners. The runners were made slippery with *kukui*-nut oil. The course was covered with stalks of *pili* grass stripped of the blade and laid evenly. Midday was the favorite time for the sport when the heat of the sun made the grass slippery and the sled could then attain terrific speed.

In 1915, Albert Baker published a description of the famed *hōlua* in the *Hawaiian Annual and Almanac*. Baker's commentary reads thusly:

At Keauhou, on a pretty little bay part way between the other bays, is a well-preserved papa holua, a broad, well-built, undulating toboggan-like slide, built before his reign for Kamehameha III to slide down on sleds, with his friends, over the grass-covered slide made slippery with kukui-nut oil. The slide used to pass out behind the chapel on the north arm of the bay. There the prince and his friends would take surf-boards and return by water to the head of the bay. After the prince had started the sport, others might slide as well. Originally the slide was over a mile long, about three-quarters of a mile still being in good condition. It is fifty feet wide for the entire distance, and across one hollow it is raised at ten feet. Kamehameha III was born at Keauhou, and a stone tablet was placed at the site in the summer of 1914, by the Daughters of Hawaii. (Baker 1915:82-83)

The *hōlua* slide in Keauhou was mapped and described by Henry Kekahuna on November 15, 1953 (Figure 19). According to Kekahuna's notes, the top of this *hōlua* side originated at Pu'u O Kaomilā'ō and terminated at He'eia Bay, northwest of the proposed project area. Kekahuna's notes, which are written on his map (see Figure 19) have been transcribed below for readability:

### THE FAMOUS ROYAL HOLUA, OR SLIDE, AT KE-AU-HOU, N. KONA, HAWAII

This sketch represents a general view, together with measurements and details of construction of the long slide that extends far upland above the village of Ke-au-hou, over largely lava flowed country, to the top of the hill named Pu'u o Kaomi-la-'o, at a considerable elevation.

The starting-point is a narrow platform paved level, succeeded by a slightly declined crosswise platform 36 ft. long by 29 wide, and is followed by a series of steep descents that give high speed to the holua-sleds.

Great care seems to have been exercised in the building of this huge relic of the ancients. Practically the whole slide is constructed of fairly large 'a'a rocks, filled in with rocks of medium and small-sized 'a'a. The base-walls on the north and south vary in height according to the contour of the land. The width of the runway varies considerably.

In several places the floor of the holua has sunk, leaving depressions of various size, due to the collapse of the pahoehoe base because of age and earthquakes.

The length of the slide, measured through the middle from the present lower end, is 3,682 feet. It may have extended about 3,000 ft. farther, as it is said that in ancient days the now missing lower part extended along the point north of Ke-au-hou Bay nearly to the Protestant open chapel by beautiful He'eia Bay. On completion of their slides the chiefs would have their close attendants (kahus) transport them and their surf-boards by canoe to a point about a mile offshore and a little to the north, from where they would ride into He'eia on the great waves of the noted surf of Ka-ulu.

Unfortunately bushes and trees have gained a foothold on the slide, and will cause great damage in a short time unless something is done to properly preserve this historic monument of old Hawaii.

Kekahuna and Kelsey published an expanded version of their notes in the March 21, 1954, edition of the *Hawai'i Tribune-Herald*. Below is that portion of their notes describing the royal *hōlua* and its connection to the famed surf of Ka-ulu:

In the Ke-au-hou of old special attractions were not lacking. Chief among them, wrought by the toil of human hands, was the famed royal holua-slide, most of which still exist, and has long outlived all its merry sliders of the days that are no more. High above the village, from a short distance behind it, over rugged, lava-flowed country it extends, up to the top of the hill of Kaomi-la-'o-Press Down the Sugar-Cane Leaves (la'o lau ko). At its considerable elevation on the upland slope, somewhat below the highway, the air is cool and refreshing. To the north and to the south, set against a glorious background of sea and sky, lies outspread for our delight a fascinating panorama of lowland and shoreline.

Down the great cascading rock-waves, packed smooth with slippery long leaves and grass in days of old, sped chiefs and chiefesses in a thrilling wild wide from upland height to lowland shore. Steep and undulating, yet somewhat reminiscent of a modern highway—how prophetic of the impending, crushing impact of the advent of our own days of hurry and of worry, decreeing death to that carefree life of old!—stretches the holua, constructed of fair-sized stones of 'a'a lava, filled in with those of lesser size, and topped with small 'a'a. In its period of ancient glory, tradition has it, the slide continued beyond its present end, which is approximately 3,682 feet from the starting-point, for say about another 3,000 feet, almost to the brink of the fairly narrow northern pali of Ha'i-kaua Point, where it adjoins beautiful He'eia Bay with its splendid beach, of which sand, perchance, in that long gone time beyond our human ken, but in our own time black and pebbly.

As from the upland to sea, on their narrow, speeding sleds, the royal ones concluded their spectacular feats of skill, their devoted close attendants (kahus) accompanied by their masters down the cliff to the beach below. There the faithful servants loaded the big imposing surf-boards of their respective chiefs and chiefesses on large outrigger-canoes, graceful and swift, and bore them, together with their eager owners, to a point about a mile offshore and a mile to northward, where rolls the far-famed surf of Ka-ulu-Ka Nalu or Ka-ulu. From thence, speeding shoreward on the backs of bounding mighty white-maned chargers of ocean, a second thrilling ride awaited. Flaying with arms, and kicking, they mounted their galloping steeds, leaped to their feet on the saddles of wood, and went flying right back into He'eia Bay!

Races were arranged, at times, between riders of the rock-waved surf of the upland, and the thundering surf of the sea. Whether from upland or from sea, the first to arrive at the goal at He'eia Bay was proclaimed the victor. (Kekahuna and Kelsey 1954c:4)



## TRADITIONAL AGRICULTURAL PRACTICES

Kirch (1985:215) states that “Hawaiians were first and foremost cultivators of the land” and over the generations, they adapted and intensified their agricultural production to levels unseen elsewhere in greater Oceania. Evidence of their adaptive agricultural endeavors is still visible today in the Kona District. Handy and Handy (1991) in referencing an article from the Hawaiian language newspaper *Ka Hōkū O Hawai‘i* provided a general description of the vast and highly productive upland areas extending from Kailua to Keauhou during Kamehameha’s reign:

In the uplands above Kahalu‘u, Keauhou, and Kailua, was a vast plantation named Kuahewa (huge), belonging to Kamehameha I. To protect these lands, which were cultivated for his people in the section, Kamehameha established the law that anyone who took one taro or one stalk of sugar cane must plant one cutting of the same in its place. Weary of war in 1812, Kamehameha went to Kuahewa and himself worked as a farmer. “This land that Kamehameha farmed is in the upland of Kailua, in Kaopua...on Honua‘ula, on the hill called Paoloa and by the spring called Waiakauhi.” (Hoku o Hawaii, May 3, 1927 in Handy et al. 1991:524)

What Handy and Handy (1991:524) described as “*Kuahewa*” is likely a portion of what has been referred to by archaeologists as the Kona Field System; an agriculturally fertile region that spans multiple *ahupua‘a* across North and South Kona districts (Cordy 1995; Newman 1970; Schilt 1984). This predominately dryland agricultural complex has been understood to be a nearly continuous series of agricultural fields covering approximately 34,350 acres from Kaū Ahupua‘a in the north to Ho‘okena Ahupua‘a in the south (Figure 20), with an altitudinal range of 0-2,500 meters from the coastline to the forested slopes of Hualālai (Cordy 1995; Horrocks and Rechtman 2009). A large portion of the field system has been designated in the Hawai‘i Register of Historic Places as Site 50-10-37-6601 and determined eligible for inclusion on the National Register of Historic Places. Drawing from archaeological evidence, Tomonari-Tuggle (1985) reports that by the 14<sup>th</sup> century, agricultural fields along with scattered residential areas in Keauhou were being developed about 4,000 feet inland at the lower edge of the hypothesized prime agricultural area and expanded further upland to its maximum limit. The development and expansion of the area’s agricultural pursuits are directly related to political rule and the aggrandizement of resources and labor. Tomonari-Tuggle (1985:22) add that the extent of the field system “was limited only by the barren expanded of aa lava that segregated the Kona slopes into productive and non-productive strips.”

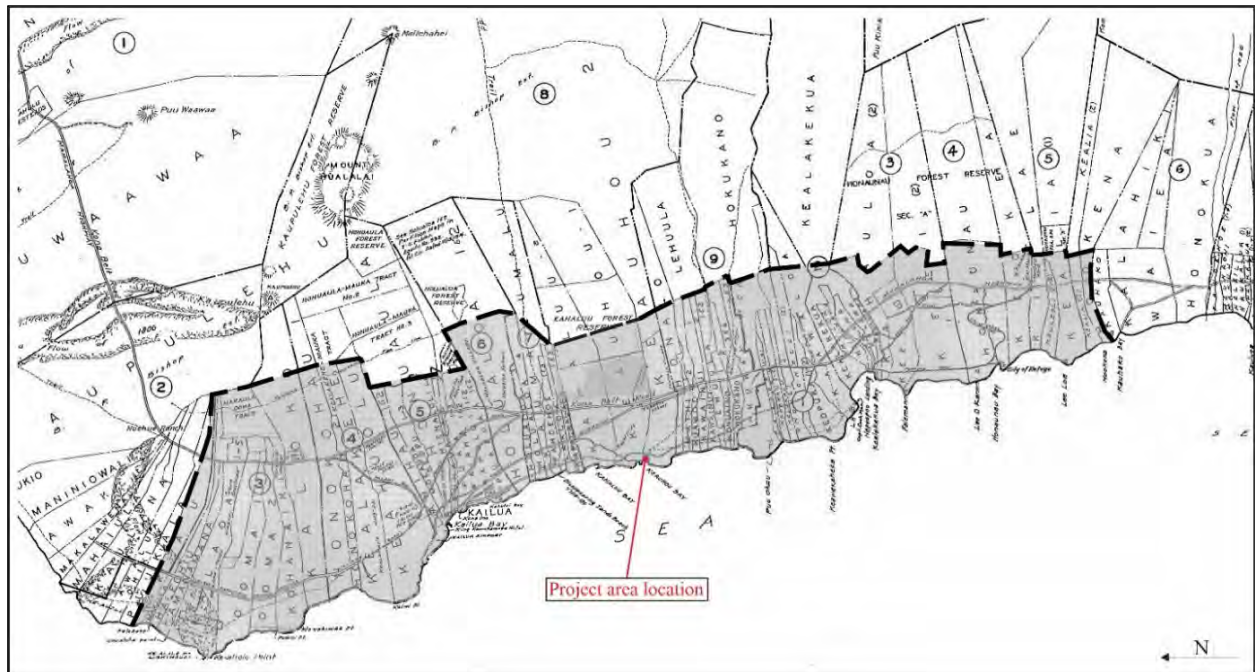


Figure 20. Extent of the Kona Field System (shaded gray) with the location of the project area.

The basic characteristics of this agricultural/residential system as presented in Newman (1970) have been confirmed and elaborated on by ethnohistorical investigations (Kelly 1983) and archaeological research (e.g., (Allen 2001; Burchard 1995; Cordy et al. 1991; Kawachi 1989; Rechtman et al. 2001; Schilt 1984; Soehren and Newman 1968). Some of the defining features of the Kona Field System is the network of long field walls that extend in a



*mauka-makai* direction. These walls are known by several names, all of which share a similar concept of the skeleton of the land, such as *kuaiwi* or backbone (Allen 2004). Handy and Handy provided the following description of this concept, stating:

Iwi (bone) or iwi kuamo‘o (backbone) was the term applied to the line of rocks and refuse thrown up along the side of mo‘o ‘aina, or kihapai in clearing. These iwi or iwi ‘aina demarked the boundaries of plantations and arable holdings, and hence were also called palena, or bounds. They were not mere rubbish heaps, but for example on Hawaii, served for planting sugar cane round about the field of dry taro in upland Kona, Ka‘u, and Kohala... In upland Kona they may be seen today buried in woods or occasionally bounding taro plantations still utilized. (Handy et al. 1991:51)

Situated between the *kuaiwi* were other traditional Hawaiian features, some of which were used for planting and habitation such as mounds, terraces, modified outcrops, and platforms. In describing the method of planting of sweet potato in rocky places, such as Kona, Fornander (1919-1920:164) states:

Planting in rocky places was called *makaili*. There was very little soil proper, the greater portion [of the field] being gravel, with rocks all around. There were also large holes resembling banana holes. Upon the sprouting of the potato vines gravel and stones are piled up around them, and by the time the hole was covered thick with leaves, the potatoes were large and grooved; they were ridge-formed but not very sweet; they were somewhat tasteless and insipid; not very palatable.

The Kona Field System is generally considered a dryland complex; however, water control features, such as ‘*auwai* and modified waterholes, have been documented in areas where intermittent streams were present (Allen 1984; Kawachi 1989; Rechtman et al. 2003; Schilt 1984).

Historically, the various fields that make up the Kona Field System were thought to be a cohesive unit (Newman 1974), however, recent research and interpretation suggest the field system was more dynamic with distinct agro-ecological zones (Lincoln and Ladefoged 2014). Additionally, the field system is believed to have expanded as the regional population increased and the Hawaiian socio-political system became more centralized (Horrocks and Rechtman 2009; Rechtman et al. 2001). This field system was a major source of food for the Island of Hawai‘i as evidenced by early European explorers and played a central part in Hawai‘i’s Precontact economy. Given the lack of major surface streams in this geologically young district, the Kona Field System relied primarily on rainfall, supplemented with innovative regional horticultural techniques (Lincoln and Ladefoged 2014).

Hawaiians traditionally used four terms to describe the major vegetation zones where crops were planted (Table 2). In addition to the four planting zones, Cordy (1995:5) identified a fifth, non-planting zone, the shoreline which extended “above the high-tide line extending inland 200 meters or so (600 + feet)” where most of the houses were located. These vegetation terms were used to define and segregate space within the *ahupua‘a* and later, to delineate land claim boundaries during the *Māhele*. The zones are bands of vegetation, roughly parallel to the coast, corresponding to changes in elevation, rainfall, and flora. The proposed project area, which extends from the coast and rises roughly 30 meters (100 feet) above sea level places it within the shoreline and *Kula* zone, which according to Cordy (1995) extends from sea level and rises to the 500-foot elevation with an annual average rainfall of 75-125 centimeters. Where environmental factors permitted, this zone would have supported an assortment of native cultigens but was perhaps most distinguished by plantings of ‘*uala* (*Ipomoea batatas*; sweet potato), *wauke* (*Broussonetia papyrifera*; paper mulberry); and *ipu* (gourds). While ‘*uala* was an important staple crop and although *wauke* and *ipu* were not food plants, they were valued for their utilitarian purposes. The fibrous bark of *wauke* was used to produce Hawaiian *kapa* (tapa; bark cloth), while dried *ipu* was fashioned into items like containers and *hula* implements (Abbott 1992). Of the variety of gourds that were cultivated, Keauhou was known specifically for the ‘Io variety, which (Handy et al. 1991:214) describes as a “round, light-colored “bitter-gourd” about one foot in diameter.”

**Table 2. Traditional Hawaiian agricultural zones.**

<i>Zone</i>	<i>Annual Rainfall (cm)</i>	<i>Elevation (ft.) limits</i>	<i>Primary Crops</i>
<i>Kula</i>	75-125	Sea level-500	‘ <i>Uala</i> , <i>wauke</i> , and <i>ipu</i>
<i>Kalu‘ulu</i>	100-140	500-1,000	‘ <i>Ulu</i> , ‘ <i>uala</i> , and <i>wauke</i>
‘ <i>Āpa‘a</i>	140-200	1,000-2,500	Dry land <i>kalo</i> , ‘ <i>uala</i> , <i>kī</i> , and <i>kō</i>
‘ <i>Ama‘u</i>	>200	2,500-4,000	<i>Mai‘a</i> (both plantain and banana)

Cordy (1995) elaborates that local lava flow patterns had a tremendous impact on the patterning of the agricultural fields. Older, ‘*a‘ā* flows typically have a more substantial soil base while younger *pāhoehoe* flows can have very little soil accumulation. As shown in the geology and soils map for the project area (see Figure 14 and 15) and articulated by Cordy (1995:10):

This effect can be seen in the ahupua‘a of Keauhou. Here, four descending flows of different ages are present. At elevations of the apa‘a (dryland taro/sweet potato) zone, formal walled fields are present only on the two older flows, evidently where enough soil enables this efforts of stone clearing to be useful...In the other newer flows, informal field ruins are present.

While evidence of irrigation has been discovered, the Kona Field System depended primarily on rainfall. John Papa ‘Ī‘Ī (Ii 1993) recorded that Kona was also known for the *kēwai*, a specific land breeze that is mixed with rain. Another named wind synonymous with Keauhou and the neighboring lands include *Hau* which was considered a sacred wind that did not blow beyond the lands of Kainaliu and Keauhou (Pukui 1983). Mary Kawena Pukui also documented several ‘*ōlelo no ‘eau* (Hawaiian proverbs) for Kona that highlight the traditional practice of observing nature for signs of rain.

*Aia ka wai i ka maka o ka ‘ōpua.*

Water is in the face of the ‘ōpua clouds.

In Kona, when the ‘ōpua clouds appear in the morning, it’s a sign that rain is to be expected. (Pukui 1983:9)

*Ao ‘ōpiopio.*

Young cloud.

A cloud that rises from sea level or close to the cloud banks and is as white as steam. When seen in Kona, Hawai‘i, this is a sign of rain. (Pukui 1983: 27)

*Māmā Kona i ka wai kau mai i ka maka o ka ‘ōpua.*

Kona is lightened in having water in the face of the clouds.

Kona is relieved, knowing that there will be no drought, when the clouds promise rain. (Pukui 1983:232)

### Spirituality in Traditional Agricultural Practices

In addition to observing the natural elements for signs of rain, the ancient Hawaiian horticulturalists also invoked certain deities to encourage rainfall and to promote the abundance and fertility of the land. Kona is synonymous with the *akua* (god, deity) Lono, who was considered the “rain maker” and closely associated with fertility (Handy et al. 1991:333). Lono was often identified with the southern coast of Hawai‘i Island, and according to Kalokuokamaile, a native of Kona, temples dedicated to Lono were established throughout Kona to invoke rain and fertility (in Handy et al. 1991). Lono was also embodied in dark rain clouds brought on by the southerly (*kona*) storms. In traditional myths, it is believed that Lono migrated from the south and landed in Kona where he introduced several food plants, such as *kalo* (taro), *‘uala* (sweet potato), *uhi* (yams), *kō* (sugar cane), *mai‘a* (banana) and *‘awa* (kava) (Handy et al. 1991). Thrum (1907), however, offers another tradition specific to Keauhou. Concerning the customs associated with Kamau‘ai, a *heiau* ascribed to the *akua* Kāne, Thrum (1907:73) notes that the first vegetables introduced into the islands were brought to this *heiau* and that:

When the canoe with its strange products reached Keauhou some of the people lifted up the vegetables and asked Kupu-a-huluena (a famous kupua who had traveled in foreign lands) their names, he gave them successively, then directed that they be offered upon the altar of Kamauai [Kamau‘ai], where upon, after due ceremony, they were distributed and planted out, and have been successfully propagated from that time.

While Lono is attributed with bringing water in the rain clouds, *wai* (freshwater) is considered a *kinolau* (physical manifestation) of the *akua* Kāne, who along with his companion Kanaloa (whose dominion was over the ocean), came to Hawai‘i from Kahiki (a land outside of Hawai‘i). Legend has it that Kāne and Kanaloa both enjoyed consuming *‘awa*, a drink prepared by mixing the crushed root of the *‘awa* plant (*Piper methysticum*) with fresh water. In their travels, they stopped at various places around the Hawaiian Islands and opened new freshwater springs from which they prepared their favorite drink (Handy et al. 1991). Kalokuokamaile shared that sometimes in Kona, the farmers built temples that were dedicated to Kāne and to Kū and sometimes they prayed to certain *ki‘i pōhaku* (stone images) that were sacred to these gods. It was also not uncommon for farmers to invoke these gods without the use of images or stones (in Handy et al. 1991). The ‘*ōlelo no ‘eau* “*He huawai ola ke kanaka na Kāne*” literally translated as “[m]an is Kāne’s living water gourd,” highlights the relationship that Hawaiians have to freshwater, and thereby to Kāne (Pukui 1983:68). Handy et al. (1991:64) sheds light on the spiritual relationship that Native Hawaiians have to water:

Fresh water as a life-giver was not to the Hawaiians merely a physical element; it had a spiritual connotation. In prayers of thanks and invocations used in offering fruits of the land, and in prayers

chanted when planting, and in prayers for rain, the “Water of Life of Kane” is referred to over and over again. Kane—the word means “male” and “husband”—was the embodiment of male procreative energy in fresh water, flowing on or under the earth in springs, in streams and rivers, and falling as rain (and also as sunshine), which gives life to plants.

*Wai* was not only valued for its life-giving properties, but also its purifying properties. The continuous *mauka* to *makai* flow of *wai* provided fresh drinking water, supplied water to irrigated fields, fishponds, recharged ground water supplies, and sustained productive estuaries and fisheries by transporting nutrients from the uplands to the sea (Sproat 2009). In Keauhou Bay, Hitchcock (1909) recorded the practice of diving down in the ocean to collect freshwater from ground springs using calabashes. Because of the high degree of dependency on *wai* to furnish and satisfy life’s needs, *wai* was a public trust resource that was considered inalienable and a resource that belonged to Kāneikawaiola (Handy et al. 1991).

The significance of rituals and ceremonial observances in traditional cultivation practices (and in other facets of life) was of great importance to the well-being of the ancient people. While the tangible elements that remain on the land today point to their planting and clearing areas, these are features of the cultural landscape, and its significance is derived from its tangible and intangible elements both of which are of equal significance.

## DESCRIPTIONS OF KEAUHOU DURING THE EARLY HISTORIC PERIOD

In the decades following Western contact, Hawai‘i’s interaction with the western world increased resulting in changes to the culture and the political economy. From the outset, relations between Hawaiians and the newly arrived outsiders were heavily influenced by the latter’s need for supplies to replenish their ships (Major 2001). To accommodate this newly created demand, some of the work of the *maka‘āinana* shifted from subsistence agriculture to the production of food and goods that could be traded with foreign ships (Wilkes 1845). With an aging chief Kalani‘ōpu‘u, Kamehameha I had already set in motion a plan to not only consolidate Hawai‘i Island under his rule but to expand his kingdom through intense inter-island warfare. Kamehameha I maximized his relationship with some of these foreigners, which resulted in him acquiring prized western items like ships and cannons—western imports that reshaped traditional Hawaiian warfare. Foreigners introduced the concept of trade for profit, and by the 1790s, Hawai‘i saw the beginnings of a market system economy (Kent 1983). The sandalwood (*Santalum ellipticum*) trade, established by Euro-Americans in 1790, became a viable commercial enterprise by 1805 (Oliver 1961) and was flourishing by 1810. Kamehameha, who resided on the Island of O‘ahu at this time, did manage to maintain some control over the trade (Kent 1983; Kuykendall and Day 1976). During this period, Kona served as the seat of traditional Hawaiian politics, however, historical records suggest that a large majority of the interactions with foreigners were occurring at places like Kailua or Kealahou, thus there are but few descriptions of Keauhou written by early visitors. As such, it has been hypothesized by Tomonari-Tuggle (1985:24) that during this period, “Keauhou and Kahalu‘u probably remained, in large part, characteristically Hawaiian” and likely served as a retreat for Hawaiian *ali‘i*.

### Early Visitors

Acting as surgeon and naturalist on board the *H.M.S. Discovery* captained by George Vancouver, Archibald Menzies in 1794, wrote about his brief trip to Keauhou to visit the fatally injured son of chief Ke‘eaumoku (see page 24) and a foreign seaman residing at Keauhou who was engaged in the manufacturing of charcoal to supply visiting western ships. In describing the location of this seaman’s home, Menzies wrote:

This man chose a delightful situation for his dwelling, which was kept neat and clean, and from which he had a commanding prospect of the village and cove [Keauhou Bay] underneath him, of a large extent of country on both sides and of the boundless ocean before him. We dined with him on roasted pork, roasted fowls and vegetables in a very comfortable manner, as he had taught the native who attend him to cook and serve up his victuals in the English style. After dinner we entertained him with a glass of grog, to which he said he had long been a stranger. This induced us to spare him a little of our stock at parting, when he gave us an earnest commission to send him some more, and likewise some tobacco, as soon as we returned to the vessels. (Menzies 1920:150)

Menzies (1920:149) mentions the presence of an “American schooner, which the natives had captured, belonging to Mr. Medcalf” that was being housed at Keauhou. The schooner in reference is the *Fair American*, an American fur trading vessel that was seized by Kame‘eiamoku (one of Kamehameha I’s closest advisors/uncle). The *Fair American*, captained by Thomas Metcalf arrived in North Kona in 1790 with her six-man crew. The crew members became the victims of a siege disguised as trade gestures, orchestrated by Kame‘eiamoku. Isaac Davis was the only surviving crewman and he later became one of Kamehameha I’s closest foreign advisors. According to Kuykendall (1967),

Kame'eiamoku's act of vengeance was in response to an episode that had occurred just days earlier in which the chief had boarded another American fur trading vessel, the *Eleanora*, captained by Simon Metcalf (father of Thomas Metcalf) for friendly trade. Simon Metcalf's interaction with Kame'eiamoku turned sour and Metcalf proceeded to whip and humiliate the chief. The *Eleanora* left Hawai'i Island for Maui, however, because of the incident, Kame'eiamoku vowed to take his revenge on the next foreign ship to enter his waters; unbeknownst the next ship to arrive in Kame'eiamoku's territory was the ship belonging to Simon Metcalf's son, Thomas (Kuykendall 1967). A cannon (later named "Lopaka") was recovered from the *Fair American* and was kept by Kamehameha as part of his fleet (Kamakau 1992). As a result of the siege by Kame'eiamoku, Kamehameha placed a *kapu* on trading with Americans in order to keep the news of the *Fair American's* fate from Metcalf, who was prone to violence. The *Eleanora* returned to the Kona coast (after an incident on Maui that led to Metcalf's crew massacring hundreds of native Hawaiians at Olowalu on Maui) and sent crewmember, John Young ashore to trade. Young was held captive on shore and Metcalf's attempts to drum up trade and recover his crewman was futile. Metcalf sailed for China without ever seeing Young or his son, Thomas, or the *Fair American* again (Rogers 1999). By the time Menzies (1920:149) had observed the *Fair American* at Keauhou, it appears to have been damaged as the natives of Keauhou informed him that "she made a great deal of water, which they were obliged to pump out daily, otherwise that she would sink."

Upon returning to Kailua-Kona in 1812, Kamehameha ordered men into the mountains of Kona to cut sandalwood and carry it to the coast, paying them in cloth, *tapa* material, food, and fish (Kamakau 1992). This new burden added to the breakdown of the traditional subsistence system as farmers and fishers were ordered to spend most of their time logging, resulting in food shortages and famine that led to a population decline. Once Kamehameha realized that his people were suffering, he "declared all the sandalwood the property of the government and ordered the people to devote only part of their time to its cutting and return to the cultivation of the land" (Kamakau 1992:204). In the uplands between Kailua and Keauhou, in the plantation named Kuaheua Kamehameha worked as a farmer. While in Kailua, Kamehameha resided at Kamakahonu, from where he continued to rule until his death in May of 1819. He and his high chiefs participated in foreign trade but also continued to enforce the ancient *kapu* system.

### **Battle of Kuamo'o, End of the 'Aikapu, and the Arrival of Missionaries**

When Kamehameha I died on May 8, 1819, the changes that had been affecting Hawaiian culture since the arrival of Captain Cook in the Islands began to rapidly accelerate. Keauhou played a significant role in the events following Kamehameha's death. Upon the death of a prominent chief, it was customary to lift all of the *kapu* that maintained social order and the separation of men from women and elite from commoner. Thus, following the King's death, a period of *'ai noa* (free eating) was observed, along with the relaxation of other traditional *kapu*. It was for the new ruler and *kahuna* to re-establish the ancient *kapu* and restore social order, but at this point in history, traditional customs were altered (Kamakau 1992). Immediately upon the death of Kamehameha I, Liholiho (his son and to be successor) was sent away to Kawaihae to keep him safe from the impurities of Kamakahonu brought about by the death of his father. After the purification ceremonies, Liholiho returned to Kamakahonu but did not re-establish the *kapu*:

Liholiho on this first night of his arrival ate some of the tabu dog meat free only to the chiefesses; he entered the lauhala house free only to them; whatever he desired he reached out for; everything was supplied, even those things generally to be found only in a tabu house. The people saw the men drinking rum with the women kahu and smoking tobacco, and thought it was to mark the ending of the tabu of a chief. The chiefs saw with satisfaction the ending of the chief's tabu and the freeing of the eating tabu. The kahu said to the chief, "Make eating free over the whole kingdom from Hawaii to Oahu and let it be extended to Kauai!" and Liholiho consented. Then pork to be eaten free was taken to the country districts and given to commoners, both men and women, and free eating was introduced all over the group. Messengers were sent to Maui, Molokai, Oahu and all the way to Kauai, Ka-umu-ali'i consented to the free eating and it was accepted on Kaua'i. (Kamakau 1992:225)

Kekuaokalani, caretaker of the war god Kūkā'ilimoku, was dismayed by his cousin's (Liholiho) actions. After several unsuccessful attempts to make peace with Kekuaokalani it was agreed that peace could only be sought through warfare. Liholiho's army led by Kalanimoku and others made ready to march south from Kailua. Kalanimoku "then placed the carriers of food and water and marched his men to Keauhou, where they camped." Kalanimoku sent Kaheana (also known as Moehau) to seek Kekuaokalani in a last-ditch effort to make peace. Kaheana met Kekuaokalani at Lekeleke located south of the project area (Figure 21) where the following conversation transpired:

"Where is Ka-lani-moku?" "Encamped at Keauhou." "I command you to return to Ka-lani-moku and if he attacks to seize him and await my coming." (Kamakau 1992:228)

Kalanimoku's forces fired the first shots and Kekuaokalani's men returned fire resulting in the first injuries to Kalanimoku's army including two chiefs Kaikio'ewa and Hōlualoa. The two armies advanced where they met head-to-head at the battlefield in Kuamo'o, south of the project area. The two sides armed with a mix of western and traditional weaponry fought earnestly. Kekuaokalani's army, standing in favor of restoring and maintaining the ancient *kapu* of the land was defeated in this battle, thus leaving no resistance against Liholiho's move to rule under the laws of *'ainoa* (Kamakau 1992). It has been estimated that as many as 300 graves of fallen warriors can be found at the Lekeleke Burial Ground located southwest of the project area along Keauhou 2<sup>nd</sup>'s southern boundary (Tomonari-Tuggle 1985). An account published by Albert Baker in the *Hawaiian Annual and Almanac* recalled the aftermath thusly:

...Keauhou, is the battlefield of Kuamoo, where Kekuaokalani, with the adherents of the old order, met the king's forces who were upholding the renunciation of idolatry and the breaking of tabu, in 1819. This place is full of interest, in that the battle taking place at the edge of the bare lava, the bodies of the slain were buried on the lava with from one to twenty in a grave, and the various huge mounds of stone show today just above the trail as plainly as when first made. The mounds are so irregularly placed that it is almost impossible to count them, but there are probably over a hundred mounds of all sizes, with from 1,500 to 2,000 bodies. A few high mounds may be over the bodies of chiefs or priests. An old man, whose grandfather had told him of the battle, showed us how the battle began by the graves at Keauhou 2, and how the rebels were pushed back across Honalo and Maihi to the last stand at Kuamoo, where Kekuaokalani and Manono, his wife, fell side by side. A few fugitives are said to have escaped by fleeing up a lava tunnel entered by a shore cave just south. (Baker 1915:82)

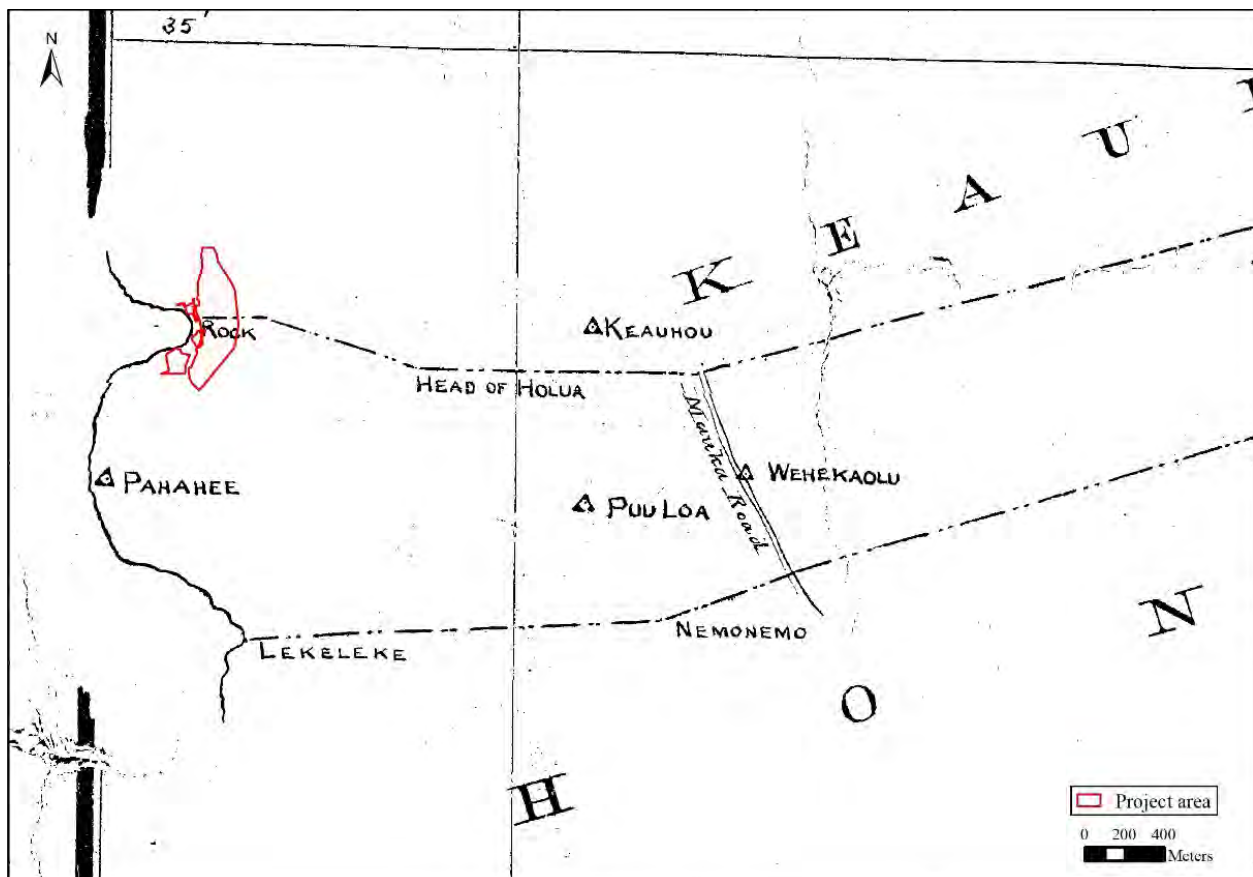


Figure 21. Portion of Hawai'i Registered Map No. 1264 by Alexander showing Lekeleke located to the south of the project area.

Ka'ahumanu, proclaimed herself *Kuhina Nui* (Premier). Not long after Kamehameha's death, Kaluaikonahale John Adams Kuakini was appointed by his sister, Ka'ahumanu, to the position of *Kia'āina* (governor) for the Island of Hawai'i. By December of 1819, Liholiho had sent edicts throughout the kingdom renouncing the ancient state

religion, ordering the destruction of the *heiau* images, and ordering that the *heiau* structures be destroyed or abandoned and left to deteriorate. He did, however, allow the personal family religion, the *'aumakua* worship, to continue (Kamakau 1992; Oliver 1961). With the end of the *kapu* system, changes in the social, spiritual, and economic patterns began to affect the lives of the common people.

By October of 1819, seventeen Protestant missionaries had set sail from Boston en route to Hawai'i. They arrived in Kailua-Kona on March 30, 1820, to a society whose long-standing *kapu* system had just been overturned. Some of the *ali'i*, who were already exposed to western material culture, welcomed the opportunity to become educated in a western-style and adopted their dress and religion. Soon they were rewarding their teachers with land and positions in the Hawaiian government. During this period, the sandalwood trade was wreaking havoc on the commoners, who were weakening with the heavy production, exposure, and famine just to fill the coffers of the *ali'i* who were no longer under any traditional constraints (Kuykendall and Day 1976; Oliver 1961). The lack of control of the sandalwood trade was to soon lead to the first Hawaiian national debt, as promissory notes and levies were initiated by American traders and enforced by American warships (Oliver 1961). The Hawaiian culture was well on its way towards Western assimilation as the industry in Hawai'i went from the sandalwood trade to a short-lived whaling industry.

Following the death of Kamehameha, Liholiho shifted the center of government from Kailua to Honolulu. The introduction of several new industries in the Keauhou area resulted in a decline in coastal village settlements. The uplands of Kona saw a boom in the coffee and tobacco industries as well as more diversified agriculture, including the rearing of livestock (e.g., cattle, goats, and pigs). In 1838, Stephen D. Mackintosh (1838:2), a contributor to the newspaper *Sandwich Island Gazette and Journal of Commerce* wrote that Keauhou Bay "which affords a comfortable and safe anchorage, is resorted to by vessel for cargoes of firewood, sandal wood and other commodities of produce." The missionary presence also increased as reverends station in Kailua made periodic trips to the countryside to spread the Christian gospel.

### **Observations Made by Early Missionaries**

In 1823, Ellis, accompanied by Joseph Goodrich and Reverends Asa Thurston and Artemas Bishop, toured the Island of Hawai'i seeking out communities in which to establish church centers and schools for the Calvinist mission. On July 18, 1823, Ellis and his missionary companions started their tour of Hawai'i heading south along the coast of the district of Kona. Of the overall environment of the district of Kona, Ellis opined that:

Kona is the most populous of the six great divisions of Hawai'i, and being situated on the leeward side, would probably have been the most fertile and beautiful part of the island had it not been overflowed by flood of lava... (Ellis 1963:174).

Ellis made the following observations of the countryside on his approach to Keauhou and the vicinity of the current project area:

We passed another large heiau, and travelled about a mile across a rugged bed of lava, which had evidently been ejected from a volcano more recently than the vast tracts of the same substance by which it was surrounded. It also appeared to have been torn to pieces, and tossed up in the most confused manner, by some violent convulsion of the earth, at the time it was in a semifluid state.

There was a kind of path formed across the most level part of it, by large smooth round stones, brought from the sea-shore, and placed about three or four feet apart. By stepping from one to another of these, we passed over the roughest piece of lava we had yet seen; and soon after five p.m. we arrived at Keauhou, a pleasant village containing one hundred and thirty-five houses, and about eight miles from Kairua [Kailua]. Messrs. Bishop and Harwood reached the same place about an hour earlier, and here we proposed to spend the night.

We had not been long in the village, when about one hundred and fifty people collected round the house in which we stopped.

After singing and prayer, Mr. Thurston preached to them. They gave good attention; and though we conversed with them a considerable time after the service was ended, they still thronged our house, and seemed unwilling to disperse. (Ellis 1963:103-104)

Ellis went on to describe the central Kona region as a populated area with extensive cultivation inland compared to the southern reaches of Kona, which supported smaller populations made up mostly of fishermen. According to Ellis, during their walk from Kailua to Keauhou they generated a population estimate based on the following observations:

We counted six hundred and ten houses, and allowed one hundred more for those who live among the plantations on the sides of the hills. Reckoning five persons to each house, which we think not far from a correct calculation, the population of the tract though which we have travelled today will be about 3550 souls (Ellis 1963:104)

In their travels between Kailua and Keauhou, Ellis' group "passed nineteen heiaus, of different dimensions" (Ellis 1963:104). Ellis also noted various smaller temples (likely fishing shrines) along the coast where fishermen made offerings to the gods of the sea. However, no specific mention of a *heiau* or shrine was made pertaining to Keauhou. Ellis (1963:364) did, however, mention Keauhou in his discussion of Hawaiian burial customs, thusly:

. . . Their artificial graves were either simple pits dug in the earth, or large enclosures. One of the latter, which we saw at Keauhou, was a space surrounded with high stone walls, appearing much like an ancient heiau or temple. We proposed to several natives of the village to accompany us on a visit to it, and give us an outline of its history; but they appeared startled at the thought, said it was a wahi ino, (place evil,) filled with dead bodies, and objected so strongly to our approaching it, that we deemed it inexpedient to make our intended visit.

On November 19, 1825, Reverend Artemas Bishop (1892b:18) described preaching at "Kahaluu, Keauhou, Kainaliu, and to large and attentive audiences, where the smallest number assembled could not be less perhaps than 500." By January of 1826, Bishop returned to Keauhou where he penned the following:

Gov. Adams and all the other chiefs, together with all the men of the place, left here [Kailua] this morning for Keauhou, to cut wood for a new church.

At Keauhou I found all the chiefs and their attendants assembled and waiting for my arrival. Being much exhausted after the last service, I procured a canoe to return. (Bishop 1892a:26)

Missionary Amos Starr Cooke and Chester S. Lyman both made brief visits to Keauhou. Cook's described his one-day visit to Keauhou in his journal entry dated July of 1846. That portion of Cooke's journal entry reads:

Monday 13<sup>th</sup> after breakfast we made arrangements to go to Keauhou on a double canoe, to see the place where his Hawaiian majesty was born. We stopped two miles short of it, & went that distance on foot through beautiful groves of cocoa nut trees, & on a road evidently made at great expense. After eating cocoa nuts & drinking our fill of their water, upon the stone where stood the house in which Kamehameha III was born we returned to our canoe & cutter where a dinner had been provided at the house of Laanui, whose wife was once a kahu to Kaahumanu. The girls & 4 boys with Capt. Newell & I only went. We returned in 1 ½ hours, & after supper on shore went on board -- & were soon under way for Kawaihae. (Cooke 1842-1846:406-407)

In describing the lands between Kailua and Kealakekua, Lyman wrote the following in September of 1846:

Kailua and the coast between it and Kealakekua, instead of being barren black lava as I had been led to expect, is now looking quite green with vegetation in consequence of the recent rains, from 1 to 3 inches a month having fallen for several months. (Lyman 1846 in Maly and Maly 2004a)

In a subsequent trip made in November of 1846, Lyman penned the following about his brief tour through Keauhou and the lands adjacent:

Rose and breakfasted at 5, and at 6:15 mounted Dr. A. [S. L. Andrews] donkey and started for Kealakekua along. The road for the first half of the way is very good, lying not far from the beach. About three miles from Kailua I passed the pleasant village of Holualoa, in the midst of a beautiful coconut grove... Another [3] miles brought me to the large and beautifully situated village of Kahaluu. The cocoanut groves are very dense and extensive, especially on the level point of land forming the south side of the little harbor. At 9 I reached Keauhou...about seven miles from Kailua. Here a small square or oblong bay sets in, forming a beautiful and quiet harbor for canoes.

The country along the shore is all the way rough with lava streams, and has but little soil and a scanty vegetation. The chief flower is the conspicuous white *capal*, about as large as a hollyhock, with numerous long stamens: it grows on a shrub two or three feet high.

Remains of numerous heiaus all along this coast.

At this place I turned to the left thro' an opening in the wall by the roadside, according to the directions given me by Dr. A., from which point three or four paths about equally distant diverged—and which the right one was, I was quite puzzled to know. Inquiring of a native as well as I knew how, I took the one which I thought he pointed out, and rode up a steep hill 30 or 40 rods, bringing

up at last against a high stone wall near a burying ground; unable to get further in this direction, I turned to the right over the pathless rough lava, and with some difficulty at length came upon what appeared to be the path between two low walls—guessing this to be the right one, I followed on as fast as my slow donkey would carry me, up a tedious hill for nearly a mile or perhaps more. The path is chiefly a made one in the midst of rough broken lava. This path soon brought me to the high land, covered with a good soil and an abundant vegetation, with many *kukui* and other trees. The region through which I now passed was delightful, and the view of the landscape below and of the ocean apparently rising up beyond was very beautiful. Some four or five miles beyond Keauhou I reached Mr. Hall's place where he has an extensive coffee plantation. (Lyman 1846 in Maly and Maly 2004a:26-27)

### KEAUHOU DURING THE MIDDLE TO LATE 19<sup>TH</sup> CENTURY

The middle 19<sup>th</sup> century brought with it great changes, especially as it relates to the alteration of the traditional Hawaiian land tenure system. During the 1830s and 1840s, the Hawaiian Kingdom was an established center of commerce and trade in the Pacific, recognized internationally by the United States and other nations in the Pacific and Europe (Sai 2011). As Hawaiian political elites sought ways to modernize the burgeoning kingdom, and as more Westerners settled in the Hawaiian Islands, major socioeconomic and political changes took place, including the formal adoption of a Hawaiian constitution by 1840, the change in governance from an absolute monarchy to a constitutional monarchy, and the shift towards a Euro-American model of private land ownership. The change in land governance was partially informed by ex-missionaries and Euro-American businessmen in the islands who were generally hesitant to enter business deals on leasehold lands that could be revoked from them at any time.

#### The *Māhele* 'Āina of 1848

Convinced that the feudal system of land tenure previously practiced was not compatible with a constitutional government, the reigning *Mō'ī* Kamehameha III, whose miraculous birth occurred at Keauhou, and his high-ranking chiefs decided to separate and define the ownership of all lands in the Kingdom (King n.d.). The change in land tenure was further endorsed by missionaries and Western businessmen in the islands who were generally hesitant to enter business deals on leasehold lands that could be revoked from them at any time. After much consideration, it was decided that three classes of people each had one-third vested rights to the lands of Hawai'i: the *Mō'ī* (King), the *ali'i* (chiefs) and *konohiki* (land agents), and the *maka'āinana* (common people or native tenants). In 1845 the legislature created the Board of Commissioners to Quiet Land Titles (more commonly known as the Land Commission), first to adopt guiding principles and procedures for dividing the lands and granting land titles, and then to act as a court of record to investigate and ultimately award or reject all claims brought before them. All land claims, whether by chiefs for entire *ahupua'a* or by tenants for their house lots and gardens, had to be filed with the Land Commission within two years of the effective date of the Act (February 14, 1848) to be considered. This deadline was extended several times for the *ali'i* and *konohiki*, but not for commoners (Alexander 1920; Soehren 2004).

The *Mō'ī* and some 245 *ali'i* (Kuykendall 1938) spent nearly two years trying unsuccessfully to divide all the lands of Hawai'i amongst themselves before the whole matter was referred to the Privy Council on December 18, 1847 (King n.d.). Once the *Mō'ī* and his *ali'i* accepted the principles of the Privy Council, the *Māhele* 'Āina (Land Division) was completed in just forty days (on March 7, 1848), and the names of all of the *ahupua'a* and *'ili kūpono* (nearly independent *'ili* land division within an *ahupua'a*) of the Hawaiian Islands and the chiefs who claimed them, were recorded in the *Buke Mahele* (also known as the *Māhele* Book) (Soehren 2004). As this process unfolded the *Mō'ī*, who received roughly one-third of the lands of Hawai'i, realized the importance of setting aside public lands that could be sold to raise money for the government and also purchased by his subjects to live on. Accordingly, the day after the division when the last chief was recorded in the *Buke Mahele*, the King commuted about two-thirds of the lands awarded to him to the government (King n.d.). Unlike the King, the *ali'i* and *konohiki* were required to present their claims to the Land Commission to receive their Land Commission Award (LCAw.). The chiefs who participated in the *Māhele* were also required to provide commutations of a portion of their lands to the government to receive a Royal Patent that gave them title to their remaining lands. The lands surrendered to the government by the *Mō'ī* and *ali'i* became known as "Government Land," while the lands that were personally retained by the *Mō'ī* became known as "Crown Land," and the lands received by the *ali'i* became known as "Konohiki Land" (Chinen 1958:vii; 1961:13). Most importantly, all lands (Crown, Government, and *Konohiki* lands) identified and claimed during the *Māhele* were "subject to the rights of the native tenants" therein (Garavoy 2005:524). Finally, all lands awarded during the *Māhele* were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be formally surveyed. This process expedited the work of the Land Commission.



## Land Commission Awards

In 1848-1849, the *ahupua'a* of Keauhou was formally divided into two sections and both *ahupua'a* were awarded as Konohiki Land. Victoria Kamāmalu received Keauhou 1<sup>st</sup> as part of LCAw 7713, 'Āpana 7 while her brother, Lot Kapuāiwa (Kamehameha V) received Keauhou 2<sup>nd</sup> as part of LCAw. 7715, 'Āpana 12. Both Kamāmalu and Kamehameha V were the great-grandchildren of Ke'eaumoku and Namahana, through their daughter Kaheheimālie, a wife of Kamehameha I and her daughter Kīna'u (Tomonari-Tuggle 1985). Hammatt et al. (1981) believe that since the land of Keauhou was retained by the Kamehameha dynasty, it reflects their perceived value of the land and its resources. Maly and Maly (2004a:33) point out that it was from these *konohiki* awards that "Chiefess Bernice Pauahi Bishop inherited her rights to these lands, and by which they were incorporated into the Estate of Bernice Pauahi Bishop and Kamehameha Schools."

As the King and his *ali'i* and *konohiki* made claims to entire *ahupua'a* and the prized *'ili kūpono* lands via the *Māhele*, questions arose regarding the protection of rights for the native tenants. To resolve this matter, on August 6, 1850, the Kuleana Act (also known as the Enabling Act) was passed, clarifying the process by which native tenants could claim fee simple title to any portion of lands that they physically occupied, actively cultivated, or had improved (Garavoy 2005). The Kuleana Act also clarified access to *kuleana* parcels, which were typically landlocked, and addressed gathering rights within an *ahupua'a*. Lands awarded through the Kuleana Act were, and still are, referred to as *kuleana* awards or *kuleana* lands. The Land Commission oversaw the program and administered the *kuleana* as Land Commission Awards (LCAws.) (Chinen 1958). Native tenants wishing to make a claim to their lands were required to register in writing with the Land Commission, who assigned a number to each claim, and that number (the Native Register) was used to track the claimant through the entire land claims process. The native tenants registering their *kuleana* were then required to have at least two individuals (typically neighbors) provide testimony to confirm their claim to the land. Those testimonies given in Hawaiian became known as the Native Testimony, and those given in English became known as Foreign Testimony. Upon provision of the required information, the Land Commission rendered a decision, and if successful, the tenant was issued the LCAw which conferred a less than allodial title (Barrère 1994). Finally, to relinquish any government interest in the property, the holder of a LCAw. obtained a Royal Patent Grant from the Minister of the Interior upon payment of the commutation fee (Barrère 1994). The information recorded in the Native Register and Native and Foreign Testimony provides insight into land use and settlement patterns around the time of the *Māhele*.

Maly and Maly (2004a) estimated that as many as 100 claims were made for both Keauhou 1<sup>st</sup> and 2<sup>nd</sup> of which, sixty-nine were awarded. In Keauhou 1<sup>st</sup>, the LCAw. were clustered in three main areas; near the coast in the vicinity of He'eia Bay, between present-day Ali'i Drive and Kuakini Highway (Hawai'i Belt Road; Highway 11), and about one-mile *mauka* of present-day Kuakini Highway. In Keauhou 2<sup>nd</sup>, the LCAw. were clustered in two main areas, at the coast around Keauhou Bay and about 0.4 miles *makai* and 0.75 miles *mauka* of present-day Kuakini Highway (along the Main Government Road). This distribution pattern can be seen in a Territorial Taxation map dated July 1930 (Figure 22). Of the sixty-nine awarded claims, twenty-seven LCAw. (comprised of twenty-eight parcels) are located in the *makai* portion of the *ahupua'a* near and within the project area. The location of these LCAw. are shown below in Figure 23 and listed below in Table 3. The size of the awarded lots within the project area ranged in size from 0.16 to 6.66 acres and most of these lots were awarded between the years 1858 through 1889. Although four of the awardees listed in Table 3 only received a single parcel, the remaining awardees typically received between two and three parcels (usually at different elevations).

Based on a review of the Native Register and Native Testimony documents associated with the awarded LCAw. within the project area, it is evident that most of these lots were *pāhale* (house lots). Many of these *pāhale* were often described as being completely or partially enclosed by a rock wall that was often built by the awardee or their parents or neighbors. Many of these coastal lots are described as containing at least one *hale* (house) within which the awardees were residing. In the case of Paiki (LCAw. 10734), the house on the property was from Gov. Kuakini and Paiki was residing in that house at the time of the *Māhele*. For one of the awardees Kanehoa (LCAw. 5781), the testimony reveals that the *pāhale* at the coast contained a house, three *loulu* palm trees, five *kou* trees, *lauhala* trees, ten coconut trees that were planted on the outside of the lot, and one orange tree. Additionally, Kanehoa's second lot at the coast (LCAw. 5781:2) is described as a *pā mea kanu* (enclosed garden) bounded on the north side by the *alanui pīi* (upland trail/road), an *'ili 'ili* (pebble) beach on the *makai* side and contained three coconut trees and fifteen *loulu* palm trees. The native testimonies also name different *'ili 'āina* (land sections) some of which are likely within the current project area, however, due to the way this information is presented in the testimonies, determining the exact location (and sometimes the exact spelling) cannot be done with definitive accuracy. Nonetheless, all of the *'ili 'āina* listed hereafter are within Keauhou. These include Papala 2, Papalanui, Waipio 1-4, Laulaulahuli (Laulaulahili or Laulauhili), Pakohe, Kaulukauhane 3, Haleokane 2, Kaohia, Haleope, Makakaulii, Paki, Haluapalala, Maili, and Puukaa.

2. Background

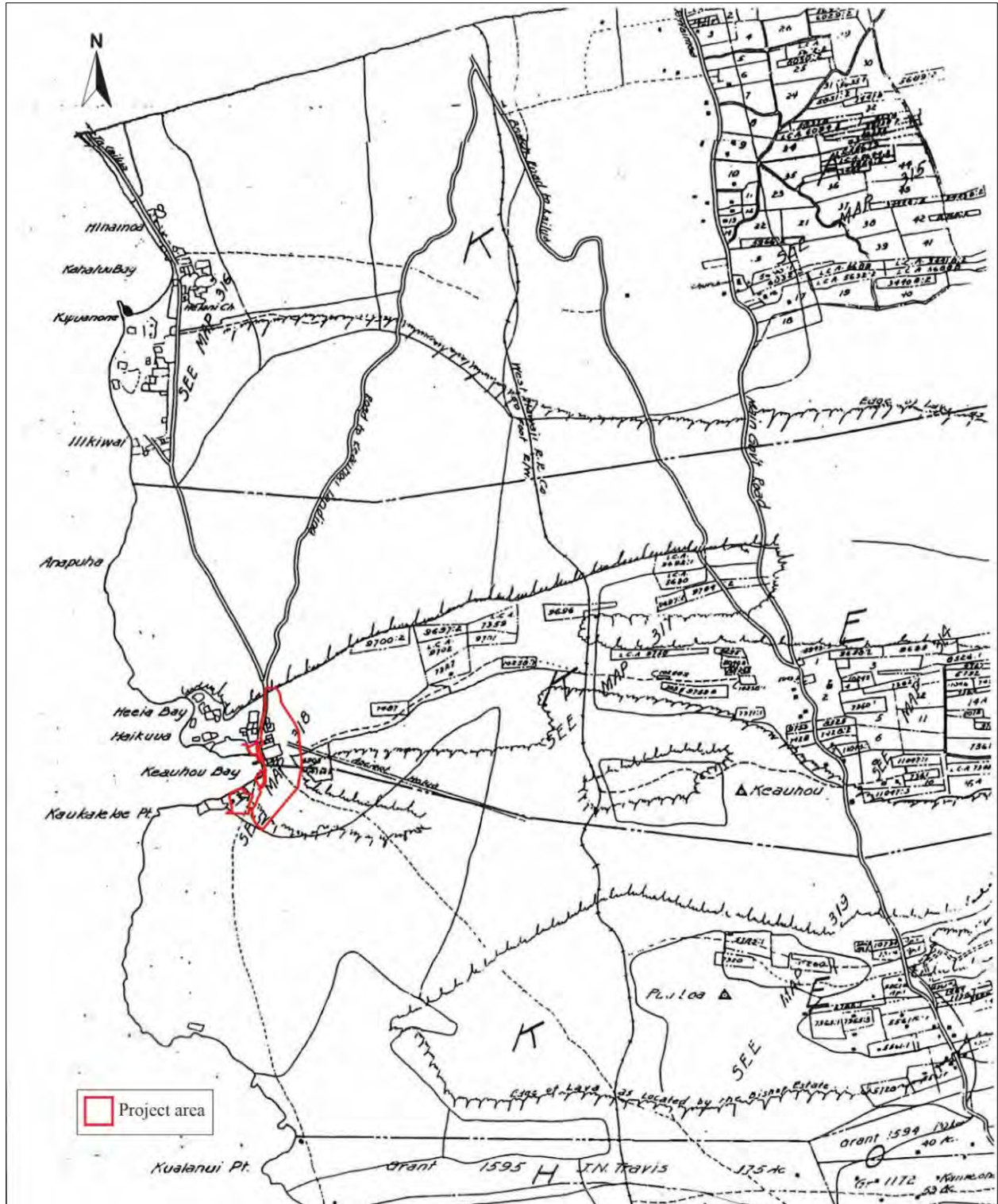


Figure 22. 1930 Territorial Taxation map showing the distribution of LCAW in Keauhou 1<sup>st</sup> (north) and 2<sup>nd</sup> (south) (from Maly and Maly 2004a:34).

**Table 3. Land Commission Awards near Keauhou Bay.** (\*=Konoiki award/ bolded text=LCAw. in project area)

<i>Awardee</i>	<i>LCAw.</i>	<i>Royal Patent No.</i>	<i>Year Awarded</i>	<i>Ahupua'a</i>	<i>Acres</i>	<i># of parcels awarded</i>
Aea	9695:2	4421	1859	Keauhou 1 <sup>st</sup>	1.35	1
Aoao	7738:2	7387	1879	Keauhou 1 <sup>st</sup>	2.00	2
<b>Haluapo</b>	<b>11048:2</b>	<b>n/a</b>	<b>n/a</b>	<b>Keauhou 1<sup>st</sup></b>	<b>1.30</b>	<b>2</b>
Hawawa	8046 B:2	7037	n/a	Keauhou 1 <sup>st</sup>	2.69	3
<b>Kaaiwana</b>	<b>7360:2</b>	<b>4579</b>	<b>1859</b>	<b>Keauhou 1<sup>st</sup></b>	<b>2.90</b>	<b>2</b>
<b>Kaanoano</b>	<b>7362:2</b>	<b>8023</b>	<b>n/a</b>	<b>Keauhou 1<sup>st</sup></b>	<b>3.11</b>	<b>2</b>
Kaihe, J.H.	7428:1	4330	1859	Keauhou 1 <sup>st</sup>	2.40	1
<b>Kaikuaana</b>	<b>7372:2</b>	<b>n/a</b>	<b>n/a</b>	<b>Keauhou 1<sup>st</sup></b>	<b>1.60</b>	<b>2</b>
Kailiakaale	9759	n/a	n/a	Keauhou 1 <sup>st</sup>	3.36	1
<b>Kaluahininui</b>	<b>9753:2</b>	<b>7891</b>	<b>1889</b>	<b>Keauhou 1<sup>st</sup></b>	<b>1.29</b>	<b>2</b>
Kamakahia	9692:2	4420	1859	Keauhou 1 <sup>st</sup>	4.20	2
Kamāmalu, V.*	7713:7	4475	1861	Keauhou 1 <sup>st</sup>	n/a	1
Kamehameha, L.*	7715:12	7844	1887	Keauhou 2 <sup>nd</sup>	109,600.00	1
<b>Kanehoa</b>	<b>5781:1 &amp; 2</b>	<b>3888</b>	<b>1858</b>	<b>Keauhou 1<sup>st</sup></b>	<b>6.29</b>	<b>3</b>
<b>Kapela</b>	<b>9698</b>	<b>n/a</b>	<b>n/a</b>	<b>Keauhou 1<sup>st</sup></b>	<b>2.80</b>	<b>2</b>
Kapela	5786:2	7032	1877	Keauhou 1 <sup>st</sup>	2.11	2
<b>Kapuipui</b>	<b>7361:2</b>	<b>6367</b>	<b>1872</b>	<b>Keauhou 1<sup>st</sup></b>	<b>6.66</b>	<b>3</b>
<b>Keahulaaumoku</b>	<b>5785:2</b>	<b>n/a</b>	<b>n/a</b>	<b>Keauhou 2<sup>nd</sup></b>	<b>4.43</b>	<b>2</b>
Keohoaee	7365:2	7019	1877	Keauhou 2 <sup>nd</sup>	6.28	3
(H)Keoni	8526:2	7136	1878	Keauhou 1 <sup>st</sup>	5.0	2
Koomoa	9764:1	n/a	n/a	Keauhou 1 <sup>st</sup>	0.71	1
Kukahi	7633:2	7044	1877	Keauhou 2 <sup>nd</sup>	2.50	3
Lono	9946:2	7386	1879	Keauhou 1 <sup>st</sup>	0.16	2
<b>Molale</b>	<b>11046:2</b>	<b>4437</b>	<b>n/a</b>	<b>Keauhou 1<sup>st</sup></b>	<b>3.58</b>	<b>3</b>
Nahoa	9693:1	6567	1874	Keauhou 1 <sup>st</sup>	2.59	2
Naholowaa	7319:2	n/a	n/a	Keauhou 2 <sup>nd</sup>	4.90	3
Nauki	9697:1	n/a	n/a	Keauhou 1 <sup>st</sup>	6.0	3
<b>Paiki</b>	<b>5903 &amp; 10734: 2 &amp; 3</b>	<b>6842</b>	<b>n/a</b>	<b>Keauhou 2<sup>nd</sup></b>	<b>5.53</b>	<b>3</b>
<b>Poopuu</b>	<b>11047:2</b>	<b>6391</b>	<b>1873</b>	<b>Keauhou 1<sup>st</sup></b>	<b>5.80</b>	<b>3</b>

2. Background

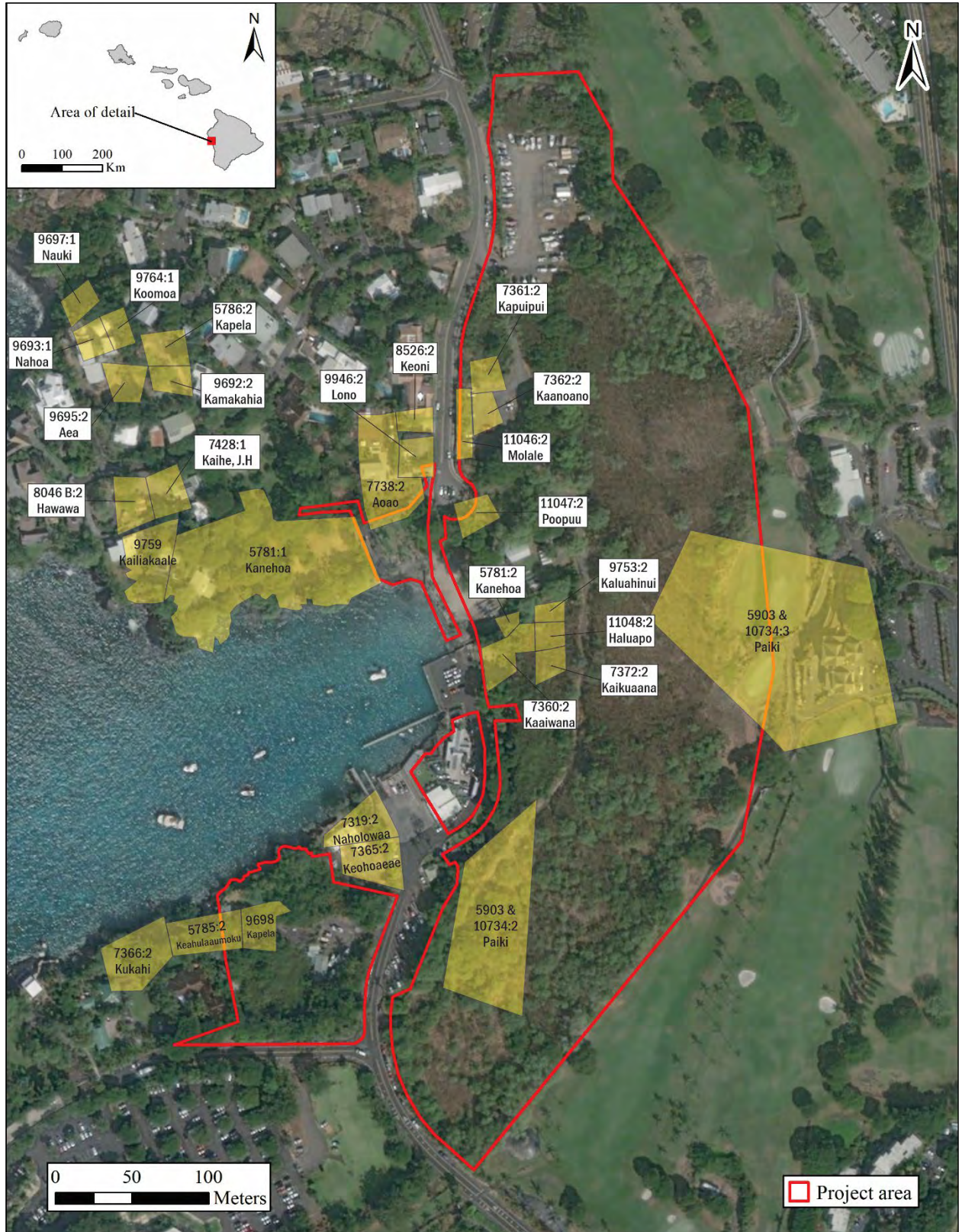


Figure 23. Location of LCAw. (excluding *Konohiki* awards) located within and in the vicinity of the project area.

## Commission of Boundaries (1862-1876)

In 1862, the Commission of Boundaries (Boundary Commission) was established in the Kingdom of Hawai‘i to legally set the boundaries of all the *ahupua‘a* that had been awarded, by name only, as a part of the *Māhele*. Subsequently, in 1874, the Boundary Commission was authorized to certify the boundaries for lands brought before them. As a part of this process, the Boundary Commission gathered testimony from informants, who were typically older native residents who learned of the boundaries from their ancestors, relatives, or neighbors. The boundary information was collected primarily between 1873 and 1885 and was usually given in Hawaiian and simultaneously transcribed into English. Although hearings for most *ahupua‘a* boundaries were brought before the Boundary Commission and later surveyed by Government employed surveyors, in some instances, the boundaries were established through a combination of other methods. In some cases, *ahupua‘a* boundaries were established by conducting surveys on adjacent *ahupua‘a*. Or in cases where the entire *ahupua‘a* was divided and awarded as Land Claim Awards and or Government-issued Land Grants (both of which required formal surveys), the Boundary Commission relied on those surveys to establish the boundaries for that *ahupua‘a*. Although these small-scale surveys aided in establishing the boundaries, they lack the detailed knowledge of the land that is found in the Boundary Commission hearings.

On August 8, 1873, the Boundary Commission met at Keauhou to hear testimony for the boundaries of Keauhou 1<sup>st</sup>. The following contains excerpts of the testimony specific to the lands laying between the coast and the Government Road. Information specific to the coastal areas of Keauhou 1<sup>st</sup> has been underlined for emphasis and bracketed text has been inserted by the author to clarify spelling or translations of Hawaiian words used in the original documents:

### **Kakio<sup>K</sup> sworn**

I have lived on Keauhou until I am an old man and know the boundary of the land. Kahaluu bounds Keauhou on the north side. The boundary at seashore is a pali [cliff] called Paaniau and a long wall from Kawa to road. Thence mauka to Puuainako, an oioina [resting place] on old trail, said trail being made for the ohia trees, which in the time of Gov. Adams were drawn down to Kailua for a church. Said church was built some years ago

From Puuainako to Kanihinihiula, at the mauka Government road where there are two ahua pohaku [stone mounds], on the boundary; thence north side of Awapuhi in the woods. Thence to Ohiki an old cultivating grounds on the boundary...thence to Waikukulukulu, a cave with water in it...Keakaawai is a kamaaina and used to go into the mountain with his father Kuluahi.

### **Lono<sup>K</sup> sworn**

I was born at Keauhou at the time of Kaoku [*ka ‘ōku ‘u*] and have lived here most of my life; lived, in Kau a few years; and kamaaina of the boundaries of Keauhou as far mauka as the Government road. This boundary at the shore between Keauhou 1<sup>st</sup> and 2<sup>nd</sup> is at Kamauae [Kamau‘ai] a heiau for fishermen situated above the beach, on the hill where the house stands; thence mauka to a bread fruit tree; thence to the head of Hoolua [Holua], thence mauka to Kanakaliikapu, an ahua pohaku at the Government road, this is as far as I know the boundaries...Keauhou is bounded by the sea and the land has ancient fishing rights extending out to sea.

Kahaluu bounds Keauhou 1<sup>st</sup> on the north side. The boundary at seashore is Paaniau a large stone wall reaching from shore a short distance mauka. There is a pali at the sea shore by the same name; thence mauka to the Government road. (Boundary Commission 1874:318-320)

The following day on August 9, 1873, testimony was heard at the home of local Judge John Green Hoapili, who was born at Keauhou in 1833 (The Hawaiian Star 1896) to settle the boundaries of the neighboring land of Kahalu‘u. The following testimony, although for the adjacent lands, provides important cultural information specific to Keauhou 1<sup>st</sup>.

### **Papa<sup>K</sup> sworn (very old man)**

I was born at Kahaluu Kona Hawaii at the time of the Holuanui [Maly and Maly 2004:76 places this date at ca. 1814—construction of the *hōlua* at birth of Kauikeaouli], and have always lived there know the land and its boundaries. The sea bounds it makai and it has ancient fishing rights extending out to sea. Keauhou bounds Kahaluu on the southern side, at the seashore the boundary between these two places is at Ohiki, a point on the south side of Paaniau, and near to it. Thence mauka along Keauhou to Kaioena a large heiau way above the makai road, thence to aa near kukui tree (a grove called Kuohai) the lapa [ridge] is on Keauhou the dirt on Kahaluu. Thence to Mahina o Kiiwalao

[Kīwala‘ō], a place where Kiiwalao was raised, an alii kapu [sacred chief]. Thence to Kanihiniihula two ahu pohaku at the Government road. Thence to Kalalahua, an ohia akua [‘ōhi‘a deity] in the woods. Thence mauka to Kalaeohi a kahua kauhale mahiai [agricultural village] (Boundary Commission 1874:321-322)

**Kaihumua<sup>K</sup> sworn**

I was born at Kahaluu N. Kona Hawaii at the time of the building of Kiholo and have always lived there and know a part of the boundaries. Keauhou bounds Kahaluu on the south side; sea makai; and the land has fishing rights. The boundary at shore is Ohiki a pile of stones on the south side of Paaniau. Thence it runs way above the makai Government road to a large pile of stones like a heiau called Kaioena. Thence mauka to Government road; the aa on Keauhou a small portion only being on Kahaluu. Thence follows up to Kanihiniihula at the mauka Government road. Thence to Paahao a water hole in the woods, which is as far as I know the boundaries in the woods. (Boundary Commission 1874:322-323)

A few days prior to gathering testimony for Keauhou 1<sup>st</sup>, on August 4, 1873, testimony was heard to settle the boundaries of Keauhou 2<sup>nd</sup>.

**Keakaokawai<sup>K</sup> sworn**

I was born a few years before the death of Kamehameha I... I moved at time of Kaua O Kekuaokalani (1820) to Lehuula...I now lived at Hokuano North Kona and am kamaaina of Kona. I used to go on the mountain with my father collecting sandalwood and catching birds, his name was Kauluahi, an old bird catcher and kamaaina now dead; Honalo bounds Keauhou 2 at sea shore on south side, a pali aa called Lekeleke is the boundary at sea shore between these lands. Thence the boundary runs mauka along land on Honalo sold to different parties on Honalo to a place called Nohomoanahoaiuku in the woods on the makai side of pali. Thence along the Government portion of Honalo to Kapapakauheana, a round water hold in the woods in the center of Honalo.... (Boundary Commission 1874:256)

I do not know the boundaries between the land of Kahaluu and Keauhou, or between the two Keauhous... (Boundary Commission 1874:259)

In a follow-up hearing held on August 5<sup>th</sup>, 1873, Kahilo, another testifier provided the following information:

**Kahilo<sup>K</sup> sworn**

I was born at Keauhou at the time of the building of the first Kiholo and have always lived there in Kona, Hawaii.

Honalo bounds it on the South side, an awaawa and ilina kupapau (a crack in the rock where the natives used to put their dead) called Lekeleke is the boundary. Thence the boundary between these lands runs mauka, the kualapa on Honalo and awaawa on Keauhou to Nawawae Nuuanu at the Government road mauka. Thence follow up kualapa and awaawa to Kamomoku a pali surrounded by small trees, koa, ohia, mamani, naio &c. The tall woods are makai of this place. There is an ancient pile of stones here, at the mauka corner of Honalo... (Boundary Commission 1874:261)

My Parents and Grandparents used to go bird catching for feathers as far as Waiea...

Kamauae a cave at the seashore is the boundary between Keauhou 1 and Keauhou 2<sup>nd</sup>. Thence the boundary between these two lands runs mauka to the Poo Hoolua [hōlua], above Keauhou, thence into groves of ohia trees below the Government road to a cave called Kaekuakapua‘a. Thence to a place called Kanokeliikapu, which is on the Government road an ahu used to stand at this place but was knocked down when the road was built. Thence the boundary runs to Laaunui, a large ohia tree; said tree is in the woods about the end of where people work. (Boundary Commission 1874:262)

Keakokawai is the one who pointed out the boundaries to me when we went after mamake, and he is the only one who pointed out the boundaries through the woods to me. My parents told me some of the boundaries. My father Uluhiwa, now dead, who was an old bird catcher; showed me boundaries above the woods to Waiakapee; but did not tell me what lands joined. (Boundary Commission 1874:263)

**Palea<sup>K</sup> sworn**

I was born at Kalahiki South Kona, Hawaii and have always lived there. Was born at the time of Kuewai o ka Lae. Know the land of Keauhou. Lekeleke is the boundary at the seashore between Honalo and Keauhou. My father Kanahuna (now dead) was appointed by Keauhou konohiki to watch the bird catchers on out land and other lands to see if they did not take the geese and uwau of which belonged to Keauhou and he told me the boundaries between these lands and Keauhou...

Have seen Umi's road when we were on the mountain gathering sandalwood... (Boundary Commission 1874:263)

Another hearing held the following day on August 6, 1873, included testimony from Kahulialo, whose testimony focused predominately on the *mauka* boundaries:

**Kahulialo<sup>K</sup> sworn**

I was born at Honalo, North Kona, Hawaii on a place called Kealaeahu and at the time of the first Kiholo. Know the land of Keauhou and part of its boundaries. Mauka in the woods and above the woods my father Kuluahi who was the kaaaina of Kona, on the mountain showed them to me...(Boundary Commission 1874:264)

Two days later on the 8<sup>th</sup> of August, the Boundary Commission met again and heard testimony from Keaka, and Kakio, the latter whom provided testimony for the boundaries of Keauhou 1<sup>st</sup>:

**Keaka<sup>W</sup> sworn**

(Note same witness as on Lehuula)

Lekeleke is the boundary between Honalo and Keauhou at the seashore. From this place there is an awaawa [var. of awāwa-ravine] running mauka. I do not know the boundaries from this point to the upper edge of the woods. Have heard that there is an awaawa running through the woods, on the boundary. Kipuka Ohelo is on Hookukano [Hokukano], a good way makai of Kepulu, Kehapo<sup>K</sup> (now dead) used to have charge of Keauhou said it came to the place we used to go after mamaki thence but there is none above. He did not tell me this was the boundary it is only my manao. I have been to Waio, but have never been told what land it is on. The kamaaina Kehiapo<sup>K</sup> told me when I was young that Waio was on Keauhou... (Boundary Commission 1874:266)

**Kakio<sup>K</sup> sworn**

I was born at Keauhou at the time Kamehameha came from Hilo to Kealakekua and from there to Honolulu at the time of Oku [‘Ōku‘u]. I have always lived here and know the land of Keauhou 2<sup>nd</sup> and its boundaries. I used to go after sandalwood on the mountains with Kapohakaimokumahi (now dead). He was a kamaaina in the mountain and used to go across to Hilo. Lekeleke is the boundary between Honalo and Keauhou at sea shore is kualapa. Keauhou being at the foot of the ridge on this side. Thence the boundary runs mauka along Honalo to Kukuikomo on the makai side of the Government road. Thence along the awaawa to the mauka side of the Government road place called Leiohapuu. Thence along awaawa into the woods, I do not know the boundaries. Know a place called Palahinui, a cave where people used to live. Honalo ends makai of this cave at the mauka edge of the woods. The mamani and scrub koa being on Keauhou. Have heard that Kealakekua and other lands, only run through the tall koa; have never been there.

The boundary at shore between the two Keauhous is at a place called Kamauae at the beach. Thence it runs mauka to the head of Holua (an old sliding place). Thence to the south side of Keahialoa the boundary running in a hollow. Thence to mauka of the Government road to a place called Kanaokeliikapu. Thence mauka in the woods to Kualapa Kahoopulu. This is as far as I know the boundaries in the woods... They say in the days of Keeaumoku the Akule used to belong to Keauhou 2<sup>nd</sup> and the birds to Keauhou 1<sup>st</sup> but the chief of Keauhou 2<sup>nd</sup> married a chief of Keauhou 1<sup>st</sup> and after that all the fish were given to Keauhou 1<sup>st</sup> and the birds and land mauka to Keauhou 2<sup>nd</sup>.

Mauna Loa is called the Kuaiwi of Kau. Have been told that Keauhou joins Hilo and Hamakua on Mauna Loa at the edge of the aa flow, from the summit to the mountain. The pili is on Keauhou and the aa on Kaohe, have head Kaupulehu joins Keauhou but do not know where. (Boundary Commission 1874:266-267)

## 2. Background

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Testimony resumed on the 9<sup>th</sup> of August, and Papa, a native of Kahalu‘u added to his earlier testimony. This portion of this testimony, however, was for the *mauka* portion of the *ahupua‘a* (Boundary Commission 1874). No specific cultural information concerning coastal Keauhou was provided. On August 11, 1873, the boundary commission accepted testimony from Waiau, a native of North Kona.

### Waiau<sup>K</sup> sworn

I was born at Kanauwaue North Kona Hawaii at the time Kamehameha 1<sup>st</sup> returned from Honolulu at the time of Palakee. Lived at Ka[illegible] visited about eleven years ago when I moved to Kealia South Kona. Know the land of Keauhou, used to go after birds with my father Naueue, an old bird catcher and he pointed out the boundaries to me as it was kapu [forbidden] to go after birds and not divided theirs with the konohiki. Used to go frequently not very far above here. Honalo bounds Keauhou 2<sup>nd</sup> on the south side, as you go into the lower edge of the woods. I do not know the boundaries... (Boundary Commission 1874:268-269)

By 1876, the boundaries of Keauhou 1<sup>st</sup> had been settled with D.H. Hitchcock completing the survey. In 1886, the boundaries of Keauhou 2<sup>nd</sup> had been settled and Government surveyor, J.M. Alexander completed the survey for Keauhou 2<sup>nd</sup>, which covered an area of 109,600 acres. In summary, the testimony cited above captures detailed knowledge of the not only the *ahupua‘a* boundaries, but also traditional cultural practices and resources (bird catching, akule fishing), settlement areas, trails, botanical resources (i.e. ‘*ōhi‘a*, *pili*, *mamane*, *koa*, ‘*iliahi*, *naio*, *mamaki*), built features (i.e. *heiau*, *hōlua*, walls) agricultural areas, *ali‘i*, water collection areas, upland habitation caves, and how resources were distributed between the residents of the two Keauhou.

Concerning the Keauhou 1<sup>st</sup>-Kahalu‘u boundary. The various testimony agrees that the coastal boundary was Paaniau, a name applied to a *pali* (cliff) as well as the large stone wall the extended *mauka* from the shore. The testimony also identified a trail along this boundary, said to have been built to haul ‘*ōhi‘a* trees to Kailua to build a church, likely Moku‘aikaua during the time of Governor Kuakini. The testifiers also identified ‘*Ōhiki*, the name of the coastal point to the south of Paaniau. Further upland near the location of the Government Road, the testifiers noted this area as the cultivating grounds, including Mahina O Kīwala‘ō, described as the place where the *ali‘i* Kīwala‘ō was raised. Kaioena, a *heiau* was also reported to be along the Keauhou 1<sup>st</sup>-Kahalu‘u boundary.

Regarding the boundary between Keauhou 1<sup>st</sup> and 2<sup>nd</sup>, the testifiers identified the coastal boundary as “Kamauae” (also spelled Kamau‘ai), the name of a cave and a *heiau* reportedly used by fishermen (Boundary 1874:267). Breadfruit was also noted along this boundary and the testifiers unanimously described the boundary extending to the *po‘o hōlua* (head of the *hōlua*). It was also noted that Keauhou had ancient fishing rights that extend out to sea.

Information concerning the Keauhou 2<sup>nd</sup>-Honalo boundary was limited, however, those that did provided testimony described its coastal boundary as Lekeleke, identified by Kahilo as both an *awaawa* [var. of *awāwa*, lit. ravine, gulch] and a ‘*ilina kupapa‘u* (burial grounds). Notes in Kahilo’s testimony say that the *awaawa* itself served as the burial ground where bodies were placed. The Keauhou 2<sup>nd</sup>-Honalo boundary is said to have followed the *awaawa* up towards the Government Road.

Information about the *mauka* resources was also described by the testifiers including Kalalahua, the name given to an ‘*ōhi‘a* deity that stands along the Keauhou 1<sup>st</sup>-Kahalu‘u boundary *mauka* of the Government Road. Kalaeohi, an agricultural village (*kahua kauhale mahi‘ai*), was also noted which was said to have stood in an area above the Government Road. One testifier described the ‘*ōhi‘a* forest extending below the Government Road and that the area of Lā‘aunui marked the *mauka* most extent of the agricultural area. One testifier noted that the geese and the ‘*uwa‘u* were birds that belonged to Keauhou. Lastly, Kakio’s testimony described how during the reign of Ke‘eaumoku, the *akule* fish belonged to Keauhou 2<sup>nd</sup> and the birds to Keauhou 1<sup>st</sup>, however, after chiefs from both lands married, all the fish went to Keauhou 1<sup>st</sup> and the birds and land *mauka* to Keauhou 2<sup>nd</sup>.

The settlement of the boundaries for these *ahupua‘a* resulted in Keauhou 1<sup>st</sup> receiving half of the bay, all of He‘eia Bay, and a fertile strip of lower agricultural lands. Whereas, Keauhou 2<sup>nd</sup> encompassed half of the bay, the more barren lower slope, and a massive interior forested area that extended to the summits of Hualālai and Mauna Loa (Tomonari-Tuggle 1985). The extent of the *ahupua‘a* boundaries are depicted in a close-up of Hawai‘i Registered Map 2060 from 1901 (Figure 24).



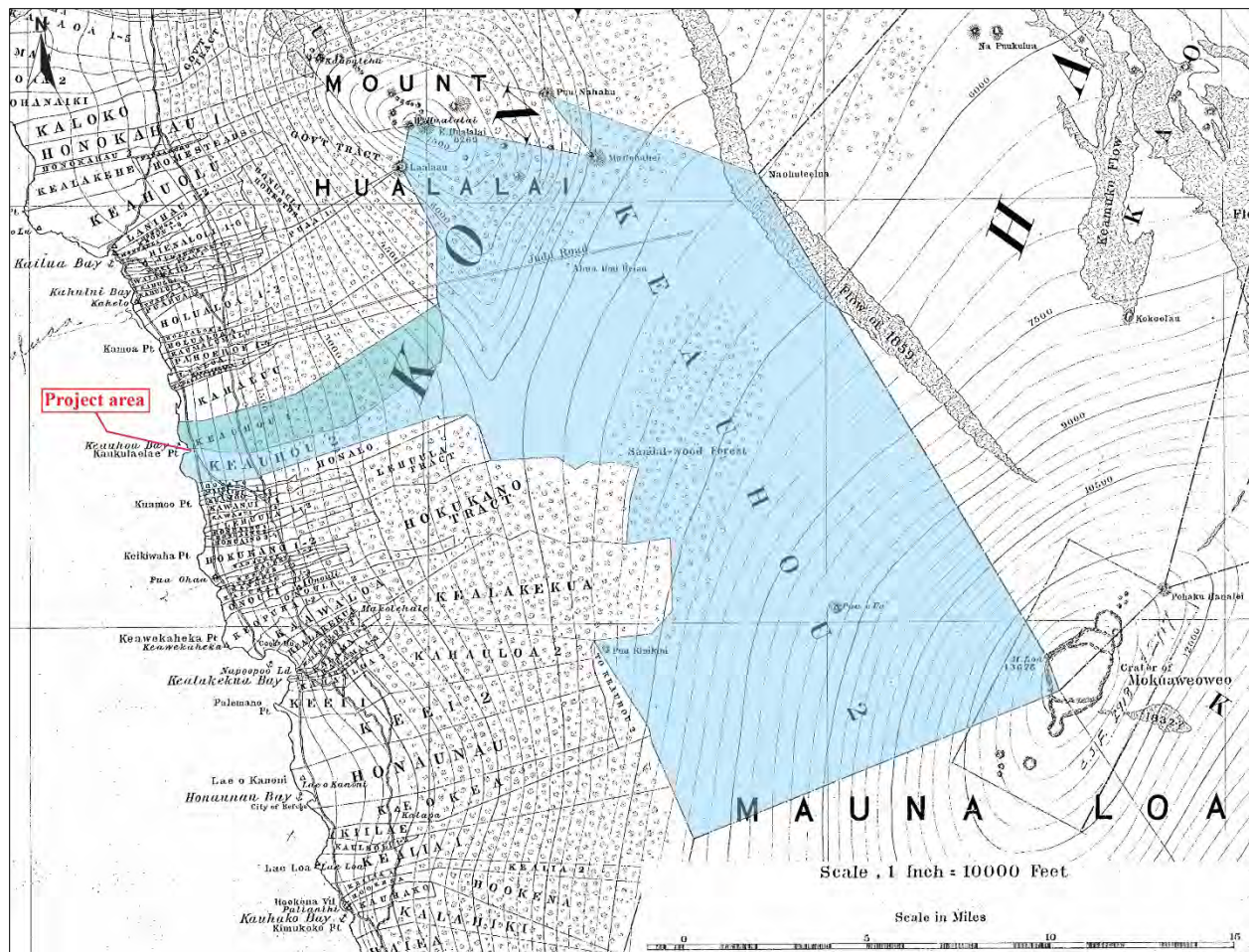


Figure 24. Hawaii's Registered Map No. 2060 by J. M. Donn (1901) showing extent of Keauhou 1<sup>st</sup> and 2<sup>nd</sup> Ahupua'a.

### Ranching, Agriculture, and Other Business Endeavors

The late 19<sup>th</sup> century saw a growing detraction from Kona's coastal settlements as small and large-scale commercial agriculture drew populations of native residents and immigrant laborers to centralized work centers around the islands Tomonari-Tuggle (1985). In Kona, ranching, which began in the early 19<sup>th</sup> century, and later, plantations grew to be the dominant industries. By the late 19<sup>th</sup> century, many Hawaiian families and other long-time residents had taken up ranching as a full-time endeavor. Early agricultural industries in Kona were focused largely on coffee and other fruits, but by the late 1800s, sugar production had surpassed the earlier industries (Maly and Maly 2004a). However, in the coastal areas, fishing, churches, and mercantile businesses continued to operate, thus keeping these rather small coastal communities thriving. An article published by S.W.K. Haluapo in the March 2, 1871, edition of the Hawaiian language newspaper *Ke Au 'Oko'a* offers a glimpse into the types of homes that were common along the Kona coast during this period:

*Ua ku kinikini no na hale i kukulu ia ma na kapa kahakai o Kona nei. O na hale kamaaina no Hawaii nei, oia na hale pili maoli a pela aku a kakaikahi wale hoi na wahi hale i uhi ia me na laau o ka haole, ua nui no na hale a ku ana ma kahakai a mauka no hoi...*

The homes built along the shore here in Kona are numerous. The native homes are thatched with *pili* and so forth, while the wooden homes belonging to foreigners are scattered about. There are many homes standing along the shore and in the uplands. (English translation by Lokelani Brandt)

## 2. Background

By the 1880s, Keauhou residents were engaged in various enterprises from general store keepers, coffee planters, and goat ranchers—with the latter two ventures situated in the upper elevation of Keauhou near the Main Government Road (Bowser 1880). In 1880, George Bowser, editor of *The Hawaiian Kingdom Statistical and Commercial Directory and Tourist Guide*, wrote about the various statistics and places of interest around the Hawaiian Islands, including Keauhou Bay, which during this time, also served as a landing for passenger steamships. Bowser, who passed through the village of Hōlualoa before coming into Keauhou wrote the following:

Between two and three miles further on is the village of Holualoa, with about twenty native houses and two or three stores. It lies close to the seabeach; and here, and at intervals along the way, are groves of cocoa palm. Keauhau [Keauhou] is the next place, situated on a small inlet of the sea, and of about the same size as Holualoa. It is a romantic spot, with pretty local scenery and a fine view of Mauna-Hualalai as a background. All the way from Kailua I found the road good, with cocoanut groves every mile or so, and plenty of pineapples, which are in season all the time, from June to December (Bowser 1880:550).

An 1891 map of Keauhou Bay (Figure 25) published by the Hydrographic Office of the U.S. Navy shows the recorded depths of the bay as well as built features including a landing, houses, walls, roads, vegetation, and natural features located within roughly 100 meters inland of the shoreline. Eight houses, two of which are enclosed by walls are shown to be within the project area. Three road segments also appear in the northwestern portion of the project area. The unlabeled natural features shown in the project area include ‘Ahu‘ula cliff and Ho‘okūkū Pond at the base of the cliff.



Figure 25. U.S. Navy hydrographic map from 1891 (Hawai'i Registered Map No. 2094) showing natural and built features in the project area.

Between 1882 and 1884, Hawaiian Kingdom surveyor, Joseph S. Emerson conducted cartographic surveys of the North Kona region. He generated letters, field notebooks, and survey maps. Born on O‘ahu, J.S. Emerson (like his brother, Nathaniel Emerson, compiler of Hawaiian history) could converse in Hawaiian and had an interest in Hawaiian beliefs, traditions, and customs. As a result, his letters and field notebooks record more than coordinates for developing maps. While surveying, Emerson also sought out native residents of the lands he surveys, as guides. Thus,

while he was in the field, he often recorded place names, residences, trails, and various features of the natural-cultural landscape. Accompanying Emerson was his assistant, J. Perryman, who prepared detailed sketches of the Kona landscape during the time of their surveys. Among the lands sketched by Perryman was Keauhou, which was drawn on October 31, 1883, and includes three distinct view planes as they had observed from the Keauhou survey station (Figure 26). The uppermost portion of the page shows the view from Keauhou looking north toward Keahuolū. The middle portion of the page, which shows the view to the west overlooking the project area, illustrates a cluster of homes, walls, coconut groves, and a road extending through the project area. Lastly, the bottom portion of Perryman's sketch shows the view to the southwest of Keauhou Bay.

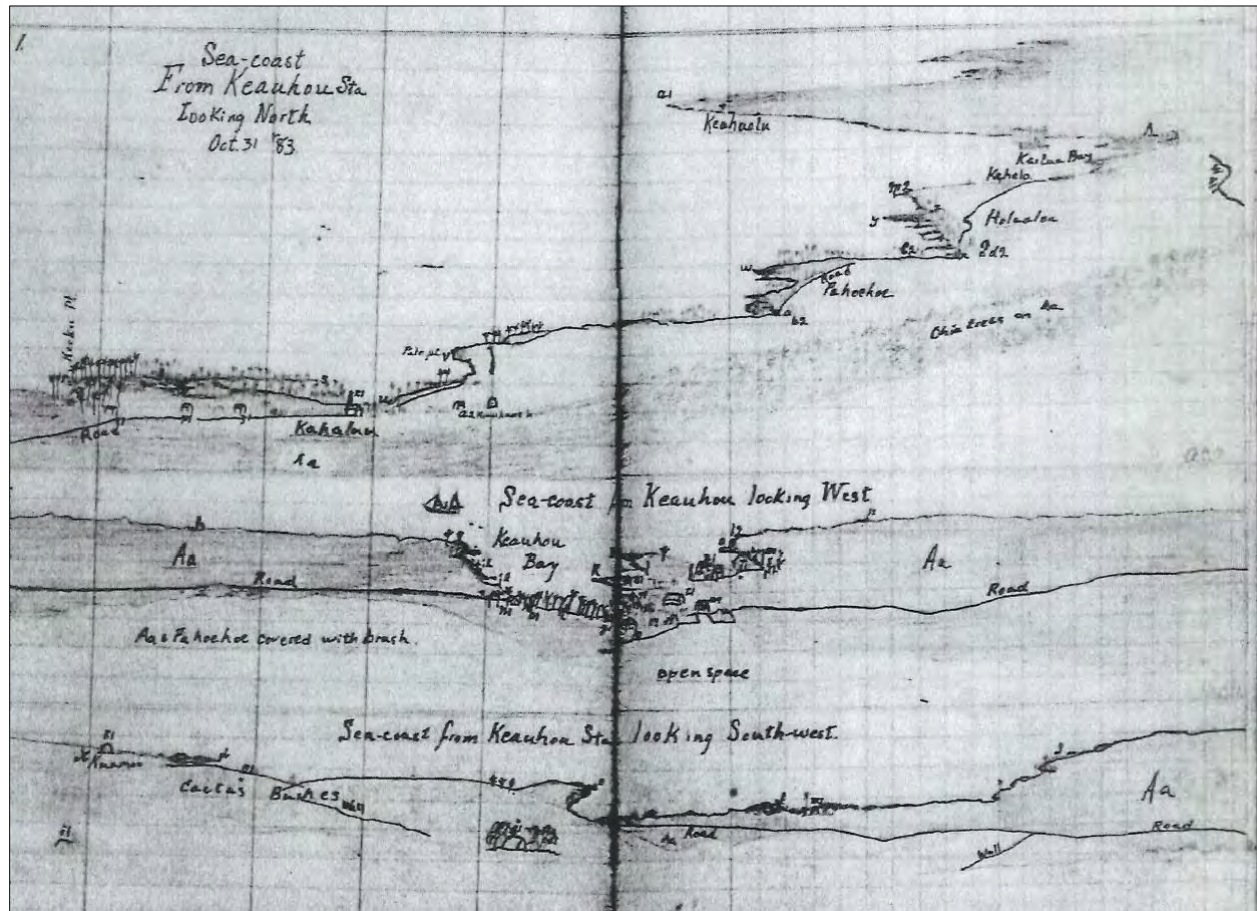


Figure 26. Perryman's 1883 sketch of the coastline from the Keauhou survey station (from Maly and Maly 2004a:95).

A more detailed look at the project area and the residences, roads, walls, and important cultural sites located therein, are recorded on sketch maps and a hydrographic map from March 1885 prepared by George Edward Gresley Jackson (Figure 27). Jackson's map shows the location of a store just inland of Keauhou Bay on the *makai* side of Pilipo's house, and a grave located in the northeastern portion of the project area on the *mauka* side of the road to Kailua. The Pilipo identified on this map is George Washington Pilipo who in 1861 became a licensed preacher and pastor. Pilipo was born in Hōlualoa around 1828, educated at Lahainaluna and took the name Pilipo (Philip) after he was baptized. He was ordained by John Paris in 1865 and replaced Asa Thurston as pastor of Moku'aikaua Church in Kailua. After six years at Moku'aikaua, Pilipo transferred to Kaumakapili Church on O'ahu but his tenure there was brief after he was accused of being involved in some financial controversy. He resigned as pastor in 1874 but maintained his involvement with the Hawaiian Evangelical Association (1863-1880s) and kingdom politics until his death in 1887. It appears that Pilipo spent the last years of his life dedicated to efforts at Keauhou (Morris and Benedetto 2019).

Notes on Gresley's map also identify the birthsite of Kamehameha III and the ruins of Kamehameha I's house, both of which are at the base of 'Ahu'ula cliff near Ho'okūkū Pond (Kekahuna and Kelsey later between 1953-1955 refute the note about Kamehameha I's house ruins explaining that this is actually Kaleiopapa Heiau; see later section titled Kelsey and Kekahuna's Survey of Keauhou Bay). Although outside of the current project area, the residence of

## 2. Background

Hoapili is shown (on the north side of the bay and west of the project area) as well as others including Keliikoa, Makainai, Kamahalo, Kaiiaki, Kapela, and Kane (see Figure 27). The Hoapili identified on this map is likely John G. Hoapili, a Kona District judge who assisted with the boundary commission hearings and who was also identified as a coffee planter in Bowser's (1880) directory. Concerning the store at Keauhou Bay, Tomonari-Tuggle (1985) reported that there was at least one predecessor to the store at Keauhou. Quoting S.D. Mackintosh, a traveler who passed through the area in the late 1830s, Tomonari-Tuggle (1985) cite:

Here is to be found one of the trading establishments with which an enterprising and industrious merchant has besprinkled the island of Hawaii; by this gentleman the natives have been furnished with numerous facilities for an exchange of produce for foreign merchandise, without which a great share of the fruits of their toil would never find their way to a purchaser. Mackintosh 1838 in Tomonari-Tuggle (1985:31)

Tomonari-Tuggle (1985) goes on to report that between 1855 and 1870, there were eleven applications made by five individuals for retail outlets in Keauhou. In comparing this number to other populated centers in Kona from this time, Tomonari-Tuggle (1985:32) concluded that Keauhou ranked second, after Kailua, thus suggesting that it may have been one of the more economically active areas along the Kona coast.

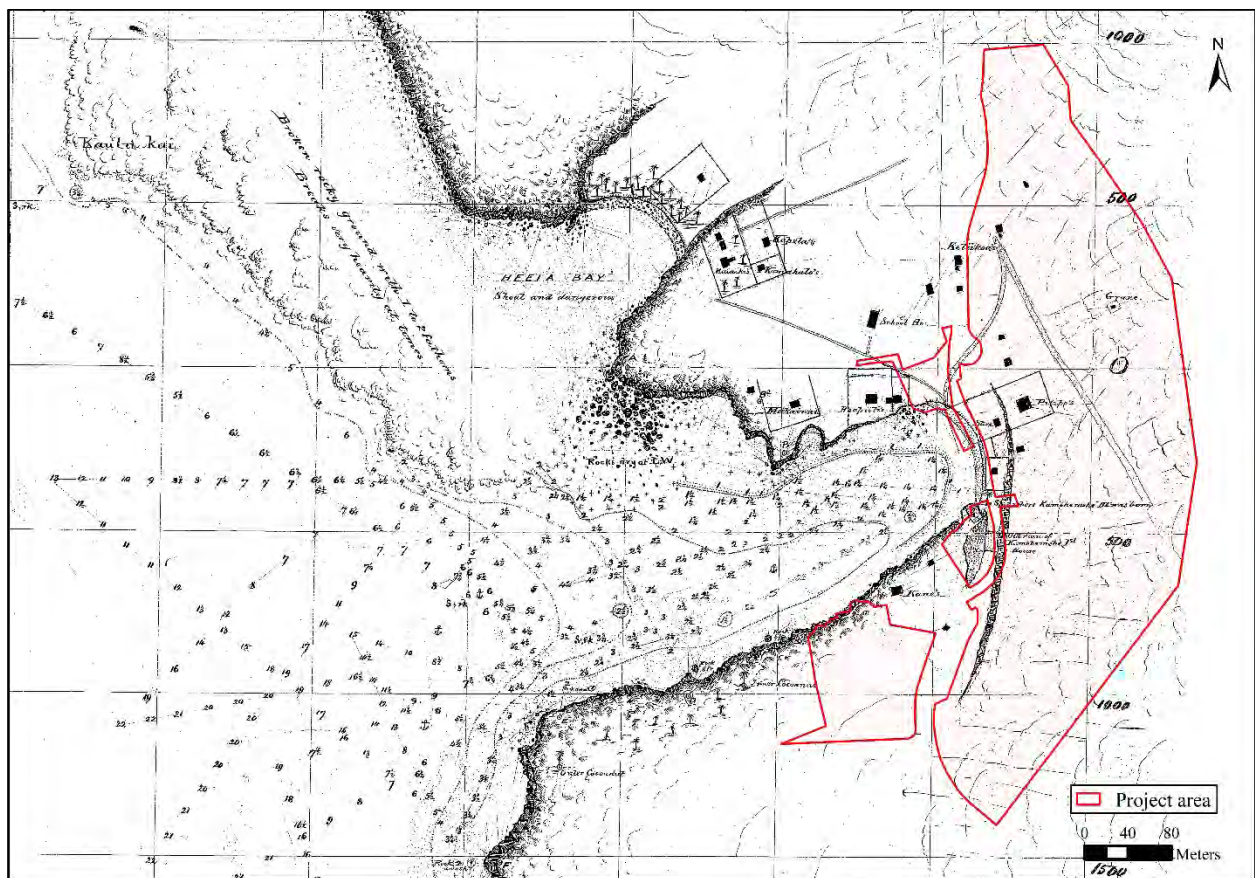


Figure 27. Portion of Hawai'i Registered Map No. 1320 prepared by G.E.G. Jackson in March of 1885.

## EARLY TO MID 20<sup>TH</sup> CENTURY HISTORY

By the early 20<sup>th</sup>-century, the development of the Kona uplands as an agricultural and ranching center was in full swing. At Keauhou Bay, infrastructure including a wharf was built to accommodate inter-island cattle shipping. An article published in the *Evening Bulletin* on March 11, 1901, states that Territorial Government allocated \$800 “for widening the wharf and building a wharf shed at Keauhou, N. Kona” (*Evening Bulletin* 1901). The location of the wharf is shown on Hawai'i Registered Map No. 2351 prepared by G. F. Wright in 1906 (Figure 28). Wright's 1906 map also shows a pier and the Government Road terminating in the vicinity of the wharf where it then transitions into the natural shoreline. Although outside of the project area, Wright's map also depicts the location of the post office within LCAw. 7053, the Keliikoa residence, and Kailiilineha (Kailiilinehe) Church and school. On the 1906 map, the

boundaries of these properties appear to be marked by stone walls. Interviews, conducted as part of this study, with *kama'āina* who grew up in Keauhou during the early 20<sup>th</sup>-century also reported on the presence of a cattle pen constructed of stone located *mauka* of the wharf (see Consultation section below). In HHF's cultural landscape study conducted for Keauhou (HHF Planners 2017), they reported that Tommy White and other ranchers shipping cattle out of Keauhou Bay constructed stacked rock corrals, water troughs, a pump house, and gates, and encouraged the growth shade trees such as monkeypod and *kiawe*, and introduced grasses to support their livestock.

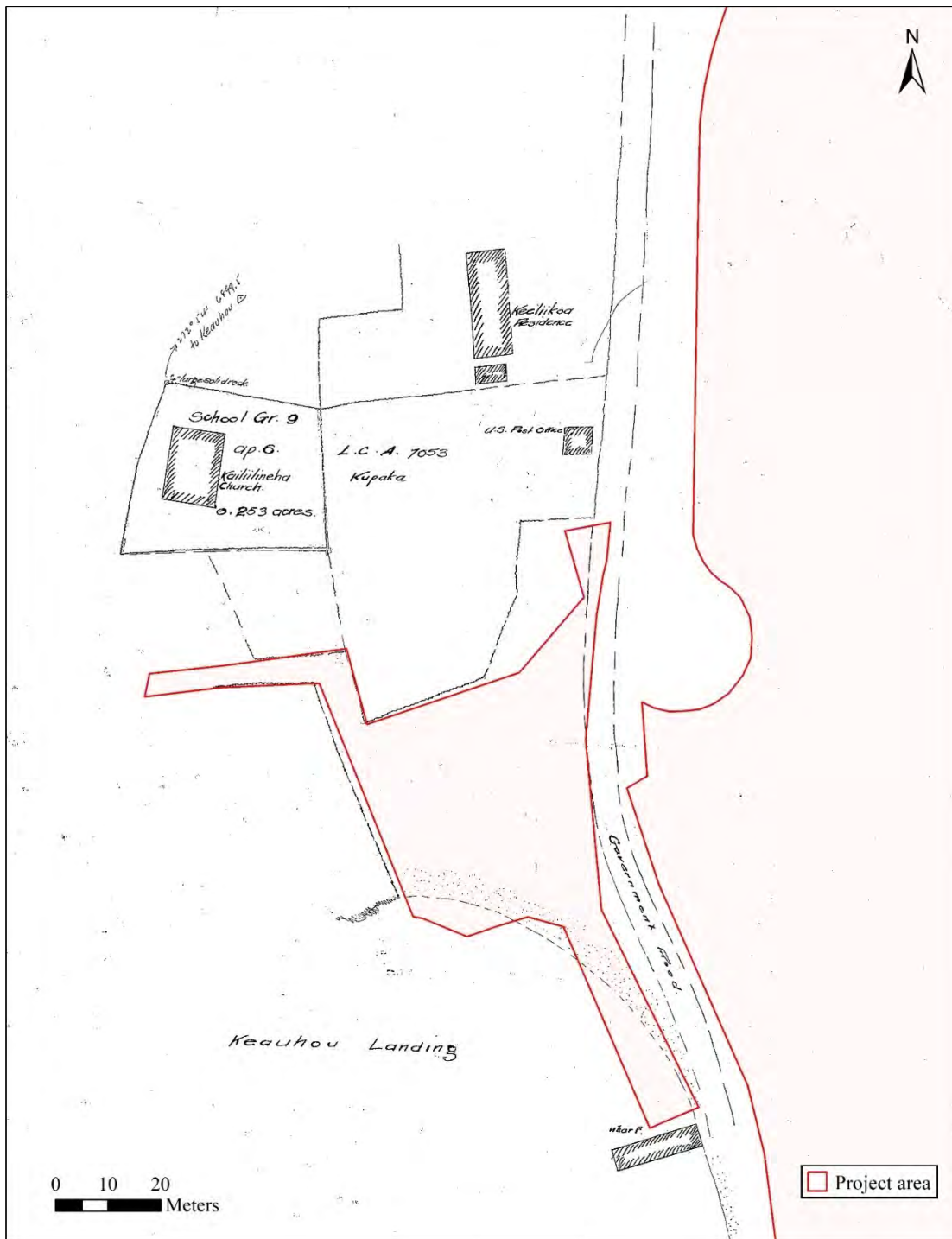


Figure 28. Portion of Hawai'i Registered Map No. 2351 prepared by G.T. Wright in 1906 showing wharf (actually a pier), Government Road, and other structures near the northern portion of the project area.

The dispersed upland and coastal communities were connected via a series of trails and roads that facilitated the movement of goods and livestock. According to Tomonari-Tuggle (1985), Keauhou was literally the end of the road from Kailua because to the south of Keauhou, the so-called road was not much more than a trail. As early as 1861, H.L Sheldon representing a group of fifty-five residents petitioned the Minister of the Interior to build a new carriage road connecting the upper Government Road (also known as the Alanui Aupuni) to the road at the shore of Keauhou:

...We, old residents of the District of North Kona, Island of Hawaii, petition to you as follows: We have been thinking, that if a new road was to be made from Keauhou, from the Government Road *mauka* to meet with the road at the seashore, then it would be a means of helping the public, but it should be a carriage road. Therefore, we petition you...to proceed according to the saw concerning same, Section 184 Civil Laws. (Interior Department, Misc. Documents #53 in Maly and Maly 2001b:82)

Within a year of their petition, the road to the coast was completed and its location is shown on a 1927 USGS map (Figure 29) as the dashed line extending in a northeasterly direction from the coastal road, through the project area where it connected with the upper Government Road. Shortly after the construction of the new carriage road, the Keauhou residents requested that trail to Kainaliu (shown in the 1927 USGS map as the dashed line extending in a southeasterly direction from the coastal road, through the project area) be closed because livestock was wreaking havoc on their *kula* planting fields. The 1927 USGS map illustrates the many paths, trails, and roads that connected the coastal and uplands areas. Within Keauhou 1<sup>st</sup> and 2<sup>nd</sup> Ahupua'a, Cordy (1989) who prepared an investigative report on the trails in the area, described two trails that cut across the *ahupua'a* in the coastal zone and six trails extending from the coast to the uplands:

Two major trails cross the ahupua'a dating to prehistoric and early historic times. These are the coastal trail and the inland trail, the latter approximating the Kona Belt Road. The inland trail is labelled [*sic*] alternatively main trail (ala nui), government main trail (alanui aupuni), and long trail (ala loa). The coastal trail is labelled main trail (ala nui). These would have been the major public routes across the ahupua'a. It appears that by the late 1800s another cross-ahupua'a trail may have been present, branching off the coastal trail south of the holua slide in Keauhou 2 and extending up to Kainaliu in the uplands. This is labeled "old carriage road" by Reinecke, "old road to Kai-na-liu" by Kekahuna, and a historic period "cart road" by archaeologists (Hammatt & Folk 1980)

Six inland-heading trails extend from the shore up to the agricultural fields...Two...are in the north identified by Reinecke. Two...are in the central and south areas...connecting to the Heeia and Keauhou bay housing areas...Two more...are identified in the uplands. (Cordy 1989:11)

These trails would have been internal ahupua'a trails in prehistoric and early historic times, used by residents of the ahupua'a to travel between their fields and the shore. (Cordy 1989:14)

In addition to requesting improvements to the road, George W. Pilipo, published an article in the Hawaiian language newspaper *Ko Hawai'i Pae 'Āina* urging a group from Helani Church, known as the Hui 'Ōpiopio 'Imi Pono Karistiano o Helani (HOIPK) to clean and improve Kauikeaouli's birthsite and to create a kind of barrier (*pā*) to better protect this place. That portion of the article reads:

*E na lala o ka Hui. Ua kukulu mai nei o Kauikeaouli i kana mau hana i Kia Hoomanao nona i ka Puuwai o ka poe Hawaii; a heaha hoi ka kakou e panai aku ai? Aole anei e hiki ia kakou ke hoohui i elua, a ekolu, a o kakou paha a pau, e hoomaemae kahi o kona hanau ia ana a me kela pohaku i waiho a make ai imua o Kapihe ke kau e hoopuni i pa kupono, i ole ai e kapulu wale ia e ka poe noonoo ole, manao au, he mea kupono kela, alaila, ua maikai a oiaio ko kaou aloha. (Ko Hawaii Pae Aina 1885:3)*

Dear hui members: Kauikeaouli's actions became a memorial within the hearts of the Hawaiian people; what will we reciprocate with? Can two, three, or all of us come together to restore the site where he was born as well as that rock he was left on as a stillborn in front of Kapihe, as well as to place an enclosure around [the site] so that it is not disturbed by thoughtless people? I believe that is a good thing, then, our aloha is good and genuine. (Translation by H. Kapuni-Reynolds, ASM Affiliates)

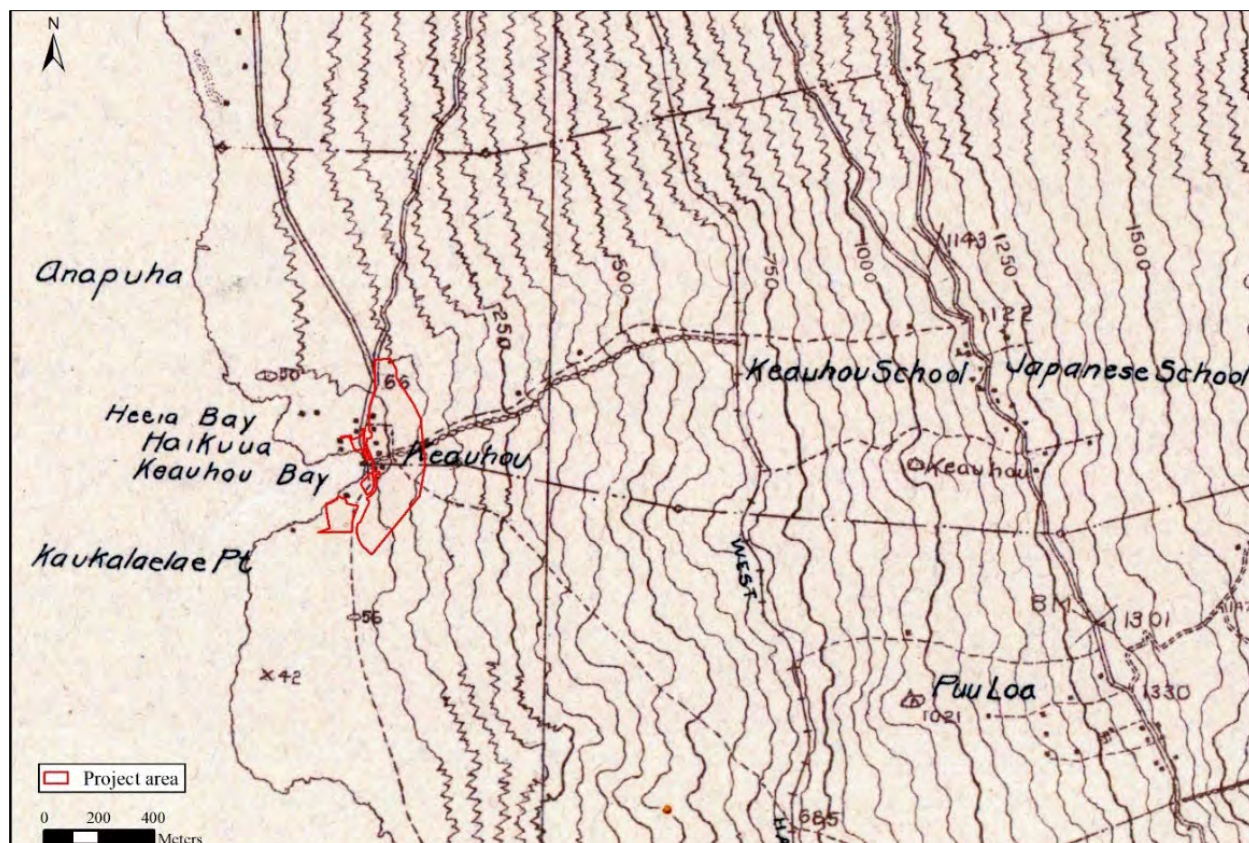


Figure 29. 1927 USGS Kainaliu Quadrant map showing road terminating on the north side of the project area and three trail routes within the project area.

On June 15, 1896, a tsunami generated by an 8.5 magnitude earthquake centered off the coast of Sanriku, Japan, caused major damage to the Keauhou shoreline (Shepard et al. 1950). Local postmaster and legislator, Henry L. Kawewehi submitted an article to the Hawaiian language newspaper, *Ka Maka 'āinana*, describing the destruction. Portions of Kawewehi's article have been quoted below:

*Ma ke kakahiaka Poakahi nei, o ia paha ka hora 9, i hiki mai ai kekahi kai hoe nui i ike ole ia mamua ma Keauhou nei, a na ia kai hoe weliweli i ulupa iho i kekahi mau hale o makou nei. O na hale i poino mai ua hana ana a keia ino, o ia ko J.N. Koomoa, C. Kaiiaki, Aki (Pake), Manuia, Keawe, Kaha, Sam'l Keawe a me ko Albert K. Hoapili. Ua pii mai ke kai me ka weliweli, a me he mea la, ua aneane no e 18 kapuai ke kiekie o ke kai mai ka ili honua maloo ae. O kekahi o na Waiwai o keia mau hale i poino, ua pau aku i ka lilo i ke kai a ke emi aku no hoi kei kai, waiho wale ka papaku o ka hohonu e kihe ai ka pukaihu o ke kanaka ke luu a loa ka papaku o lalo, aka, i na hana hoi a ke kai, waiho wale ana "na iwi o Hua i ka la," a he ku maoli no oe i ka weliweli ke nana aku. (Kawewehi 1896)*

This past Monday morning, around 9 am, a great tidal wave, never before seen at Keauhou, arrived. That fearful wave destroyed some of our homes. The homes that were destroyed by this disaster were those of J.N Koomoa, C. Kaiiaki, Aki (Chinese), Manuia, Keawe, Kaha, Samuel Keawe and Albert K. Hoapili. The terrifying wave rose close to 18 feet high from the surface of the earth. Some of the valuables of the destroyed homes was taken by the receding waters and deposited in the depths of the ocean where divers must dive to reach the bottom. The work of the ocean was like exposing "the bones of Hua in the sun" and it way truly dreadful to look upon. (English translation by Lokelani Brandt)

## 2. Background

A historic photograph of Keauhou Bay taken at the turn of the century provides a bit more detail into the character of during this period (Figure 30). This photograph, which depicts the eastern portion of the bay shows a wooden post and pier home, the residence of Mr. Tommy White, constructed on a stone platform projecting into the bay, along with several homes set back from the shoreline, a portion of the pier, and several stone walls along the shoreline (see Figure 30). Shepard et al. (1950:402) reported that on the morning of August 9, 1901 another *tsunami* consisting of “a wave about 4 feet high” impacted the Kona coast which swept away a house at Keauhou.



Figure 30. Keauhou Bay ca. 1900 (Hawai‘i State Archives PP-29-11-032).

Rancher and businessman, Tommy White leased a property (see Figure 30) along the bay as well as a large tract in the uplands of Keauhou and Kahalu‘u where he operated a cattle ranch. Tommy White and his wife Elizabeth Kahololeikini hosted many celebrations at their coastal residence. One such account written by Kawewehi tells of a birthday celebration held on June 26, 1908 at the White residence in honor of Mele Kipimana, the wife of W.H. Shipman and sister of Elizabeth Kahololeikini, Carrie Robinson, and Mrs. J.D. Paris—all of whom married prominent Hawai‘i Island ranchers. Kawewehi’s article, published in the June 26, 1908 edition of the Hawaiian language newspaper *Ka Nūpepa Kū‘oko‘a*, which describes the residence, the festivities, and includes some historical information about the birth of King Kauikeaouli, is included below along with a translation prepared by Kepā Maly in 2012 which appeared in (HHF Planners 2017)

*Mamua ae o ka manawa o ka aha-aina  
ua hoomaka mua ia ke kukulu ana i  
kekahi lanai nui hewahewa e na kanaka  
o ka aina a i hoopili pu ia aku no ii ka  
Home noho o Thos. C. White, a he mea  
kanalua ole no ke olelo ae oia paha  
kekahi o na lanai u‘i loa a i hana maiiau  
loa ia malalo o na hooponopono ana a  
Mrs. Robinson ame Mrs. White, a he  
laeula maoli no na hookele hana ana a  
keia mau kaikamahine.*

*Ua kukulu ia keia lanai iloko o ekolu la  
a hiki i kona pa‘a pono ana; o kona*

Prior to the feast, there was built a very large lanai shelter by the people of the land, adjoining the residence of Thos. C. White, and it is said without a doubt that it was perhaps one of the most beautiful ever seen; it was made under the guidance of Mrs. Robinson and Mrs. White, both of these daughters were well trained in this work.

This lanai was completely built in three days; its post were ohia, and its covering was three layers of stripped coconut fronds; and upon seeing it, it



*mau pou he ohia ame ka ohia i uhi pakolu ia iho hoi oluna me ka launiu i kihahae ia; a ke nana aku me he mea la oia no oe la o ka moena pawehe o Mokuleia; a ke hoomaopopo aku no e ua ka ua nui aole e kulu...*

*Ua hoopihia ia ka papaaina i na ono like ole e hiki ole ai i na manamana lima ke hoomaopopo ia wai lakou e hoopaa mua iho ai oia ka io bibi momona o Kaukahoku i makana ia mai e Mrs. Robinson, a i hoolua pu ia me ka i'o puua kahi kelekele o Halekaupoku i manawalea ia mai e Mrs. White; na opihi makaiauli pili a o na Hau o Maihi, na limu lipeepee moani o Papahoaie, na limu kihe hanu ala o Kalepo a me na limu Hinakea noho papa o Paheehee...*

*A mamuli o ka oukou mau hana lokomaikai oluolu, a puuwai hamama, ua lilo ia he kia hoomanao poina ole iloko o ko makou mau puuwai pakahi a ma ke ano hoi a me ke kulana o ke kahua o ka lanai nolaila ke kapa ia nei ka inoa o ko kakou lanai o Keopuolani ka makuahine alii nana i haawi mai i ka mea kiekie ka Moi Kauikeaouli ka lokomaikai a i ike ia hoi o ka Moi Kamehameha III.*

*Malia paha e lilo ana no ke kapaia ana o keia inoa i mea e hookuihe aku ai i ka noonoo o ka mea heluhelu, nolaila e hoakaka iki aku ka mea-kakau.*

*Ua hanau is ka Moi Kauikeaouli ma Keauhou nei a ma kahi kokoke loa hoi i kahi ku nei keia lanai aole no paha i oi mamua o ka 20 kapuai ka mamao, a o kona hanaiia ana ma ke kahua pono no o keia lanai a ku nei; nolaila ke manao nei ka meakakau ua kohu pono loa iho la keia inoa Keopuolani a e mau aku hoi ke o ana o ia ino ia hanauna aku a ia hanauna aku; a ole ae la hoi ka inoa o ia makuahine alii i hala wale i okiloloa...(Kawewehi 1908)*

In 1913, Henry W. Kinney published a visitor's guide to the island of Hawai'i. In the guide, he included the following write up of Keauhou, in which he detailed the area during this time as well as highlighting the location of significant sites and practices:

KEAUHOU is the next village south of Kahaluu. It is a steamer landing and is of particular interest. It was the birthplace of Kamehameha the Third, the place of his birth being shown as a big rock immediately mauka of the big monkeypod stump about 200 feet south of the wharf. The king lived, in childhood, where the White house now stands makai of the stone mentioned. It was tabu for the people to walk on the cliff above the house in the morning, when their shadows would fall on the

looked like one of the mast of geometric designs from Mokuleia; it was known that should it rain, it would not leak.

The dining tables were filled with all manner of delicacies, one's finger could not decide which one of them to touch first. The fattened beef of Kaukahoku, given by Mrs. Robinson, together with the glistening, fat pig meat of Halekaupoku, donated by Mrs. White; the opihi makaiauli which cling to the rocks of Hau o Maihi, the sweet scented limu lipeepee of Papahoaie, the fragrant limu of Kalepo, or the Hinakea limu which is found on the reef of Paheehee...

Through your kind and open heart, let this account become an unforgettable tribute in our hearts, and let me describe the character of the lanai, which was given the name of Keopuolani, for the royal mother who have us his highness, King Kauikeouli, the benevolent, known as King Kamehameha III.

Let me explain to the multitudes, how this name came about.

King Kauikeaouli was born at Keauhou at a place very close to where the lanai was situated, perhaps not more than 20 feet away, and he was cared for at the platform where this lanai stood; therefore it was thought by the author that it was correct to give the name Keopuolani. The passing on of this name should be continued, generation to generation; that the name of the late royal mother live on as a sign forever... (translation by Maly and Maly 2012 in HHF Planners 2017:33, 37)

house. Those who wanted to cross, had to swim. Mauka of the village is seen the most famous papa holua in the Islands, a wide road-like stretch, which was laid with grass steeped in kukui nut oil so as to allow the prince and his friends to coast down in the sleighs constructed for the purpose. At the end of the slide was a lanai, where the prince and his friends would don malos and go with their surfboards far out to sea, where the surf would carry them right to the prince's house. Here are also the remnants of the heiau Makole-a. A short distance further south stood the heiau Puu-o-Kaloa. The Hawaiians still look for a dumbbell-shaped cloud to connect it with the heiau of Keeku (See Kahaluu), which is a certain sign of rain. When it appears it is a good time to plant. In harvest time, when improvident ones would beg for food, the proverbial answer was "Where were you when the could laid its hands on Puu-o-Kaloa and Keeku?" South of Keauhou lies KUAMOO, famous as the site of the great battle where the rebel chief Kekuaokalani, who opposed the abolition of the tabu system, fought in 1819, Queen Kaahumanu's army. He was killed, after a sanguinary battle, and with him fell his heroic wife, Manono, who had fought by his side. The graves of the slain are still to be seen. (Kinney 1913:61)

### **Centennial Commemoration Marking the Birth of Kauikeaouli**

In 1914, the Daughters of Hawai'i, an organization founded in 1903, coordinated an elaborate commemorative ceremony to mark the centennial of the birth of King Kauikeaouli. The first of the ceremonies—the unveiling of the stone tablet—was held on March 17 at Kawaiaha'o Church on O'ahu. The tablet was then transported to Keauhou for the follow-up ceremony which was held on August 15. The ceremonies were attended by Queen Lili'uokalani and other noted Hawaiians. An article published in *The Honolulu Advertiser* on March 17 described the ceremony thusly:

With ceremonies as interesting as they will be unique, the Daughters of Hawaii this afternoon, at Kawaiaha'o Church, will unveil a stone tablet, which later is to be taken to Keauhou, Kona and inset into the famous Kauikeaouli Stone, a huge saucer-shaped lava rock which marks the birthplace of Kamehameha III, born one hundred years ago today. The tablet, a tribute to the memory of "the beneficent King" will be unveiled by Her Majesty, Queen Liliuokalani, assisted by the High Chiefess Elizabeth Kekaaniau Pratt. The covering of the tablet will be the Royal Standard of Hawaii, loaned by the Queen for the purpose.

Two distinctly Hawaiian features will mark the program. One is to be the chanting of the "Life Giving Prayer," the words of which were chanted over the supposedly dead body of the newly born babe a century ago in the heiau of Keauhou by the high priest, the incantation being answered by the gods and breath coming to the body of the prince. The prayer will be recited by one of the very few living who know it as it has never been written down, and never will be, such is its sacredness in the minds of the Hawaiians. Mrs. Naha Hakuole, who will recite the words, learned them from her mother, to whom they had been imparted by her mother, all by word of mouth. The same lady will chant the koihonua of Kauikeaouli, his genealogy. (*The Honolulu Advertiser* 1914b:7)

Following the ceremonies held at Keauhou on August 15, *The Honolulu Advertiser* published an article detailing that day's events and included photos of the ceremony:

The ceremonies connected with the dedication of the memorial tablet to mark the birthplace of Kamehameha III were held at Keauhou, Hawaii, Saturday, August 15.

Her Majesty Queen Liliuokalani, attended by her chamberlain, Curtis P. Iaukea and Mrs. Iaukea and a delegation from the Daughters of Hawaii left Honolulu for Kona on the Mauna Loa, Friday, August 14. The ladies in attendance on the Queen included Mesdames C.S. Holloway, A. Ahrens, F.M. Swanzy, E. Henriques, M. Reis, A. Wall, Carrie Robinson, Mrs. Kekuewa, Miss Lucy K. Peabody, and many other prominent in Hawaiian society.

The Mauna Loa also conveyed the granite memorial tablet which was to be dedicated.

#### **Met By Royal Canoes**

As the Mauna Loa entered Kailua harbor Saturday morning the steamer was met by a royal double canoe manned by rowers clothed in ancient feathered cloaks and leis of scarlet and yellow. The big double canoe was accompanied by a retinue of canoes filled with warriors in ancient costume.

The stone was lowered into the double canoe and the fleet paddled down the coast to the harbor of Keauhou.

In the mean time the Queen and her party landed at Kailua and were taken in automobiles overland to Thomas C. White's residence at Keauhou where breakfast was served.

#### Revival of Old Days

The ceremonies attendant upon the landing of the tablet were an elaborate recrudescence of the ancient customs of the people. the stone was carried on a litter borne by twelve stalwart descendants [Figures 31 and 32] of the warrior chiefs, each clad in costume emblematic of the rank and calling of his ancestors.

A tent awning had been erected in which Liliuokalani sat [Figure 33] surrounded by her high chiefesses and her chamberlain, and from which she viewed the ceremonial.

Delegate to Congress, Jonah K. Kalaniana'ole and his party were present, and the orator of the day was Rev. Stephen Desha. A very large concourse of Hawaiians was in attendance to do homage to their Alii. The dedication ceremonies were simple, impressive and dignified. After the conclusion of the dedication a luau prepared by the Kona people was served to several thousand who had gathered to take part in the celebration.

The Queen and her party went overland to Hilo and will return to Honolulu on the Mauna Kea this week. (The Honolulu Advertiser 1914a:7)

Additional historical photos of the commemorative events at Keauhou were retrieved from the Hawaiian Mission Houses library and archives and included below as Figures 34 through 38.



Figure 31. Stone tablet being carried by attendants (The Honolulu Advertiser 1914a:7).



Figure 32. Stone tablet at Keauhou Bay (The Honolulu Advertiser 1914a:7).



Figure 33. Queen Lili'uokalani and her attendants at the White property (The Honolulu Advertiser 1914a:7).



Figure 34. Canoes carrying stone tablet arriving at Keauhou Bay, 1914 (Hawaiian Mission Houses Albert Baker Collection N-B0135a).



Figure 35. Stone tablet being carried to birthplace, 1914 (Hawaiian Mission Houses Albert Baker Collection N-B0135c).



Figure 36. Queen Lili‘uokalani at the White residence (Hawaiian Mission Houses Albert Baker Collection N-B0136).



Figure 37. View of Keauhou Bay (foreground) with entrance to Kauikeaouli’s birthplace (background) (Hawaiian Mission Houses Albert Baker Collection N-B0134a).



Figure 38. Entrance into Kauikeaouli's birthplace with stone tablet behind gate (Hawaiian Mission Houses Albert Baker Collection N-B0134b).

Following the commemoration ceremonies to honor the birth and birthplace of King Kauikeaouli, life at Keauhou resumed as a quiet fishing village and ranching community. By 1924, to support his ranching efforts, Tommy White constructed or reconfigured many of the stacked stone walls built along 'Ahu'ula Cliff to create small corrals for his livestock and constructed a shed and two tanks on his parcel. These changes are shown on a series of maps prepared in 1924 Bishop Estate Surveyor, G. Podmore and annotated by HHF Planners (Figure 39)(HHF Planners 2017). This map also depicts portions of 'Ahu'ula Cliff, Kamohoali'i Heiau, a Ho'okūkū Pond (labeled on the map as "pond" shaded blue), the coastal road extending from the north side of the bay towards the White residence where it transitioned into a trail, and the birth place of Kamehameha III.

Ranching persisted as an economic mainstay for many of the families in Keauhou and the greater Kona District. Cattle raised in the district were shipped to markets in Honolulu via steamship. Local ranchers retell personal accounts of driving cattle from Kainaliu along the coastal trail to Keauhou where they were held overnight in pens until the steamship arrived the following morning. Sandy Manuel (Haanio), who was interviewed as part of this study recalled how cattle were brought down from the uplands using the *mauka-makai* trail, one of which was located near their family's *makai* home.

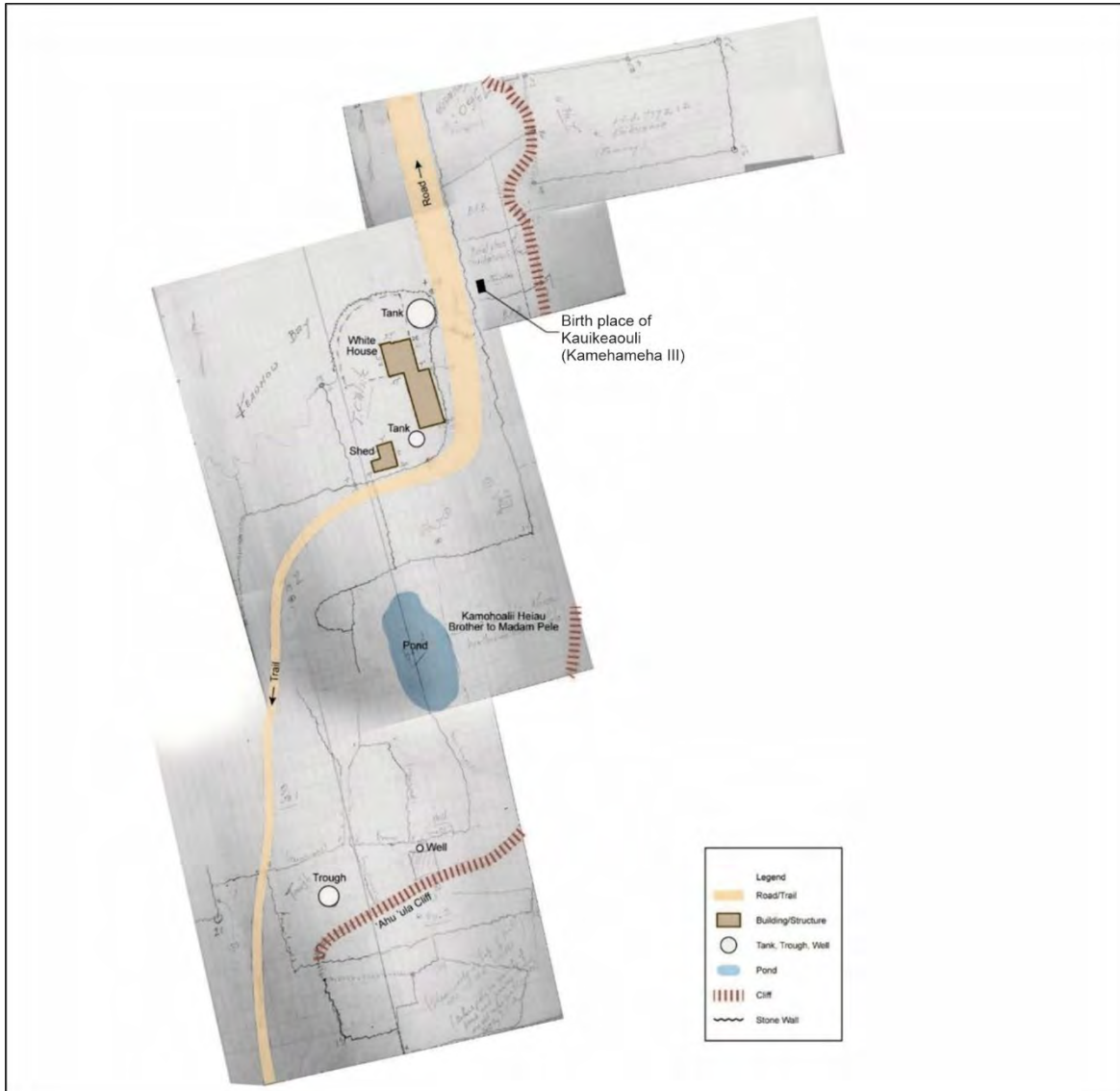


Figure 39. G. Podmore’s 1924 map annotated to highlight details of the White residence and other areas along ‘Ahu’ula Cliff (HHF Planners 2017:46).

An interview with Lily Haanio-Kong, who was born at her family homestead overlooking Keauhou Bay in 1927 recalled life at Keauhou during this time:

...My father, Harry Ha’ani’o was a fisherman, and we also had kuleana land at Keauhou mauka, where we grew kalo, ‘uala, and all kinds of crops... My mother was Mary ‘Āinako’ako’a Ha’ani’o and she was a housewife. When I was growing up, there was only about 13 or 14 families around us on Keauhou Bay—my Aunt Ida Akana-Chai; Robert Kahalio’umi (the brother of Thomas and Ben Kahulamū); Kalani Kinimaka; the Woods, Hinas, Whites, Roy Wall, and James Ko’omoa; Alika; Henry Akā Kawewehi; Kahale Kaimihana; mother Ka’aha’āina (who lived to be 115 years old); Alice Hoapili; and the Walkers. It was a very close community. Most all of the Hawaiians were either fishermen or farmers. (Maly and Maly 2003:12)

Historical photos from 1916 (Figure 40), 1920 (Figure 41), 1935 (Figure 42), and 1937 (Figure 43) show Keauhou Bay and the project area during this period. The photos show several homes located a little inland within the project area boundaries, the coastal road, and a roughly 50-foot-long rectangular wooden pier with corrugated iron roofing projecting into the bay. A 1932 tax map (Figure 44) shows the distribution of the lots, the route of the “Kailua-Keauhou Beach Road,” the “Keauhou Trail” traversing in a *mauka-makai* orientation, and a portion of a 2.15 acre cemetery within the current project area.





Figure 40. Keauhou pier, 1916 (Hawai'i State Archives PP-29-11-002).



Keauhou Cove, North Kona, Hawaii, where Kamehameha laid up the "Fair American," after its capture by Kameeiamoku. Menzies visited this place 16th January, 1794.

Figure 41. View of pier (left), White residence (right) and other structures along Keauhou Bay, ca. 1920 by W.G. Wilson (in Menzies 1920:149).



Figure 42. Keauhou Bay, pier, and corner of White residence ca. 1935 (Hawai'i State Archives PP-29-11-031).



Figure 43. Aerial image of Keauhou Bay taken July 15, 1937 (National Archives).

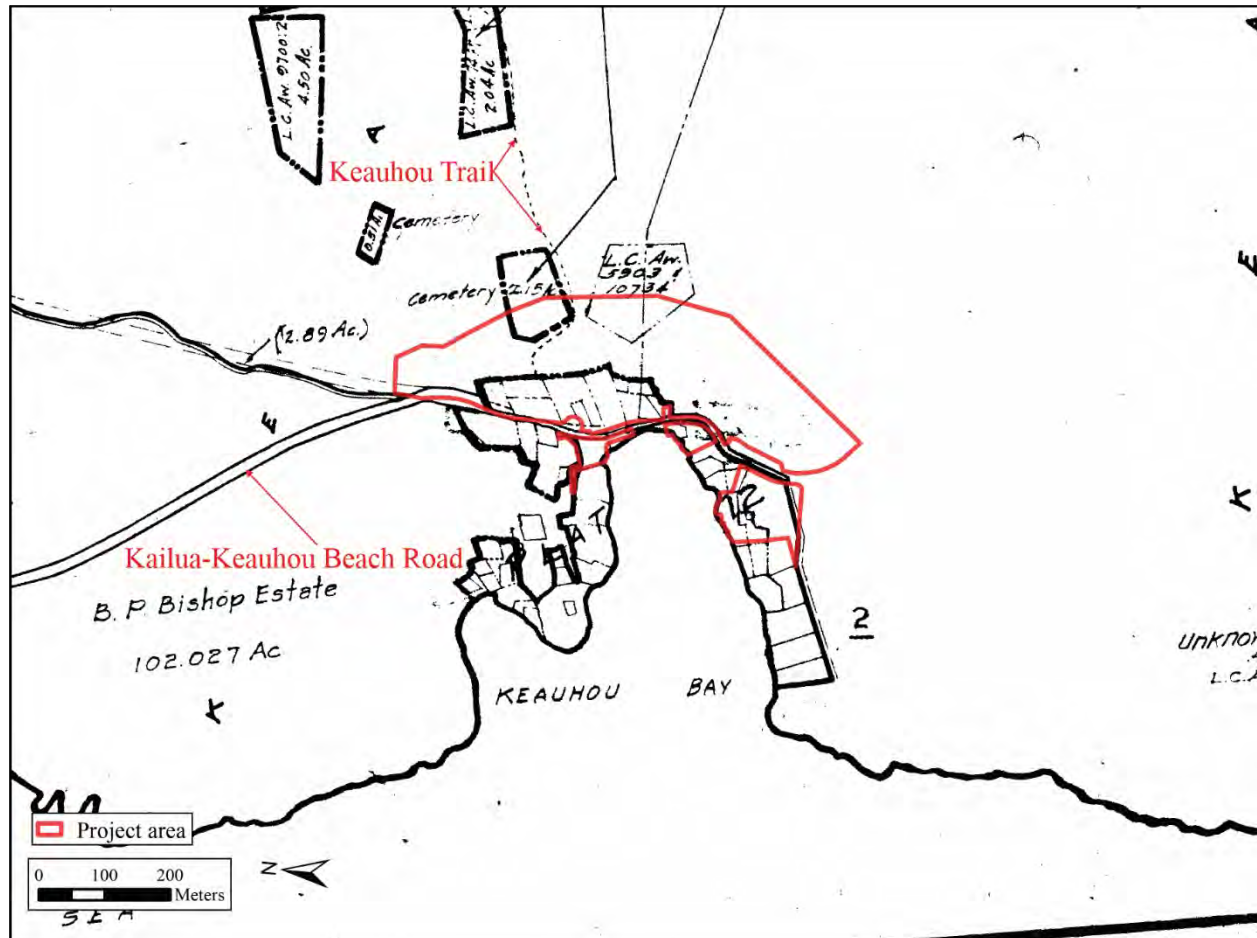


Figure 44. Portion of TMK (3) 7-8-10 showing project area in 1932.

Tourism slowly grew as a mainstay for the district's economy, especially for visitors seeking retreat from the industrially curated visitor experience. Such ideas are evident in an account written by American traveler and author, Harry A. Frank, who visited Kona during the 1930s and penned the following description:

The Kona coast has something about it that is not quite describable. It lacks that atmosphere of ball-bearing Big Business so general in the Hawaiian Islands...because the contour of Kona does not play into the hands of the big industrialists...this leaves a chance for things homegrown for the grower's own use, does not reduce Kona to a holding of a big corporation or two...so there remains a hint of the old Hawaii there. (Frank 1937 in Tomonari-Tuggle 1985:35)

Life at Keauhou was severely disrupted when on April 1, 1946, a magnitude 8.6 earthquake rocked the Aleutian Islands, sending a deadly *tsunami* racing toward the Hawaiian Islands. Although not in the wave's direct path, the sea at Keauhou "rose 13 feet" and according to one account, a single home was destroyed (Shepard et al. 1950:440). Ethnographic interviews gathered over the years with *kama'āina* reveal that the damage was, however, far more extensive. According to *kama'āina* Lily Ha'ani'o Kong (born in 1928) and Barbara Nobriga (born in 1938), the original pier (see Figures 40-42) at Keauhou was destroyed (Rechtman 2015). During the ethnographic interview with Mrs. Nobriga conducted as part of this study, she explained that their family's *makai* home at Keauhou was also destroyed. Historical photos taken four years later in February 1950, shows the pier no longer in existence (Figures 45 and 46) and the remains of the former White property (which housed Queen Lili'uokalani during the commemorative ceremonies) including the seawall and a stone staircase (Figure 47).

## KEAUHOU POST TSUNAMI OF 1946

Following the 1946 tsunami, Charles Machado leased, from Bishop Estate, land a short distance inland from the destroyed pier where he had a fleet of fishing boats. The Machado's installed a dry dock with sheds, a hoist, a concrete ramp, and a marine railway, all of which are shown in historical photographs from February 1950 (see Figures 45 and

## 2. Background

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46) (Rechtman 2015). The Keauhou Road, which followed the shoreline, was improved from a low-lying compact coral road to an elevated road with a basalt rock base (see Figure 45) (HHF Planners 2017). In the following decades, more changes occurred that continued to alter the landscape of Keauhou all while ushering in an era of commercialization. According to Mrs. Nobriga (interviewed as part of this study), and Lily Haanio-Kong who was interviewed by Maly and Maly (2003), in the early 1950s, the passage into the bay was deepened when the bay was dredged using dynamite. Lily Kong reflected that:

One of the things that makes me really sad about this place today, is that they dredged the bay in the 1950s. You see how the ocean is like *kai mimiki*, like its agitated and being pulled out before a tidal wave; well it never used to be like that in here. The water was always *mālie* and clear, but when they dredged the bay, the water changed. You know that's one of the things now-a-days, they change the nature of things, they open up the bays, or make the tidal pools open out to the ocean, and its all *hāmama* (open up), just waiting for the big water. They change things and it makes problems. (Maly and Maly 2003:13)

Despite the physical changes brought about by the *tsunami*, Keauhou remained a historically meaningful location. During the early 1950s, one of the most detailed studies documenting the area's rich history and significant places was undertaken by Theodore Kelsey and Henry Kekahuna. Their work, which is detailed below, captures important changes to the project area during the 1950s, all while illuminating the historical character of this land.



Figure 45. Keauhou Bay in February 1950 showing absence of pier and the Machado dry-dock where the boat and vehicles are parked (Hawai'i State Archives PP-29-11-003).



Figure 46. Keauhou Bay shoreline in 1950 (Hawai'i State Archives PP-29-11-006).



Figure 47. View of the White property in February 1950, showing remaining seawall and stone staircase (Hawai'i State Archives PP-29-11-005).

### **Kelsey and Kekahuna's Survey of Keauhou Bay**

Detailed knowledge of the coastal Keauhou area during the mid-20<sup>th</sup> century comes from the work of historian, Theodore Kelsey, and Maui-born cartographer, Henry Kekahuna. Together the duo undertook an extensive study to map the cultural sites in different parts of Kona and compiled historical notes based on information they obtained from elder local informants, one of which included Mrs. Naluahine Kaopua of Kahalu'u. Their work has proven invaluable to understanding the cultural-historical context of Keauhou during this time. Between 1953 and 1955, Kekahuna published several maps for the coastal section of Keauhou including one covering the shoreline of Keauhou and He'eia bays (Figure 48), one showing the sites in the vicinity of Kaleiopapa Heiau, the birth site of Kamehameha III (Figure 49), and one depicting the royal *hōlua* (see Figure 19).

Historical notes for specific sites (shown below in Figure 48 and labeled as A through N) found around Keauhou Bay have been extracted from Kekahuna's map and transcribed below. As shown in the text below, Kekahuna's notes not only describe the physical condition of some of the sites but also highlights certain cultural practices, historical figures, natural resources, and changes that had occurred prior to his visit.

- A This was once a well-terraced area where royalty viewed surf-riding contests. From about a mile offshore northwest of He'e-ia Bay, and a mile out from Pa-he'ehe'e, near the boundary of Ke-au-hou I and Kaha-lu'u, contestants rode the celebrated surf of Ka Nalu O Ka-Ulu—The Waves of Ka-Ulu—then continued on in the surf of Kala-pu, a little seaward of Ku-maha-ula Pt., right up to the now pebbly black sand beach of He'e-ia Bay.
- B Chiefs and priest, including judges of surfing contest, here assembled on a paved area 1.5 ft. h, by 30 ft. w, by 50 ft. l, extending northwards near the cliff of He'e-ia Bay.
- C Here on the top of a watch tower ('ale'o) about 30 ft. high, an umpire would have a signal-flag to start a contest between surf-riders in the surf of Ka Nalu O Ka-ulu, and holua-sled riders on the famous royal holua-slide, which then extended about 5,000 ft. from the top of Pu'u O Kaomi-la'o, a hill in the upland, to a point close to He'e-ua Bay. The first contestant to reach the bay, whether surf-rider or sled-rider, was proclaimed victor.
- D Originally, the royal holua-slide ended here near He'e-ia Bay, where a holua-idol stood. The rocks of the lower portion of the slide, about 2,000 ft. long, were unfortunately removed for various purposes subsequent to the Great Mahele (Land Division) of 1848. The upper half, over 3,000 ft. long, and about 50 ft. wide, preserved for posterity through the efforts of Mr. J. Paris, now ends about 750 ft. eastward from Ke-au-hou Bay.
- E The concrete tomb of chief Kane-hoa, a son of the noted chief Hoa-pili, close companion of Kamehameha I. Chief Kane-hoa, grandfather of the present Hoa-pili families, was a brother of chief Maka-'ina'i, who lived with his family on the land where the tomb now lies.
- F The remnant of the foundation platform of a royal residence of ancient King Lono-i-ka-makahiki. When Kamehameha I became king, he and his royal family occupied the sites, and the area west of it to Ha'i-ka-ua Cove. His royal canoe landing was Pueo Cove.
- G The remnant of a stone house foundation, with a solitary kukui tree near the middle of it, here marks the birthplace of the noted Hawaiian antiquarian David Malo, son of 'Ao'ao and his wife He-one. (Malo was born Feb 18, 1875, and died at Ka-lepolepo, Maui, Oct. 21, 1853)
- H Site of Ka-moho-alii Heiau, of which only a few large stones remain.
- I Site where chief Kane-hoa's residence stood.
- J Cave of Mo'i-keha (Ke ana o Mo'i-keha) in which a chief Mo'i-keha hid, with only his legs barely visible, to escape pursuers from Ka-'ū. Fortunately he was undetected, as this his life was saved.
- K A monument to the memory of King Kamehameha III, or Kau-i-ke-ao-uli, now in charge of the Daughters of Hawaii, here lies in an enclosure near the base of 'ahu-'ula Cliff. On this spot Queen Ke-opu-'o-lani, tabu state wife (wahine kapu) of King Kamehameha I, gave birth, following a bath in the cold water of the near-by sea-spring of Ku-hala-lua, to the stillborn Prince Kau-i-ke-ao-uli. Providentially he was resuscitated to become the future king. (Born Aug 11, 1813; made king in June 6, 1825; married his Queen, Ka-lama, daughter of Ka-pihe-nui, Feb 2, 1837; died in Honolulu, Dec 15, 1854.

- L At this point, now covered, which lies about 102 ft. southward from the southwest corner of the monument enclosure to the seaward edge of the present road, then 15 ft. near the former north side of the now filled Ho'okūkū Pond, on pa-hoehoe originally about 2 ft. higher than the road, the seemingly lifeless newborn Prince Kau-i-ke-ao-uli, through powerful prayers of the celebrated kahuna Ka-pihe-nui, and by passing the undetached afterbirth (ka 'iewe), over a fire to warm it (ua 'olala 'ia i ke ahi), was providentially snatched back to the land of the living, and occasion of greatest rejoicing.
- M A pit about 9 fathoms deep and 20 ft. in diameter, known as Ka-imu-ki, lies here in Ke-au-hou Bay, a little out from 'Ala-'ihi Point. Back of the point, on the land of Ka-imu-ki, where a house now stands, was born the celebrated medical kahuna Kamali'i-kane, of the class that skillfully diagnosed by feeling over the body (kahuna hāhā).
- N Feather cloaks and capes ('ahu-'ula) were here aired in the sun at the south end of 'Ahu-'ula Cliff. Hence the name of the cliff.  
Wahine-maika'i Cove. Here women of old bathed for ceremonial cleansing following menstruation. Hence the name. The rocky shore, formerly fronted by a small pebbled beach, has largely broken away.





The historical notes included on Kekahuna's map showing the sites in the vicinity of Kaleiopapa Heiau (see Figure 49) have been transcribed below in their entirety:

#### BRIEF DESCRIPTION, AND HISTORICAL NOTES

The original of the sketch was made Dec 7, 1949, before great changes took place. The present sketch is made especially to indicate distance to points of interest.

- J Mo'i-keha Cave. (Ke Ana o Mo'i-keha). The entrance of this cave is 4.5 ft. high by 12ft. wide.
- K The Kau-i-ke-ao-uli Memorial Tablet. (to commemorate Prince Kau-i-ke-ao-uli, later King Kamehameha III). The monument is on a slightly elevated ground inclined towards 'Ahu-'ula Cliff. It is now in charge of the Daughters of Hawaii.
- L At this spot, filled in in 1954, the afterbirth (ko'i-ewe) of the stillborn Prince Kau-i-ke-ao-uli was passed over the fire to warm it (ua 'olala 'ia i ke ahi). By this means, and by the prayers of High Priest Ka-pihe-nui, the infant prince was restored to life, amid great thanksgiving and rejoicing.
- ⊗ Red Ochre (lepo 'alaea) in 'Ahu-'ula Cliff. Red ochre was much sought in ancient times. It was employed to color the water used in various religious ceremonies, to dye tapa, medicinally for various ailments, and for other purposes.
- Ka-lei-o-pāpā Heiau. This temple, in which Prince Kau-i-ke-ao-uli was born, and by whose name he was sometimes known, was mistakenly identified by some of the early explorers as the place of residence of King Ka-mehameha I, the Conquerer.
- Location of Ho'okūkū Pond. The land once occupied by this pond was filled in and raised about 4ft in 1953 and 1954.
- The Ancient Trail. In the old days this passed along Ke-au-hou Beach, and was part of the "King's Highway" that circuited the island.
- Ku-hala-lua Sea Spring. This royal bathing pool, in the cold water of which Ka-mehameha I's tabu queen (wahine kapu), Ke-opu-o-lani, bathed just before she was seized with her birth-pains, and gave birth to the stillborn Prince Kau-i-ke-ao-uli (later King Kamehameha III), was unfortunately excavated in the latter part of 1953, and the adjacent area greatly changed. Large boulders were laid semi-circularly in the sea on the northern side, from the ends of which projected short stone walls, forming an entrance about the spring, and warding off the rush of the sea.
- On the southern side, where there was black sand, a protective stone wall was built about 2ft. below the level of the pahoehoe.
- Site of Mr. Thomas C. White's Residence. The house was destroyed by the tidal wave of April 1, 1946, and its location, adjoining the present new pier, now filled in. It was here that Queen Lili'u-o-ka-lani and her retinue, and others, were entertained during the dedication ceremonies of the Kau-i-ke-ao-uli Tablet. Here, too, were held many other receptions for noted personages.

#### INSCRIPTION ON THE TABLET

KAUIKEAOULI, KAMEHAMEHA III
SON OF KAMEHAMEHA I AND KEOPUOLANI
BORN MARCH 17, 1814
DIED DECEMBER 15, 1854
KA MOI LOKOMAIKAI

Prince Kau-i-ke-ao-uli's nurse (kahu), Emilia Ke-awe-a-mahi, gave the date of his birth as August 11, 1813, which is given by both Alexander and Hitchcock. Later his birth was conventionally fixed as March 17, 1814.



The site identified as Mo‘ikeha Cave is believed to be associated with the high chief, Mo‘ikeha who in traditional lore is said to have come from Moa‘ulanuiākea, Tahiti. From the account recorded by Fornander (1916-1917) after a discord with his wife Lu‘ukia, Mo‘ikeha left Tahiti in the company of his chiefs and attendants and set sailed for Hawai‘i. The band landed first on the east side of Hawai‘i Island visiting areas in Hilo and Puna before departing for the north and leeward part of the island.

Following their field surveys, Kekahuna and Kelsey published the information that they had gathered in a series of articles that appeared in the *Hawaii Tribune-Herald* under the title, *Kamehameha In Kailua* (Kekahuna and Kelsey 1954a). The thirty-seven-part series, which was published between February 28 through April 5 of 1954 covered select areas between Kailua to Hōnaunau. That portion covering the Keauhou Bay area appeared in three separate articles published between March 20 and 22, 1954. While much of the information contained in these articles is derived from the historical notes that appear on Kekahuna’s map, these articles expound upon that information and provide added detail and insight into the project area during the early 1950 and prior. Those articles relevant to Keauhou have been quoted in their entirety below:

A mile south from Kaha-lu‘u, and five from Kai-lua, lies the village of Ke-au-hou, once supremely sacred, and proudest of the royal lands on the big island of Hawaii. So exceeding tabu, indeed, was Ke-au-hou, that if even so much as the shadow of a commoner fell toward it from near at hand he would be put to death for his heinous sacrilege! Therefore in the morning, when shadows fell seaward, travelers had perforce to swim across the bay from its point of Ha‘i-kaua on the north to that of Ka-uku-laelae on the opposite shore, or vice versa. In the afternoon, however, when shadows fell inland, passers-by kept at a respectful distance behind the pali of ‘Ahu-‘ula—Feathered Cape or Cloak—that enfolded from the rear the low portion of the village between it and the curve of its splendid white-sand beach of former days.

Most tabu of all the tabu chiefesses of Ke-au-hou, in her day, was Ke-opu-o-lani, whom Kamehameha the Great made his tabu state wife (wahine kapu), and who bore to his exalted dynasty, not only two of its future kings, but also his extremely sacred daughter Nahi (Na-ahi)- ‘ena‘ena—The Burning Hot Fires (of tabu)—(1815-1836) upon whom was bestowed her mother’s seldom spoken tabu name. Thus was Ke-au-hou village, hallowed place of royal abode, celebrated for its tabu hot as fire. (‘Ena‘ena ke kapu o Ke-au-hou)

The tabu queen’s first-born son, heir to the kingdom, was Prince Liholiho, the unfortunate Kamehameha II (1797-1824) who died in London, England, as did his consort the chiefess Ka-mehamalu, known also as Ka-mamalu, in that same fateful year of 1824. This second of the Ka-mehameha dynasty did not honor Ke-au-hou with his birth, but “Hilo Hanakahi,” land of ancient King Hanakahi, with its long and beautiful sweep of crescent beach of black sand, Hilo’s pride and glory, lovingly known as Ke One O Hanakahi—the sand of Kana-kahi—unexcelled charm of Hilo, now completely destroyed. Ke-au-hou later evened royal honors with Hilo, however, for it was there that Ke-opu-o-lani’s second son, Prince Kau-i-ke-ao-uli, who shared his chiefly name with his ill-fated royal uncle Kiwala-‘o, was fittingly born, as was later his sister Nahi-‘ena‘ena.

The tale of the birth of Kau-i-ke-ao-uli, born seemingly without a spark of life, but who was destined by the narrowest margin to return to this world from the spirit realm, that he might become the great Kamehameha III of history (B. 1813-D. 1854), is a fascinating story. (Kekahuna and Kelsey 1954b:4)

Other celebrities have also added luster to the name of Ke-au-hou. Best known among them is the noted antiquarian David Malo (Feb. 18, 1795-Oct. 21, 1853), author of *Hawaiian Antiquities*. His birth occurred between Ke-au-hou’s present time-ravaged old stone schoolhouse, built subsequent to his birth, and the also later constructed home, still standing, of the late Honorable Henry Kawehiwehi.

Only a remnant of stone foundation is to be found of the house in which Malo was born. Standing faithful lone watch over this birth-site of a greatest shedder of light into the darkness of Hawaii’s ancient past is a solitary **kukui**, or candle-but tree, of kindred spirit and ancient lineage, whose ancestors provided light for the Hawaiians of olden times.

On the land of ‘Ala-‘ihi, that lies opposite a deep pit in the sea, known as Ka-imu-ki, off the bay’s south shore, was born Kamali‘ikane, a noted medical kahuna of King Ka-la-kaua’s time who practiced in Hono-lulu, and was of the class known as kahuna-haha, who diagnosed by skillfully feeling over the body, and then administered healing herbs.

Just back of the picturesque canoe-landing cove of Pueo, first seaward on the bay's north shore, once the canoe-landing of King Ka-mehameha, and now a last of Ke-au-hou's little remaining storage space for boats and canoes to be list to the public, lies well back and close to the road the weed-overgrown remnant of King Lono-i-ka-makahiki's old-time royal residence among the elite of tabu Ke-au-hou, on the site of which Ka-mehameha lived later.

At present, amid the beauty of trees, rest in their cooling shade a little company of boats interspersed with sad reminders of Hawaiian canoes of once upon a time. Through the leafy vista one looks out across the bay. There, nodding at anchor, lies an exclusive band of small-craft. Among them is unlikely to be seen a single representative of the genuine native canoe of but half a century ago!

(Kekahuna and Kelsey 1954c:4)

It is this famed surfing-bay of He'e-ia, and not the He'e-ia of the island of O'ahu, of which a frequently heard song dedicated to King Ka-la-kaua makes mention.

In the continuance of our quest for the legendary, the traditional, the historical, we find the base of 'Ahu-'ula Cliff, a little south of its northern end, a small cave known as Ke Ana o Mo'i-keha—Mo'i-keha's Cave. Therein, in the long ago, a chief named Mo'i-keha, hotly pursued by enemies who had come from the district of Ka'u, hid therein. Though his upper body was hidden in its dark interior, his legs were visible in the dim light. Most fortunately, however, his enemies were in such great haste that they failed to observe his presence. This his life was saved!

Just beyond and below the pali of 'Ahu-'ula's southwestern end lay a flat of **pahoehoe** lava on which chiefs dried their feather capes and cloaks (**'ahu-'ula**), hence the name.

Before we resume our southern journey farther upland we shall cede a short distance till at about the middle of Ke-au-hou II we see right beside the road on the upper side a long, wide, slightly elevated tract of **pahoehoe** lava. This is the noted Pu'u o Ka-loa—Hill of Ka-loa. When it rained at this hill, relates an old story, it was the rainy season, when taro and potato crops were to be planted. Whenever a feast was held anywhere in Kona, therefore, a man's desirability as a guest might be established by inquiring: "Where were you when the rain fell on Pu'u o Ka-loa? (**'Ha'ule ka u ai Pu'u o Ka-loa ihea 'oe?**)".

If he answered that he was in another district of this island, or on another island, when the rain fell, he was welcomed as a guest. If, however, he answered that he had been in Kona, and it was known that he had failed to do his share of the work in the rainy season, he was considered a loafer, and was undeserving as a guest at a feast.

Now that we have enjoyed a brief glimpse of Pu'u o Ka-loa and the region roundabout, history dictates that we proceed upland from Ke-au-hou before continuing to the southward. (Kekahuna and Kelsey 1954d:4)

Kekahuna and Kelsey's work includes a distinctive combination of historical/cultural knowledge supplemented with information that shows changes to the Keauhou Bay area following the April 1, 1946, *tsunami*. A historical aerial taken in 1954, during the time Kekahuna and Kelsey undertook their work is shown below in Figure 50. The 1954 aerial shows but a few homes located along the fringes of the bay (some of which are within the project area boundaries), as well as alignment of the *hōlua*, which extended into the project area, and the road/trail to Kainaliu and one along the coast.

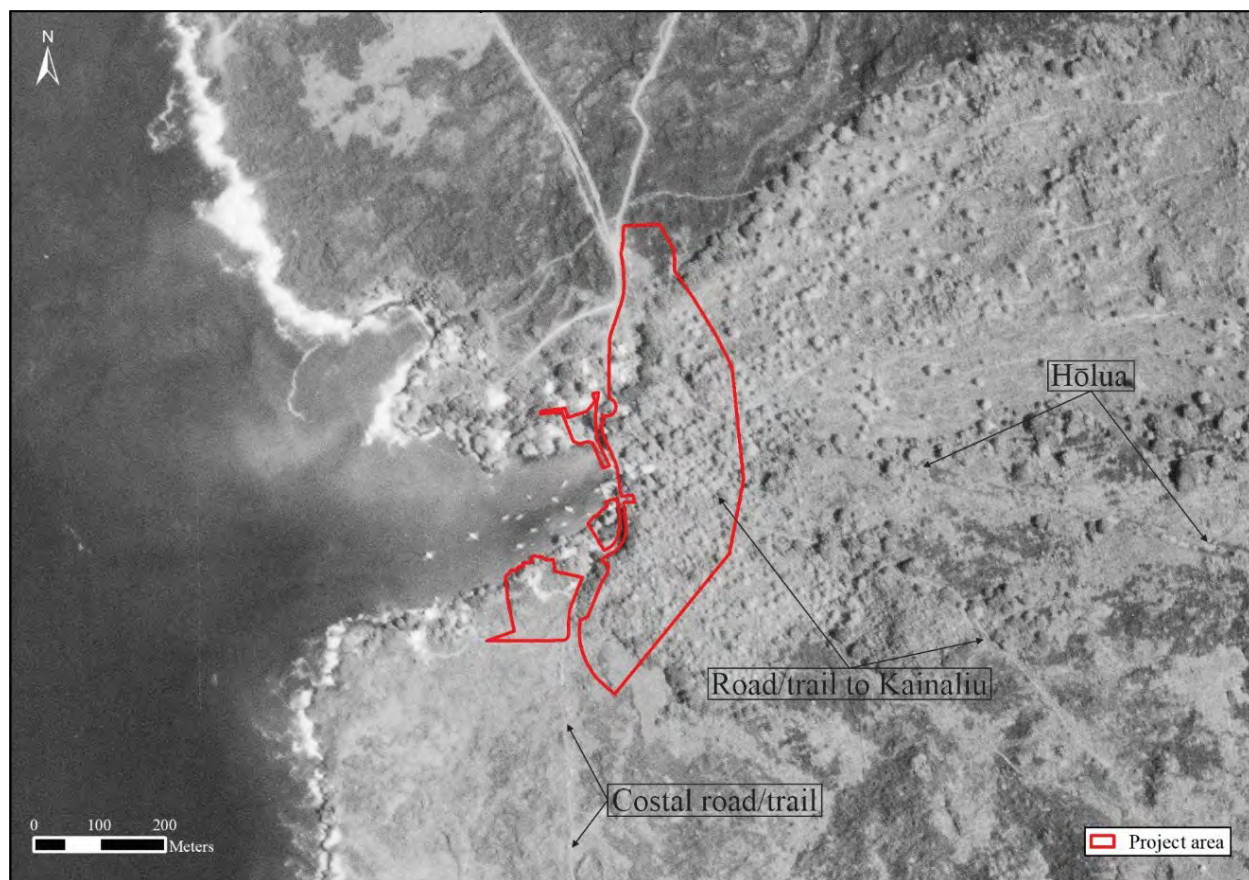


Figure 50. Historical aerial photo showing project area in 1954.

### Increased Commercial Activity at Keauhou

Beginning in the 1960s, resort and tourist-related development in the Keauhou area began to alter the landscape, particularly along the coast and Ali‘i Drive including the construction of resorts and golf courses in addition to the build-out and upgrading of roadways beginning in the 1970s (Figures 51 and 52). Two tax maps, one dated 1960 (Figure 53) and one from 1980 (Figure 54) show the rapid outward expansion of development around Keauhou Bay and in the area *mauka* of the project area. Ongoing residential and resort development has taken over many of the beachfront properties in the vicinity of the current project area. The former Machado drydock area (see Figures 45 and 46) was converted for canoe storage associated with the Keauhou Canoe Club (Figure 55) (formerly Kauikeaouli Canoe Club 1980-1986). The former Charles Machado house (Figure 56), build in 1961, is now the retail and booking headquarters of the Fair Wind Cruises charter boat tour company and the former Hind house built in 1952 is the retail and booking headquarters for the Sea Quest Hawaii (Figure 57). In 1978 the Hawai‘i Department of Transportation assumed administration of the Keauhou Bay Small Boat Harbor, and within a few years thereafter, the present-day concrete boat ramp was constructed on the southern side of the bay (see Figure 57). The administration of the Keauhou Bay Small Boat Harbor was transferred again in 1992 to the Department of Land and Natural Resources (Rechtman 2015).

More recently, there has been a concerted effort on the parts of Kamehameha Schools, the Daughters of Hawai‘i, and the Hawai‘i Tourism Authority to highlight the cultural and historical significance of the Keauhou Bay area. A public walking path and the placement of interpretive signs are found in the vicinity of the Kamehameha III birthplace and other culturally important places found along the base of ‘Ahu‘ula Cliff. (Figures 58, 59, and 60) Kamehameha Schools has deeded the land where the Kamehameha III birth site monument is located to the Daughters of Hawai‘i, who not only maintain the monument (Figure 61) and host the annual celebration marking the birth of King Kauikeaouli.



Figure 51. Aerial of Keauhou Bay ca. 1960-1974 showing resort construction, golf courses, and new roads (North Hawaii Education and Research Center PP-0225).



Figure 52. Aerial image from 1974 showing increased resort development and road improvements in project area and neighboring vicinity.

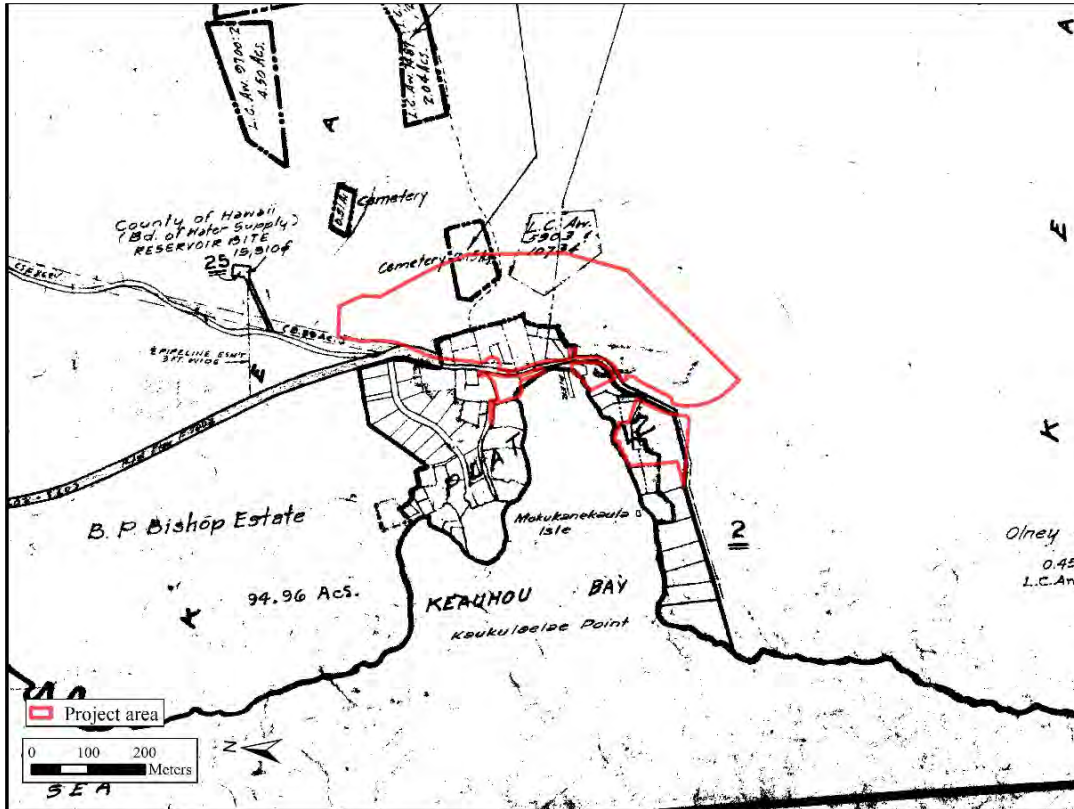


Figure 53. Portion of TMK map (3) 7-8-10 showing project area in 1960.

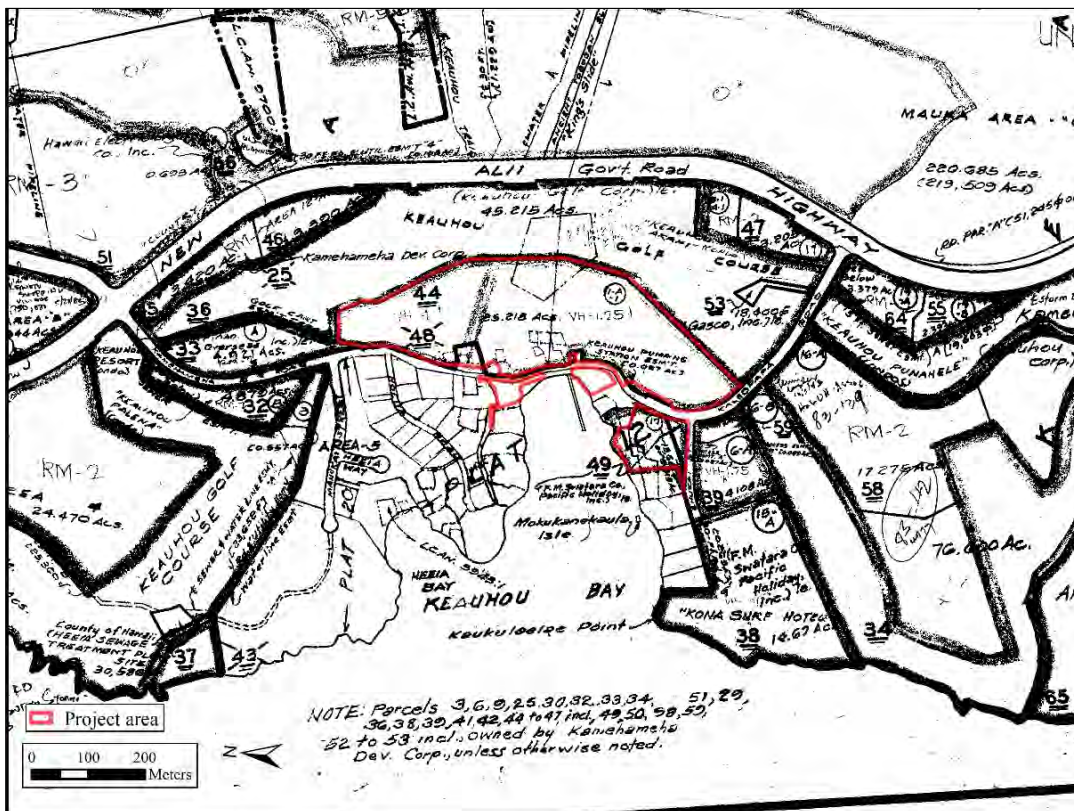


Figure 54. Portion of TMK map (3) 7-8-10 showing project area in 1980.



Figure 55. View of Keauhou Canoe Club in the location of the former Machado drydock, view to the north.



Figure 56. 1963 photograph showing the then-new wooden pier and Machado home in background (Kona Historical Society).





Figure 57. Former Machado house now the headquarters of the Fair Wind Cruises (left) and the Hind family home now the headquarters of Sea Quest Hawai'i (left).



Figure 58. Interpretive sign commemorating King Kamehameha I adjacent to interpretive pathway, view to the east.



Figure 59. Interpretive pathway located at the base of 'Ahu'ula Cliff, view to the south.



Figure 60. Interpretive signs located in the vicinity of Ho'okūkū Pond, view to the east.



Figure 61. Commemorative monument marking the birthplace of King Kamehameha I, view to the northeast.

## PREVIOUS ARCHAEOLOGICAL AND CULTURAL STUDIES

Since the turn of the 20<sup>th</sup> century, the Keauhou Bay area has been included in various island-wide thematic or regional surveys including those conducted by John F.G. Stokes in 1906, and John E. Reinecke in 1920. These early studies were conducted mostly under the auspices of the Bishop Museum or Bishop Estate, and the early site descriptions, oral traditions, and place name information records are currently on file at the Department of Anthropology at the Bishop Museum in Honolulu. Major resort development beginning in the 1970s spawned a surge of archaeological studies in the vicinity of Keauhou Bay carried out by the Bishop Museum as well as private archaeological consultants. These studies began to focus on individual parcels slated for development, most of which were situated along the coast. The number of studies undertaken in the Keauhou Bay area has continued to increase over the last forty years and has revealed evidence of habitation and resource acquisition as well as ceremonial and recreational use of the land. The following discussion centers on previous archaeological and cultural, and landscape studies conducted within and in close proximity to the current project area. The location of the prior studies conducted in the vicinity of the project area is shown in Figure 62 and listed chronologically in Table 4.

2. Background

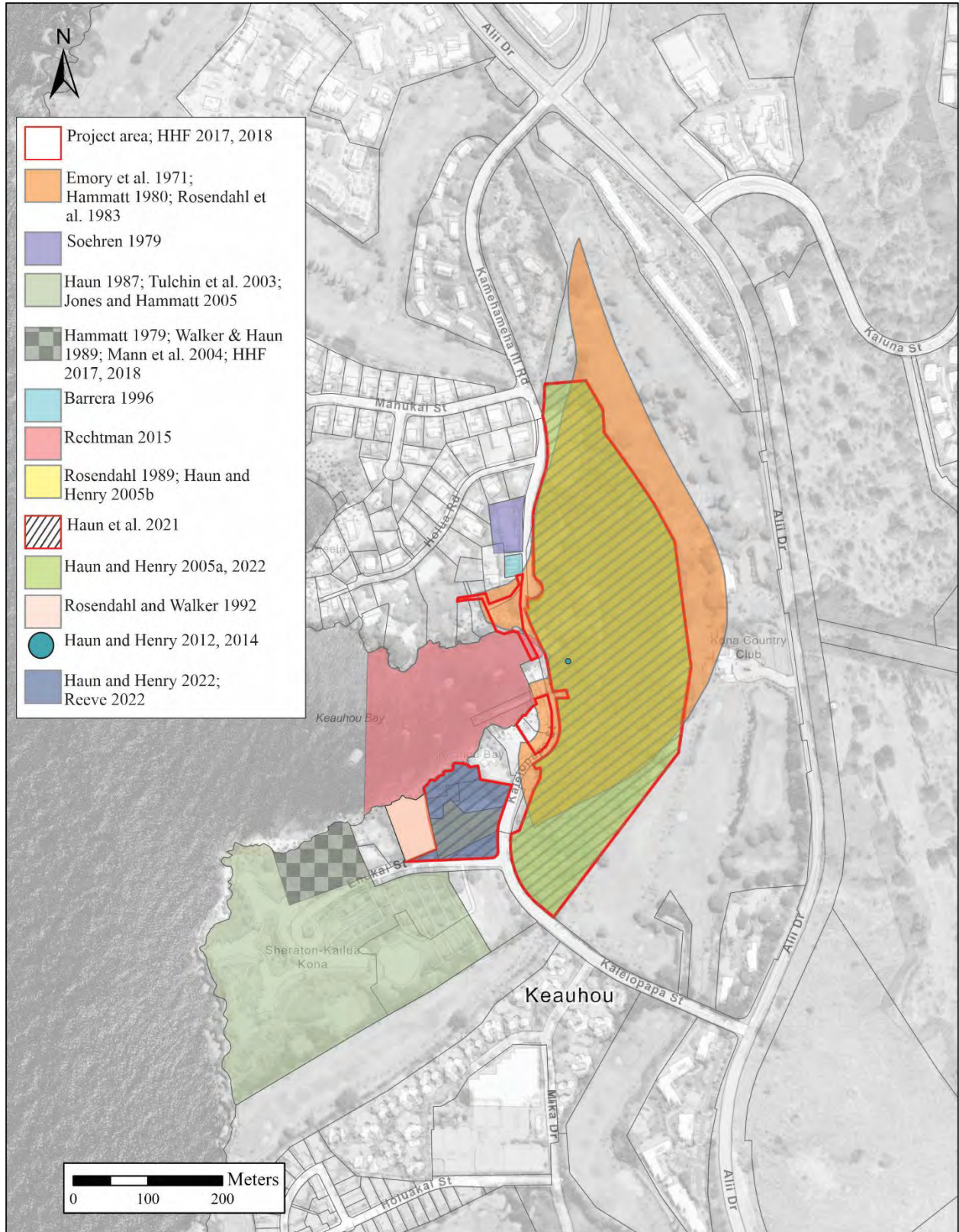


Figure 62. Prior studies conducted in the vicinity of the project area.

**Table 4. List of prior studies conducted in the project area.**

<i>Year</i>	<i>Author(s)</i>	<i>Type of Study</i>	<i>Study Area</i>
1906	Stokes	Survey of <i>heiau</i>	Island-wide
1929	Reinecke	Survey of sites	Kona District
1953-55	Kelsey and Kekahuna	Survey of sites	Kona District
1971	Emory et al.	Reconnaissance	Keauhou & Kahalu‘u
1979	Soehren	Reconnaissance	TMK: (3) 7-8-012:032
1979	Hammatt	Reconnaissance	Kona Surf Hotel property
1980	Hammatt	Reconnaissance	Area 1- included a portion of current project area
1983	Rosendahl et al.	Reconnaissance	Area 1- included a portion of current project area
1985	Tomonari-Tuggle	Cultural Resources Management Plan	750 acres extending <i>mauka</i> from the coast
1987	Haun	Reconnaissance and limited subsurface testing	Kona Surf Hotel property
1989	Walker and Haun	Survey and subsurface testing	Kona Surf Hotel property
1989	Rosendahl	Field inspection	TMK: (3) 7-8-012:098
1992	Rosendahl and Walker	Field inspection	TMK: (3) 7-8-012:002, 053, and 100
1996	Barrera	Inspection	TMK: (3) 7-8-012:031
2003	Tulchin et al.	Inventory survey	Kona Surf Hotel property-TMK: (3) 7-8-012:58 and (3) 7-8-010:038 and 039
2004	Mann et al.	Preservation plan	Kona Surf Hotel property-TMK: (3) 7-8-012:058
2004	Maly and Maly	Cultural synthesis	Keauhou & Kahalu‘u Ahupua‘a
2005	Jones and Hammatt	Monitoring report	Kona Surf Hotel property- TMK : (3) 7-8-010:038, 039 and 7-8-012:58-60
2005b	Haun and Henry	Inventory survey	TMK: (3) 7-8-012:098 included a portion of the current project area
2005a	Haun and Henry	Inventory survey	TMK: (3) 7-8-010:044-included a portion of current project area
2012	Haun and Henry	Impact assessment and subsurface testing	Site 24264 (Mō‘ikeha Cave) and Site 24265 (historic building) on TMK: (3) 7-8-010-044 - included a portion of current project area
2014	Haun and Henry	Preservation plan	Site 24264 (Mō‘ikeha Cave)
2015	Rechtman	Cultural impact assessment	Keauhou Bay
2017	HHF	Cultural landscape assessment	Keauhou Bay Cultural Landscape Area and Kaukulaele Cultural Landscape Area
2018	HHF	Cultural landscape assessment- final treatment plan	Keauhou Bay Cultural Landscape Area and Kaukulaele Cultural Landscape Area
2021	Haun et al.	Reconnaissance and site condition update	TMK: (3) 7-8-010:044 and 049, 7-8-012:004, 007, and 065
2022	Reeve	Supplemental inventory survey	Land Area 6- TMK: (3) 7-8-010:049, (3) 7-8-012:004, 007, 061, 065, 098, and 103
2022	Haun and Henry	Reconnaissance and site condition update	TMK: (3) 7-8-010:044 and 049, 7-8-012:044, 007, and 065

### Early Archaeological Investigations (1906-1955)

In 1906, in contract with the Bishop Museum, John F. Stokes (Stokes and Dye 1991) conducted an island-wide field survey. The purpose of Stokes' survey was to document *heiau*, but he sometimes recorded *ko'a* (fishing shrines) and other miscellaneous structures. Of the approximately fifty *heiau* recorded in North Kona, five were located in Keauhou 1<sup>st</sup> and 2<sup>nd</sup> including Ka'io'ena or Keahiolo, 'Öpūkaha; Kamau'ai, Ho'okūkū or Kaopa, and Ahu A 'Umi. Of these, Stokes was able to locate and observe the remains of one of these *heiau* during his survey. The remains of Ka'io'ena (BPBM Site 50-Ha-D4-100; SIHP Site 50-10-37-04621), located on the Kahalu'u and Keauhou 1<sup>st</sup> boundary about 400 feet above sea level, consisted of a few pavements or low platforms along the edge of an 'a'ā flow. Regarding 'Öpūkaha Heiau (BPBM Site 50-Ha-D3-5; SIHP Site 50-10-37-3813), Stokes stated that the *heiau* was in Keauhou 1<sup>st</sup> "just west of the junction of the Hōlualoa and Keauhou roads" and that he had not seen the *heiau*. Of Kamau'ai Heiau (BPMB Site 50-Ha-D3-4; SIHP Site 50-10-37-3812), Stokes stated that :

This is a *heiau* mentioned by Thrum as very ancient, ascribed to Kāne himself and connected, traditionally, with the introduction and propagation of vegetables in these islands. Enquiries in the field led to a place called Kamau'ai, on the top of the cliff directly back of and overlooking the Keauhou landing. It is now a house lot, and the [then] owner said that he and his people had lived there for a long time and had never heard of a *heiau* being there. (Stokes and Dye 1991:85)

Stokes offered the following description of Ho'okūkū (Kaopa) Heiau:

*Heiau* of Ho'okuku or Kaopa, land of Keauhou 2, North Kona, near the boundary of Keauhou I. Keauhou wharf bears 168°, 250 feet. This place owes its interest in modern times to the tradition that the royal child (later Kamehameha III) who was stillborn here then was miraculously brought to life. There is nothing suggestive of a *heiau* in the appearance of the place. A low, rambling wall encloses a space of about 1.5 acres at the foot of a high cliff. The contour of the ground inside is similar to that outside, and within are breadfruits, *loulou*, and other trees. Also inside, however, is a large rock to which marvelous revivifying powers were attributed, and it was stated that the dead baby was placed on the stone for some days and came to life by virtue of the stone, with the aid of the priest's prayers. It is not improbable, if all were known, that this would prove to be the site of the *heiau* of Kamau'ai Heiau mentioned above. (Stokes and Dye 1991:85)

Of Ahu A 'Umi Heiau, Stokes mentioned its location within Keauhou 2<sup>nd</sup> and that he had not visited the site. Despite the limited recordation by Stokes, Cordy (2000), who provided a detailed discussion about this inland *heiau*, reported that Hiram Bingham recorded this site during his visit in 1830. Cordy (2000:208) adds that this *heiau* was:

...built on a cold, conder plain in the saddle between Hualalai and Mauna Loa at an elevation of about 5,200 feet...prior to its modification as a goat pen in the late 1800s, the *heiau* consisted of a stone-walled enclosure (20 x 20 meters) with wall up top 2.5-meters high. This is a rather small area, 440m<sup>2</sup>. Four internal areas were walled off within the *heiau*. Eight very large rectangular cairns—3-4-meters high and 4-7 meters in diameter—were arranged outside of the enclosure, a feature unique to this *heiau*. Recent archaeological work has found a number of other structures scattered nearby, including platforms, enclosures, and fire hearths.

In June of 1929, John Reinecke (1930) in contract with the Bishop Museum, surveyed the coastal areas of Keauhou 1<sup>st</sup> and 2<sup>nd</sup> including a portion of the project area. Twenty-four sites (Sites 51-74) were identified. In addition to documenting *heiau* structures, Reinecke made efforts to record all site types he encountered, and worked with local informants who provided him with information about the sites he had identified. While surveying Keauhou, Reinecke relied on and corroborated information from two local informants, Robert Kahalioumi and Henry Kawewehi, whose names are mentioned throughout Reinecke's site descriptions. Regarding the general distribution of habitation areas in Keauhou, Reinecke wrote:

I found that the habitations of these two lands are distributed in three groups: the first, beginning just past the Honalo boundary, concentrated about Kahoe, and running in a thin line up the pahoehoe coast to the spot called Kauliloa; the second, about the present village of Keauhou; and the third, separated from the modern village by a very rough a-a flow, and conterminous with Kahalu'u.

Reinecke recorded the identified sites listed numerically by site number in Table 5, moving from south to north along the edge of Keauhou Bay. Portions of the maps associated with the current project area have been annotated and reproduced in Figures 63 and 64 below. For Sites 51-74, located in the immediate vicinity of the project area, Reinecke provided the following description and at times historical information provided by his informants:

**Table 5. Sites recorded by J. Reinecke (1930:80-82) in the vicinity of the project area.**

<i>Site #</i>	<i>Notes (reproduced from Reinecke (1930))</i>
51	Kaukulaelae Heiau comprised of twelve feature components. The whole platform of the heiau is so rough and dilapidated that it is hard to trace its original form and limits carefully. Apparently it was oriented roughly E. and W., with dimensions over all of about 110x40. There apparently have been later additions.
52	Platform in good condition, 26x18x2, with foundations and wall behind and makai. Probably a modern house platform.
53	A similar platform, in rougher condition. Has three layers of retaining wall makai. roughly 20 plus 4 plus 4x20-24x6.
54	Well built platform, for house or public building, about 78x30x2, with a makai section (part of main platform) 18x18x2.
55	Pen about 38x20x3 before it was broken down.
56	Platform on knoll, about 43x30x4. This site was pointed out by Mr. Kahalioumi, a fisherman, as a fishing heiau, by name Pohakukanikaula or Mokukanikaula, which is also the name of the rock off the shore. It signifies "red sounding or echoing rock."
57	Two smooth-floored pens, side by side with ruined rubble walls. Inside dimensions 36x28 and 32x22.
58	Probably <u>puoa</u> or just plan heaps on the pahoehoe: 11x8, 6x6x1 $\frac{1}{2}$ , 14x13x0-2 and bearing a small heap, 7x6x1, 10x10-0-3, 21x6x0-2, and 78x76, besides one irregular and very small.
58	Modern house platform site, about 33x25.
60	Modern house platform site, about 32x23.
61	Modern house platform site, about 34x23x $\frac{1}{2}$ -6.
62	Heaps of rubble 8x9 and 5x5.
63	Heaps of rubble about 20x20, very low. There are other such heaps nearby. By this one, however, round holes have been ground into the pahoehoe slab.
64	Pointed out as Alaihi, a fishing heiau. The <u>alaihi</u> is a kind of fish meaning literally "only one who has permission," because it is dangerous to handle because of its spines. Now merely part of a house-yard.
65	A medium-sized, modern house platform, not measured.
66	Kamohoalii heiau. Utterly in ruins, nothing remaining except the foundation of the outer wall. It covered an area about 60x40 at the foot of the cliff. Stokes' notes, which I copy, are here almost entirely inaccurate: Hookuku. Keauhou 2. Built by Liholiho, near the beach, has breadfruit, loulou and other trees. Another name given is Kaopa. Near bay. Near boundary of Keauhou 1. Place where Kamehameha III was born. Called heiau, but not suggestive in appearance. A rather poorly-built rambling wall, 100 feet E. of the head of Keauhou harbor, at the foot of a cliff. the place contains a large rock, which was believed to have had marvellous vivifying powers. The tradition is to the effect that Kamehameha III was still-born, but was placed on this stone and allowed to remain some days, and through the power of the prayers, the stone put life into the babe."  Hookuku, however, is the name of the pool midway of the W. side of the heiau, which now forms a small swamp. It was formerly <u>kapu</u> for the use of royalty. Kaopa is the name of the well S. of the heiau. Kauikeaouli [Kamehameha III] was born on the stone which now supports the tablet to his memory, just N. of the heiau. According to the story, which was received from Mr. Kahalioumi and the Hon. Henry Kawewehi, Kauikeaouli's mother was bathing in the bay when she felt her pangs, and staggering out of the water, she supported herself against the boulder. Kauikeaouli was stillborn. A runner was at one dispatched to fetch a noted <u>kahuna</u> , Kapihi-nui (Great Lamentation). The stories differ in this detail, Kahalioumi saying that he was at Keei and Kawewehi that he was mauka. He ordered the runner to return and notify the queen that he would soon arrive, but when the runner came back to Keauhou he was astounded to find that the <u>kahuna</u> , with his supernatural powers, had arrived before him. Kapihi-nui resuscitated Kauikeaouli by warming his body (according to Kahalioumi) reciting spells (Kawewehi). The king's name signifies "place in the black cloud," from a dream which his mother had before his birth, or from the cloud formation observed the evening before. Mr. Kahalioumi says that the front of the heiau stood ten feet in height. Mr. Kawewehi adds that the stones from it have been used for times in attempts to build up a sea wall to protect the road, but that the stones, put to such a profane use, have every time been washed down, although there have been no storms.

*Table 5 continues on next page.*

**Table 5. continued.**

<i>Site #</i>	<i>Notes (reproduced from Reinecke (1930))</i>
67	Moiikeha cave. This is a famous cave. The story is that a king, flying from enemies, hid himself in the cave, standing erect and motionless with all his body above his legs hidden in a high pocket of the cave. His enemies, looking inside, did not observe his legs, and passed him by.
68	Low ground behind the Wharf. In ancient times the site of Kamaui [Kamaui] heiau. Kamaui signifies "to spread, or pass on, food." The legend connected with it is found in Thrum's Annual for 1908, page 72.
69	Kualalua, the brackish seepage W. of Mr. Tommy White's beach house, used for bathing.
70	The mouth of the burial cave Ke-eku-a-ka-puaa, which signifies roughly, "rooted up by the pig." This cave was used for a burial as recently as 1913, when a very poor Hawaiian was strapped between two sheets of galvanized iron roofing and thrust into the cave. Near its mouth are two double platforms, rather rough, one on the w. being 19x17 with a forecourt 16x9, and the one on the e. 26x21-16, divided into two by a low wall. Their use is puzzling.
71	An upheaved mass of pahoehoe blocks, called Puu o Kaloa. Mr. Kawewehi claims that this was sacred to the god Loa, and a heiau, but there is absolutely no trace of artificial building in the mass. According to the anecdote furnished me, spongers who came about feasts in Keauhou were asked, "Where were you when the rain fell on Puu o Kaloa?—that being the rainy season when everyone should plant his taro, sweet potatoes, etc. If the man answered, "In Honolulu, in Maui, etc." it was presumed that he would have done his share of farming had he been home, and he was allowed to sit at the feast. But if he answered, "In Kona," he was dismissed as a loafer.
72	Area in yard W. of Hoapili's house, known as Hale o Lono. Mr. Kawewehi suggests that this is not a heiau, as some claim it to be, but the site of the house of Lonoikamakahiki. This seems likely, as there are only a few large stones to suggest any kind of building—no foundations which would indicate a heiau.
73	House site on level ground, 20x16.
74	Space about 40x40, strewn with <i>iliili</i> , part of it probably once a [illegible] site.

*End of Table 5.*



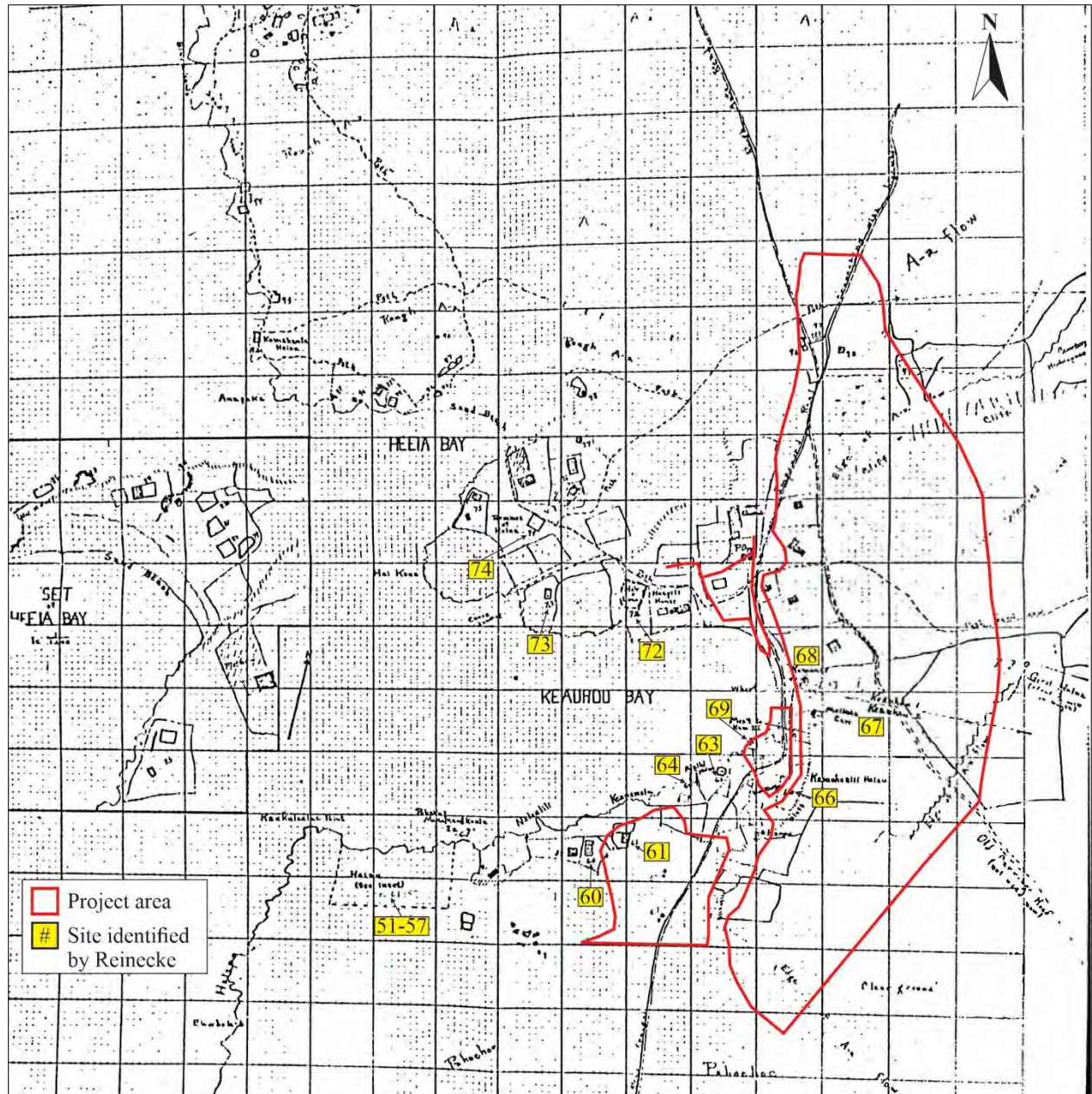


Figure 63. Portion of Reinecke's (1930:95) site map showing sites in the vicinity of the project area.

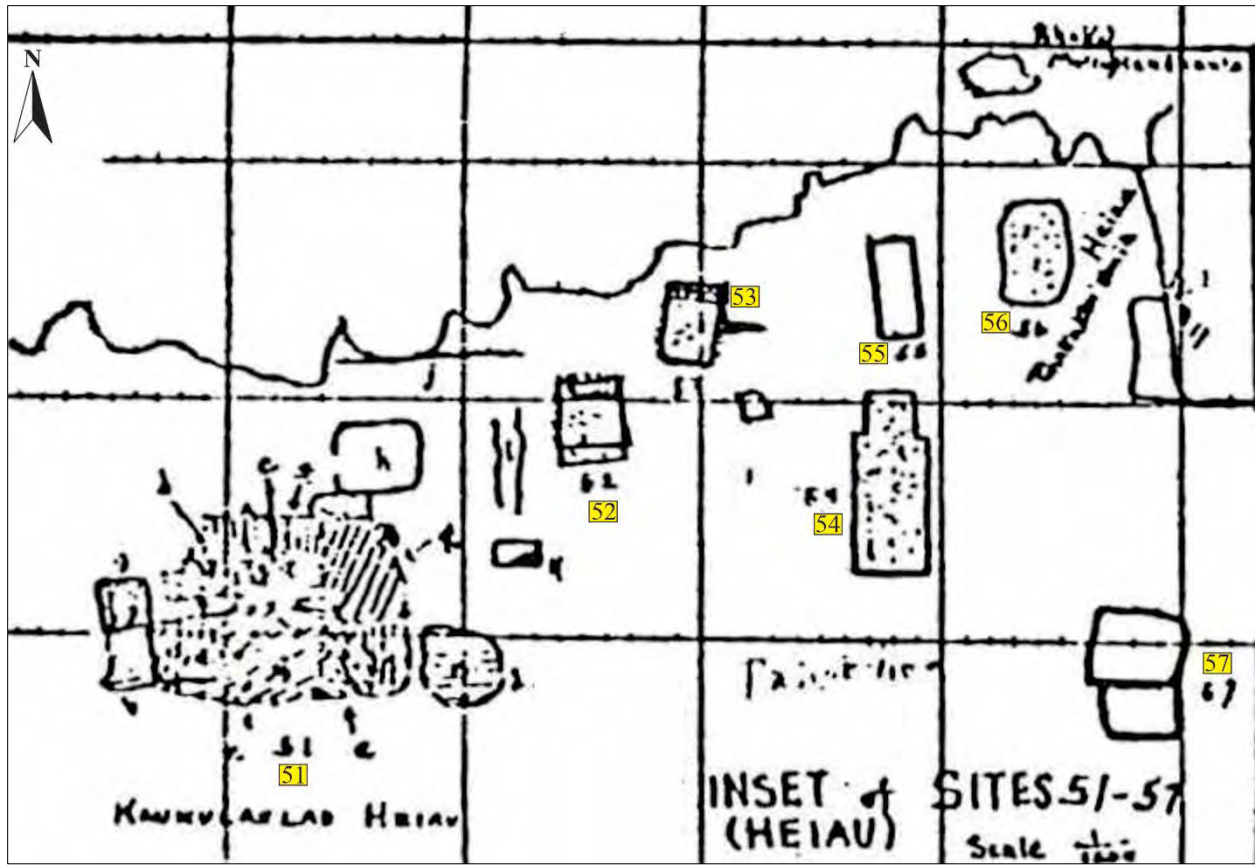


Figure 64. Portion of Reinecke's (1930:96) site map showing sites 51-57, project area not shown.

Concerning Site 51, Kaukulaelae Heiau located to the west of the project area Reinecke recorded twelve distinct feature components (labeled in Figure 64 as features a through l) and provided the following description:

- a A section paved with large stones, surrounded by walls 3' thick and 4' high. Divided into two parts, 18x5 and 18x16.
- b Remains of a platform 21' wide N. and S., width E. and W. unknown, but the ruins extend about 21'. Remains of retaining wall on S.
- c Platform 16x14x3.
- d Shelf roughly 16x16x2.
- e Main platform of various levels. From the wall about a to the east end is about 90'; width at the wall is 43', at other end about 34'. A trough 6' wide between e and d. It contains three or four little pits.
- f Platform about 12x50.
- g Platform about 30x40, merging into the debris from e.
- h Modern appearing pen 21x35, with walls 4' high and 4' thick.
- i Walls 50 and 36 feet long, which once joined and inclosed [*sic*] an area about 60x10 (may not be part of the heiau).
- j Retaining wall; platform between it and heiau proper.
- k Knoll made into rough platform about 18x12 (may not be part of the heiau).
- l Debris 25 or 30 feet each direction, about a small platform, about  $6 \times 6 \frac{1}{2}$

Reinecke (1930:80) reported the condition of Site 51 as follows:

The whole platform of the heiau is so rough and dilapidated that it is hard to trace its original form and limits carefully. Apparently it was oriented E. and W., with dimensions over all of about 110x40. There apparently have been later additions.

Reinecke (1930:81) also documented another *heiau* called Kamohoalii (Site 66) (see Figure 63) at the base of a cliff, which was “utterly in ruins, nothing remaining except the foundation of the outer wall”. Reinecke goes on to recount that Kamehameha III was born in the vicinity of this ruin:

Kauikeouli was born on the stone which now supports the tablet to his memory, just N. of the heiau. According to the story. . . Kauikeouli’s mother was bathing in the bay when she felt her pangs, and staggering out of the water, she supported herself against the boulder. Kauikeouli was stillborn. A runner was at once dispatched to fetch a noted kahuna, Kapihi-nui (Great Lamentation). . . He [the kahuna] ordered the runner to return and notify the queen that he would soon arrive, but when the runner came back to Keauhou he was astounded to find that the kahuna, with his supernatural powers, had arrived before him. Kapihi-nui resuscitated Kauikeouli by warming his body (according to Kanalioumi) or by breathing into his nostrils and reciting spells (Kawewehi). . .

Mr. Kahalioumi says that the front of the heiau stood ten feet in height. Mr. Kawewehi adds that the stones from it have been used four times in attempts to build up a sea wall to protect the road, but that the stones, put to such a profane use, have every time been washed down, although there have been no storms. (Reinecke 1930:81)

Another site that deserves further mention is Site 67, which is listed as Mō’ikeha Cave (see Figure 60) and described thusly:

This is a famous cave. The story is that a king, flying [fleeing] from his enemies, hid himself in the cave, standing erect and motionless with all his body above his legs hidden in a high pocket of the cave. His enemies, looking inside, did not observe his legs, and passed him by. (Reinecke 1930: 81-82)

As previously mentioned between 1953 and 1955, Kekahuna and Kelsey documented various sites and the history of Keauhou and other select areas around Kona. The sketch maps (see Figures 48 and 49) they generated based on informant accounts, contain references to various archaeological features located along the coast of Keauhou Bay. These maps provide a glimpse of where archaeological sites were known to be located as well as how Keauhou Bay appeared in the early 1950s. Many of their descriptions harken back to Reinecke’s original documentation of sites along the shores of Keauhou Bay.

### **Previous Archaeological and Cultural Studies Conducted Post 1970s to Present Day**

In 1971, the Bishop Museum conducted a reconnaissance survey (Emory et al. 1971) of four partially developed areas (Areas 1, 7, 9, and 13B) of Bishop Estate land in the Keauhou-Kahaluu Bay region. Area 1, which included a portion of the current project area extended from the shores of Keauhou Bay inland (see Figure 62). Concerning Area 1, Emory et al. (1971:43) reported:

Area 1, largely because of extensive bulldozing, has been rendered the least important, archaeologically, of the four survey areas. The prime sites around Keauhou Bay have already been built on or cleared by bulldozers. Our search through the brush revealed few sites, all of them near the edge of the bluff immediately back of the bay. The recommendations for this area are therefore not as encompassing or as strong as for previous areas.

As a result of their study, ten sites were recorded and assigned Bishop Museum site numbers D3-35 through D3-44 within the *makai* portion of Area 1. Site types included a possible habitation enclosure (D3-35), two platforms of undetermined function (D3-36 and 39), a rock wall (D3-37), a mound that may contain a burial (D3-38), two possible house terraces (D3-40 and 41), and an open midden site that likely corresponds with a campground for fishermen (D3-44). In addition, they recorded Moikeha Cave (D3-42) and provided the following description:

Kekahuna (1954) described this natural cave as the place where Moikeha (a traditional chief who lived some 28 generations ago) hid to escape pursers from Ka-‘u. The cave is at the base of the cliff directly back of Keauhou Bay. It is presently being used for the storage of wood and other article. (1971:45)

Site D3-43 was assigned to the location of the Birthplace of Kamehameha III (Kauikeaouli), which has been commemorated by the Daughters of Hawai‘i with an inscribed plaque set in a concrete block within a small rock enclosure (Emory et al. 1971). This site was included in Kekahuna’s 1954 and 1955 maps and was placed on the National Register of Historic Places in 1978 (Tomonari-Tuggle 1985). Emory et al. summarized their findings for Area 1 thusly:

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The ten sites recorded for Area 1 are only a vestige of what must have existed formerly (before bulldozing), including the lowest surviving section of the great *holua* runway of which the upper part, above the Alii Highway, is still to be seen.

The most promising archaeological site remaining in Area 1 is the level land along the base of the vertical bluff a short distance back of the head of Keauhou Bay. (1971:46)

In 1979, Soehren conducted a reconnaissance survey (Soehren 1979) of a 0.66-acre parcel (TMK: (3) 7-8-012:032), located on the *makai* side of Kamehameha III road to the north of Keauhou Bay (see Figure 62). As a result of this study, Soehren reported that the area was mostly bulldozed but remnants of structures and midden were still observable, and he reported observing an octopus lure and a coral disc.

Also in 1979, Archaeological Research Center Hawaii, Inc. (ARCH) conducted a reconnaissance survey (Hammatt 1979) of an area along the south shore of Keauhou Bay for the Kona Surf Hotel. As a result of this study, Hammatt identified five features, two of which he interpreted as modern foundations. All five features had been originally recorded by Reinecke (1930) as part of Sites 51, 52, and 53. Hammatt recommended additional documentation and subsurface testing of Features H and I of Site 51, and Site 53. As Walker and Haun (1989:4) pointed out, "Hammatt evidently was not aware the modern foundations had been constructed above older platforms identified by Reinecke (Site 52-Feature K and Site 52)."

In October of 1980, ARCH revisited Area 1 (see Figure 62) of the Bishop Estate Lands and conducted another reconnaissance survey (Hammatt 1980). As a result of that survey, seven of the ten sites recorded by Emory et al. (1971) were identified, while sites D3-35, D3-40, and D3-44 were recorded as destroyed by road grading operations in the decade since the Bishop Museum study. Hammatt (1980) recommended that only site D3-43, the birthplace of Kamehameha warranted further study or preservation efforts.

In 1983, PHRI conducted a reconnaissance survey (Rosendahl et al. 1983) in the vicinity of the Kamehameha III Birth Site Memorial within Area 1 of Bishop Estate Lands, within the current study area (see Figure 62). Their survey was undertaken in conjunction with the preparation of a cultural resources management plan for the Keauhou Resort. As part of their study, they tried and were unable to locate the remains of Kaleiopapa Heiau atop 'Ahu'ula Cliff. Additionally, the excavation of nine test units in three separate areas at the base of 'Ahu'ula Cliff revealed that Site D3-44 (originally recorded by Emory et al. 1971) had been markedly disturbed prior to their study.

In light of a zoning change and planned residential, commercial, and recreational development for some 750 acres of land owned by Kamehameha Investment Corporation (KIC) in the area extending *mauka* from Ali'i Drive, PHRI prepared a Cultural Resource Management Plan (Tomonari-Tuggle 1985). The purpose of this plan was to "deal with archaeological and historical resources in the context of the continuing development" of the Keauhou area (Tomonari-Tuggle 1985:1). This plan has become a valuable source of information for the general Keauhou area and includes an annotated bibliography of archaeological and historical research conducted in the Keauhou area that spans over eighty years of investigations. The plan detailed inventories of sites recorded in the various development parcels that comprised Keauhou Resort. However, the two parcels (Parcels 1 and 6) located within a portion of the current project area are not featured in the plan.

In 1987, PHRI conducted a reconnaissance survey and limited subsurface testing (Haun 1987) of the entire Kona Surf Resort property (TMKs: (3) 7-8-010: 38 por. and (3) 7-8-012: 058-060) for a proposed wedding chapel site. The Kona Surf Hotel property is located along the southern coast of Keauhou Bay and includes Kaukulaelae Point (see Figure 62). As previously mentioned, this area had been surveyed by ARCH in 1979 (Hammatt 1979). As a result of the 1987 survey, PHRI relocated three of the seven sites (Sites 51-57) that Reinecke (1930) recorded on the Kona Surf Hotel property, including Features H, I, and K of Site 51 as well as Sites 52 and 53. In addition, Haun (1987) identified two previously unrecorded sites, consisting of a *papamū* and a subsurface cultural deposit with waterworn pebbles, midden, historic glass and ceramic fragments, and a coral abrader. Haun (1987) recommended that further intensive surveys and testing be conducted on the proposed wedding chapel site.

Subsequently, in 1989, PHRI (Walker and Haun 1989) conducted an intensive archaeological survey and testing at the proposed wedding chapel site located on a 2.3-acre portion of the Kona Surf Hotel grounds (TMK: (3) 7-8-012:058- 60 por.; see Figure 62). As a result of their study, five archaeological sites with seven component features were identified. Formal feature types recorded included: a previously unrecorded *papamū* and a newly identified subsurface cultural deposit (SIHP Site 5695); in addition to five previously recorded features: a platform (Site 53), two terraces (Sites 51-K and 52), a U-shaped wall (Site 51-I), and an enclosure (Site 51-H). Subsurface testing consisted of the excavation of ten test units within Reinecke's (1930) Site 51, 52, 53, and SIHP Site 5695 that were added to the three test units, which had been excavated during the earlier PHRI study of the same area (Haun 1987). As a result of their study, more than 450 portable artifacts were recovered, including 348 that were classified as

indigenous types and 110 historic. The indigenous portable artifacts were comprised primarily of volcanic glass fragments, with some coral, urchin, and scoria abraders, a few basalt flakes, modified bone, and marine shell ornaments. A partial stone *poi* pounder and the mammal bone point of a two-piece bonito lure were also recovered. Historic artifacts included fragments of metal, glass, and plastic. A large number of faunal remains (5,648 grams) comprised primarily of marine shell, followed by bone, *kukui* nut, and charcoal was also recovered. Radiocarbon testing yielded a date range of A.D. 1440-1748. Based on their findings, PHRI suggested prehistoric use of the area around Sites 53 and 5695. In particular, they suggest Site 5695 was the site of lithic manufacture, based on the volume of volcanic glass debitage present and that marine exploitation was the focus for Sites 51 and 53.

In 1989, PHRI conducted an archaeological field inspection (Rosendahl 1989) of a parcel along the south shore of Keauhou Bay (TMK: (3) 7-8-012:098; see Figure 62). As a result of that study, one site (PHRI Temporary Site 736-1) was identified, consisting of several walls that probably served as property boundaries during the Historic Period. These walls likely correspond with a series of walls oriented parallel and perpendicular to the shoreline that Hammatt (1979) mentioned as a result of his aforementioned survey of the south shore of Keauhou Bay. However, Hammatt had interpreted the walls as modern in origin (Haun and Henry 2005b).

In 1992, PHRI conducted an archaeological field inspection (Rosendahl and Walker 1992) of three parcels (TMKs: (3) 7-8-012:002, 053, and 100; see Figure 62), located along the southern shore of Keauhou Bay. No sites were identified within their study area.

In 1996, William Barrera Jr. conducted an archaeological investigation (Barrera 1996) of a parcel (TMK: (3) 7-8-012:031), located on the *mauka* side of Kamehameha III Road to the north of Keauhou Bay (see Figure 62). As a result of his study, Barrera noted that the entire parcel had been graded.

In 2003, Cultural Services Hawaii (CSH) conducted an archaeological inventory survey (Tulchin et al. 2003) of the entire Kona Surf Resort parcel (TMKs: (3) 7-8-012:58 and (3) 7-8-010:038 and 039; see Figure 62). Four previously recorded archaeological sites were relocated on the northeast side of the Kona Surf Resort property during their study. As a result, three SIHP Site designation numbers were assigned to the site numbers given by Reinecke (1930). Reinecke's field site numbers 51, 52, and 53 correspond to the currently numbered SIHP Sites 23911, 23912, and 23913. Features recorded during their study included the following: an enclosure (Site 23911 Feature A), a canoe shed (Site 23911 Feature B), two terraces (Site 23911 Features C and D), a Historic House Platform (Site 23912), a fishing shrine (Site 23913), and sub-surface cultural deposits related to a habitation (Site 5695). In this same year, CSH returned to the Kona Surf Property to conduct archaeological monitoring (Jones and Hammatt 2005) in which no new cultural remains or natural soil deposits were identified. Jones and Hammatt (2005) did, however, recommend monitoring for any significant excavations located near the freshwater swimming pool and archaeological complex.

Subsequently, in 2004, CSH prepared a preservation plan (Mann et al. 2004) for a 0.5-acre parcel (TMK: (3) 7-8-012:058) within the Kona Surf Resort property (see Figure 62). A cultural preserve was proposed for the northeast side of the Kona Surf property, where the four aforementioned archaeological sites (SIHP Sites 23911-23913, and 5695), are located. According to a local *kupuna*, Reinecke was mistaken when he called Site 51 the remains of *Kaukulaelae Heiau*, and the correct name is *Kanika'ula Heiau* (Mann et al. 2004). Interestingly, on the 1954 sketch map of Keauhou Bay (see Figure 48), Kekahuna has a site labeled "Kanikani-ka'ula Heiau" in the vicinity of Reinecke's Site 51, which closely resembles the name used in the preservation plan fifty years later. Preservation measures include the creation of a 50-foot buffer zone around the four sites, and stabilization of sites to provide visitors with an informative experience. The plan also proposed that all out-of-context artifacts on and off the property be reclaimed and relocated within the cultural preserve area. In addition, a burial reinterment site consisting of an above-ground burial crypt was suggested to be constructed only if burials are encountered during construction renovations of the hotel. No future archaeological research was to be allowed within the cultural preserve without the prior written approval of a research plan by SHPD.

In 2004, at the request of Kamehameha Investment Corporation (KIC), Kumu Pono Associates, LLC prepared a cultural synthesis of some 489 acres Keauhou 1<sup>st</sup> and 2<sup>nd</sup> and Kahalu'u; *mauka* of the West Hawaii Railroad Right-of-Way and *makai* of Kuakini Highway. In addition to completing a comprehensive review of published and manuscript accounts, Maly and Maly (2004a) also included excerpts from interviews conducted with elder *kama'āina* that were conducted prior to KIC's requested study specifically those originating from the Ali'i Highway Project (Maly 1996) and one that focused on the trails located between the lands of Keauhou and Kealakekua (Maly and Maly 2001a, 2001b). The names of those whose interview excerpts were included in the KIC study included Lily N. Haanio-Kong, Luciana Makuakāne-Tripp, William J.H. Paris, Julian Gouveia, Helen K. Wight-Weeks, David K. Roy Jr., Josephine H. Nāhele-Kamoku, Mitchell M. Fujisaka, and Roseline H. McComber-Smith, which was published as a Appendix A of their report (Maly and Maly 2004b). From the information provided by those who were interviewed, Maly and

Maly's (2004a) KIC study also included recommendations regarding the culturally appropriate protection and treatment of the area's cultural resources. The author of this study understands that the recommendations included in the KIC study were not developed specifically for the current project. However, reviewing and revisiting the recommendations provided by those *kūpuna*, many of whom have since passed, ensures that the recommendations provided as part of this study are aligned with the wishes of these esteemed *kūpuna*. A detailed review of those recommendations are included in Chapter 4 of this study.

In 2004, Haun & Associates conducted an archaeological inventory survey (Haun and Henry 2005b) of a 1.08-acre parcel (TMK (3) 7-8-012:098), located on the southern side of Keauhou Bay (see Figure 62). Portions of their study area had already been surveyed by Hammatt (1979) and Rosendahl (1989). Haun and Henry augmented their pedestrian survey with seven shovel tests and one trowel probe. As a result of their study, two sites were identified (SIHP Sites 24215 and 24216). Site 24215 consists of a small overhang with a wall adjacent to it. Two shovel tests excavated within Site 24215 revealed habitation debris including marine shell fragments, *kukui* nut shells, and sea urchin fragments, which suggested to them the use of the site during Precontact through early Historic times. Site 24216 is a historic complex comprised of five features, which likely corresponds with PHRI temporary Site 736-1, originally recorded by Rosendahl (1989). The features of Site 24216 included two stacked rock walls (Features A and B), a modified outcrop (Feature C), a retaining wall (Feature D), and a prepared niche (Feature E). One of the rock walls (Feature A) was interpreted as a historic livestock control feature, the crude modified outcrop (Feature C) was interpreted as a possible historic agricultural clearing mound, while the historic retaining wall (Feature D) appears to have supported a gravel and concrete roadway and concrete path. The walled-in overhang (Feature E) was interpreted as a storage feature that was used in Prehistoric and Historic times based on the cultural material recovered from five shovel tests, which included marine shell remains and waterworn basalt pebbles within and outside of the overhang, based on their review of historic maps, Haun and Henry suggest that the features of Site 24216 were likely built between 1928 and 1954 and associated with a concrete house foundation and gazebo located on an adjacent parcel, which was owned by Mrs. E.P. Hodgins ca. 1954. Both sites were assessed as significant under Criterion d based on their informational content and Haun and Henry's treatment recommendation was no further work.

In July of 2004, Haun & Associates undertook an archaeological inventory survey (Haun and Henry 2005a) of a 25-acre parcel (TMK (3) 7-8-010:044), which encompasses a portion of the current project area (see Figure 62). Their survey area corresponds with a portion of Area 1 of the Bishop Estate Lands, which has been the subject of several archaeological investigations discussed above. A total of twenty-two sites with thirty-nine features had previously been documented within their survey area. Seven of these previously recorded sites appear to have been destroyed prior to their survey. During their study, fifteen sites were recorded that including six previously recorded sites (D3-37, and D3-39 through D3-43) and nine newly identified sites, comprised of twenty-two features. The location of these sites are shown below in Figure 65. As a result, four of the sites given temporary Bishop Museum field numbers by (Emory et al. 1971) were assigned the following new SIHP Site designation numbers: Site 24256 (D3-41), Site 24262 (D3-40), Site 24264 (D3-42), and Site 24267 (D3-39); in addition to the two SIHP Site designations that had been assigned sometime in the 1980s: Site 4348 (Kamehameha III birthplace shrine, D3-43) and Site 5674 (D3-36 and D3-37). Site 24262 (D3-40), a disturbed terrace, had previously been recorded as destroyed by Hammatt (1980). Also, Site 24267 (D3-39), which was originally recorded as a platform, was reclassified by Haun and Henry as a low enclosure. The twenty-two recorded features include paved house foundations, various enclosures, walls, terraces, platforms, midden scatters, mounds, a freshwater pool, a cave, a staircase, and a road. The range of feature functions includes ranching, habitation (temporary and permanent), ceremonial, transportation, water acquisition, recreation, and possible burial, all of which conform to the documented use of the *kula* zone. Evidence of Precontact use of the study area is evidenced by the temporary habitation cave (Mō'ikeha Cave, Site 24264) and the pool designated Site 24263 that may be a remnant of Ho'okūkū Pond, which appears in legends of Keauhou as well as on Kekahuna's 1954 Map (see Figures 48 and 49). Eight test units and ten shovel tests were excavated during their study. Radiocarbon dating of a sample taken from a test excavation in a temporary habitation site within Mō'ikeha Cave (Site 24264) yielded a calibrated age range of A.D. 1000 to 1180, which makes this site "one of the earliest habitation sites along the Kona coast" (Haun and Henry 2005b:ii). The three permanent habitation sites (Sites 5674, 24261, and 24266) recorded during the study likely date to the late Historic to early Historic Period. Four of the fifteen sites assessed as significant were recommended for data recovery (Sites 5674, 24259, 24261, and 24266). Three sites were recommended for preservation (Sites 4348, 24263, and 24264).

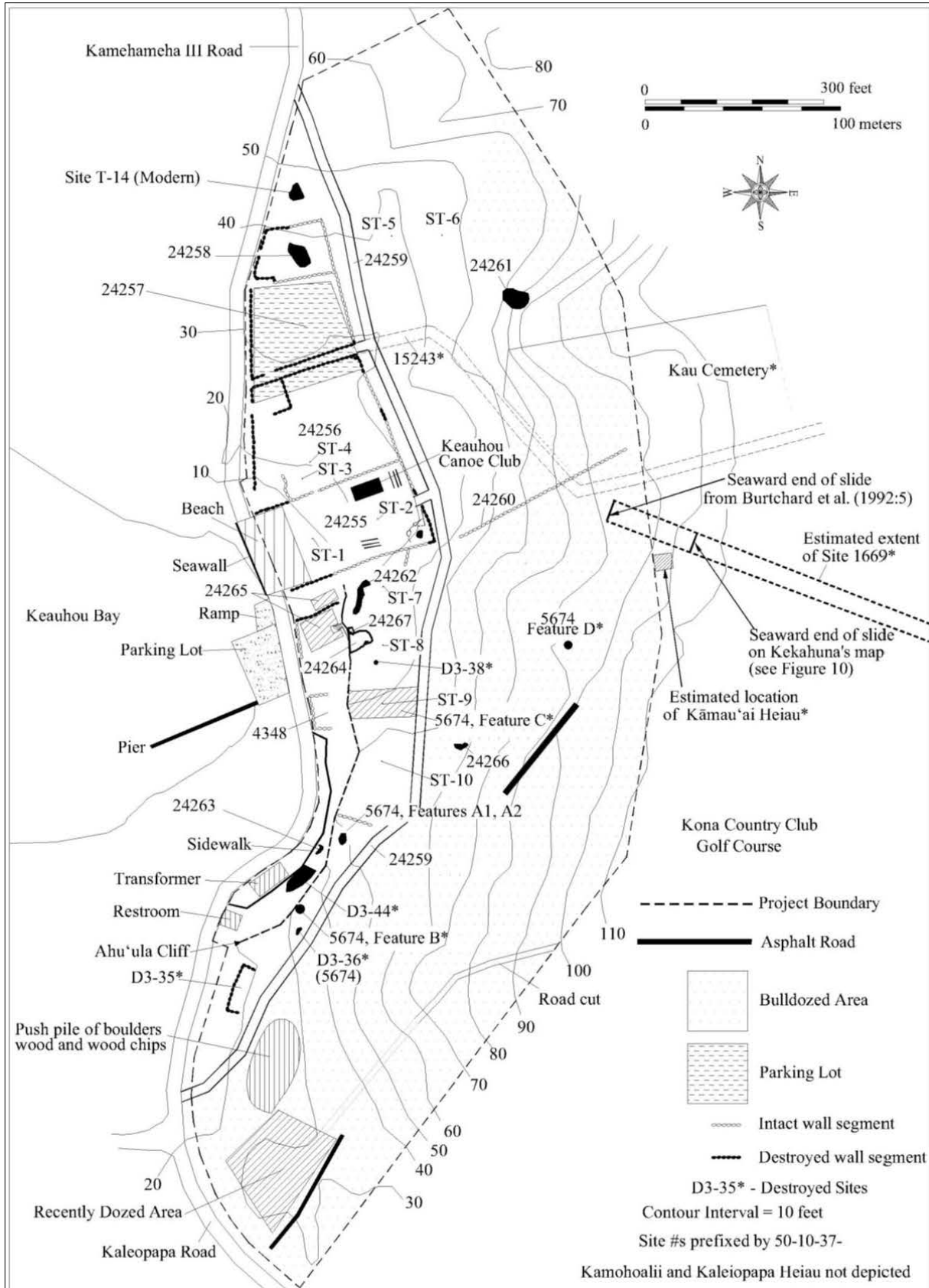


Figure 65. Haun and Henry (2005a) site location map.

## 2. Background

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In August of 2012, following the March 2011 *tsunami*, Haun & Associates returned to TMK: (3) 7-8-010:044, located in the project area (see Figure 62) to assess damages to Mō'ikeha Cave (Site 24264) and a historic building (Site 24265) (Haun and Henry 2012). Their study revealed that the *tsunami* had destroyed the modern fire pit and terrace that were recorded as features of Site 24264; scattered the stones from the features throughout the cave; exposed new cultural material including fragments of glazed ceramics and glass and a large basalt stone with a ground surface on one site, and introduced sediment, boulders, large cobbles, and a slab of asphalt into the site. It was found that the *tsunami* has caused irreparable damage to Site 24265 and subsequent efforts to rebuild the structure were unsuccessful. As part of this study, Haun and Henry (2012) excavated a 3x1-meter trench in Site 24264 and eight 50-centimeter diameter shovel tests to determine site boundaries and assess impacts from the *tsunami* and reconstruction efforts. A Precontact cultural deposit was discovered underneath Site 24265, however, it was determined that this deposit was extensively disturbed as indicated by the presence of modern debris. Haun and Henry (2012) recommended the preservation of Site 24264 and archaeological monitoring for Site 24265.

An archaeological site preservation plan (Haun and Henry 2014) was prepared by Haun & Associates in 2014 for Mō'ikeha Cave (Site 24264) (see Figure 62). The plan specified the following: avoidance and protection during any development activities that have the potential to impact the site; archaeological monitoring during any construction activities that may occur near the site; the establishment of a 10-foot buffer marked by a post and rail wooden fence which is to be installed at the front of the cave; that the buffer is recorded with the Bureau of Conveyances; prohibit public access into the cave; return the area outside of the cave to a more natural condition and install interpretive signage outside of the cave to improve public education.

ASM Affiliates prepared a CIA (Rechtman 2015) for the then proposed DLNR-Division of Boating and Ocean Recreation's Keauhou Bay mooring project (see Figure 62). Culture-historical background information specific to coastal Keauhou was compiled and interviews were conducted with various *kama'āina* families, members of the Keauhou Canoe Club, and other community members. Rechtman (2015) identified multiple significant features in the immediate vicinity of the bay including, but not limited to, the Kamehameha III birthsite, *heiau*, ponds, and identified canoe paddling and marine resource collection as significant cultural practices and resources. Recommendations to mitigate potential impacts on the identified resources were also provided including the preparation of a Hawai'i Register of Historic Places nomination to designate Keauhou Bay as a historic district and implement and develop an appropriate preservation strategy for the district; working with Keauhou Canoe Club to design a mooring layout that would meet the needs of the public and practitioners; and lastly to develop and implement monitoring and potential breeding/repopulating programs for all species that would be affected by the proposed mooring project.

In April of 2017, HHF Planners prepared a cultural landscape assessment (HHF Planners 2017) that focused on roughly 32 acres set along Keauhou Bay and included much of the current project area, which was dubbed the Keauhou Bay Cultural Landscape Area, plus an additional 3.5-acre property known as the Kaukulaelae Cultural Landscape Area located between the south side of Keauhou Bay and the Sheraton Kona Resort (see Figure 62). This assessment which was intended to supplement the Keauhou Bay Management Plan documented the history of the area and the evolution of the physical landscape as a means to inform future land use and management decisions in support of KS's goals for the area. This assessment included detailed cultural-historical background information and analysis and assessment of the historical significance of both the Keauhou Bay and Kaukulaelae Cultural Landscape Areas. A site map showing the historic features and other contributing elements of the Keauhou Bay Cultural Landscape area is provided below in Figure 66. The findings from this study led to the preparation of a comprehensive treatment plan (HHF Planners 2018) that provided specific, near-term recommendations, as well as a comprehensive vision for the cultural landscape of Keauhou Bay.

In November of 2021, as part of the current project, Haun & Associates conducted an archaeological reconnaissance and site condition update (Haun et al. 2021). Their study area included the majority of the current project area with the exception of the western section located on the north side of the bay (TMK: (3) 7-8-012:027, 048, 054, 101) and that portion near the charter boat tours (TMK: (3) 7-8-012:013 and 014). Five previously identified sites inclusive of three preservation sites (Site 4348, 24263, and 24264) and two data recovery sites (Site 24261 and 24266) were relocated and assessed, and three newly identified sites were recorded (Site 1608.1, 1608.2, and 1608.3). Haun et al.'s site map included below (Figure 67) shows the distribution of the sites. One site, Site 5674, a complex of five widely dispersed features that was recommended for data recovery, was not relocated during their survey. The three newly identified sites were interpreted as historic habitations (1608.1 and 1608.2) and a wall (1608.3) associated with ranching. These sites were found to be in poor condition and were tentatively assessed as significant under Criterion d with a likely recommended treatment of no further work. Of the three preservation sites, the Kamehameha III birthplace shrine (Site 4348) was found to be in good condition and retains its original significance assessment of Criterion b, d, and e; Ho'okūkū Pond (Site 24263) was in good condition and assessed as significant under Criterion







Figure 67. Haun et al. (2021:18) showing location of archaeological resources within a portion of the project area.

In a follow up to their November 2021 study and as part of the current project, between September and October 2022, Haun and Associates returned to the project area to conduct a second and more targeted archaeological reconnaissance survey (Haun et al. 2022). This survey also attempted to locate the archaeological remains of two historic trails, Site 15243 (Trail to Keauhou) and Site 24259 (Road to Kainaliu) and the Kau Cemetery. Their survey areas included a 1.35-acre section of TMK: (3) 7-8-010:044, a 0.3-acre portion of TMK: (3) 7-8-010:049, a 0.25-acre section of TMK: (3) 7-8-012:004, 0.4 acres of TMK: (3) 7-8-012:007, and a 0.6-acre section of TMK: (3) 7-8-012:065. They also conducted a site condition update of previously identified sites within two parcels (TMK: (3) 7-8-010:044 and 7-8-012:098; see Figure 62).

Their study resulted in the identification of three newly identified sites (Sites 1608.1, 1608.2, and 1608.3; all identified during the 2021 fieldwork), the relocation of three preservation sites (Sites 4348, 24263, and 24264), and two of three data recovery sites (Sites 24261 and 24266). The third data recovery site (Site 5674) was not relocated due to dense and impenetrable vegetation. The location of these sites are shown above in Haun et al. (2021) site location map (see Figure 66).

Site 1608.1 and 1608.2 were preliminarily interpreted as historic habitations with associated features and Site 1608.3 as a historic cattle wall. Haun et al. (2022:55) found these sites to be in poor condition and tentatively assessed them as significant under Criterion d and noted the “following [AIS-level] documentation these sites will likely be recommended for no further work. Site 4348 (Kauikeaouli Birth Stone), Site 24263 (Ho‘okūkū Pond), and Site 24264 (Mo‘ikeha Cave) were previously recommended for preservation by Haun and Henry (2005a). All three sites were considered significant under Criteria d, and e; Site 4348 was also considered significant under Criterion b and Site 24263 under Criterion c. Site 24261 and 24266 were recommended for data recovery by Haun and Henry (2005a), found to be in fair condition and were assessed as significant under Criterion d. Although the third data recovery site (Site 5674) was not relocated during this survey, it was assessed by Haun and Henry (2005a) as significant under Criterion d.

Concerning the Trail to Keauhou (Site 15243), no surface remains identified and Haun et al. (2022) noted that the ground surface in this area had been mechanically grubbed. Similarly, Haun et al. (2022) did not identify any remnants of Trail to Kainaliu (Site 24259). Regarding the Kau Cemetery, Haun et al. (2022:20,29) noted that “[t]he remains of the cemetery appear to be situated on a small rocky knoll, with the eastern two thirds of the cemetery having been destroyed by the construction of the adjacent golf course. A section of formed concrete, believed to have been a portion of a disturbed grave, possibly a capstone fragment, was also identified in the Kau Cemetery area. Furthermore, Haun et al. (2022) hypothesized that Site 24261, which was described as a permanent habitation structure, may actually be associated with the Kau Cemetery.

### 3. CONSULTATION

Gathering input from community members with genealogical ties and long-standing residency or relationships to the study area is vital to the process of assessing potential cultural impacts to resources, practices, and beliefs. It is precisely these individuals that ascribe meaning and value to traditional resources and practices. Community members often possess traditional knowledge and in-depth understanding that are unavailable elsewhere in the historical or cultural record of a place. As stated in the OEQC (1997) *Guidelines for Assessing Cultural Impacts*, the goal of the oral interview process is to identify potential cultural resources, practices, and beliefs associated with the project area. It is the present authors’ further contention that the oral interviews should also be used to augment the process of assessing the significance of any identified traditional cultural properties. Thus, it is the researcher’s responsibility to use the gathered information to identify and describe potential cultural impacts and propose appropriate mitigation as necessary. This section of the report begins with a description of the level of effort undertaken to identify persons believed to have knowledge of the study area, followed by the interview methodology. This section of the report concludes with a presentation of the interview summaries that have been reviewed and approved by the consulted parties.

To identify individuals knowledgeable about traditional cultural practices and/or uses associated with the current project and study areas, three public notices were published. All notices contained (a) locational information about the project area, (b) a brief description of the proposed project, and (c) contact information. A public notice was submitted to the Office of Hawaiian Affairs (OHA) on January 13, 2022, for publication in their monthly newspaper, *Ka Wai Ola*. This notice was published in the February edition of *Ka Wai Ola* and a copy of the public notice is included in Appendix A of this report. As of the date of the current report, no responses have been received from this public notice. Two additional notices were published on January 23, 2022, in two local newspapers, the *Hawaii*

### 3. Consultation

*Tribune-Herald* and the *West Hawaii Today*. Similarly, no responses have been received from these notices and a copy of each Affidavit of Publication and the public notices are attached to this report as Appendix A.

Additionally, ASM staff attempted to contact twelve individuals via email and/or phone (Table 6). These individuals were identified as persons who were long-time residents of the area and believed to have knowledge of past land use, history, or cultural information. Of the twelve people contacted, five agreed to participate in this study. The names of the individuals who agreed to be interviewed are Barbara Nobriga, Sandra Manuel, Noelani Campbell, Keone Kalawe, and Floyd Kahalioumi. Of the five, only four were able to review their interview summary and provided written or verbal approval for inclusion in this study.

**Table 6. Persons contacted for consultation.**

<i>Name</i>	<i>Affiliation</i>	<i>Date Contacted</i>	<i>Results</i>
Manu Powell	Daughters of Hawai'i	February 4, 2022	Referred ASM staff to Babara Nobriga.
Barbara Nobriga	Daughters of Hawai'i	-	Did not respond to approve interview summary.
Lily Lyons	Haanio Descendant	February 4, 2022	No response
Mahealani Pai	Kamehameha Schools	February 4, 2022	Referred ASM staff to Floyd Kahalioumi
Sandra Manuel	Haanio descendant	February 9, 2022	See summary below.
Olivia Pasciuta	Haanio descendant	February 10, 2022	Declined to participate in CIA but would like to participate in a community meeting.
Office of Hawaiian Affairs		March 1, 2022	No response.
Noelani Campbell	Keauhou Canoe Club	March 1, 2022	See summary below
Kalaniola Hamm		March 1, 2022	No response
Keone Kalawe	<i>Hōlua</i> expert	March 1, 2022	See summary below
Lionel Machado	Former resident of Keauhou	March 8, 2022	No response
Floyd Kahalioumi	Resident of Keauhou	March 30, 2022	See summary below

## INTERVIEW METHODOLOGY

Prior to the interview, ASM staff provided written information about the nature and location of the proposed project and informed the potential interviewees about the current study, and how the information provided during the interview would be processed and utilized in this study. The potential interviewees were informed that the interviews were completely voluntary and that they would be allowed to review their interview summary prior to inclusion in this report. With their consent, ASM staff then asked questions about their background, their knowledge of past land use, and the history of the project area, as well as their knowledge of any past or ongoing cultural practices. The informants were also invited to share their thoughts on the proposed development and offer mitigative solutions. Two interviews were conducted via Zoom and the remaining three interviews were conducted in person at Keauhou Bay. Below are the interview summaries that have been reviewed and approved by the consulted parties.

### SANDRA MANUEL

An in-person interview was conducted on February 17, 2022, with Mrs. Sandra Manuel (Figure 68) by ASM staff, Lokelani Brandt, on the shores of Ka'ili'ilinehe at Keauhou. Born in Honolulu, O'ahu to her mother Shirlen and father Samuel Haanio, Mrs. Manuel's family relocated from O'ahu to Keauhou when she was four years old. When asked why her family relocated, she shared, it was to help her aging paternal grandmother, Mary Ahlo Haanio (also known as "Tūtū Mary" or aunty Mary) a widow, whose *makai* home was located on the north side of Keauhou Bay. Through *tūtū* Harry Haanio, the family acquired their *kuleana* lands. She shared that Tūtū Mary was well-respected in the community.

In clarifying her genealogical connection to Keauhou, she noted that her mother was from O'ahu and her father and his



Figure 68. Sandra Manuel standing near her grandfather's fish lookout stone.

family were from Keauhou. Growing up in a bilingual home, Mrs. Manuel recalled how her father and Tūtū Mary spoke only ‘Ōlelo Kanaka to each other but would converse with others in the English language. She related while growing up, learning, and speaking Hawaiian was prohibited, but listening to her father and Tūtū Mary conversing enable her understanding. Thus, although she does not consider herself fluent in ‘Ōlelo Kanaka, she is adept at hearing and understanding the language and interjects words or phrases when speaking to her *mo‘opuna* (grandchildren).

In reflecting on her childhood, Mrs. Manuel stated that although life was hard, she had quite a fulfilling childhood. She recalled how everyday living was guided by their responsibilities and not distractions. She and her siblings were involved in helping the family with any task that needed to be done at their home or Tūtū Mary’s home. It was only when these tasks were completed were they permitted to go out and play. She recalled that whether at their *mauka* or *makai* house, the same rules applied.

Mrs. Manuel explained that traditionally, the families from Keauhou typically had two homes, one located *mauka* which was used mainly for farming and raising livestock, and another *makai* where fishing was the primary activity. In addition to fishing, Mrs. Manuel reported that preparing fish in its different forms, whether raw or dried was also a common practice at the coast. Collectively, she emphasized that this type of lifestyle was completely self-sustaining and “that’s just the way it was.” Ensuring the family had enough resources to sustain themselves, Mrs. Manuel opined, required the family to plan and do things daily, whether gardening, fishing, raising livestock, or hunting.

Concerning their *mauka* home, Mrs. Manuel shared that this home is about two miles inland from their *makai* home and was the home her father was born in. She recalled how her father and “tūtū man,” Harry Haanio used to farm crops such as *kalo*, sweet potato, ‘ulu, and banana in the uplands. Mrs. Manuel explained that in addition to their *mauka* house lot, her father and tūtū man cultivated food crops in an area further upland of their home called Ko‘olua‘ōhi‘a. When the crops were harvested, she described how her father would come down to the coast on his mule to share food with the ‘ohana *makai* and in exchange, they would get fish. She pointed out that it was through this *mauka-makai* system of exchange that their ‘ohana obtained everything they needed to survive. When asked how often these *mauka-makai* trips were made, she stated it was out of necessity or during times of harvest. Mrs. Manuel highlighted the fact that from the ocean, they procured a diversity of fish and marine resources that were prepared in many ways, salted and dried, raw, fried, and in soups. Concerning the types of fish they ate from Keauhou Bay, she identified the following *manini*, ‘ū‘ū, ‘upāpalu, ‘uhu, ‘ōpelu, *akule*, *pākukui*, *he‘e*, and many others. She added that the fishermen were so knowledgeable about the bay that they knew where to find certain species of fish. She detailed how her father would travel to the point near the present-day Sheraton Hotel to gather *pākukui* and *manini*. In the bay, they would gather *wana*, *hā‘uke‘uke*, and *limu*. In observing the condition of the bay today, Mrs. Manuel stated that she remembered the water being crystal clear but today it is so *pilau*, cloudy, and depleted of *wana*, *hā‘uke‘uke*, and *limu*, which were plentiful when she was a child. She shared a story of how her Tūtū Mary taught her not to gather the *limu ‘aki‘aki* because that was food for the *honu*.

When asked about what she remembers most about Keauhou Bay as a child, Mrs. Manuel, described it as a thriving fishing village and likened it to the fishing village at Miloli‘i. She recalled how the bay was filled with canoes and when the canoes returned to shore after fishing, the interior of the canoes was filled with fish. She remembered the homes being old and seeing screened boxes used to dry fish laid out and ‘ōpelu nets hanging in the yard. In reminiscing on the drive down from their *mauka* home, she recalled the old winding road to the coast where she would peek at the ocean with much excitement. Once at the coast, they arrived at tūtū Mary’s house, however, before going into the ocean, she and her brother would grab a *nī‘au* (made from coconut leaf rib) broom to go rake the mango leaves into a pile. She described, the impending excitement as the chore of raking leaves was done and her father permitted them to swim. She playfully recalled the sound of the ‘ili‘ili pebbles rustling under her bare feet as she scurried from Tūtū Mary’s yard to the shore.

In recollecting some of the visitors that came to Tūtū Mary’s house, Mrs. Manuel recalled ‘Iolani Luahine, a renowned *hula* master. She remembered how ‘Iolani Luahine would offer a chant before going into Tūtū Mary’s house. She opined that having witnessed these events, she knew that her Tūtū was well-respected in the community as even elder folks acknowledged her. She felt that her Tūtū was put in that specific area during her time to help guide others in the community. She expressed a sense of honor for the knowledge that her Tūtū has passed down whether to their family or others in the community. She lamented that her family’s success is a result of the works of her Tūtū Harry and Tūtū Mary that this was their living legacy.

Mrs. Manuel went on to share some information about specific places near her Tūtū’s *makai* home that were used for certain cultural practices. In pointing to two large boulders located on the *makai* side of the turnaround at the end of Kamehameha III Road, she describes how her Tūtū Harry, would stand or sit on these boulders to observe the school of *halalū* coming into the bay. Once he made his observation, he would signal to the canoe paddlers at the

shore where to set the nets. She clarified that during those times, there were no trees in this area, so the visibility of the bay was much greater. Also, despite not having cell phones, she playfully shared how once the canoes came ashore, people would drive down to the bay with their small bags hoping to take home some of the catch. When asked about the type of vegetation that was common near the bay, she recalled *kiawe*, *'ōhai*, and *opiuma* but noted that *kiawe* was very useful because it was used as firewood. When asked about how her family traveled between their *mauka* and *makai* homes, she said they used the road, but the family also had a trail that ran behind their *makai* home and extended inland to their *mauka* house and to Ko'olua'ōhi'a. She stated that she walked that trail twice with her father but as she got older, she found the trail arduous and “was more easy to go through the royal slide then cut to the train tracks, catch that, then walk straight up to the house...whoa cut the time in half.” She noted that it took about 45 minutes to go upland using the family trail and this was one of the reasons they used mules and donkeys to go up and down the hill. Additionally, she related that the cowboys also used their family trail when driving *pipi* (cattle) down to the coast. Mrs. Manuel also shared that on the northern peninsular of the bay is a tomb. She exclaimed that they were forbidden to go there but shared that she was told that the tomb was the burial place of an English officer. She related that they had some family burials a little inland, but the burials were relocated when they started to develop that area. Another place they were forbidden to go was near the north side of where the Keauhou Canoe Club stands. Mrs. Manuel described a large blue rock outcrop in this area and when there were heavy rains in the uplands, the water would flow underground into the bay and bubble up creating ring-like formations in the ocean, but without any sediment.

In describing her Tūtū Mary's *makai* home, Mrs. Manuel explained that there were two homes on this property with the original home being the former post office. She shared that Ka'ili'ilinehe originally extended from where the restroom facility is (on the north side of the bay) to where the stone platform is near Sea Quest Hawai'i. She clarified that the stone wall that fronts the Keauhou Canoe Club was not there when she was a child.

Recalling some of Tūtū Mary's fishing practices, Mrs. Manuel informed how her Tūtū would come down from her home every night to fish from the old pier. She clarified that the old pier was about half the size of the existing pier. Her Tūtū would go to a specific spot on the pier to catch *moano*. She would gather about 2-3 *moano* then return home with enough for her to eat.

In sharing how her Tūtū Mary generated income, Mrs. Manuel shared that Tūtū used to go down and see some of the local fishermen, one of which included Mr. Sawada. Mr. Sawada would catch fish like *ahi* or *'ōpelu* and Tūtū Mary would, depending on the catch, purchase one or two *ka'au* (a Hawaiian measurement unit that refers to 40) of fish which she took home, dried then sold. Cleaning and preparing the fresh fish to be dried was another important step in which Mrs. Manuel described participating in. She shared that water was used when scaling the fish but when gutting and filleting the fish, no water was used. She added that *tūtū* Mary would remove the gills of the fish and rub it on the fillet, salt it, then lay the fish out to dry. She shared that fishing using nets was another common practice at Keauhou, however, this type of fishing has since been banned, which has extinguished this practice at the bay. For the preparation of raw fish, Mrs. Manuel spoke about how they gathered *kukui* (candlenut) nuts to make *inamona* (relish consisting typically of roasted *kukui* nut and sea salt). She exclaimed that there were certain trees they gathered from because some trees produced oilier nuts. She recalled some of these trees being on the north side of the bay and near their house. After gathering the nut, they would *pūlehu* until a cracking sound was heard, after which, they removed the toasted kernel. When asked if people planted other food crops around the bay, Mrs. Manuel stated that Tūtū Mary did attempt to plant vegetables like string beans, however, she clarified that growing food was difficult at the coast because of the heat, inadequate soil, and lack of water. Rather, all planting was done in the uplands where there was good soil and sufficient rain to water the crops which were mostly grown by her late Uncle Harry and Auntie Louisa Haanio.

In speaking about other *kuleana* that Tūtū Mary had at Keauhou, Mrs. Manuel recalled that her Tūtū served as the caretaker of “Kaukeoli”, Kauikeaouli birthplace for many years. She added that her Tūtū was a member of the Daughters of Hawai'i and the Ka'ahumanu Society and that as children, they had to go to the birthplace and clean and care for this area. In describing how the birth site looked when she was young, she shared “was all *'ili'ili* inside and behind the huge rock but now today they put some type of plaque on top.” When asked if her Tūtū had shared any stories with her about the birthplace, Mrs. Manuel conveyed that “all I know that they came in the canoes one early morning, rushing in, and they had to take her [Keōpūolani] in and behind the boulder where she went *hānau* (give birth) with her ladies in waiting.”

Mrs. Manuel described how Ka'ili'ilinehe was the “hub” of Keauhou, where the community congregated to fish. Even when the sea was rough, the community gathered at the shore to talk and share stories. She added that although it was an ethnically mixed community “no one knew the difference, we were one family.” In relating some of her family uses of Ka'ili'ilinehe, Mrs. Manuel shared that this was their playground. Furthermore, Mrs. Manuel related that Ka'ili'ilinehe is where the fishermen would park their canoes. She detailed how the fishermen would park their

canoes further back from the shoreline to protect them from the ocean. Additionally, she recalled an old dry dock located in the vicinity of the present-day Fair Winds Cruises.

When asked about what happened to their family's *makai* home, Mrs. Manuel explained that there was a land swap negotiated by Bishop Estate and her Tutu Mary, Uncle Harry, and her dad Samuel.

Another activity that occurred near the bay was ranching. Mrs. Manuel described how the area laying above the bay to the upper road where their *mauka* home is located was all ranch lands. She added that some of the prominent ranch families included the Walls, Hinds, and Paris. She recalled how Uncle Bobby Hind would drive his cattle down the hill to Keauhou Bay where the cattle were then loaded onto waiting ships. In pointing to the specific areas at the bay used during the cattle drives, Mrs. Manuel identified the old boat ramp located on the north side of the existing pier/parking area. She also recalled an old cattle pen located near the present-day sand volleyball court. She commented how although some of the *paniolo* were *haole*, they were fluent in the Hawaiian language.

Concerning changes to the bay, Mrs. Manuel shared that as commercial activity increased at the bay, she noticed a decline in the water quality. She believes that pollution from large commercial boating has adversely impacted the water quality and the overall health of the marine life in the bay. In the early 1960s there were fewer boats in the bay and commented that "if you can imagine, the whole bay was all open. It was yours to go swimming, diving, spear fish, *'upena kū*, make *wana*, you name it...it was our playground, our refrigerator, our everything." She expressed the importance of cleaning up the bay and ensuring the activities on land don't negatively impact the ocean. She shared that today, the marine resources that were once abundant are no longer abundant which speaks to the declining health of the bay.

Mrs. Manuel expressed her support for the cultural and educational components of the proposed development and felt that this should be the focus. She added that "there is so much here that gave to so many families back in the day, it gave them sustainability, it was their way of life, this was how they fed their families." She wants the cultural resources preserved so the next generation of *keiki* and *kamali'i* may be able to enjoy and experience the healing benefits of Ka'ili'ilinehe, just as she and the previous generations have. She would like to see the plans include improvements to the bay so there is more organization for the different user groups and ensure the *keiki* have a safe place to enjoy the water. She noted that there are a lot of recreational activities in the bay and making sure the *keiki* have a place safe from canoes, kayaks, and boats is crucial. Mrs. Manuel opined that there are many *malihini* that come into the bay that are not *ma'a* (accustomed) nor do they show concern for the safety of others. She emphasized that her ability to enjoy and experience Ka'ili'ilinehe was because her *tūtū*'s generation and those before cared for the area. She believes that if the focus of the proposed project is on culture and education, the vibrancy and fecundity of the bay can be restored. Mrs. Manuel opined that education is a critical component of this development because educating people about what to do is essential to restoring the bay. It's their *kuleana*. Furthermore, she felt that restoring the bay is beneficial to marine life and the Kanaka because the ocean is more than a place to recreate, it is a place of health and healing. She added "when we go into the water it does something for our souls and our body...it gives us that sense of being, of well-being, of continuing who we are because we went *'au'au*...That is what *tūtū* always said, you go *'au'au* first before you can really go swim."

In sharing her thoughts on the commercial aspect of the proposed project, Mrs. Manuel stated that she "hopes there are people *akamai* enough to know that once, this was a thriving community and because of this, it is what it is today." Furthermore, she added that the reason we have Keauhou is because of the generations of *kūpuna* that diligently cared for this area. She highlighted the importance of understanding the history and the *kuleana* that comes with caring for this place. She encouraged the leadership at KS to be the example and step into the role of taking care of this area. She understands the complexity of balancing economic activities, which funds many of KS's educational programs, and stewarding the area, and noted that it takes money and resources to care for an area. She would like KS to hold true to how Ka'ili'ilinehe once was and if they can assume this *kuleana* she would feel ok with the proposed development. She underscored the importance of inclusion and spoke about how *kūpuna* did not only think of themselves when making decisions. She lamented on the fact that *kūpuna* did not adhere strongly to the concept of private property and being selfish with what you had, rather they included and shared with anyone who sustained themselves on this land.

She would like to ensure that the *kūpuna* from the area are kept involved with this project as it moves forward and felt that their guidance would ensure the legacy of the people lives on. Mrs. Manuel noted that "I am just one of the *kupuna* from this area and there are many more that have contributed to the history of this area." She believes *kūpuna* involvement can help guide the project in culturally appropriate ways.

A major concern for Mrs. Manuel regarding the proposed project is the impacts to the bay caused by stormwater runoff. She related how within the past years, there have been major stormwater runoffs that brought down a lot of

sediment into the bay. She added that when these types of storms occur, they destroy important marine habitats and force marine life to flee the bay. She stressed that if there is going to be development, the developers must understand that there is a well-established history of stormwater runoff into the bay. She would like to ensure the developer conducts the proper studies and plans accordingly to prevent such catastrophes from occurring. She would also like to ensure her Tūtū man's lookout stone is preserved in place.

In reflecting on her childhood years spent at Keauhou Bay, Mrs. Manuel stated “I am so glad I grew up in that time because I saw, and I witnessed, and I learned and I know how it was. I am adamant with my *mo'opuna* to take care, *mālama* and give back because the land will give back to you.” She commented that when she comes down to the bay today, it makes her sad to see the condition of the area. She said, “back in the day you didn't see rubbish, why? Because everybody took responsibility.” She expressed “there is so much change in the world and as much as we can *mālama* and keep what we have.” She reflected that she feels lucky having been born during that time; being able to see the relationship between her father and Tūtū Mary and seeing how everyday tasks were driven by their culture and sustainability. This environment, she believes has shaped her into the person she is today, and that the old way of living is something she holds dear and has passed on to her children and grandchildren.

### **NOELANI CAMPBELL**

A Zoom video conference interview was conducted by ASM staff, Lokelani Brandt on March 9, 2022, with Mrs. Noelani Campbell. Born on the island of O'ahu in 1959, Mrs. Campbell attended Aiea Elementary School and High School and has been a lifelong *hula* dancer. After high school, she obtained her undergraduate degree from Chaminade University then pursued her Master of Business Administration (MBA), both of which were funded by financial aid provided by Kamehameha Schools. Mrs. Campbell explained that when she was given the opportunity to attend university with the financial support of Kamehameha School, she was encouraged to “please try and return, in-kind, your education to the Hawaiian people.” Mrs. Campbell currently serves as the designated cultural liaison for Keauhou Canoe Club and is also a resident of Keauhou Ahupua'a.

After receiving her MBA, Mrs. Campbell married “a *haole* boy” and in 1981 and for economic reasons, she and her husband decided to relocate to the mainland and where they raised their family. She shared that while living on the mainland, she tried to maintain her cultural connection, however, with the demands of work, raising a family, and living in a culturally different place, she had to adjust. She summarized this by stating, “I was a local girl when I left, and I wasn't a local girl when I came back.” She reflected that after living on the mainland for some thirty years, she questioned “what kind of Hawaiian would I be?” She recalled telling her husband that after they retire, her goal was to return home to Hawai'i. Mrs. Campbell emphasized that she was fortunate enough to be able to return home because many Hawaiians that relocate to the mainland don't have that same opportunity. When asked what motivated her to live in Kona, she explained that while living on the mainland, she and her family would often vacation in Kona. She explained that her connection to Kona grew as she began to learn more about the area's cultural sites and history, so after retiring, the decision to move to Kona was an obvious one. She humbly shared that her ability to live in Kona, especially with the high cost of living was due to her generating and saving enough money while living on the mainland. Mrs. Campbell opined that for her living in Kona comes with a *kuleana* of learning about the place, the people, its history, and disseminating that knowledge in a responsible and accountable way.

In recalling how she ended up joining Keauhou Canoe Club, she explained that after moving to Kona, she wanted to paddle and had to decide on a canoe club. After much thought, she joined Keauhou Canoe Club. She shared that about three-four years ago, KS approached Keauhou Canoe Club to assist with teaching their students about the *wa'a* (canoe) and since the canoe club is located on land from Pauahi, the club's membership and board willingly agreed to host the students. At that point, the canoe club identified her as the volunteer representative who would help facilitate KS's six-week educational program. She described working with club members to educate them about culturally sensitive ways to work with Hawaiian students and understanding the cultural significance of the *wa'a*. Mrs. Campbell added that her experience in working with people from outside of Hawai'i equipped her with the ability to diplomatically educate people who are not familiar with Hawaiian cultural knowledge and sensitivities.

When asked if the proposed project had the potential to impact canoe paddling, she shared that as a Hawaiian, paddling has had a profound impact on her life. She explained that most of the paddling that is done at Keauhou is done through a purely recreational lens. However, she added that there are many Hawaiian customs associated with all aspects of canoe paddling, which she observes, practices, and tries to teach to others who are unfamiliar. Mrs. Campbell shared that some of these customs include not standing on the canoe because doing so is equivalent to standing on one's ancestors. Adding to this, she shared that once the *koa* (*Acacia koa*) tree is hewn from the forest by the *kahuna* (master, priest), it is still alive and must be treated with respect. Being mindful of the types of conversations that occur on the canoe is also important. She expressed that it is important for her to share this type of knowledge



which has led to her teaching workshop/classes to club members about the Hawaiian customs and practices relevant to canoe paddling. In speaking about the cultural use of the canoes, she stated that today, most outrigger canoe paddling occurs in a sporting or recreation context rather than in a traditional manner such as navigation, transportation, or fishing. Mrs. Campbell added that their canoes have been used in certain memorial practices such as the scattering of ashes in the bay, however, she considered this to be more of a contemporary canoe culture practice rather than a traditional Hawaiian cultural practice. She related that Hawaiian burial practices are centered around returning the bones to the land. She closed by saying that her *kumu hula* taught her about the importance of knowing your boundaries when it comes to participating in certain cultural practices and sharing culturally valued information.

When asked if she was familiar with any culturally significant sites or resources in the project area, Mrs. Campbell prefaced stating that what she knew about the area was taught to her by either Auntie Lily Kong or Kalei (Auntie Lily's granddaughter, who is also a member of Keauhou Canoe Club) or through her research. She related that on the Ka'ū [south] side of the canoe club is Mō'ikeha Cave and Kaleiopapa Heiau. She added that today, Kaleiopapa is not often recognized as a *heiau* because it has been concreted over and it does not have the grandeur as other more famed *heiau*. However, she noted that based on the mapping done by Henry Kekahuna, there is some understanding as to what Kaleiopapa looked like before some of the concreting activities. Mrs. Campbell shared that the stone and the commemorative tablet have become the focal point of the *heiau*, however, she stated that the stone and tablet were added to the site in 1914. Furthermore, she added that in the area near Kaleiopapa and Mō'ikeha Cave, Auntie Lily Kong taught her where to collect the special red ochre used in traditional dyeing. She lamented that Auntie Lily Kong had passed away before she taught her how to process the dye, however, she and Kalei worked together to learn how to properly process the red ochre into a useable dye.

Concerning other ongoing cultural practices at Kaleiopapa Heiau, Mrs. Campbell shared that on March 17 of each year, the Daughters of Hawai'i and other organizations including KS come together to celebrate the birthday of King Kamehameha. In describing other places associated with Kamehameha's miraculous birth, she spoke about Pākohe, (translated as "birth canal") a small inlet located next to Kūhalalua, where Queen Keōpūolani went to soothe her birth pains. Mrs. Campbell added that she endeavors to understand this place as it was when the Queen was in labor and that the old place names help to tell that story. She emphasized that Queen Keōpūolani gave birth to two of her children at Keauhou, Kamehameha and his sister Nāhi'ena'ena.

Another ongoing cultural practice mentioned by Mrs. Campbell was associated with the *hōlua*. She believes that a portion of it has been used for certain cultural-educational programs. She shared that in the past, an *ali'i* would ride the *hōlua* down the track while another *ali'i* rode the surf on the reef of Kaula and Kalapu and the two parties would race to He'eia Bay. She stated that there used to be a tower at He'eia Bay that served as the finish line. She noted that the Wai'ula'ula Spring (mapped by Kekahuna) located in the vicinity of He'eia Bay has recently been unearthed after being buried for a long time. She added that when the spring was unearthed, the spring was found to be lined with stones.

When asked about her thoughts on the proposed project, Mrs. Campbell commented on the proposed plans for Ka'ili'ilinehe, stating that in the past, the sea wall fronting the canoe club was not there and that the beach originally extended over to where the existing pier is located. In recalling information shared with her by a member of the Machado family, she stated that the family had leased the land where the existing pier is as well as where Keauhou Canoe Club is located. Mrs. Campbell shared that the canoe club moved into its existing location some forty years ago and during that time, the club's name was Kamehameha Canoe Club. She added that the club is aware that the *hālau* will be moved a little more to the north, however, the conceptual plans do not show where, on the beach, they will be able to park and launch their canoes. She hopes a logical solution concerning the launching of the canoes and other recreational vessels is developed. She felt that improving parking on the south side of the bay would help alleviate the pedestrian traffic along the beach because due to the very limited parking on the south side, people often park on the north side of the bay and walk along the beach to get to the charter boat tours.

In looking at the proposed plans to relocate the commercial businesses along Keauhou Bay, Mrs. Campbell felt that this aspect of the plan will help restore some of the *mana* associated with the nearby sites and natural features including Kaleiopapa and the springs. She noted that along 'Ahu'ula Cliff, which is where the capes used to be dried, is the old access road, however, beyond that she was not familiar with that area. She expressed general support for the proposed heritage corridor but felt that the existing signage was sort of "gratuitous" with very little information about Mō'ikeha, so she hopes the signage content will be reexamined. In reviewing the commercial aspect of the proposed plans, Mrs. Campbell expressed a sense of reluctance but shared that she understands that the area around Keauhou Bay is considered prime real estate.



construction of the *hōlua* and ordered that it be wider and longer which resulted in Kāneaka being built on the original Pine *kahua hōlua*. He recalled Kāneaka being about a mile long and it included a smaller branch slide that terminated at Keauhou Bay whereas Kāneaka terminated at He‘eia Bay. He recalled that while working on the *hōlua* in Keauhou the late Mr. Duane Keana‘āina pointed out the remnants of the branch slide to him several years ago near one of the golf course access roads.

In describing the *hōlua* competitions that took place at Kāneaka in Keauhou, Mr. Kalawe expressed that what is unique about Kāneaka is that when contests were held, they included two opponents with one situated on the *hōlua* and the other on a surfboard in the ocean. About midway on the *kahua hōlua* stood a tower marked with *kī* (ti leaves) that housed the referee. He added that the referee had one of the most important jobs because he was responsible for watching the surf and identifying the waves that were large enough to bring the surfer onto land. As such, the contests were held only during certain times of the year when the waves were large enough for a competition. When the referee deemed a wave suitable for riding, the *kī* was waved thus marking the start of the competition. Both opponents, one on land and one in the ocean, would ride towards the finish line which was marked by two *hōlua ki‘i* (carved images), and the contestant that crossed the *hōlua ki‘i* first was the winner.

Concerning other features of the *hōlua*, Mr. Kalawe stated that in addition to the *kahua hōlua*, there is also a running path that abuts the head of the slide on the *mauka* end. He shared that these running paths typically measure about 8-10 feet wide and vary in length, however, the running paths were set anywhere between 16-24 inches lower than the *kahua hōlua*. In detailing how the running path was used and why there is a height difference between the running path and the *kahua hōlua*, Mr. Kalawe shared the rider holding its *hōlua* would sprint down the path and hurl their body and the sled in the air. As the rider came down in the air, they would grab the sled with their hands and position it under their body before landing on the *kahua hōlua* in a face-down position. The act of jumping in the air and landing in such a manner gave the rider the momentum needed to slide down the length of the *kahua hōlua*. He stated that there are accounts of riders standing up on their *hōlua* and riding down, however this way of riding did not require the rider to use the running board, rather they stood at the top of the *kahua hōlua* and kicked off.

Mr. Kalawe stated that people have asked him why *hōlua* are so narrow and he explained that this allowed the rider to maneuver the *hōlua* down the track, which sometimes included obstacles. When asked about the obstacles, Mr. Kalawe stated that sometimes natural rock outcrops protruded into the track and sometimes there would be a ditch built into the track and the rider would have to maneuver the *papa hōlua* around such obstacles. Concerning Kāneaka, Mr. Kalawe shared that in one area of the *kahua hōlua* closer to the highway, there is a natural lava outcrop that protrudes into the track. He reminded that *kahua hōlua* were not a flat and unobstructed level plane. While most *kahua hōlua* are oriented *makai*, he shared that in Kalaupapa, Moloka‘i, the *kahua hōlua* there is oriented inland rather than *makai*. As such, Mr. Kalawe reiterated that there is a lot of variation in the construction and style of the *kahua hōlua*.

Mr. Kalawe recalled being asked why *kahua hōlua* are found in some areas but not in others. His response to this was that “people need to understand that our *kīpuna* used the natural resources.” As such, in places like Hilo and Hāmākua, *kahua hōlua* were established on grassy hills rather than constructed slides thus there are no remnants of the *kahua*. However, in places like Kona, Ka‘ū, and Puna, the available material was *pōhaku*, thus to this day, you can find remnants of the slides in these areas. Furthermore, he noted that it was common for *kahua hōlua* to be built near *ahupua‘a* boundaries and sometimes the *kahua* themselves served as the boundary marker; which is the case with Kāneaka in Keauhou. In describing the best way to observe *hōlua*, especially in the Kona area, Mr. Kalawe stated that the best observations can be made while at sea.

When asked if the *kahua* or the *papa hōlua* had different names, Mr. Kalawe shared that when speaking about the *papa hōlua*, you’ll find the *kāma‘aloha* (runners), *mana* (cross pieces)—parts that were fastened together with *‘aha* (sennit) or *kaula* (rope, cord). He added that the top rails are known as *kālele*. He stated that in the past, all wood components of the *papa hōlua* were made of Hawaiian hardwoods such as *uhiuhi* (*Mezoneuron kavaïense*) or *kauila* (*Colubrina oppositifolia*). Furthermore, the *kāma‘aloha* needed to be made of hardwood, and the bottom needed to be tapered and rounded otherwise there is a risk of the runners splintering or cracking. He shared that when they first started making *papa hōlua* in the 1990s, they were using *‘ōhi‘a* (*Metrosideros polymorpha*). In speaking about the preparation of the *‘aha*, Mr. Kalawe shared that in the past, the coconut would be husked and then placed into an *imu* (underground oven) and baked. Only the fibers that withstood the cooking process were used to make the *‘aha* because these were deemed most durable. He noted that *olonā* (*Touchardia latifolia*) cordage was also used sometimes but ultimately the resources found within your local environment determined what materials were used in the construction of a *papa hōlua*. He expressed that there were also woven panels that were placed between the *kālele* and these panels were sometimes made of *makaloa* (*Cyperus laevigatus*) a sedge found typically along marshlands or *lau hala* (*Pandanus odoratissimus*). In either case, he stated that the woven piece needed to be a fine weave and pliable.

In detailing the preparation of the *kahua hōlua* for use, Mr. Kalawe stated that the entire surface of the slide needed to be covered with vegetation, which again, was determined by the availability of the local resources. He recalled using plants such as banana stumps, ti leaves, and in areas like Kona, *pili* (*Heteropogon contortus*) grass was used. Furthermore, to make the slide slick, the *kālele* and the vegetation were oiled using either coconut or *kukui*. He related that “this is the reason why when our *kūpuna* rode their *papa hōlua* on the *kahua hōlua*, they rode at noon, when the sun was above because everything was all slick and warm.” He emphasized that it is important to realize how much energy and material was required to cover the surface of the *kahua hōlua* and sometimes certain *ali‘i* wanted the surface of the slide covered in *lau hala* mats. He candidly stated, “imagine the resources and the people it took to weave all these mats; you not talking about one, two mats on the slide, you talking about twenty, thirty mats piled on each other and can you imagine how wide because at Kāneaka, in some places, its forty feet wide and one mile long?” Because of these factors, he added that riding was not done in an impromptu style, it had to be planned and was not a daily activity because it took a lot of people and resources to prepare the slide. He noted that this is why the sport of *hōlua* was reserved for the *ali‘i*. Mr. Kalawe opined that preparing the slide took a tremendous number of resources from the local area and some of these resources, such as ti leaves, were important for food production. Additionally, when contests were held, it drew a number of people to that area, and those people needed to be fed. As such, he stated that this was certainly a community effort. He went on to add that over time, *hōlua* grew in size, and for a community to decide that it could afford and support all aspects of *hōlua* in terms of resources and labor also speaks to the abundance of resources within that area. He stated that it is amazing because there are multiple components to *hōlua*, from the *papa hōlua* to the *kahua* which is much larger. He believes that *hōlua* are one of the largest man-made constructions found in Hawaiian culture. In reflecting on Kāneaka, he stated “can you imagine how many people it took to move *pōhaku* from one place to another... so it’s a real massive undertaking.”

In detailing the engineering components of Kāneaka, Mr. Kalawe remarked that if you look closely at this *hōlua*, you will see that *kūpuna* constructed rolling hills into the *kahua*, which helped to slow the rider down. He stated that *hōlua* were never built as a level plane because the rider would go down at uncontrollably high speeds. Because *kahua hōlua* were built on hillsides, incorporating rolling hills into the slide’s surface made riding physically possible. Also, at Kāneaka, he shared that there is a stone wall built along the north side of the slide. In recalling some calculations that he and a few others did, it was estimated that a rider could reach speeds of 62-65 miles per hour.

Mr. Kalawe also spoke about what happened when a rider would *hala* (die, pass away) while riding. He explained that if a rider died, they would be buried at the top of the slide, before the running path. As such it is not uncommon to find burials in the area above the running path. Also, the rider’s *papa hōlua* would be burned so that their essence would go with their *papa*. He believes that this explains why *papa hōlua* are not commonly found in an archaeological context. Furthermore, Mr. Kalawe spoke about changes to the practice and noted as the practice of *hōlua* started to die out, sometimes, the *kahua* was repurposed and used as a burial site, thus over time, the function of the *hōlua* changed.

When asked if there are any particular *akua* that are associated with *hōlua*, Mr. Kalawe stated that Lono would be the main *akua* associated with *hōlua*, which is one of the reasons use of the *hōlua* was popular during the Makahiki season. However, he went on to explain that *ali‘i* could ride outside of the Makahiki season however, this was not common and it was only during Makahiki that the *maka‘āinana* (common folks) could participate in this sport. He reiterated that *hōlua* was however a sport/recreation/practice that was almost exclusive to the *ali‘i* class. Also, when *hōlua* were built, it was done so for a certain *ali‘i*, which gives *hōlua* a particular status in Hawaiian society. Mr. Kalawe opined that it was common for *ali‘i* from different areas to have their own *hōlua* but they would gather periodically to challenge each other and they brought together “nothing but the best riders.”

When asked about his thoughts on caring for Kāneaka within the context of the cultural landscape of the project area, Mr. Kalawe believed that KS has made efforts to remove trees and vegetation from the slide. He felt that this was an appropriate action especially as it relates to protecting the integrity of the *hōlua*. He explained that if large trees are not removed whether they are within the slide or adjacent to it, these trees have the potential to undermine the construction of the slide. He added that in some parts of the slide, *kūpuna* would install slabs and then place the finishing stones on top, so over the years and with earthquakes, sometimes these sections of the slide are prone to collapse. He felt it is important to address and repair any collapsed sections as part of the long-term preservation of the *hōlua*. When asked how he felt about the use of the *hōlua* in a cultural-educational context, Mr. Kalawe stated that it is important that these kinds of efforts come from the community. He felt it was important to educate and share more about the *hōlua* at Keauhou. He noted that it is possible to ride the less steep sections of the *hōlua* if it is done in a safe manner and in a cultural and educational context. He expressed that this is a part of Hawaiian culture and it is important for people to experience it. In closing, Mr. Kalawe remarked that “we need to reintroduce the *hōlua* culture” and in this way people can understand all aspects of *hōlua*. He felt it was important especially for *ali‘i* trust

to restore, preserve, and teach people about *hōlua* as it is an integral part of *ali'i* pastimes. He has been seeing Kona-based *ali'i* trust take pride and ownership in their *hōlua*. In summary, Mr. Kalawe stated, “at the end of the day, our community and our people are going to benefit from it because now they are going to know that there are more *hōlua* slides around.” He would like KS to realize that what they have in Keauhou is unique and monumental and it can serve as a gathering place for people to learn about *hōlua*... “we want to keep our culture alive and safeguard what we have left... this is important to the continuation of our *kūpuna* practices.”

## FLOYD KAHALIOUMI

ASM staff, Lokelani Brandt conducted an in-person interview with Mr. Floyd Kahalioumi on April 5, 2022, on the shores of Keauhou Bay. Born in November 1945 in their family home in Keauhou *mauka*, Mr. Kahalioumi was raised with his maternal grandfather, Mr. Robert Kahalioumi (also known as Grandpa or Papa). Mr. Kahalioumi’s maternal lineage traces back to the lands of Keauhou and Kahalu’u. About twenty-one years ago, Mr. Kahalioumi retired from Verizon and continues to reside in Keauhou *mauka*, a short distance from the place where he was born and raised.

He described that as a child, his family had two homes, one *mauka* and *makai*, and they would spend a week or two at their *mauka* home then come down to their *makai* home and spend anywhere from a week to two, then return *mauka*. He noted that their *makai* property was an original *kuleana* that had been in their family for many generations. During certain holidays, such as Memorial Day, the entire family would come down to the *makai* home where they fished, enjoyed the ocean, and cared for their *‘ohana* burials. He stated that they used to access their *makai* house from the old road further inland of the bay (identified on the conceptual plan as the Old Kona Road) or they used a small trail that led up ‘Ahu‘ula Pali to their house. He recalled the front of the house being built about 10 to 12 feet off the ground that overlooked Keauhou bay. The yard was paved with *‘ili‘ili* and there was an outdoor kitchen and bath.

Aside from taking care of their *kuleana* and burials, he recalled how they also fished. During the nights they fished for species like *‘upāpalu* (a species of Cardinal fish), mostly along the south side of the bay and they would throw net for *‘anae* (mullet). He recalled walking along the shoreline of the bay and throwing net, which was mostly done on the north side of the bay since the south side was rocky with small cliffs. Mr. Kahalioumi clarified that as children they never ventured into the deeper parts of the bay and any deep-sea fishing was done by Grandpa on his traditional Hawaiian fishing canoe modified with and out board motor. He recalled how Grandpa would gather *he‘e* in the north side of the bay while he and his cousin Ronald would wait on the canoe.

In detailing other aspects of Keauhou Bay, Mr. Kahalioumi remembered how the coastal road meandered along the interior part of the bay and on the *makai* side of the road is where the fishermen stored their fishing canoes. He noted that in the past, the stone wall fronting Keauhou Canoe Club was not there so the beach was more expansive. He detailed how the central part of the shoreline was built up with boulders, on top of which were built racks to store the fishing canoes. He added that when the fishermen came in, they would use Hao [*hau*] logs to drag their canoes up the beach. It was common for people who were in the area to assist the fishermen and “*hāpai* (carry) and put [their canoes] on top of the racks so that the canoes were kept safe from high tides and rough seas. The water washing up on the beach would go underneath, keeping the canoes safe.” In exchange, the fishermen often gave any helpers a share of fish.

In naming some of the families that he remembered living at Keauhou, Mr. Kahalioumi recalled the Haanio, Hoapili, and the Machado families, the latter of which operated a dry dock out of Keauhou Bay. Sharing what he remembered about the Machado drydock operation, he stated that on the north side of the existing pier is the old boat ramp, which is the ramp they used when they went *holoholo* (lit. walk, ride, sail; also a euphemism to refer to fishing). He added that on the north side of the old boat ramp were old tracks that extended from the water into the Machado drydock. He remarked that the tracks were used mostly for the old charter boats. He explained how the boats would come inside the bay, tie up to the pier where they were scrubbed. Then a trolley that was attached to the tracks would be rolled down towards the shore. From there the boats were loaded on the trolley and the trolley would be pulled inland into the dry dock using a cable system. Mr. Kahalioumi expressed that there were but few charter boats at Keauhou Bay and only during rough weather did the bay fill up with boats from elsewhere seeking refuge.

Concerning other land use activities at Keauhou, Mr. Kahalioumi recalled that the area back from the shoreline was used for ranching, which included the Hind family and Pu‘uwa‘awa‘a Ranch. In speaking about the type of vegetation in the area, he recalled the area being mostly filled with *kiawe*. He added that the old road inland of the bay was just a single-lane dirt road that was used by the ranch. As noted above, this is the same road that his family also used to access their *makai* house lot.

In describing some of the structures that used to be in and near the project area, Mr. Kahalioumi described a church in the area north of the Hoapili residence. Although he was not certain, he believes this was the site of the original Helani Church. He said that from Keauhou, the church was moved to the north side of Ali'i Drive near Kahalu'u Beach Park and from there it was relocated to Kahalu'u *mauka*. He said that there used to be a house on the Hoapili property and to the west of the Hoapili property was Doc Hill. He remembered a home located near the present-day restrooms at Ka'ili'ilinehe beach and was told that there was also a home a little *mauka* (east) of the restrooms.

When asked about the cultural sites in the area, Mr. Kahalioumi expressed that growing up, they were taught by Grandpa to leave such places alone including the birth site, Mō'ikeha Cave, Lekeleke, or *heiau* located in the Kahalu'u area. He also spoke about the brackish water pond (Ho'okūkū Pond) located near the existing restroom facility and said that he remembered that pond being a little larger and much cleaner.

When asked if he recalled any of the *tsunamis* and how the place was impacted during these events, Mr. Kahalioumi recalled standing on the pier and watching the water drain from the bay. He commented that local people would come down during the *tsunamis* to grab the stranded fish. He shared how he watched a wall of water, which appeared to have stalled near the two points of the bay slowly move inland and refill the bay. He noted that the *tsunamis* he has observed at Keauhou were not like the ones that hit places like Hilo. During one such event, he remembered how he and his cousin caught a *malolo* that got stranded on the pier.

When asked about how the area has changed over the years, Mr. Kahalioumi stated that prior to him completing high school, the concrete pier/parking area was expanded. He noted as far as he could remember, the wooden "finger" pier was already built. He recalled how the trucks and trailers would drive down along the shoreline road, the boats were unloaded using the boat ramp on the north side of the existing pier, then the trucks and trailers would park on the concrete pier. He remembered the construction of the seawall fronting Keauhou Canoe Club. In reflecting on the seawall, Mr. Kahalioumi related how he was told, "if you make the shoreline hard with the stone wall, then the beach going come hard." In clarifying the words he said anytime you build a seawall it changes the beach because it alters the flow of the ocean, which often leads to the erosion of sand and exposure of rocks. He recalled a restaurant being located behind the current Sea Quest Hawaii headquarters and that before the restaurant, it was a yacht club.

When asked about his thoughts on the proposed plans, Mr. Kahalioumi was generally supportive of some aspects of the plan including rerouting traffic flow and the culture and educational components. He did, however, want to ensure that locals have access to the pier and the ocean to swim and fish for seasonal species like *halalū* (juvenile *akule*) and *'oama* (juvenile *weke*). He felt that visitors and those coming to partake in the commercial activities should have another area to gather and park. He felt that commercial activities increases traffic congestion along the bay and it deters locals from enjoying the area. He worries that added commercial space anywhere along the bay would draw in more vehicular and pedestrian traffic.

When asked if he thought the proposed project would have an impact on the cultural resources in the area, he worried that increased visitors would continue to impact the place. He hopes that there will be something within the proposed plans that serves the Hawaiian community and includes educational opportunities for the children of Kona (i.e. Kamehameha Schools Campus). He reiterated the importance of ensuring local fishers can continue to come to Keauhou and fish from the pier for *halalū* and the bay for *'oama*. Mr. Kahalioumi believes that the sewer line that runs through the existing volleyball should be relocated elsewhere.

## 4. IDENTIFICATION AND MITIGATION OF POTENTIAL CULTURAL IMPACTS

The OEQC guidelines identify several possible types of cultural practices and beliefs that are subject to assessment. These include "...subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs" (OEQC 1997:1). The guidelines also identify the types of cultural resources, associated with cultural practices and beliefs that are subject to assessment. These include other types of historic properties, both man-made and natural, submerged cultural resources, and traditional cultural properties. The origin of the concept and the expanded definition of traditional cultural property is found in National Register Bulletin 38 published by the U.S. Department of Interior-National Park Service (Parker and King 1998). An abbreviated definition is provided below:

"Traditional cultural property" means any historic property associated with the traditional practices and beliefs of an ethnic community or members of that community for more than fifty years. These traditions shall be founded in an ethnic community's history and contribute to maintaining the ethnic

community's cultural identity. Traditional associations are those demonstrating a continuity of practice or belief until present or those documented in historical source materials, or both.

“Traditional” as it is used, implies a time depth of at least 50 years, and a generalized mode of transmission of information from one generation to the next, either orally or by act. “Cultural” refers to the beliefs, practices, lifeways, and social institutions of a given community. The use of the term “Property” defines this category of resource as an identifiable place. Traditional cultural properties are not intangible, they must have some kind of boundary; and are subject to the same kind of evaluation as any other historic resource, with one very important exception. By definition, the significance of traditional cultural properties should be determined by the community that values them.

It is however with the definition of “Property” wherein there lies an inherent contradiction, and corresponding difficulty in the process of identification and evaluation of potential Hawaiian traditional cultural properties because it is precisely the concept of boundaries that runs counter to the traditional Hawaiian belief system. The sacredness of a particular landscape feature is often cosmologically tied to the rest of the landscape as well as to other features on it. To limit a property to a specifically defined area may actually partition it from what makes it significant in the first place. However offensive the concept of boundaries may be, it is nonetheless the regulatory benchmark for defining and assessing traditional cultural properties.

As the OEQC guidelines do not contain criteria for assessing the significance of traditional cultural properties, this study will adopt the state criteria for evaluating the significance of historic properties, of which traditional cultural properties are a subset. To be significant the potential historic property or traditional cultural property must possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- a Be associated with events that have made an important contribution to the broad patterns of our history;
- b Be associated with the lives of persons important in our past;
- c Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
- d Have yielded, or is likely to yield, information important for research on prehistory or history;
- e Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

While it is the practice of the DLNR-SHPD to consider most historic properties significant under Criterion d at a minimum, it is clear that traditional cultural properties by definition would also be significant under Criterion e. A further analytical framework for addressing the preservation and protection of customary and traditional native practices specific to Hawaiian communities resulted from the *Ka Pa 'akai O Ka 'Āina* v Land Use Commission court case. The court decision established a three-part process relative to evaluating such potential impacts: first, to identify whether any valued cultural, historical or natural resources are present; and identify the extent to which any traditional and customary native Hawaiian rights are exercised; second, to identify the extent to which those resources and rights will be affected or impaired; and third, specify any mitigative actions to be taken to reasonably protect native Hawaiian rights if they are found to exist.

## SUMMARY OF BACKGROUND INFORMATION

Since time immemorial, Keauhou's importance to Hawaiian history and society has long been recognized as evidenced by the plethora of traditional and historic era accounts that call attention to distinguishing landscape features, resources, persons of historical significance, place names, practices, and ideologies. From the traditional *mo'olelo*, we know that Keauhou is associated with certain *akua* including Kāne, to whom Kamau'ai Heiau was dedicated and said to be the *heiau* where the first vegetables were introduced. Kāne's domain also included surface and subsurface freshwater. At Keauhou *pūnāwai* (springs) are found along the coastline emanating through the lava rocks or the sea floor. Several of the consulted parties recalled seeing the springs bubbling up in the ocean, or gathering spring water for subsistence purposes. Some of the more prominent springs were named including Kūhalalua located near the present-day charter boat operations and Wai'ula'ula, located near He'eia Bay. Keauhou's history also identifies with the *akua* Lono, who was closely associated with agriculture. In his rain form, Lono brought the much-needed water to the crops and assured the fertility of the land. It is also said that Lono was the king when the great

flood known as Kai-a-ka-hina-ii swept over the land. As Lono is the *akua* who presides over the annual *Makahiki* when games and competitions were held, according to one of the consulted parties, Lono is also associated with the rituals associated with the practice of *hōlua*.

The traditional *mo'olelo* identifies a long line of chiefs and other notable persons who were either born or ruled from Keauhou. The historical record also suggests that Keauhou attracted *ali'i* from the outer-island chiefdoms. As noted above, in addition to Lono being identified as the king who ruled over Keauhou, other *mo'olelo* name Pōhaku-nui-o Kāne (who ruled the lands between Keauhou and Mā'ihī), Namakaokalani, Nihooleki (who was born at Keauhou), 'Umi-a-Līloa (who constructed the famed *heiau* Ahu A 'Umi in the uplands of Keauhou) and his sons Keli'i-o-Kāloa and Keawenui-a-'Umi. In some instances, Keauhou is mentioned as a stopping place for certain *ali'i* including chiefess Kamāmalu (wife of Kamehameha III) who made a short visit to Keauhou in 1812, while en route from Ka'ū to Kona. In one account the chief, Mō'ikeha evaded capture when he hid in a cave located in the face of 'Ahu'ula Cliff. Keauhou is also the birthplace of noted Hawaiian historian, David Malo, a medical *kahuna* from King Kalākaua's era, Kamali'ikāne, and Judge John G. Hoapili who was born in Keauhou in 1833.

From the era of 'Umi-a-Līloa down to the reign of Kamehameha I and his children, Keauhou becomes particularly important as evidenced by the frequency in which this place is mentioned in the historical literature. The *ali'i* Lonoikamakahiki, who established 'Umihale, a large royal compound near the Keauhou 1<sup>st</sup>-Kahalu'u boundary, is said to have had another, albeit, smaller royal residence inland of Pueo Cove located along the north side of Keauhou Bay and to the west of the project area boundaries. Later, Kamehameha I is said to have established his residence on the ruins of Lonoikamakahiki's home at Pueo Cove. Furthermore, according to Mr. Kalawe, the royal *hōlua*, Pine (which was superseded by Kāneaka *hōlua* built for King Kauikeaouli) was dedicated to Lonoikamakahiki. Lonoikamakahiki is also said to have commissioned the construction of several *heiau* in Kahalu'u namely, Makole'ā, Kapuanoni, and at least one, Keahiolo, on the Keauhou 1<sup>st</sup>-Kahalu'u boundary. Kalani'ōpu'u, an *ali'i* from Ka'ū is said to have taken up residency at Keauhou following the death of Captain James Cook in 1779, where he amused himself in the area's famed surf and *hula*. In 1791, Kuakini (also known as John Adams Kuakini or Kaluaikonahale), son of Namahana and Ke'eaumoku was born in the neighboring Kahalu'u but raised in Keauhou by Kamehe'aiku (cousin of Ke'eaumoku). The chiefess Miriam Kekāuluohi was born in Keauhou in 1794 and later adopted by her maternal grandparents, Namahana and Ke'eaumoku.

Of the *ali'i* accounts, those associated with Kamehameha, his sacred wife, Keōpūolani (born in 1780) and the birth of two of their children, Kauikeaouli and Nāhi'ena'ena at Keauhou are arguably the most widely known and celebrated births. The historical accounts indicate that Kamehameha brought a young Keōpūolani and her relatives, (whose *ali'i* lineage traces can be traced to the island of Maui), to Keauhou where she was raised. While there is much debate concerning Kauikeaouli's exact birthdate, March 17, 1814, was the day twice proclaimed as the national holiday to honor the king. From the published accounts, it is said Keōpūolani went to bathe in the cold waters of Kūhalalua where she was seized by her birth pains. She made her way to the confines of Kaleiopapa Heiau, located at the base of 'Ahu'ula Cliff, and gave birth to a stillborn. The *piko* was cut and the *'iewe* was taken to a flat *pāhoehoe* located north of Ho'okūkū pond where it was warmed over a fire. The high priest Kapihe uttered prayers and the wandering spirit of the baby was restored to its body. The infant was then taken by Kaikio'ewa to be raised in 'O'oma, North Kona. To honor the birth of his son, it is said that Kamehameha ordered the construction of the massive *hōlua*, Kāneaka. Unlike her brother, there are but few details describing the birth of Nāhi'ena'ena. The available information specifies that she was born in 1815 and raised by her mother at Keauhou, however, by 1823, she and her mother left for O'ahu and Maui.

Concerning Kamehameha I, John Papa 'Ī'i described a canoe race in which Kamehameha competed against Akalele, a famous paddler from Kaua'i off the coast of Keauhou. Furthermore, a map prepared in 1885 by Jackson shows the ruins of Kamehameha's house between Ho'okūkū Pond and 'Ahu'ula Cliff. Concerning other sites and features that are associated with Keauhou's *ali'i* history is 'Ahu'ula Cliff, said to be the place where the *ali'i* would air-dry their capes.

Following the death of Kamehameha I in 1819, Keauhou played an important role in the infamous Battle of Kuamo'o. It was at Keauhou that the warring parties camped as negotiations to curb a full-scale war were had. As the negotiations were unsuccessful, the warring parties marched to the coast and fought on the battlefield at Lekeleke, located at the Keauhou 2<sup>nd</sup>-Honalo boundary. Within a year, the first missionaries arrived on Hawai'i Island, and their descriptions of Keauhou describe their travels to the area via the coastal trail where they encountered a quiet harbor surrounded by a small fishing village, dotted with coconut trees.

In 1848, the *Māhele 'Āina* took place which converted Hawaiian lands to a Euro-American model of fee-simple ownership. Keauhou 1<sup>st</sup> was awarded to Victoria Kamāmalu while her brother Lot Kapuāiwa (Kamehameha V)



received Keauhou 2<sup>nd</sup>. It has been estimated that as many as 100 claims were made by the tenants for land in Keauhou 1<sup>st</sup> and 2<sup>nd</sup> of which sixty-nine were awarded. Of sixty-nine awarded claims, twenty-seven LCAw (comprised of twenty-eight parcels) are located in the *makai* portion of the *ahupua'a* near and within the current project area boundaries. The size of the awarded lots within the project area ranged in size from 0.16 to 6.66 acres and most of these lots were awarded between the years 1858 through 1889. The majority of the lots awarded in the project area were for *pāhale* that were fully or partially enclosed by a dry-stacked rock wall. One of the awardees described a small enclosed garden and certain plant species were listed including *loulu*, *kou*, *niu*, *hala*, and an orange tree. Several *'ili 'āina* names were also listed and while the exact location or even spelling of these *'ili 'āina* names cannot be corroborated with definitive certainty or accuracy, the following *'ili 'āina* names were compiled for Keauhou: Papala 2, Papalanui, Waipio 1-4, Laulaulahuli (Laulaulahili or Laulauhili), Pakohe, Kaulukauhane 3, Haleokane 2, Kaohia, Haleope, Makakaulii, Paki, Haluapalala, Maili, and Puukaa.

A review of the boundary commission testimony gathered in 1886 captures detailed knowledge of the *ahupua'a* boundaries as well as identifies other traditional cultural practices and resources not recorded elsewhere. These include bird catching, *akule* fishing, known settlement areas, trails, botanical resources (i.e. *'ōhi'a*, *pili*, *mamane*, *koa*, *'ilihi*, *naio*, *mamaki*), built features (i.e. *heiau*, *hōlua*, walls) agricultural areas, *ali'i* residence, water collection areas, upland habitation caves, and how resources were distributed between the residents of the two Keauhou. While the above-identified customary practices and resources may not all be relevant to the current project area, it provides a broad scope and understanding of the types of resources and practices that were prevalent amongst the area residents.

By the late 19<sup>th</sup> century, the settlement patterns shifted as commercial industries like ranching and farming were established throughout North Kona, particularly in the uplands. However, coastal areas like Keauhou Bay persisted as fishing, churches, steamship arrivals, and mercantile businesses continued to operate out of this area. The burgeoning upland communities continued to be linked to the coastal villages via a growing network of trails that were used to support the transportation of livestock and goods. These trails also helped to maintain the traditional lifestyles of the families who would live part-time in the uplands where they raised livestock and or fished and part-time at the coast where they engaged in marine resource collection. As described in the interviews conducted as part of this study, this lifestyle was maintained well into the mid-20<sup>th</sup> century. Infrastructure such as piers was built along the shoreline and trails were improved to accommodate new modes of transportation.

Much of what we know concerning the lifestyle of the families who lived at Keauhou during the first half of the 20<sup>th</sup> century comes from ethnographic interviews with *kama 'āina* (native-born). From these interviews, we know that a dozen or so families that lived at Keauhou continued dedicating part of their time to their upland endeavors including ranching and farming, and part-time at the coast where they occupied themselves in fishing and other marine activities. The *tsunami* that struck Keauhou on April 1, 1946, leveled several homes and the roughly 50-foot-long pier that projected into the bay. After this *tsunami*, land use in a portion of the project area shifted as Charles Machado established a drydock inland of the destroyed pier. To support their family business, the Machado's built sheds, a hoist, a concrete ramp, and a marine railway. The coastal road that traversed along the shoreline was improved from a low-lying compact coral road to an elevated road constructed with a basalt rock base. Sometime during the early 1950s, the passage into the bay was deepened when the bay was dredged using dynamite.

Despite the physical changes brought about by the *tsunami*, Keauhou remained a historically meaningful location. During the early 1950s, one of the most detailed studies documenting the area's rich history and significant places was undertaken by Theodore Kelsey and Henry Kekahuna. Their work captures important changes to the project area during the 1950s, all while illuminating the historical character of this land. Kelsey and Kekahuna's maps documents traditional place names, cultural uses, and historic events that took place in different parts of the bay, and record the names of residents who lived at Keauhou during this period. As noted by nearly all of the consulted parties, the work of Kelsey and Kekahuna stands as a living treasure and serves as a critical resource for present and future generations seeking to improve their cultural understanding of Keauhou Bay.

Beginning in the 1960s and into the present day, resort and tourist-related development in the Keauhou area began to drastically change the landscape. Resorts, golf courses, road improvements and construction projects, and residential development along the bay altered both the physical landscape and the area's cultural setting. As a result of these development activities, a number of archaeological and ethnographic studies have been conducted over the years in the current project area. Collectively these studies have helped to document and shed additional light on the area's many historic resources as well as the destruction of some of these resources.

## FINDINGS AND RECOMMENDATIONS

This section commences with the recommendations provided by elder *kama'āina*, many of whom have since passed, that were interviewed by Kepā and Onaona Maly between 1996-2001 and summarized in their 2004 report titled *'Āina Lei Ali'i—Keauhou A Me Kahalu'u Ma Kona, Hawaii A Cultural Synthesis for the Royal Lands of Keauhou and Kahalu'u, District of Kona, Island of Hawai'i* (Maly and Maly 2004a). This is followed by a thematically organized presentation of findings and recommendations specific to this project. The findings and recommendations identify specific valued cultural resources and traditional customary practices that have and or continue to be carried out within or in the immediate vicinity of the current project area. The recommendations provided below, which area intended to prevent or limit adverse impacts on the identified practices and resources, are aligned with those included in the Maly and Maly (2004a) study in addition to incorporating the thoughts and concerns shared by the consulted parties interviewed during this study, and augmented with recommendations provided by the author of this study. Efforts were also made to map (Figure 69) known extant archaeological and cultural resources, and practices that were identified in this study as well as the estimated location of other significant cultural features whose exact ground locations are not yet clearly know.

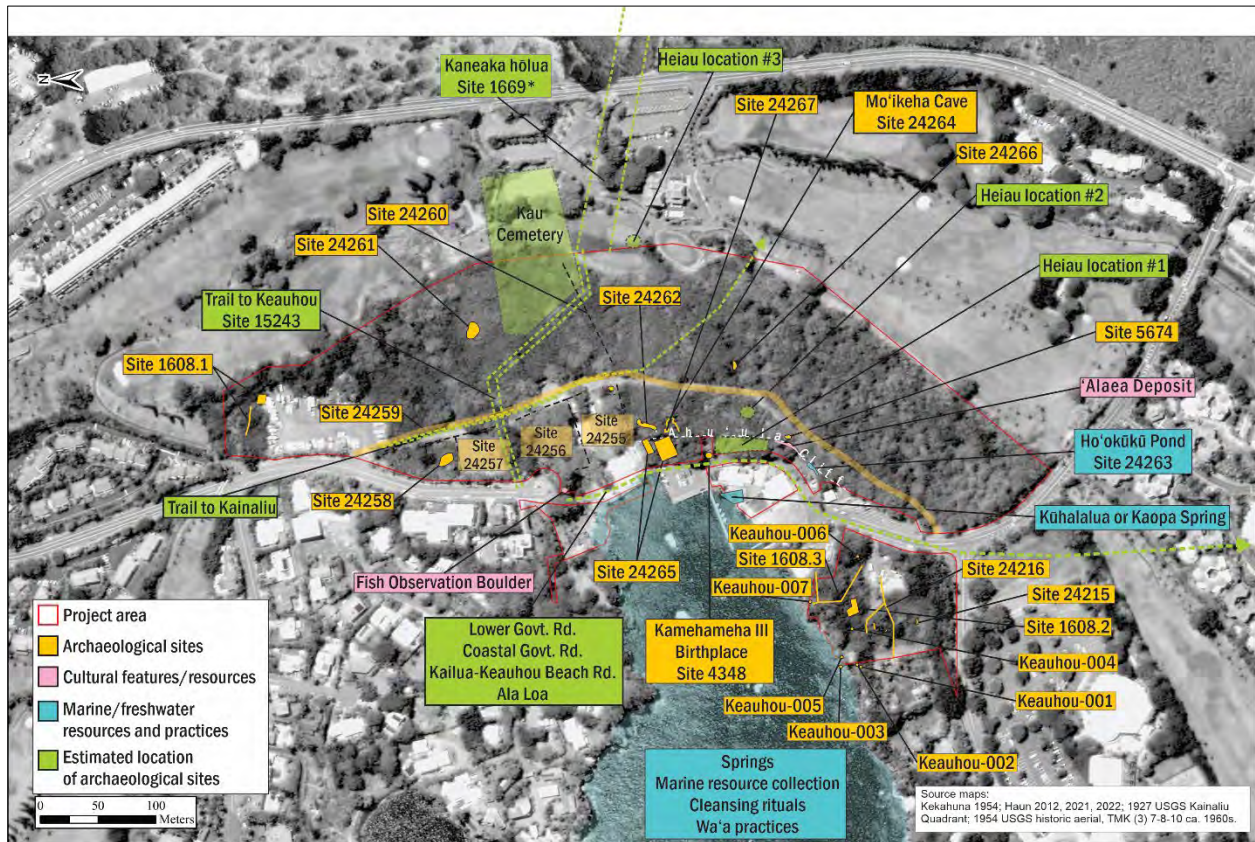


Figure 69. Location of identified cultural/archaeological resources and customary practices.

### Maly and Maly's (2004a) Cultural Synthesis Study Recommendations

The following recommendations were included in Maly and Maly's Maly and Maly (2004a) cultural synthesis study. As previously noted, the author of this study understands that the recommendations included in Maly and Maly's (2004a) study were not developed specifically for the current project, however, revisiting the recommendations provided by those *kūpuna*, many of whom have since passed, ensures that the recommendations provided as part of this study, are culturally appropriate and aligned with the wishes of these esteemed *kūpuna* who spent much, if not the entirety of their lives, on the lands of Keauhou and neighboring Kahalu'u. Those recommendations provided by these *kūpuna* read thusly:

- *Ilina* (burial sites) are believed to be sacred and require respect. It is the general wish of all individuals interviewed that *ilina* be protected in place. If *ilina* are discovered while some

form of land work is occurring (termed “Inadvertent discoveries”), such *ilina* should be handled in consultation with native families of the land, and in compliance with state law.

- *Heiau* should be protected.
- Kāne‘aka (the Royal *Hōlua*) and Pu‘u o Kaomilā‘ō should be protected from any further impacts.
- *Ala hele* (native trails) are an important part of the cultural landscape and life-way of the people, and should be preserved whenever possible. Use of the *ala hele* should be informed so as to foster respect of the history, traditional sites and property rights of present-day owners/residents.  
The Keauhou Trail and the Mākole‘ā-Kahalu‘u Trail are believed to be of particular importance to the history of the people and the land. Formulation of treatment and access plans focusing on traditional knowledge and responsibilities should be done in consultation with elder *kama‘āina* of the Keauhou and Kahalu‘u lands.
- Caves, such as those used for burial practices, refuge, habitation, and other traditional occupations should be protected. Care must be used when using heavy equipment in the vicinity of cave openings, and when over subterranean extensions of the lava tubes systems. There is also concern about the intrusion of water and chemicals into the caves from irrigation and other activities.
- Final treatment of *ilina* features and caves—such as: left open? closed? buffers? and who may visit? etc.—should be determined in consultation with elder *kama‘āina* of the Keauhou-Kahalu‘u lands.
- Restoration of sites should only be undertaken with care and in consultation with elder *kama‘āina*. It is generally believed by many *kūpuna* that stabilization rather than restoration is a preferred treatment. Once restoration occurs, the signature and hand-work of the people of old is erased, and the story of the place is new.
- Wherever possible traditional sites should be protected, and incorporated into the landscape, thus preserving not only those sites which have been determined significant under the law, but also those sites which were important to those who came before us.
- When possible, it would be good to use the natural lay of the land and lava flow formations as assets in the development setting, rather than knock everything down, only to build it up again.
- *Mauka-makai* view planes, particularly those associated with the *hōlua*, Kāne‘aka and Pu‘u o Kaomilā‘ō, and the *mauka-makai* trails, should be protected, allowing for an *ahupua‘a*-view of the resources in their cultural context.
- Educational and interpretive opportunities should be developed in order to help future generations understand and appreciate the cultural resources protected on the Keauhou-Kahalu‘u landscape. A part of such an interpretive program should include the *ahupua‘a* concept, looking at the relationship of the elevational zones, to the life-ways of the traditional and historical families of the land. (Maly and Maly 2004a:136-137)

### Marine Resources and Practices

From the culture-historical information coupled with the findings from the consultation process, nearly every type and technique employed for marine resource collection were—and to some extent continue to be—practiced at Keauhou Bay (i.e. fishing, throw net, spearing, shoreline gathering of seaweeds and other benthic species; see Figure 69). As noted by the *kama‘āina* who were born and raised at Keauhou and interviewed as part of this study, marine resource collection was the predominant activity of those families that once resided in the project area. The marine resources they collected supported their traditional lifeway of living part-time in the uplands and part-time at the coast. Furthermore, for these *kama‘āina* families, the ocean was and continues to be viewed as an extension of the land upon which they could access to procure resources for their subsistence lifestyle. As indicated by the consulted parties, fishing and gathering of marine resources are not practiced to the same degree or frequency as in the past, however, as pointed out by Mr. Kahalioumi, schools of ‘oama and *halalū*, which are valued resources, are known to seasonally inhabit the bay.

#### 4. Identification and Mitigation of Potential Cultural Impacts

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Mrs. Manuel identified a boulder (Figure 70) located at the end of the Kamehameha III Road turnaround (see Figure 69), which was used by her grandfather for fish observation. Mrs. Manuel would like her grandfather's fish observation stone preserved in place as part of the current project. If there are construction activities that will take place in the vicinity of this boulder, it is recommended that the stone be marked by temporary fencing and that the construction crew be informed of its whereabouts and significance. Mrs. Manuel spoke about Ka'ili'ilinehe Beach in the context of traditional healing and cleansing rituals. This practice which was known in her family as *'au'au* (lit. bathe) required an individual to quietly immerse themselves in the sea before engaging in the more playful or secular ocean activities. There are several known ancient cleansing/purifying rituals that involved the use of saltwater namely *hi'uwai* (purification ceremony where participants immerse in seawater or freshwater), *kai'ōlena* (to purify using saltwater and or saltwater mixed with turmeric root), and *pīkai* (to purify by sprinkling with seawater or freshwater mixed with salt).

The consulted parties spoke about the changes within and along the fringes of the bay that impacted the look and feel of the beach as well as the marine resources and associated fishing traditions. Several of the consulted parties expressed concern for the prospective project and the potential for the continued degradation of the area's marine resources. As noted by Mrs. Manuel, storm water runoff was a major concern. Thus it is recommended that efforts be made to prevent or severely limit runoff into the bay by conducting the appropriate studies and implementing storm water management measures. Failure to do so would likely result in an adverse impact on the practice of marine resource collection, healing and cleansing rituals, and on the culturally valued marine resources that inhabit the bay.



Figure 70. Fish observation boulder identified by Mrs. Manuel at the end of the Kamehameha III Road turnaround, view to the west.

#### **Freshwater Springs, Freshwater Procurement, and Ponds**

Freshwater, a valued resource, and its procurement via naturally occurring springs were identified as a customary practice. Within the project area, several of the consulted parties spoke about the presence of springs in the bay and one of the consulted parties recalled gathering freshwater from Kūhalalua spring (see Figure 69) (sometimes identified as Kaopa spring). As noted by the consulted parties, freshwater has both ecological and cultural value, and ensuring these subterranean water systems are not disrupted during the proposed project will help to ensure the long-term health and fecundity of Keauhou Bay. Although the gathering of freshwater from Kūhalalua spring is longer practiced, protecting this spring by ensuring its water continues to flow is essential to preserving this valued resource. To limit

impacts on Kūhalalua spring, it is recommended that periodic monitoring of the water flow and quality be conducted during the course of the proposed project and that data is provided to the landowner to aid in the management and decision-making processes.

Several of the consulted parties spoke about the remaining portion of Ho‘okūkū Pond (see Figure 69) as a valued cultural resource. It was pointed out by those consulted parties that the water quality and health of the pond are degraded. As this pond is closely associated with Kamehameha III’s birth story, efforts should be made to improve the health of the pond and update the interpretive signage near the pond so that its significance is contextualized within the king’s birth story.

### **Historic Transportation Routes**

At least two trails and two historic roads were identified as valued resources. As described by nearly all of the consulted parties, the *mauka-makai*-oriented trails were used by the *kama‘āina* families to support their seasonal living practices and were later used by ranchers who used to drive their livestock to Keauhou Bay to be shipped to O‘ahu. Archaeological studies have documented two prominent trails that once intersected with the project area, including the Keauhou Trail (Site 15243) and the Keauhou-Kaināliu Trail (Site 15244) (see Figure 65), both of which were oriented in a *mauka-makai* direction. Although these trails are no longer in use and a recent archaeological investigation (Haun et al. 2021) found no surface evidence of the trails, they are still remembered by the *kama‘āina* familiar with these resources. The cultural-historical background also identified a coastal route that traversed along the shoreline of the bay. This route, the location of which is approximated in Figure 69, has been modified over the decades and has several known names including the Lower Government Road, the Coastal Government Road, Kailua-Keauhou Beach Road, and in more ancient times, the Ala loa. Historically, this coastal route connected all of the coastal communities, including important royals centers located along the Kona coast (National Park Service 2007). Lastly, and although not a traditional route per se, a section of the Old Kona Road extends through the project area (see Figure 69). One of the consulted parties described using this road as well as the lower coastal road to access their family *kuleana* parcel.

While all of these resources have been impacted by modern development or lack of use and abandonment, efforts should be made to do detailed recordation and assessment of any extant portions of these resources, including its alignment. If it is found that portions of these trails are in good condition, efforts should be made to preserve them, and consultation should be sought with descendant communities, Nā Ala Hele, the Ala Kahakai National Historic Trail and its nonprofit partner organization the Ala Kahakai Trail Association about the appropriateness of restoring the alignments and reusing these trails for the public and or educational purposes.

### **Ranching History, Infrastructure, and Activities**

Although ranching is not considered a traditional cultural practice per se, it is certainly a significant part of Keauhou’s history. Many of the consulted parties shared their recollections of the long-time ranching families, identified the location of previous ranching infrastructure in the project area, and described the ranching activities that occurred at Keauhou Bay. The archaeological study conducted in 2021 (Haun et al. 2021) documented three additional sites (Temporary Site Number 1608.1, 1608.2, 1608.3; see Figure 69) that have been associated with the Historic ranching era. It is recommended that efforts should be made to conduct thorough recordation of these sites and a public interpretation component highlighting Keauhou’s ranching history should be developed as part of the current project.

### **Kāhua Hōlua, Kāneaka**

As described in the culture-historical background and reckoned by several of the consulted parties, the *hōlua*, Kāneaka was identified as an important cultural resource. This resource has been documented by archaeologists at Site 1669, however, its alignment extending *makai* from Ali‘i Highway and into the project area does not appear to be fully known and has only been estimated (see Figure 69). One of the consulted parties described observing the remnants of a secondary *hōlua* extending from Kāneaka in the vicinity of the golf course mechanic shop *mauka* of the project area. This secondary *hōlua* was said to have terminated at Keauhou Bay, whereas Kāneaka was said to have terminated at He‘eia Bay. Although historic and modern land-use activities and development have led to the destruction of that portion of this site that would otherwise be within the project area, it is recommended that developing interpretive material that contextualizes this site and its relationship to former *ali‘i*, such as Kauikeaouli, Kamehameha, and Lonoikamahiki should be incorporated into the overall public interpretation of the Keauhou Bay area. Incorporating Kāneaka into any future cultural-educational programming planned for this area should also be strongly considered.

### Heiau and Other Sites Associated with the Birth of Kamehameha III

Between 1906 and 1983, there were four archaeological studies (Kekahuna 1954; Reinecke 1930; Rosendahl et al. 1983; Stokes and Dye 1991) that have attempted to document the location and describe the extant portions of *heiau* in the project area. Of these studies, it is the early works of Stokes (1906), Reinecke (1929), and later Kekahuna (1954) that the foundational understanding of *heiau* in the Keauhou Bay area is derived. Collectively these studies have identified four *heiau* that are allegedly in the project area, namely, Kamau‘ai, Ho‘okūkū or Kaopa, Kamohoali‘i, and Kaleiopapa. In 1976, the Daughters of Hawai‘i prepared a study/proposal for the development of historic sites at Keauhou Bay (Daughters of Hawai‘i 1976). This 1976 study identified five sites of historic interest (Kaopa Spring, Ho‘okūkū Pond, Kamohoali‘i Heiau, Kaleiopapa Heiau, Kamau‘ai Heiau, ‘Ahu‘ula (‘*alaea*) Pit, and Mo‘ikeha Cave) and efforts were made to rectify historic discrepancies regarding the location of some of these sites. While there is consensus on the names of the *heiau* at Keauhou Bay, one of the major difficulties lies in determining the location of some of these sites as the locational information provided in the aforementioned studies differ greatly as reflected in Table 7.

**Table 7. Locational information of *heiau* identified in the project area.**

<i>Name</i>	<i>Stokes (1906)</i>	<i>Reinecke (1930)</i>	<i>Kekahuna (1954)</i>	<i>Daughters of Hawai‘i (1976)</i>
<b>Kamau‘ai</b> (Site 3812)	“...top of the cliff directly back of and overlooking the Keauhou landing...” (Stokes and Dye 1991:85).	Low ground behind the Wharf. In ancient times the site of Kamauai [Kamau‘ai] heiau. Kamauai signifies “to spread, or pass on, food.”	“Present end of the royal slide”	“The remains of the platform lay to the south end of the great holua.”
<b>Ho‘okūkū or Kaopa</b> (Site 3811)	“...near the boundary of Keauhou I... A low, rambling wall encloses a space of about 1.5 acres at the foot of a high cliff. The contour of the ground inside is similar to that outside, and within are breadfruits, <i>loulou</i> , and other trees. Also inside, however, is a large rock to which marvelous revivifying powers were attributed, and it was stated that the dead baby was placed on the stone for some days and came to life by virtue of the stone, with the aid of the priest’s prayers. It is not improbable, if all were known, that this would prove to be the site of the <i>heiau</i> of Kamau‘ai Heiau mentioned above.” (Stokes and Dye 1991:85)	“Hookuku, however, is the name of the pool midway of the W. side of the heiau, which now forms a small swamp. It was formerly <i>kapu</i> for the use of royalty. Kaopa is the name of the well S. of the heiau.”	Ho‘okūkū pond at the southwestern end of the base of ‘Ahu‘ula Cliff. (Kekahuna does not mention the name Kaopa.)	Hookuku Pond “a well stocked fish pond served the immediate use of the royal family” and in “1953-54 Hookuku Pond...was filled in and is the site of a utility transformer.”  Kaopa, a spring is “in front of the present Bishop Estate residence and office [Machado House].”

*Table 7 continues on next page.*

Table 7. continued.

<i>Name</i>	<i>Stokes (1906)</i>	<i>Reinecke (1930)</i>	<i>Kekahuna (1954)</i>	<i>Daughters of Hawai'i (1976)</i>
<b>Kamohoali'i</b>	n/a	Utterly in ruins, nothing remaining except the foundation of the outer wall. It covered an area about 60x40 at the foot of the cliff.	Places it at the top of 'Ahu'ula Cliff overlooking Kaleiopapa Heiau.	Located south of the monument beneath 'Ahu'ula Cliff. Built by Kahuna Kapihe Nui but commissioned by Liholiho (Kamehameha II). Measures 60' x 40'. Only low portion of the once 10' high walls are said to remain. Stones of <i>heiau</i> area said to have been used in the construction of the road across the beach.
<b>Kaleiopapa</b>	n/a	n/a	Places it at the base of 'Ahu'ula Cliff, south of the Kamehameha III monument.	Speculates its location to be atop 'Ahu'ula Cliff.

*End of Table 7.*

Based on the available information presented in the aforementioned studies, it is concluded that Ho'okūkū and Kaopa, whose names have been sometimes used interchangeably, are the names of two distinct bodies of water—Ho'okūkū, a pond, and Kaopa, a spring—rather than a *heiau* as reported by Stokes (in Stokes and Dye 1991). Concerning the location of Ho'okūkū pond, it is concluded that its location was at the base of 'Ahu'ula Cliff and only a portion of the pond remains (see Figure 69). Regarding Kaopa, none of the studies concur on a single location; Reinecke (1930) identified it as a spring located south of an unnamed *heiau* at the base of 'Ahu'ula Cliff whereas the Daughters of Hawai'i (1976) study places it along the coast fronting the former Machado House (present-day Fair Wind headquarters) in the area identified on Kekahuna's 1954 map as Kūhalalua Spring (see Figure 69).

With the available information, this study has concluded that there were three *heiau* in the project area, Kamohoali'i, Kaleiopapa, and Kamau'ai. The author of this study, cannot say with any great certainty where Kamohoali'i, Kaleiopapa, and Kamau'ai are located, however, from the available information three areas were identified as potential locations of three named *heiau*. The possible location of these *heiau* are illustrated in Figure 69 as "Heiau #1" located at the base of 'Ahu'ula Cliff and west of the birth monument; "Heiau #2" located atop 'Ahu'ula Cliff; and "Heiau #3" located in the vicinity of the present-day golf course property *mauka* of the project area.

Although the extant features of the three *heiau* have been deemed by archaeologists as "destroyed," it is important to remember that from a Hawaiian cultural perspective, it is the site upon which the built features were constructed that is of significance. The built component helped to mark the location that was deemed significant by *nā kūpuna* and enhanced their ability to interact and maintain their relationship with their natural environment. Perpetuating the notion that these *heiau* are "destroyed" is a form of cultural erasure and it severs the ability of the Hawaiian community to reconnect to their heritage in a meaningful and productive way. Therefore, it is recommended that KS make efforts to conduct a focused study that seeks to corroborate the *heiau* names to their location. Furthermore, those areas identified in Figure 69 as potential *heiau* locations should be further investigated, demarcated, and avoided during the proposed project. Lastly, consultation should be conducted with descendants regarding the long-term care of the *heiau* locations.

From the historical record, it is clear that the *heiau* located at the base of 'Ahu'ula Cliff (possibly Kamohoali'i or Kaleiopapa) was one of several places associated with the birth of King Kamehameha I. Other places associated with the king's birth include Kūhalalua (or Kaopa), Ho'okūkū pond (see Figure 69), and the flat *pāhoehoe* used to warm the

*'iwe* of the king. Historic and modern land-use activities and development have had an adverse impact on all of these sites. Nonetheless, these sites are still considered valued cultural resources as evidenced by the annual commemorative ceremonies organized by the Daughters of Hawai'i. To ensure the annual ceremony remains undisrupted, especially during any proposed construction activities associated with the proposed project, it is recommended that the landowner coordinates and maintains open communication with the Daughter of Hawai'i. Furthermore, updating the existing interpretive signage in a way that contextualizes the king's birth by connecting it with the various sites associated with his birth should also be considered. The landowner is also encouraged to conduct consultation with descendants of Keauhou and the Daughter of Hawai'i concerning the long-term preservation of those sites associated with King Kamehameha's birth.

### **Habitation Sites**

Several of the interviewees spoke about Historic Era habitation sites that were once located in the project area and archaeologists have also documented habitation sites. For those *kama'āina* who were consulted as part of this study, it was evident from the interviews that they still have an attachment to those spaces around the bay where the home of their grandparents and generation before once stood. It is the author's contention that, seeing those spaces helped them to recall important childhood memories and reflect on the impact this area has had on their lives. Sadly, those *kama'āina* who were interviewed likely represent the last generation of Hawaiians that grew up at Keauhou Bay and can see this land from a drastically different lens. It is, therefore, recommended that the landowner and their planners continue to consult with, create space, and continue to invite their input on the proposed project. It is also recommended that efforts be made to identify and document archaeological remains of the habitation sites and that interpretive signage is developed that highlights the character of Keauhou's historic community.

### **Botanical and Mineral Resources**

While the Keauhou Bay area was not considered prime agricultural land, from the historical records as well as the interviewees, several indigenous plant species were identified including *loulou*, *hala*, *kou*, and *niu*. These plant species are considered valued cultural resources. It is recommended that additional research be conducted to study the endemic and indigenous plant regime that once existed at Keauhou Bay and the findings from that study inform future landscaping plans.

One of the consulted parties and the historical record also identified a mineral, red ochre (*'alaea*) as a valued cultural resource, which is found along 'Ahu'ula Cliff (see Figure 69). This mineral is valued for its healing and dyeing properties. Given that this resource is not widespread, it is recommended that gathering of this resource be allowed so that the traditional practices associated with this resource may be perpetuated. As this deposit is a finite resource that does not regenerate readily, it is further recommended that monitoring of this resource be implemented to ensure it is not being overharvested or degraded.

### **Mo'ikeha Cave and 'Ahu'ula Cliff**

Mo'ikeha Cave (Site 24264), which is located on the face of 'Ahu'ula Cliff (see Figure 69) were both identified as valued cultural resources. The cave which was used as a refuge and temporary habitation site has an existing preservation plan (Haun and Henry 2014). It is recommended that there be continued compliance with the preservation plan. Concerning 'Ahu'ula Cliff, the historical literature indicated that the southern portion of the cliff was used to air dry the feathered cloaks and capes (*'ahu'ula*) of the *ali'i*, and a section of the cliff is known for its red ochre deposits, a mineral that is important in traditional healing and dyeing practices (discussed above). As such, it is recommended that this cliff be preserved and that construction activities avoid this section of the project area.

### **Historic Cemetery**

A 1932 and 1960 tax map identified a historic cemetery (also labeled as Kau cemetery) located along the *mauka* boundary of the project area (see Figures 44, 53, and 69). There is little written history about this cemetery, however, from the oral histories conducted as part of this study as well as the interviews conducted by Maly and Maly (2004b) it is posited that sometime during the 1960s as part of the golf course development located to the east of the current project area, Bishop Estates informed the families of those buried at the cemetery of their plans to relocate the burials, at which point the families came forward and relocated the remains of their family members to different cemeteries. It is presumed that the burials that were once located in this cemetery have since been relocated as none of the consulted parties spoke about the presence of any remaining burials. However, as a cautionary measure, it is recommended that archaeological monitoring be implemented if there will be any ground-disturbing activities in this portion of the project area.



## Wa'a Activities

From the interviews and the historical record, *wa'a* (canoe) have for generations been an integral part of the cultural landscape of coastal Keauhou. Traditional *wa'a* culture has evolved over the years as expressed by a few of the consulted parties. In the ancient past, *wa'a* were commonly used as a form of transportation and for fishing. While the practice of fishing using *wa'a* is still maintained as evidenced by the small fishing canoes located at Ka'ili'ilinehe Beach, modern canoe culture has evolved into the arena of competitive sport and recreation. Nonetheless, the use of the *wa'a*, whether for sport/recreation or transportation and fishing, is an ongoing and ever-evolving traditional customary practice. While the proposed plans do not appear to adversely impact canoeing at Keauhou, it is recommended that efforts be made to help enhance the shoreline of Ka'ili'ilinehe Beach to allow for improved access for launching and landing canoes. As described by the consulted parties, before the seawall fronting Keauhou Canoe Club was constructed, Ka'ili'ilinehe Beach was much more expansive which provided ample space for the many fishing canoes to land and launch. Furthermore, improving Ka'ili'ilinehe Beach, through the possible removal of the sea wall, will create more space for various marine user groups (i.e. fishing, swimming, kayaking, paddle boarding) to enjoy Keauhou Bay.

## Summary of Identified Practices/Resources and Recommendations

The Keauhou Bay area is valued for its diversity of natural and cultural resources. It is precisely these resources combined with the natural setting and rich history that makes this place culturally significant. Keauhou Bay and all of its contributing elements (i.e. Kamehameha III birthplace, *heiau*, ponds, springs, habitation sites, ranching features, etc.) could be considered a historic district significant under state Criteria a, b, c, and e, and eligible for listing in the Hawai'i Register of Historic Places. In summary, the recommendations provided above and summarized in Table 8 are intended to ensure that the activities associated with the proposed Keauhou Bay Management Plan do not adversely impact any of the above-identified valued cultural resources and traditional customary practices. Conversely, failure to consider or implement the above-described recommendations has the potential to adversely impact the above-identified valued cultural resources and traditional customary practices.

**Table 8. Identified practices/resources and recommendations.**

<i>Identified Practice/Resource</i>	<i>State Significance Criteria</i>	<i>Recommendation</i>
Marine resource collection	n/a	Prevent stormwater runoff into Keauhou Bay. Conduct appropriate studies and implement stormwater management measures.
Springs and freshwater procurement	b, e	Conduct water quality monitoring during the course of the proposed project.
<i>Wa'a</i> practices	n/a	Improve and enhance Ka'ili'ilinehe Beach; explore possible removal of sea wall to create more beachfront access for the various user groups.
Saltwater cleansing and healing rituals and marine resources	n/a	Prevent storm water run off into Keauhou Bay. Conduct appropriate study and implement storm water management measures.
Fish observation stone	e	Preserve in place; install temporary fencing during any construction activities that may occur in the vicinity of the stone.
Trails and historic roads	b, d, e	Conduct study to identify and record any extant portions; preserve and explore possible restoration and reuse; consultation with descendant communities, relevant agencies and organizations.

*Table 8 continues on next page.*

**Table 8. continued**

<i>Identified Practice/Resource</i>	<i>State Significance Criteria</i>	<i>Recommendation</i>
<i>Kahua hōlua</i>	b, c, d, e	Develop interpretive material that contextualizes this <i>hōlua</i> within the landscape and history of Keauhou; explore possible cultural-educational programming.
Kamehameha III birthsite (Kaleiopapa Heiau)	b, e	Avoid. Ensure any construction activities associated with the project does not disrupt annual commemorative ceremonies held at site; maintain open communication with the Daughter of Hawai‘i; update exiting interpretive signs.
Kamohoali‘i and Kamau‘ai Heiau	e	Conduct study that seeks to corroborate the <i>heiau</i> names to their location. These areas should be further investigated, demarcated, and avoided during project. Consult with descendants regarding the long-term care of the <i>heiau</i> locations
Ho‘okūkū Pond	b, d	Improve water quality; update interpretive signage and contextualize within the birth story of Kamehameha III.
Mō‘ikeha Cave	b, d, e	Continue compliance with existing preservation plan.
‘Ahu‘ula Cliff	e	Construction activities should avoid ‘Ahu‘ula Cliff.
Habitation sites	d, e	Document any extant features; develop interpretive signs that highlights the character of Keauhou’s historic community.
Ranching infrastructure	d, e	Document any extant features; develop interpretive material highlighting Keauhou’s ranching history.
Red ochre ( <i>‘alaea</i> )	n/a	Allow continued gathering to support the associated traditional practices (healing and dyeing); monitoring of resource.
Botanical resources	n/a	Conduct biological study to identify endemic and indigenous plant communities; findings from study inform landscape plan.
Former cemetery	e	Archaeological monitoring.

*End of Table 8.*

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## APPENDIX A. PUBLIC NOTICES AND AFFIDAVITS

### **CULTURAL IMPACT ASSESSMENT FOR THE KEAUHOU BAY MAN- AGEMENT PLAN**

ASM Affiliates is preparing a Cultural Impact Assessment to inform an Environmental Impact Statement being prepared for the proposed Kamehameha Schools (KS) Keauhou Bay Management Plan (KBMP). The project area is roughly 29-acres in the vicinity of Keauhou Bay, Keauhou 1 and 2 Ahupua'a, North Kona, Hawai'i Island.

The purpose of the KBMP is to provide near (10 years) and long-term (20 years) management and land use recommendations that are consistent with KS Strategic Plan 2020- Kūhanauna and the Draft West-Hawai'i Regional Action Plan, while also responding to community issues within KS kuleana. The KBMP will guide and prioritize KS actions for future planning, improvement, and operations at Keauhou Bay.

ASM is seeking consultation with community members that have long-standing cultural connections to this area, might have knowledge of traditional cultural uses of the proposed project area; or who are involved in any ongoing cultural practices that may be occurring on or in the general vicinity of the project area. If you have and are willing to share any such information, please contact Lokelani Brandt [lbrandt@asmaffiliates.com](mailto:lbrandt@asmaffiliates.com), phone (808) 969-6066, mailing address ASM Affiliates 507A E. Lanikaula Street, Hilo, HI 96720. Mahalo ■

Ka Wai Ola, February 2022

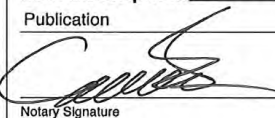
# Hawaii Tribune-Herald Affidavit

## AFFIDAVIT OF PUBLICATION

IN THE MATTER OF  
PUBLIC NOTICE

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STATE OF HAWAII }  
} SS.  
City and County of Honolulu }

Doc. Date: JAN 24 2022 # Pages: 1  
 Notary Name: COLLEEN E. SORANAKA First Judicial Circuit  
 Doc. Description: Affidavit of  
Publication  
 Notary Signature:  Date: JAN 24 2022  
 NOTARY PUBLIC  
 No. 90-263  
 STATE OF HAWAII

**CULTURAL IMPACT ASSESSMENT (CIA)  
KEAHOHU BAY MANAGEMENT PLAN**  
 ASM Affiliates is preparing a CIA to Inform an Environmental Impact Statement being prepared for the proposed Kamehameha Schools (KS) Keaouhu Bay Management Plan (KBMP). The project area is roughly 29-acres surrounding Keaouhu Bay, Keaouhu 1 and 2 Ahupua'a, North Kona, Hawai'i Island.


The KBMP will provide near (10 years) and long-term (20 years) management and land use recommendations that are consistent with KS Strategic Plan 2020- Kuhaunauna and the Draft West-Hawai'i Regional Action Plan, while also responding to community issues within KS kuleana. The KBMP will guide and prioritize KS actions for future planning, improvement, and operations at Keaouhu Bay.

ASM is seeking consultation with community members that have long-standing cultural connections to this area, might have knowledge of traditional cultural uses of the proposed project area; or who are involved in any ongoing cultural practices that may be occurring on or in the general vicinity of the project area. If you have and are willing to share any such information, please contact Lokelani Brandt lbrandt@asmaffiliates.com, phone (808) 969-6066, mailing address ASM Affiliates 507A E. Lanikaula St., Hilo, HI 96720.  
 (HIH1357561 1/23/22)

Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

Honolulu Star-Advertiser 0 times on:  
 MidWeek 0 times on:  
 The Garden Island 0 times on:  
 Hawaii Tribune-Herald 1 times on:  
 01/23/2022  
 West Hawaii Today 0 times on:  
 Other Publications: 0 times on:

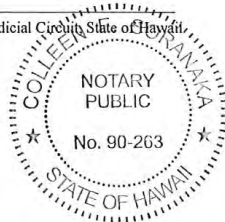
And that affiant is not a party to or in any way interested in the above entitled matter.

  
Lisa Sakakida

Subscribed to and sworn before me this 24th day of January A.D. 2022

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii  
My commission expires: Jan 06 2024

Ad # 0001357561



ICSP NO.: \_\_\_\_\_

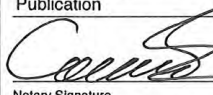
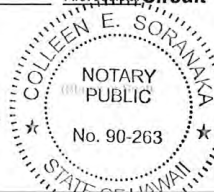


# West Hawaii Today Affidavit

## AFFIDAVIT OF PUBLICATION

IN THE MATTER OF }  
 PUBLIC NOTICE }  
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STATE OF HAWAII }  
 } SS.  
 City and County of Honolulu }

Doc. Date: JAN 24 2022 # Pages: 1  
 Notary Name: COLLEEN E. SORANAKA First Judicial Circuit  
 Doc. Description: Affidavit of  
Publication  
  
 Notary Signature Date: JAN 24 2022  


Lisa Sakakida being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser, MidWeek, The Garden Island, West Hawaii Today, and Hawaii Tribune-Herald, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the

- Honolulu Star-Advertiser 0 times on:
- MidWeek 0 times on:
- The Garden Island 0 times on:
- Hawaii Tribune-Herald 0 times on:
- West Hawaii Today 1 times on:
- 01/23/2022
- Other Publications: 0 times on:

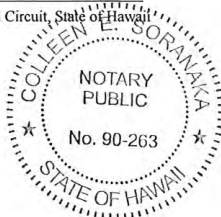
And that affiant is not a party to or in any way interested in the above entitled matter.

  
 Lisa Sakakida

Subscribed to and sworn before me this 24th day of January A.D. 2022

Colleen E. Soranaka, Notary Public of the First Judicial Circuit, State of Hawaii  
 My commission expires: Jan 06 2024

Ad # 0001357563



ICSP NO.: \_\_\_\_\_

**CULTURAL IMPACT ASSESSMENT (CIA)  
 KEAHOHU BAY MANAGEMENT PLAN**  
 ASM Affiliates is preparing a CIA to Inform an Environmental Impact Statement being prepared for the proposed Kamehameha Schools (KS) Keahou Bay Management Plan (KBMP). The project area is roughly 29-acres surrounding Keahou Bay, Keahou 1 and 2 Ahupua'a, North Kona, Hawai'i Island.

The KBMP will provide near (10 years) and long-term (20 years) management and land use recommendations that are consistent with KS Strategic Plan 2020- Kūhānāuna and the Draft West-Hawai'i Regional Action Plan, while also responding to community issues within KS kuleana. The KBMP will guide and prioritize KS actions for future planning, improvement, and operations at Keahou Bay.

ASM is seeking consultation with community members that have long-standing cultural connections to this area, might have knowledge of traditional cultural uses of the proposed project area; or who are involved in any ongoing cultural practices that may be occurring on or in the general vicinity of the project area. If you have and are willing to share any such information, please contact Lokelani Brandt lbrandt@asmaffiliates.com, phone (808) 969-6066, mailing address ASM Affiliates 507A E. Lanikaula St., Hilo, HI 96720. (WH11357563 1/23/22)



Appendix D

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# **Archaeological Reconnaissance Survey**



**DRAFT**

**ARCHAEOLOGICAL RECONNAISSANCE AND  
SITE CONDITION UPDATE**

**TMK: (3) 7-8-010:044 AND 049, 7-8-012:004, 007, AND 065**



**KEAUHOU 1-2 AHUPUA'A**

**NORTH KONA DISTRICT, ISLAND OF HAWAI'I**

**HAUN & ASSOCIATES**

**ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCE MANAGEMENT SERVICES**

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**DRAFT**

**ARCHAEOLOGICAL RECONNAISSANCE AND**

**SITE CONDITION UPDATE**

**TMK: (3) 7-8-010:044 AND 049, 7-8-012:004, 007, AND 065**

**KEAUHOU 1-2 AHUPUA'A**

**NORTH KONA DISTRICT, ISLAND OF HAWAI'I**

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## MANAGEMENT SUMMARY

Haun & Associates conducted an archaeological reconnaissance of 2.9-acres in coastal Keauhou 1-2 Ahupua‘a, North Kona District, Hawai‘i Island. The subject parcels consist of an approximately 1.35-acre portion of the 25.239-acre TMK: (3) 7-8-010:044, the 0.3-acre TMK: (3) 7-8-010:049, the 0.25-acre TMK: (3) 7-8-012:004, the 0.4-acre TMK: (3) 7-8-012:007, and the 0.6-acre TMK: (3) 7-8-012:065. The reconnaissance survey identified three sites consisting of a possible historic driveway and building foundation (Site 1608.1), an historic house foundation and associated pathways (Site 1608.2) and a series of stone walls (Site 1608.3).

**Site 1608.1** consists of a possible historic driveway and building foundation located in TMK: (3) 7-8-010:044.

**Site 1608.2** is a complex comprised of an historic house foundation and stone pathways located in TMK: (3) 7-8-012:004. Based on Kekahuna’s (1954) map of Keauhou Bay, this site was occupied by Mrs. E.P. Hodgins.

**Site 1608.3** consists of a complex of interconnected walls situated in TMK: (3) 7-8-012:007 and 065. These walls are located on land formerly owned by Alice Woods, based on Kekahuna’s (1954) map.

The three sites identified during the reconnaissance survey will require Archaeological Inventory Survey level documentation. Following documentation the sites would likely be recommended for no further work. The three sites are tentatively assessed as significant solely under Criterion “d” for their information content. No sites or features are presented in the remaining parcels examined during the reconnaissance survey.

The current project also consisted of a Site Condition Update of sites in two parcels previously surveyed by Haun Associates. TMK: 7-8-010:044 is a 25.239-acre parcel on the inland side of Kamehameha III Road and Kaleiopapa Road. The majority of this parcel was covered by an Archaeological Inventory Survey by Haun and Henry (2010a). This survey identified 15 sites with 32 features. Of these 15 sites, three were recommended for data recovery (Sites 5674<sup>1</sup>, 24261 and 24266) and three sites were recommended for preservation (Sites 4348, 24263, and 24264). The nine remaining sites were recommended for no further work.

The three preservation sites and two of the data recovery sites (excluding Site 5674) were relocated during the project and their conditions were reevaluated. No significant changes were noted at four of the five sites (Sites 4348, 24261, 24263 and 24266), with some impacts noted within the Site 24264 cave. Extensive efforts were made to relocate the Site 5674 permanent habitation complex; however, the reported location of this site is completely covered by dense night-blooming cereus thicket. Clearing of vegetation at this site exhausted the proposed level of effort proposed for this project and additional clearing will be required to determine the current condition of the site.

Haun & Associates (Haun and Henry 2010b) also examined a 1.08-acre parcel north of the intersection of Kaleiopapa Road and Ehukai Streets (TMK: [3] 7-8-012:098). This survey identified two sites with a total of six features. Both sites were recommended for no further work by Haun and Henry (2010b:28) and no attempt was made to relocate them during the present project.

Based on recommendations from Nā Ala Hele Hawai‘i Trail and Access System and the Ala Kahakai National Historic Trail, two areas within the TMK: 7-8-010:044 portion of the project area, totaling 1.97-acres, were also re-examined during the project in order locate the remains of two historic trails (Sites 15243 and 24259) and the Kau Cemetery. These sites are depicted on historic maps of the area and their reported locations were cleared of vegetation and carefully examined. No intact remnants of the Sites 15243 and 24259 trails are present; however, a possible remnant

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<sup>1</sup> All sites listed on the State Inventory of Historic Places (SIHP). Site numbers are 5 digit sequential numbers by island : 50 = State of Hawai‘i, 10= Island of Hawai‘i, 37= Kealakekua quadrangle, 5674=Site number

of the Kau Cemetery, consisting of a section of formed concrete was identified. The Site 24261 pavement, previously recommended for data recovery was also observed within the reported location of the Kau Cemetery.

Widespread mechanical disturbance within the TMK: 7-8-010:044 portion of the project area appears to have occurred between 1954 and 1976, indicated by aerials views of the area. This disturbance was also observed by Haun and Henry (2010a) during the AIS of the parcel. These impacts potentially resulted in the destruction of the Sites 15243 and 24259 trails and the Kau Cemetery. Additional clearing with the Kau Cemetery area, along with data recovery of the Site 24261 pavement is required to determine if extant remnants of the cemetery remain.



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**INTRODUCTION**

At the request of G70 on behalf of Kamehameha Schools (KS), Haun & Associates completed an archaeological reconnaissance survey of approximately 2.9-acres in coastal Keauhou 1-2 Ahupua’a, North Kona District, Hawai’i Island (**Figure 1** and **Figure 2**). The subject parcels consist of an approximately 1.35-acre portion of the 25.239-acre Tax Map Key (TMK) (3) 7-8-010:044, the 0.3-acre TMK: (3) 7-8-010:049, the 0.25-acre TMK: (3) 7-8-012:004, the 0.4-acre TMK: (3) 7-8-012:007, and the 0.6-acre TMK: (3) 7-8-012:065).

The project also included a Site Condition Update of sites in two parcels previously subjected to Archaeological Inventory Surveys (AIS) Haun & Associates. These consist of TMK: (3) 7-8-010:044 on the inland side of Kamehameha III Road (Haun and Henry 2010a) and TMK: (3) 7-8-012:098, a 1.08-acre parcel north of the intersection of Kaleiopapa Road and Ehukai Streets (Haun and Henry 2010b).

The fieldwork for the present project was conducted between September 13, 2021 and October 6, 2022 by Haun & Associates Project Supervisors Solomon Kailihiwa, M.S and Juliana Kailihiwa, B.A, and a crew of four archaeologists (Dan Trout, B.A., Ben Seay, B.A., Leasha Villacorte, B.A., and Nicole Lui), under the direction of Dr. Alan Haun. Approximately 153 labor hours were required to complete this portion of the project. This report includes an historic

documentary research section, the results of the archaeological reconnaissance, an update on the condition of previously identified sites in the project area, and a conclusion section. Kauikeaouli Birth Stone

## BACKGROUND

As stated, two parcels within the project area were previously subjected to AIS surveys by Haun & Associates. These projects are summarized below. The Haun and Henry (2010a) AIS of TMK: (3) 7-8-010:044 indicates that a total of 22 sites with 39 features have been documented within this parcel. These 22 sites consist of seven sites that were destroyed prior to the Haun and Henry (2010a) project and 15 sites recorded during the project. Of the 15 documented sites, nine were newly identified during the project and six were identified during previous studies of the parcel. The 15 sites consist of the Kauikeaouli (Kamehameha III) Birth Stone (Site 4348; also National Register of Historic Places [NRHP] Site 78001018), three permanent habitation sites (Sites 5674, 24261, and 24266), a temporary habitation lava tube (Site 24264), seven historic habitation sites (Sites 24255-24258, 24262, 24265, and 24267), a portion of the Old Kailua Road (Site 24259), a livestock control wall (Site 24260), and an anchialine Pond (Site 24263). Other sites that apparently have been destroyed include a portion of a *hōlua* slide (Site 1669), a portion of the Keauhou Trail (Site 15243), two *heiau* (Kamohoalii and Kaleiopapa), a portion of an historic cemetery, and residential sites dating to the mid-1800s and earlier. **Figure 3** depicts the sites in the Haun and Henry (2010a) project area and they are summarized in **Table 1**. A third *heiau* (Kāmau'ai Heiau) was located just outside the boundary of TMK: (3) 7-8-010:044 within the adjacent Kona Country Club golf course.

Haun and Henry (2010a:76) accessed all 15 extant sites as significant under Criterion “d”. These sites have yielded information important for understanding prehistoric and historic land use in the project area. The Site 4348 Kauikeaouli Birth Stone is also significant under Criteria “b”, and “e” for its association with the life of an important person in Hawaiian History and for its cultural value to the Hawaiian people. The Site 24263 pond, is potentially a remnant of Ho'okūkū Pond and is additionally assessed as significant under Criterion “c” as a good example of a site type. The Site 24264 Mo'ikeha Cave is additionally assessed as significant for its cultural value (Criterion “e”) because of its association with the legendary chief Mo'ikeha. Nine sites were recommended for no further work or preservation (Sites 24255-24260, 24262, 24265 and 24267). Three sites, all located at the base of the Ahu'ula Cliff are recommended for preservation (Sites 4348, 24263, and 24264). The three remaining sites (Sites 5674, 24261 and 24266) were recommended for data recovery. This report was reviewed and accepted by the Department of Land

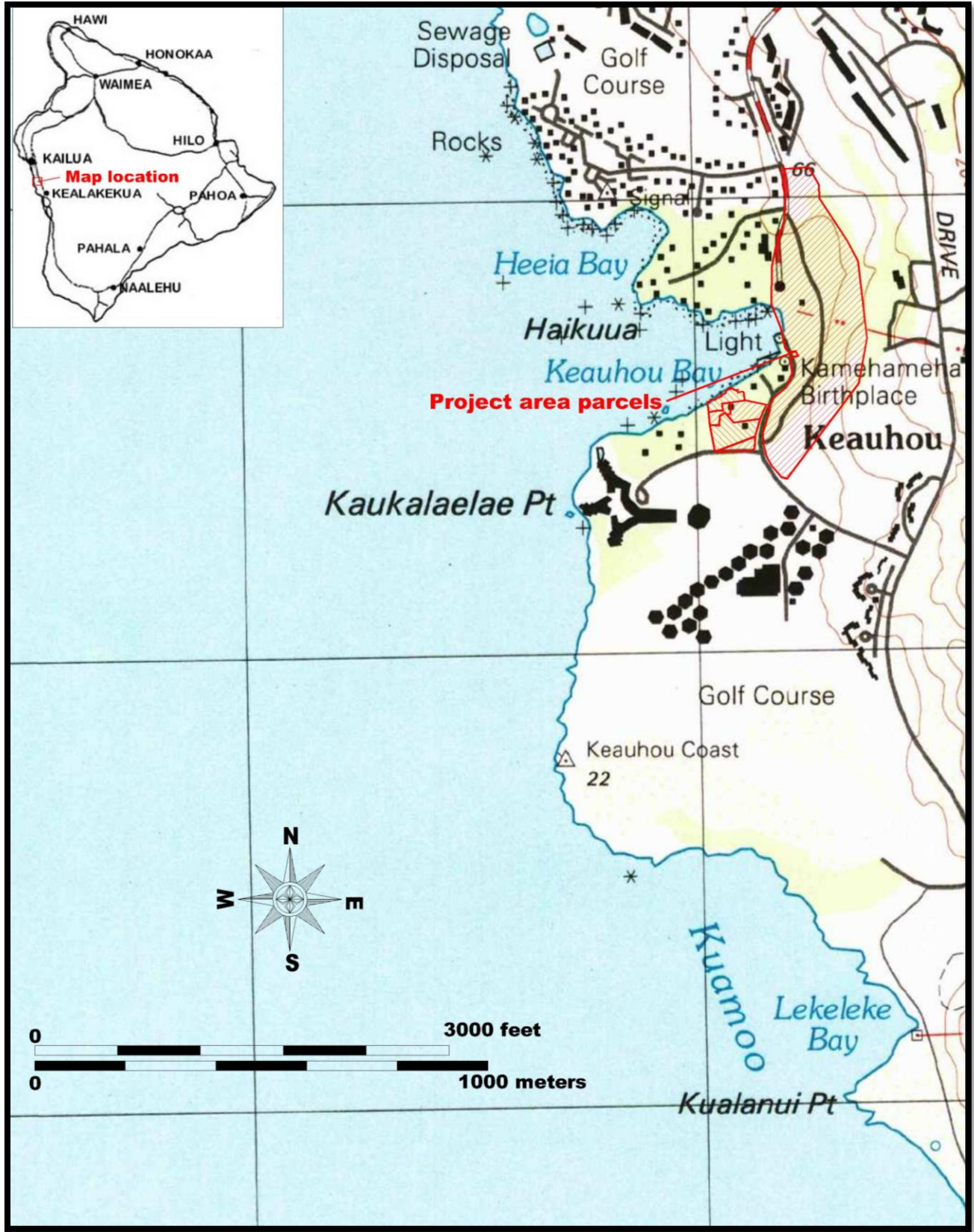


Figure 1. Portion of USGS 1996 7.5 Kealakekua quadrangle showing project area (obtained from usgs.gov).



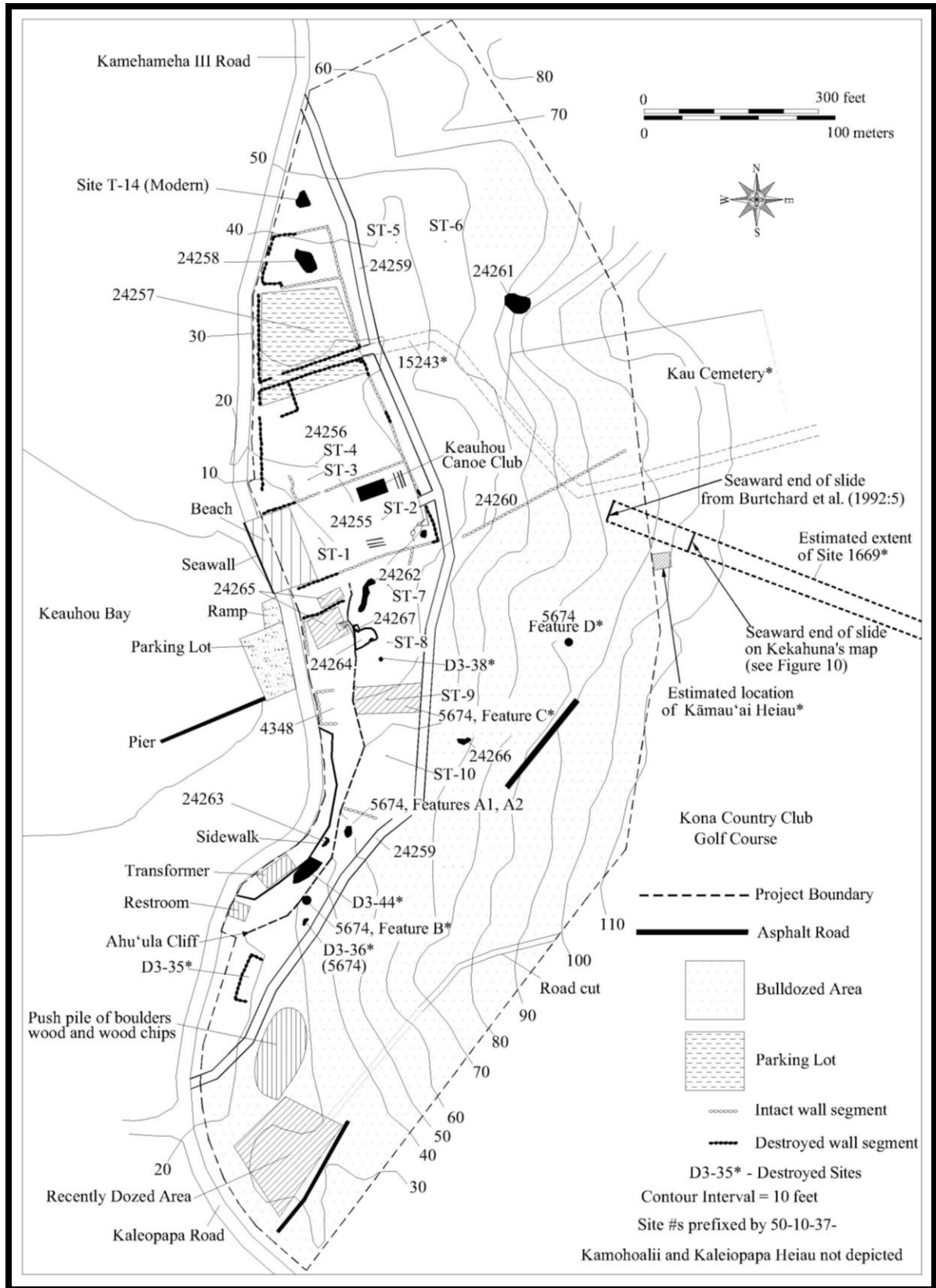


Figure 3. Haun and Henry (2010a:20) site location map in TMK: (3) 7-8-010:044.

Table 1. Summary of sites.

SIHP Site No.	NRHP Site No.	Bishop Museum Site No.	Other Name/Number	Type	Function	TMK Parcel	Significance Assessment	Condition Assessment	Mitigation Measures					
									Prepare Archaeological Site Preservation Plan and implement preservation measures	Prepare Archaeological Data Recovery Plan, implement dayta recovery and report results	Clear vegetation	AIS level documentation, and prepare AIS report	No further work	
4348	78001018	D3-43	Kauikeaouli Birth Stone	Enclosure	Ceremonial	(3) 7-8-010:044	b, d, e	Unaltered, good condition	1					
5674*	-	D3-36, D3-37	-	Complex (12)	Permanent Habitation, Ranching, Possible Burial	(3) 7-8-010:044	d	Undetermined	1	1				
24215	-	-	-	Overhang	Storage	(3) 7-8-010:098	d	Undetermined						1
24216	-	-	-	Complex (5)	Historic Habitation	(3) 7-8-010:098	d	Undetermined						1
24255	-	-	-	Complex (2)	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24256	-	D3-41	-	Complex (3)	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24257	-	-	-	Enclosure	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24258	-	-	-	Enclosure	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24259	-	-	Old Kailua Road	Road	Transportation	(3) 7-8-010:044	d	Undetermined						1
24260	-	-	-	Wall	Livestock Control	(3) 7-8-010:044	d	Undetermined						1
24261	-	-	-	Pavement	Permanent Habitation	(3) 7-8-010:044	d	Unaltered, fair condition	1					
24262	-	D3-40	-	Terrace	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24263	-	-	Ho'okūkū Pond	Pool	Water acquisition	(3) 7-8-010:044	c, d, e	Altered, good condition	1					
24264	-	D3-42	Moikeha Cave	Cave	Temporary Habitation	(3) 7-8-010:044	d, e	Altered, good condition	1					
24265	-	-	-	Complex (4)	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
24266	-	-	-	Pavement	Permanent Habitation	(3) 7-8-010:044	d	Unaltered, fair condition	1					
24267	-	D3-39	-	Enclosure	Historic Habitation	(3) 7-8-010:044	d	Undetermined						1
-	-	-	Temporary Site 1608.1	Complex (2)	Historic Habitation	(3) 7-8-010:044	d	Altered, poor to fair condition		1			1	
-	-	-	Temporary Site 1608.2	Complex (4+)	Historic Habitation	(3) 7-8-012:004	d	Altered, poor to fair condition		1			1	
-	-	-	Temporary Site 1608.3	Wall	Livestock control	(3) 7-8-012:007	d	Altered, poor to fair condition		1			1	

\* - Site Partially Destroyed  
SIHP Site #s. prefixed by 50-10-37-

and Natural Resources/State Historic Preservation Division (SHPD) in a March 4, 2013 letter (Log No. 2010.4060, Doc. No. 1302MV23).

The Haun and Henry (2010b) AIS of TMK: (3) 7-8-010:098 identified two sites with a total of six features (**Figure 4**). The sites consist of a small overhang assigned a storage function (Site 24215) and an historic habitation complex comprised of two walls, a retaining wall, a walled overhang and a modified outcrop (Site 24216). Both sites are assessed as significant solely for their information content (Criterion “d”). The mapping, written descriptions, photography, and test excavations at the sites adequately documented them and no further work or preservation was recommended (Haun and Henry (2010b:28). The report was reviewed and accepted by the (SHPD) in a February 27, 2012 letter (Log No. 2010.4058, Doc. No. 1202MV17).

## HISTORICAL DOCUMENTARY RESEARCH

The project area is located in the *ahupuaʻa* of Keauhou 1-2, in the district of North Kona (**Figure 5**). Keauhou is literally translated as “the new era or the new current” (Pukui and Elbert 1986:104). Maly and Wong-Smith (1999) conducted archival-historical documentary research and oral history interviews for a Cultural Impact Assessment done in conjunction with the Environmental Impact Statement (EIS) for the Mamalahoa Highway Bypass that is inland of the project area parcels. Maly and Maly (2001) conducted archival-historical documentary research and extensive oral history interviews for the seventeen *ahupuaʻa* that spanned from Keauhou 2 to Kealakekua. The following summary of historical documentary research and oral historical information pertaining to Keauhou is derived from these two studies and the extensive sections on Keauhou’s history presented by Tomonari-Tuggle (1985) and Burtchard (1996).

According to legend, Lono, the Hawaiian god of agriculture, fertility, and rain originally lived at Keauhou where he discovered the primary Hawaiian cultigens taro, sweet potatoes, sugar cane, bananas, yams, and kava. Early events documented in the Kona regional traditional history are associated with ‘Umi-a-Liloa. Hawaiʻi Island was first unified under the rule of ‘Umi-a-Liloa and Kona was selected as a dwelling place of chiefs. The area lies within the realm of the traditional Hawaiian political authority that was centered in the Kailua-Keauhou area from at least the 15<sup>th</sup> century to the reign of Kamehameha I. ‘Umi-a-Liloa is also associated with an upland *heiau* in Keauhou 2, Ahu-a-Umi.

After the death of Captain Cook in 1779, the Hawaiʻi Island Chief Kalaniʻōpuʻu moved to Keauhou where he could surf. Kamehameha’s father-in-law, Keʻeaumoku, was given Keauhou in return for his assistance in Kamehameha’s unification of Hawaiʻi Island in 1791. Native historian David Malo was born in Keauhou in about 1793. Kamehameha’s wife, Keōpualani, was raised from the age of 10 in Keauhou beginning around 1790. She was the mother of Liholiho (Kamehameha II) and Kauikeaouli (Kamehameha III), who was born there in 1814. The Kamehameha III birthplace shrine is situated within the current project area inland of Kaleiopapa Road and seaward of the Ahuʻula Cliff. This site is designated as Site 4348 and is discussed in detail in a following section.

Kamehameha I reportedly built a large *hōlua* slide which is in Keauhou for Kauikeaouli (Site 1669 – discussed below). Governor Kuakini and Kekāuluohi were also raised in Keauhou. In the late 1700s to early 1800s Kamehameha I monopolized foreign commerce including the provisioning of trading and whaling ships and beginning in 1811 the sandalwood trade. The *hōlua* and numerous *heiau* near the coast in the Keauhou-Kahalūʻu area attest to the longstanding importance of the area as a royal center.

The Lekeleke burial ground is situated in the seaward portion of Keauhou 2 (see **Figure 5**). It is well known because of its association with Kekuakalani’s religious rebellion against the young King Liholiho. The rebellion was prophesized by the *kōʻoula* (prophet or seer) Kapihe in the 1770s. Kamehameha’s consort, Kaʻahumanu aided the young king in the overthrow of the *kapu* system in 1819. After Liholiho formally dissolved the ancient system by eating with his mother, Keōpuolani, and Kaʻahumanu, the king ordered the destruction of *heiau* and overthrow of



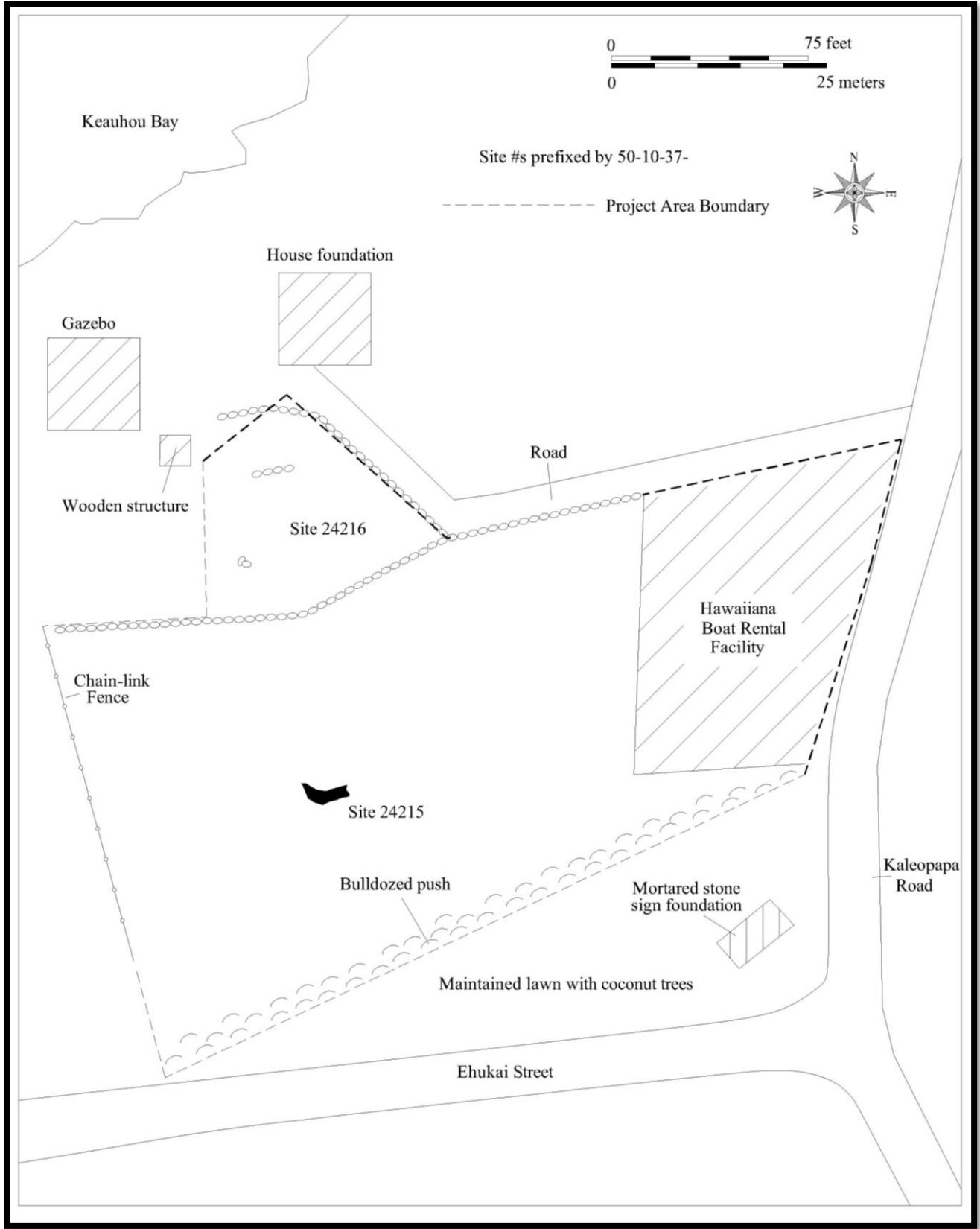


Figure 4. Haun and Henry (2010b:18) site location map in TMK: (3) 7-8-012:098.



the old idols. Liholiho's cousin, Kekuaokalani, who was the keeper of the war god Kūkā'ilimoku, was enraged by the destruction of the ancient *kapu* system and mounted a rebellion from Ka'awaloa. After a failed attempt to peacefully end the rebellion by Keōpuolani, Liholiho's forces, led by Kalanimoku met Kekuaokalani's forces initially at Lekeleke in Keauhou 2. After an initial skirmish at Lekeleke, the main battle occurred in Kuamo'o near the coast. After a furious battle Kekuaokalani was finally killed and his forces dispersed.

Native Hawaiian historic accounts and the observations of early foreign visitors such as Ellis and Wilkes describe the extensive cultivated slopes that included Keauhou. The cultivated lands, today known as the Kona Field System, were in intensive use during late prehistoric times. The project area is situated in the inland portion of the *kula* zone of the system. The first missionaries arrived in Kailua in 1820, but only stayed a few months. They returned in 1823 and were given land to establish missions and by 1825 schools. In 1823, Ellis (1963) counted nineteen *heiau* and 610 houses along the coastal trail from Kailua to Keauhou, and eight *heiau* and 443 houses between Keauhou and Ka'awaloa. The early missionary census and other data documented a substantial population in Kona including a large settlement surrounding Keauhou Bay in the 1820s; however, the population decreased dramatically over the next two decades due to death and dislocation caused by introduced diseases, droughts, fires, and famine.

The gradual shift from subsistence farming to a market economy began with the introduction of coffee, corn, pumpkins, cotton, pineapple, and Irish potatoes in the 1820s to 1840s. Other introduced early historic crops included melons, cabbage, onions, oranges, and tobacco. Keauhou served as port where firewood, sandalwood, and produce were shipped. The introduction of cattle ranching and commercial coffee production in the mid-1800s caused further change to the traditional agricultural system.

In the 1840s, political acts of the Hawaiian Kingdom government would change the land tenure system in Hawai'i. All lands were segregated into one of three categories: "Crown Lands" owned by the occupant of the throne, "Government Lands" controlled by the state, and "*Konohiki* Lands" controlled by the chiefs; and "were all subject to the rights of native tenants" (Chinen 1958:29, Beamer 2014:143). In 1846, King Kamehameha III appointed a Board of Commissioners commonly known as the Land Commissioners, to "confirm or reject all claims to land arising previously to the 10<sup>th</sup> day of December, AD 1845." Notices were frequently posted in *The Polynesian* (Moffat and Kirkpatrick 1995); however, the legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Kirkpatrick 1995:48-49) and the act is known today as *The Great Māhele*. In 1850, the Kingdom government passed laws allowing foreigners to purchase fee simple lands (Speakman 2001:91). The Kuleana Act of 1850 allowed for fee simple land ownership by commoners.

During the *Māhele*, Keauhou 1 was given to Victoria Kamamalu (LCA 7713, Apana 7) and Keauhou 2 was given to Lot Kapuawai (Kamehameha V; LCA 7715, Apana 12). The locations of all except four of these Land Commission Awards (LCA) awards are shown in **Figure 5**. The locations of LCAs 4053, 5630, 9702B-2, and 9752 do not appear on current tax maps. The Waihona 'Aina (2000) Māhele Database; which is a compilation of data from the Indices of Awards (Indices 1929), Native Register (NR n.d.), Native Testimony (NT n.d.), Foreign Register (FR n.d.) and Foreign Testimony (FT n.d.); lists seventy-two awarded LCA claims for 133 parcels within Keauhou 1-2. These claims by 67 claimants list of total of 210 claimed parcels. The locations of all except four of these Land Commission Awards (LCA) awards are shown in **Figure 5** (excluding LCAs 4053, 5630, 9702B-2, and 9752).

The awarded *kuleana* claims range from 0.2 to 6.6 acres in area with an average of 2.88 acres. Most of the claims included a coastal house lot and at least two or three cultivated parcels at differing elevations corresponding with zones of the Kona Field System. The testimonies for the Keauhou claims are atypical in the rarity of claimed parcel boundary descriptions. The testimonies refer to thirty-nine *'ili* land divisions. Waipio is mentioned eleven times, Pahi is listed for ten parcels, followed by Opuokaha and Haliipalala (8), Haleape (7), Kamuku and Laulaulahili (6), Kaohia (4) and four parcels each for Maili, Pakohe, Papalanui, and Puuloa. Most of the remaining names are only mentioned once.

The awarded parcels are concentrated in six areas. One cluster of awarded parcels is situated between approximately 900 and 1,500 feet elevation in Keauhou 2. A small cluster of four parcels is situated between 1,500 and 1,750 ft elevation also in Keauhou 2. A large cluster of parcels spans the area between 200 and 1,700 ft elevation in Keauhou 1. There are 19 parcels concentrated around Keauhou Bay and there is a smaller cluster of seven parcels that front He'eia Bay to the north.

The awarded claim testimonies describe 34 house lots with at least 55 houses. Enclosing walls are mentioned for 24 house lots. The testimonies refer to over 400 cultivated plots, sections, *māla* and *kīhāpai*. Specific crops mentioned include taro (126 plots), sweet potatoes (110), coffee (39), pumpkins (5), gourd (2), pineapples (3), *olonā* (1), and a variety of trees (coconut [22], *kou* [21], orange 15), *loulou* [13], palm [6], *hala* [4], *noni* [2], papaya [2], and *hau* [1]). Two gardens are described as enclosed with walls.

There are ten LCA parcels present within the present project area (LCAs 5781, 5903, 7362, 7372, 9698, 9753, 10374, 11046, 11047, and 11048; see **Figure 5**). LCA 5781 is a small parcel in the west-central portion of the TMK: (3) 7-8-010:044. It is one of three parcels awarded to Kanehoa. Another parcel is situated inland at approximately 1,300 foot elevation. The location of the third parcel is not depicted on the current tax maps.

LCA 5903 is a large parcel situated in the southern portion of TMK: (3) 7-8-010:044. It is one of four parcels awarded to Paiki. The other three parcels are situated between approximately 1,180 and 1,650 ft elevation. The coastal parcel is probably where Paiki's house lot was situated. The testimony indicates that the lot had one house and was enclosed. There were twelve *loulou* palms and a *hala* tree growing in the house lot, which may explain the relatively large area of this probable house lot parcel.

Three LCAs are situated adjacent to each other in the west-central portion of TMK: (3) 7-8-010:044 (LCA 7372:2, 9753:2, and 11048:2). LCA 7372 was awarded to Kaikuaana and consists of two parcels totaling 1.6 acres. Only the coastal, probable house lot parcel appears on current tax maps. In the following testimony given by Kaikuaana reference is made to at least three separate parcels, "Greetings to the Land Commissioners: Here is the size of my taro *kihāpāis*. Their combined size is 157. The *kihāpāis* in Kaulu [*kalu'ulu*] are 144 in size. The *kihāpāis* in the kula are 144 in size....Furthermore, my house is 64 in circumference."

LCA 9698 was awarded to Kapela and is located in TMK: (3) 7-8-012:004. It is comprised of two parcels totaling 2.3-acres. The coastal parcel 0.16-acres, with a second lot situated between approximately 1,350 and 1,500 feet, the coastal parcel is an enclosed house lot with three *kou* trees and the inland parcel comprised of *kīhāpai*.

LCA 9753 was awarded to Kaluahinenui. The award consisted of two parcels totaling 1.29 acres, with one located in TMK: (3) 7-8-010:044. The other parcel is situated inland between approximately 1,450 and 1,600 ft elevation. The claim testimony describes five inland *kīhāpai*, two coconut trees, and a house lot, presumably the parcel in the project area. It contained two houses and was enclosed with a stone wall.

LCA 11048 was awarded to Haluapo consisting of two parcels totaling 1.3 acres. The other parcel is situated inland between approximately 1,150 and 1,250 ft elevation. The claim testimony mentions twelve *kīhāpai*. The small coastal parcel in the project area probably was also a house lot. It was probably enclosed by a stone wall because the adjoining lots on north and south sides were enclosed.

LCA 7362 includes three parcels in the project area. Two, labeled *apana* 1 and 2 are situated in the northwestern portion of the project area. A third parcel, also labeled *apana* 2 on current tax maps, is situated in the west-central portion of the project area. A fourth parcel, labeled *apana* 1, is situated inland between 1,200 ft and 1,400 ft elevation. These parcels were awarded to Kaanoano and his father Kapahāhaimoku. Translated testimony in support of the claim was given by Keamohuli as follows:

He [Keamohuli] has seen in the ili land at Kaohia, 2 land sections; at Haleape, 1 section; at Makakanalii, 1 section; and 1 house lot...The land has been partially cultivated and Kaanoano had enclosed the house lot where he has had to [two] house[s]. He died in 1849, his wife is living there now. Plants and 1 orange tree are in Kaohia ili land, Kapahahaimoku the father of Kaanoano planted them. (Waihona Aina 2000)

LCA 11046, Apana 1 is situated adjacent to the northwestern portion of TMK: (3) 7-8-010:044. It was awarded to Molale, who also received two other larger parcels: one situated at 300 foot elevation and the other situated at 1,400 foot elevation. His claim was for 3 sections of land and a house lot. The small coastal parcel next to the project area was probably the house lot, which according to the testimony had one house and was enclosed, presumably with a stone wall.

LCA 11047 is situated in the west-central portion of TMK: (3) 7-8-010:044. The parcel is one of three awarded to Poopoopuu, and it was also probably a house lot based on its small area. The claim testimony does not mention a house lot. Two larger parcels, labeled Apana 1 and 3, are situated inland between 1,200 and 1,400 foot elevation.

Public Instruction Records cited by Maly and Maly (2001:214) list two schools in Keauhou in 1847. The teachers were Kaihe and Keliiahue. School records from 1848 list four teachers and 108 students at the two Keauhou schools. Tax records from 1849 list 60 people subject to taxation in Keauhou. Maly and Maly (2001:21-22) quote a Hawaiian language newspaper article that describes an inspection of schools in Kona. Two schools are reported for Keauhou in 1856. The school of Kanakaokahialii had 25 students with marginal proficiency.

Records documenting the late 1800s in Keauhou are limited. Tax records indicate a decrease in tax payers from 72 in 1857 to 24 in 1881 (Tomonari-Tuggle 1985:31). A Chinese retail store was established in Keauhou in 1867. Jackson's 1885 map of Keauhou Bay, obtained from the Archives Division of the Hawai'i Department of Accounting and General Services (DAGS; <http://ags.hawaii.gov/survey/map-search>), shows a settlement of at least twenty-six structures, mostly situated on the north side of the bay (**Figure 6**). Eight of the structures have walled yards surrounding them, several of which are located in the TMK: (3) 7-8-010:044 portion of the project area. Scattered coconuts are also depicted. This map also shows Kauikeaouli (Kamehameha III) birth place and a structure labeled "Old ruin of Kamehameha 1<sup>st</sup> House" at the base of the cliff, just outside the project area to the west.

Commercial sugar cane cultivation in Kona was attempted in the late 1800s and early 1900s, but was abandoned by the mid-1920s (Kelly 1983). **Figure 7** is a portion of the 1924 Territory of Hawaii U.S Geological Survey Kainaliu quadrangle map, also obtained from DAGS. This map shows the Old Kailua Road that extends inland to Kainaliu (Site 24259), and a trail or road extending from the coast along the south side of Keauhou Bay that continues south. It also depicts the inland/seaward oriented Keauhou Trail (Site 15243) that once existed in the project area. Two houses are shown at the coast south of Keauhou Bay. The West Hawai'i Railroad extends through the *ahupua'a* half way between the coast and inland highway. Construction of the railroad began in 1901 by the West Hawai'i Railway Company (Condé and Best 1973). The railroad was constructed to transport sugar cane to the Kailua Sugar Company Mill situated in Waiaha. Cattle ranching and coffee cultivation continued during the late 1800s and 1900s. The West Hawai'i Railroad extends through the Keauhou Ahupua'a half way between the coast and inland highway.

**Figure 8** is a 1924-1925 Bernice P. Bishop estate map of Keauhou provided by the Nā Ala Hele Hawai'i Trail and Access System. This map depicts the Keauhou Trail (Site 15243), the Old Kailua Road (Road to Kainaliu; Site 24259), and the Old Government Beach Road that extended through the area. It also depicts the Kau Cemetery, the seaward half of which is shown extending into the project area boundaries.

Kekahuna's 1954 map of Keauhou Bay and He'eia Bay to the north, obtained from the Bishop Museum online library (<http://data.bishopmuseum.org/Kekahuna>), shows a nearly continuous series of residences fronting the bay (**Figure 9**). Twenty-seven named individuals are associated with the structures. A ranch gate and the Hind Ranch water pump

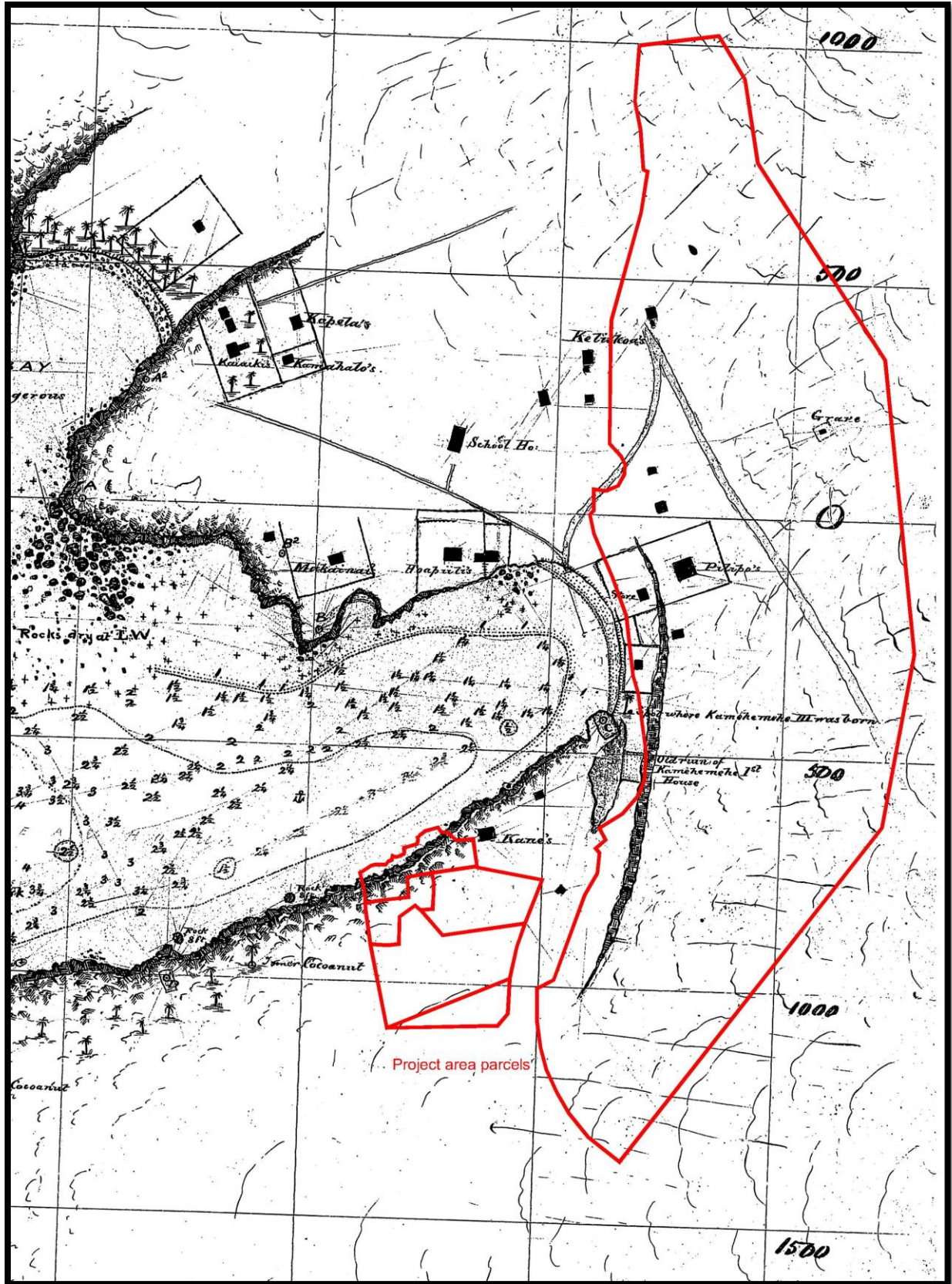


Figure 6. Portion of Jackson's 1885 Register Map No. 1320 of Keauhou Bay (obtained from DAGS).

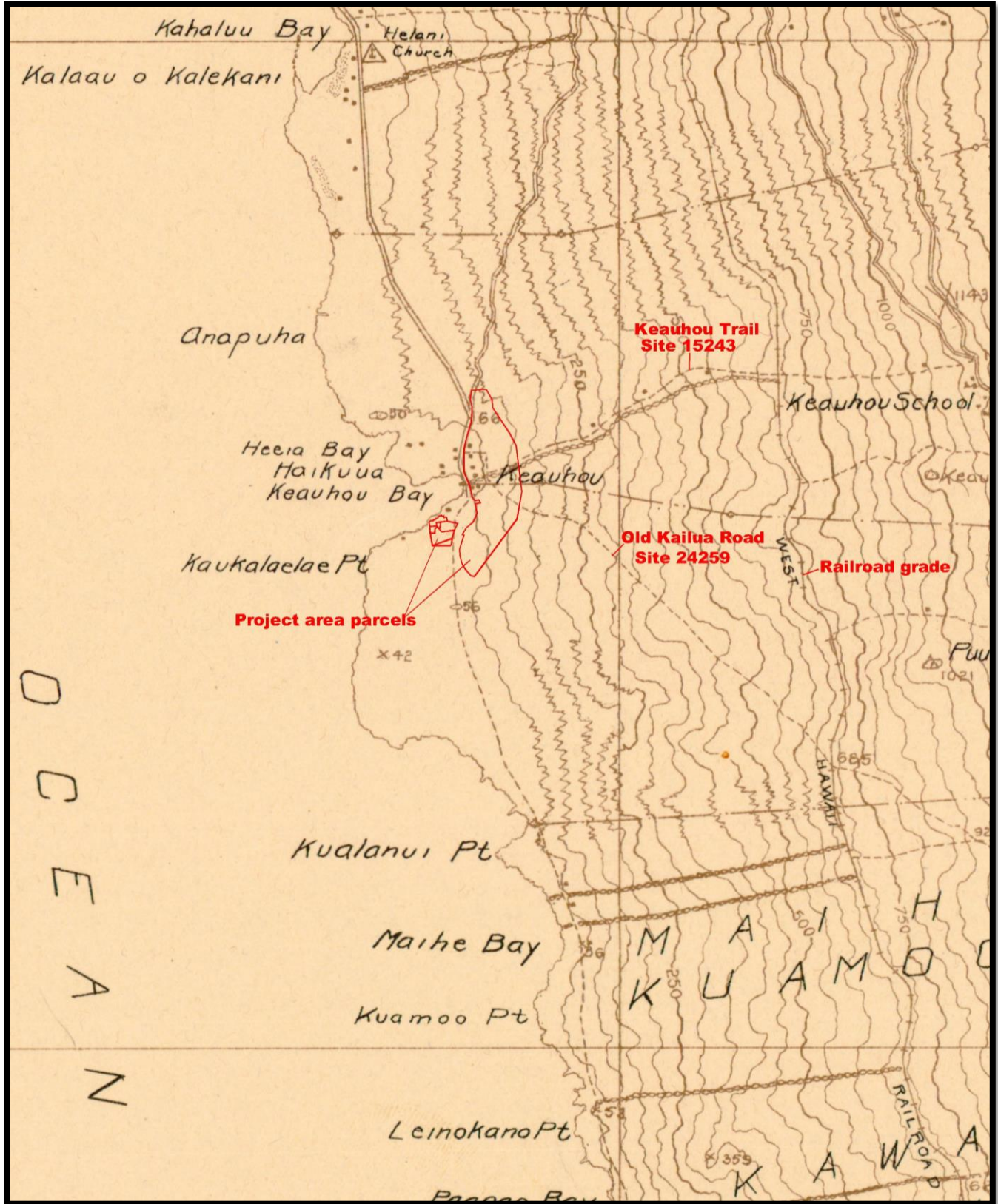


Figure 7. Portion 1924 U.S. Geological Survey Kailiui Quadrangle showing project area (obtained from DAGS).







are shown on the inland side of the road to Kaʻawaloa on the south side of the bay. Two named springs, a boat pier, three private piers, a chapel, and a dry dock are also shown. Several sites that are located in the current project area are depicted on **Figure 9**. These sites are described in detail in the following Reconnaissance Survey Findings section.

There are three named *heiau* that reportedly once existed within or immediately adjacent to the TMK: (3) 7-8-010:044 portion of the project area (Kamohoalii Heiau, Kaleiopapa Heiau, and Kāmauʻai Heiau). Kekahuna's (1954) map of Keauhou Bay (see **Figure 9**) indicates that Kamohoalii Heiau was situated on top of the Ahuʻula Cliff inland from Keauhou Bay (see Item "H"). According to this map, only a few large stones existed at the time Kekahuna's map was prepared. Kekahuna's (1954) map also depicts the presence of Kaleiopapa Heiau situated adjacent to the Site 4348 Kauikeaouli Birth Stone (discussed below) and seaward of the Ahuʻula Cliff. No structure or information concerning this heiau is presented on this map.

A reference indicating the location of the Kāmauʻai Heiau is situated at the bottom of Kekahuna's (1954) map of Keauhou Bay (see **Figure 9**). It reads, "To the present end of the Royal Slide, and the remnant of Kāmauʻai Heiau." **Figure 10** is Kekahuna's 1953 map of the Famous Holua at Keauhou (Site 1669; discussed below). According to this map, Kāmauʻai Heiau was situated 69 feet seaward of the end of the slide, within a large "recently built" enclosure, and measured approximately 100 feet long and 50 feet wide. Kekahuna's maps were georeferenced during the present project with the results indicating that the Kāmauʻai Heiau was situated just inland of the eastern boundary of TMK: (3) 7-8-010:044, with the adjacent the adjacent Kona Country Club golf course. No remnants of the Site 1669 slide or the Kāmauʻai Heiau were identified in this portion of the project area and were likely destroyed during construction of the golf course.

In 1976, in a manuscript prepared by the Daughters of Hawaii for Kamehameha Investment Corporation, the following information is presented concerning the two heiau:

South of the monument (Site 4348), on the adjoining property, lies Kamohoalii Heiau. This heiau was built by the Kahuna Kapihe Nui, by command of Kalaʻninui Liholiho, King Kamehameha II. The heiau measured sixty feet by forty feet. It lay beneath Ahuʻula Cliff and was used for royal family ceremonies...Atop Ahuʻula Cliff... are the remains of another heiau; name unknown. Referred to by one authority as Kamohoalii in an early writing, only a few large stones remain of the heiau. Kamohoalii Heiau proper, the one below the cliff, is also known to have been called Kaleiopapa Heiau. This later name might have been the name of the heiau above the cliff. (Daughters of Hawaii 1976:2)

Neither heiau are mentioned in Stokes (Stokes and Dye 1991) or Thrum (1908), and these heiau are not depicted on Jackson's 1885 map of Keauhou Bay (see **Figure 6**). Both Stokes and Thrum cite the presence of Hoʻokūkū or Kaopa Heiau located in the vicinity of the Site 4348 Kauikeaouli Birth Stone. According to Stokes:

A low rambling wall encloses a space about 1.5 acres at the foot of a high cliff...within are breadfruit, loulou and other trees...[and] a large rock to which marvelous revivifying powers were attributed, and it was stated that the dead baby was placed on the stone for some days and came to life by virtue of the stone...(Stokes and Dye 1991:85)

Thrum (1908) indicates that the Hoʻokūkū Heiau likely represented a "famous sacred locality" rather than an actual structure.

Rosendahl et al. (1983) made an effort to locate the remains of a heiau along the top of the Ahuʻula Cliff. This survey did not locate any structural remains of a heiau. This report does postulate that the Bishop Museum Site No. D3-37 (re-designated as Feature A of Site 5674; discussed below) may have corresponded to part of a larger structure;



however, they also postulate that, “there is no reason to suspect that D3-37 might have been part of a heiau (1983:31).

The area along the top of the cliff was also carefully examined by Haun and Henry (2010a) and no surface evidence of a site was found. Subsurface testing was undertaken in this area during the Haun and Henry (*ibid*) project. Three shovel tests were excavated 30 meters apart, extending between Sites 5764 and 24262 on the level soil area inland from the top of the Ahu’ula cliff line and seaward of the Site 24259 road. The excavation of these shovel tests identified similar soil deposits, consisting of two soil layers over bedrock. The upper layer contained marine shell, waterworn coral and historic debris, with no cultural material in the underlying soil. Soil and stone push piles were noted in the area, indicating the area had been bulldozed in the past.

A portion of a *hōlua* slide (Site 1669) also potentially once extended into the TMK: (3) 7-8-010:044 portion of the project area (see **Figure 3**). According to Burtchard et al. (1992:287), the intact portion of the slide is approximately 915 meters in length, “from its upper platform to the point where it is cut by Ali’i Drive.” The portion of the slide seaward of Ali’i Drive has been destroyed, although Burtchard et al. states that, “contour changes would suggest that it originally terminated above He’eia and Keauhou Bay...” (*ibid.*). No evidence of the slide remains in the project area; however, Burtchard et al.’s site map (1992:5) indicates it may have once existed within it.

Kekahuna’s 1953 map of the slide (see **Figure 10**) however, shows that the seaward end terminated in the adjacent Kona Country Club golf course, inland of the project area. This map shows that the seaward end was situated within a large, “recently built” enclosure, in close proximity to the previously discussed Kāmau’ai Heiau. The map also describes the construction of the slide as follows:

Great care seems to have been exercised in the building of this huge relic of the ancients. Practically the whole slide is constructed of fairly large ‘a’a rocks, filled in with rocks of medium and small sized ‘a’a. The base-walls on the north and south vary in height according to the contour of the land. The width of the runway varies considerably.

According to Tomonari-Tuggle (1985:46), the Site 1669 Holua Slide was one of the largest in the islands, having originated more than a mile inland and measuring 15-20 meters in width and as much as 5.0 meters in height. Baker (1915:82) indicates that the slide was, “built before his reign for Kamehameha III to slide down on sleds, with his friends over the grass-covered slide made slippery with kukui-nut oil. According to Burtchard et al. (1992:287), the intact portion of the slide is approximately 915 meters in length, “from its upper platform to the point where it is cut by Ali’i Drive.” The portion of the slide seaward of Ali’i Drive has been destroyed, although Burtchard et al. (*ibid*) states that, “contour changes would suggest that it originally terminated above He’eia and Keauhou Bay...” Haun and Henry (2010a) found no evidence of the slide or the enclosure constructed around the seaward end. in the project area.

A portion of the Keauhou Trail (Site 15243) also apparently once existed within TMK: (3) 7-8-010:044. This trail is an inland-seaward transportation route that originated near Keauhou Bay and extended inland a distance of at least 2,500 meters. Burtchard et al. (1992) documented inland portions of the trail, from approximately 400 feet elevation inland to the Kuakini Highway at approximately 900 feet. According to Burtchard et al. (1992:303), the trail, “appears as a flat, easily traversed pathway when not choked with grass.” Kekahuna’s (1954) map of Keauhou Bay indicates that the Keauhou Trail, labeled as “Old Road to Upland” once extended through the TMK: (3) 7-8-010:044 portion of the project area (see **Figure 9**). This map depicts a walled passage extending between two large enclosures with the trail continuing inland to the east. The southernmost enclosure was designated Site 24256 by Haun and Henry (2010a; see **Figure 3**) and the northern enclosure was designated Site 24257. The examination during the previous AIS revealed that the walled passage and large portions of the Site 24256 and 24257 enclosures have been destroyed. Currently this area is occupied by a gravel parking lot with no evidence of the trail present.

An historic cemetery is depicted on a Bernice P. Bishop Estate 1924-1925 map of Keauhou 1 (see **Figure 8**). The seaward half of the cemetery is reportedly located in the northeastern portion of the project area in an area that has been impacted by bulldozing. No evidence of this cemetery was identified by Haun and Henry (2010a) and it is not depicted on any of the other historic maps of the area.

## RECONNAISSANCE SURVEY FINDINGS

Four TMK parcels and a portion of a fifth were subjected to reconnaissance survey during the project. These areas were examined with crew members spaced at 5 to 10 meter intervals. Ground surface visibility was fair to good in the majority of the parcels, except in portions of TMK: (3) 7-8-012:065, where an area of dense bougainvillea, night-blooming cereus, and *kiawe* was encountered. The location of the sites identified in the subject parcels were determined with the aid of a Spectra Precision Mobile Mapper 20 device using the North American Datum (NAD) 1983 datum. The accuracy of the GPS device for a single point is +/- 1 to 3 meters. The location of these areas and the identified sites are presented in **Figure 11** and **Figure 12**. The results of the reconnaissance survey are presented below.

**TMK: (3) 7-8-10:044** is a 25.239-acre parcel located east of Kamehameha III Road and Keauhou Bay. The majority of this area was subjected to an AIS by Haun and Henry (2010a), with the exception of an approximately 1.35-acre area formerly comprised of Parcel 73 (see **Figure 2**). This area was subsequently added to TMK: (3) 7-8-010:044. The southern portion of this area is currently in use for boat storage and parking (**Figure 13**). Evidence of mechanical grading was observed at the northern end of the parcel, potentially related to the development of the adjacent golf course. An area of surface a'ā lava is present (**Figure 14**) with the vegetation consisting of *kiawe*, *koa haole*, grasses and vines (**Figure 15**). The survey of these parcels identified a possible historic driveway (**Figure 16**) and building foundation located on the approximate boundary between the two parcels, north of the parking area. This site is assigned temporary number **Site 1608.1**. It will require AIS level documentation. The site is tentatively assessed as significant under Criterion "d" for its information content and will likely be recommended for no further work following AIS documentation.

Based on the recommendations from Nā Ala Hele Hawai'i Trail and Access System and the Ala Kahakai National Historic Trail, discussed in the following Conclusion section, two areas within TMK: 7-8-010:044, totaling 1.97-acres, were also subjected to reconnaissance survey in an attempt to locate the remains of two historic trails (Sites 15243 and 24259) and the Kau Cemetery (**Figure 17**). The trail corridors were identified on the 1954 aerial (**Figure 18**), and Esri shp files were created for use in the field. Information from the 1924-1925 map of Keauhou 1 (see **Figure 8**) was used to delineate the approximate location of the Kau Cemetery within the project area. Mechanical disturbance within the project area was identified on a 1976 aerial photograph and this information was used to identify the inland extent of the reconnaissance survey areas (**Figure 19**). The shp files created from these data were loaded into a Spectra Precision MobileMapper 20 GPS unit to guide the survey efforts in the field. The corridors were delineated in the field using a combination of blue & white striped and orange flagging tape. The guinea grass within the corridors was then cleared by Forest Solutions, Inc. (FSI) personnel to improve ground surface visibility. Haun & Associates archaeologist, Leesha Villacorte, B.A. monitored the grass clearing from between September 28 and October 6, 2022. The corridors were then systematically examined by Project Supervisor, Solomon Kailihiwa, M.S., and archaeologists Leesha Villacorte, B.A., and Nicole Lui.

The northern-most corridor was centered on the reported path of the Site 15243 trail and encompassed an area of approximately 1.26-acres (see **Figure 17**). The ground surface within this corridor shows evidence of past mechanical grubbing (**Figure 20** and **Figure 21**), with the boulders and cobbles from the area having been pushed to the base of the knoll that is the possible location of Kau Cemetery. All of the *koa haole* trees in the area are uniform in size and weathered scars from metal-tracked vehicles were observed on rocks. No remnants of the Site 15423 trail are present; however possible portions of the Kau Cemetery were noted.

The reported location of the Kau Cemetery is situated to the north of this corridor (see **Figure 17**). The approximate location of the cemetery was determined by utilizing the 1924-1925 map of Keauhou 1 (see **Figure 8**) and the 1954 aerial photograph of the area (see **Figure 18**). The remains of the cemetery appear to be situated on a small rocky

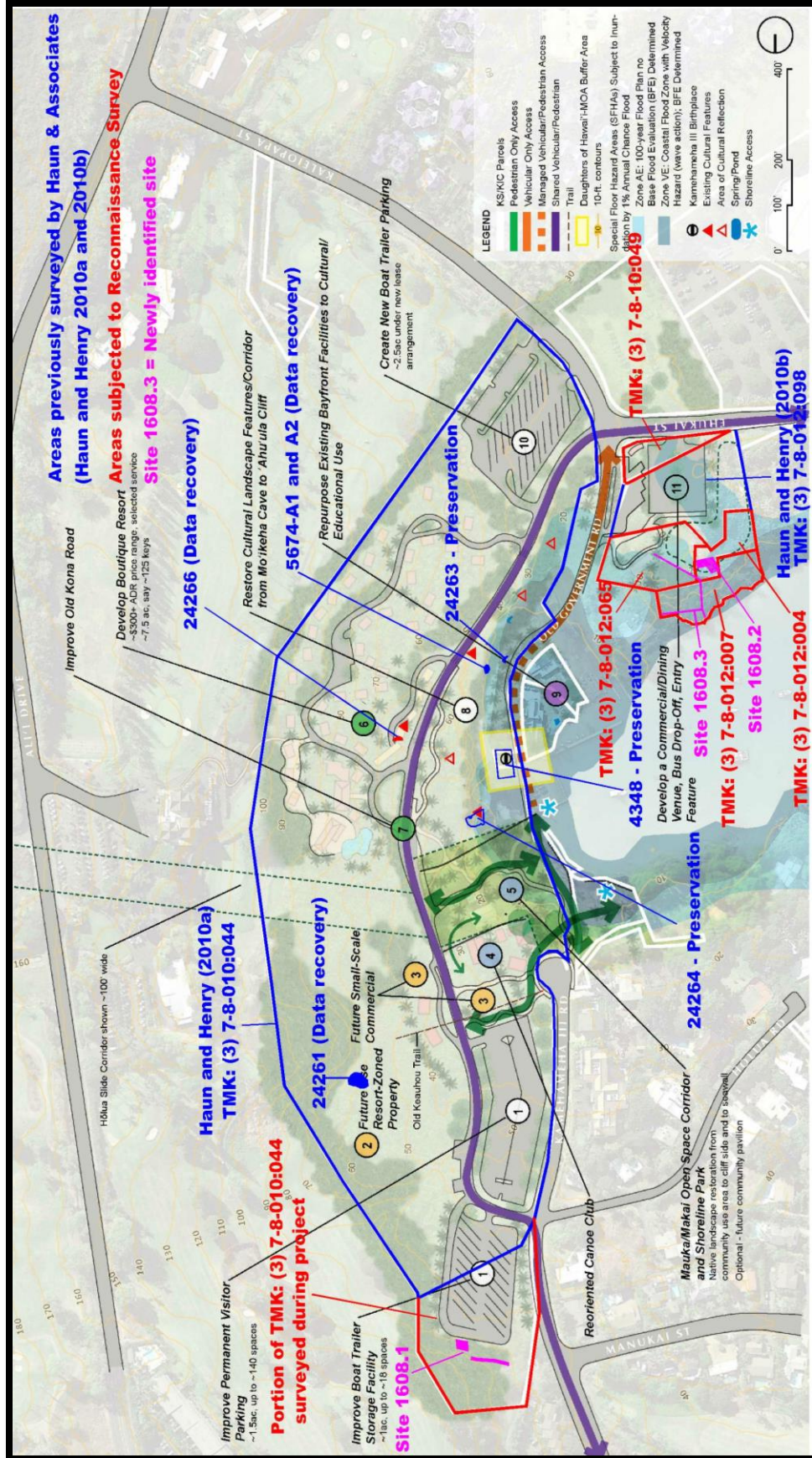


Figure 11. Keauhou Bay Conceptual Improvement Plan Map showing survey areas and sites.

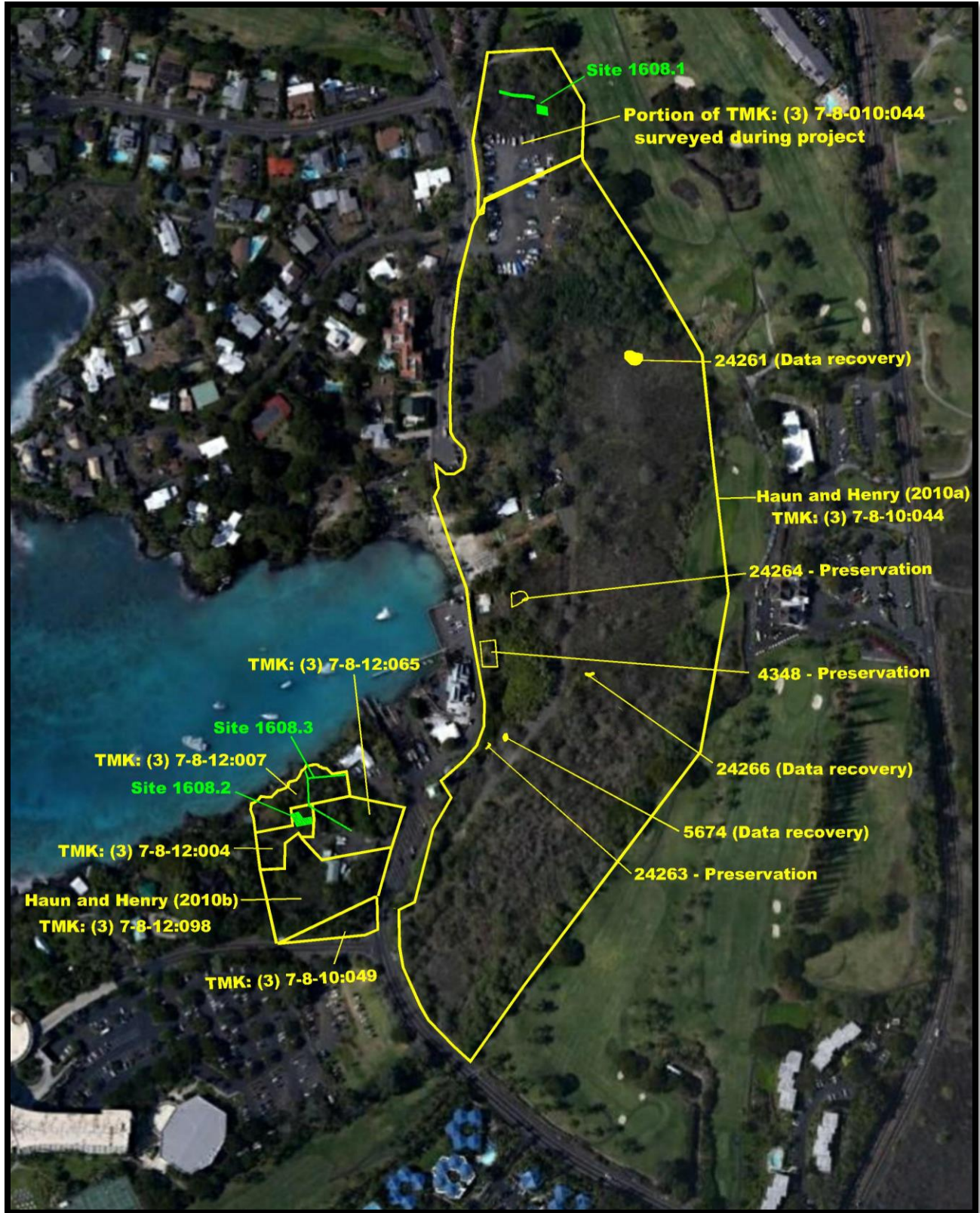


Figure 12. Aerial view of project area vicinity showing survey areas and sites (from Google Earth).





Figure 13. Boat storage and parking area (view to east-southeast).



Figure 14. Surface lava flow in TMK: (3) 7-8-010:044 (view to northeast).



Figure 15. Portion of TMK: (3) 7-8-010:044 surveyed during project (view to southeast).



Figure 16. Possible Site 1608.1 driveway in TMK: (3) 7-8-010:044 (view to east).

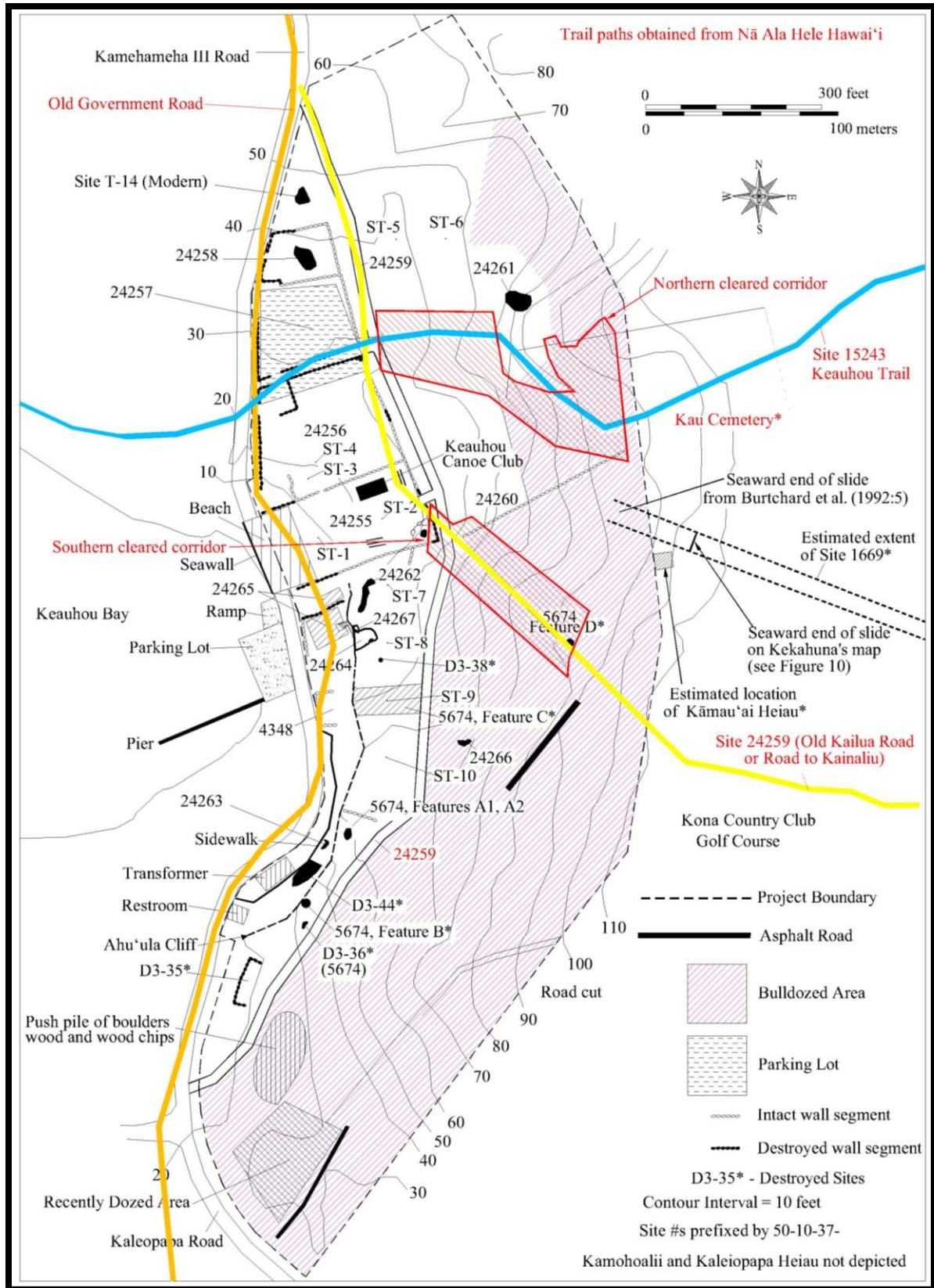


Figure 17. Project area trails and Kau Cemetery on Haun and Henry (2010a) site location map showing cleared corridors.

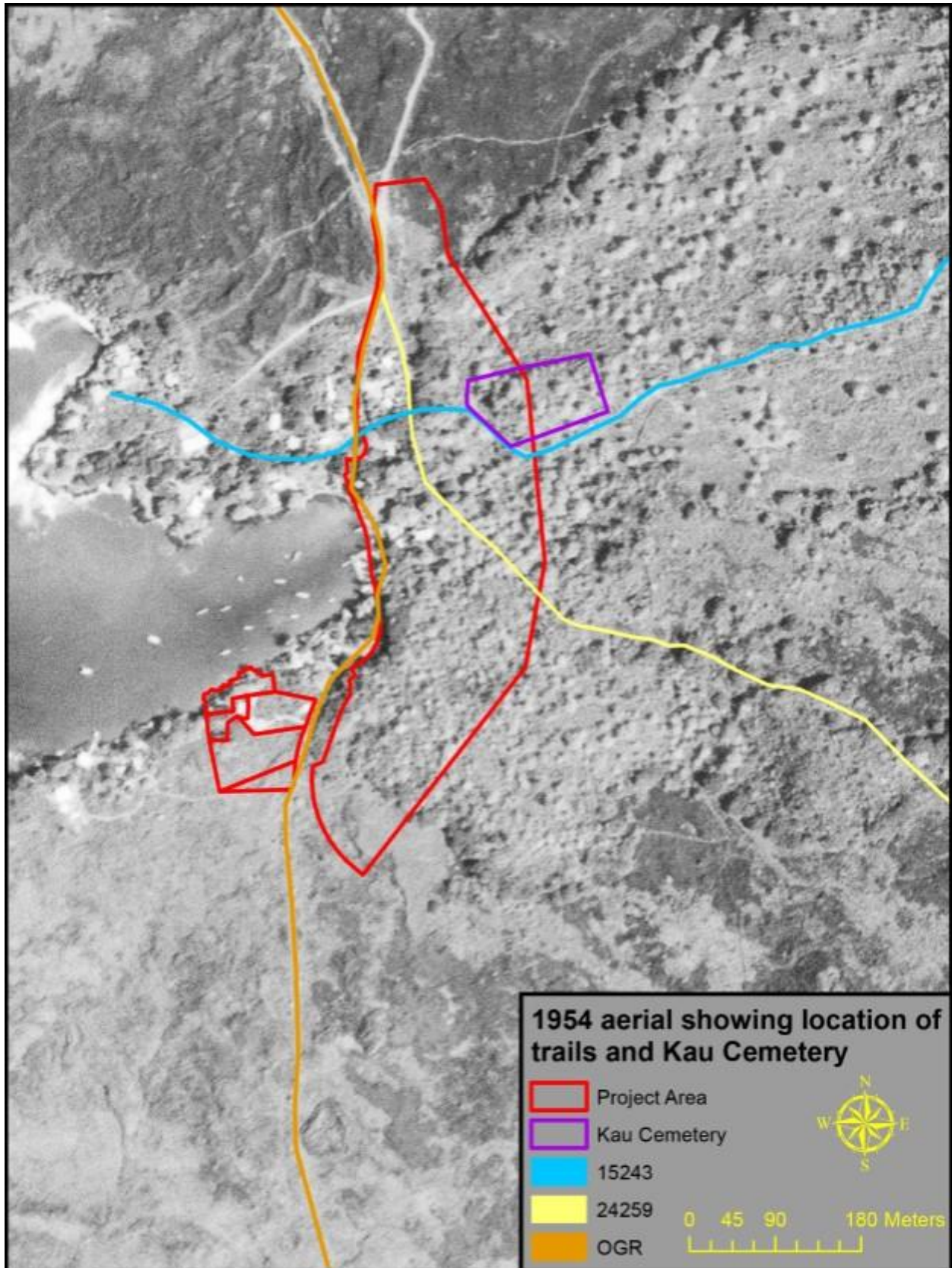


Figure 18. Project area trails on 1954 aerial view of project area vicinity (obtained from University of Hawai'i at Manoa online library).

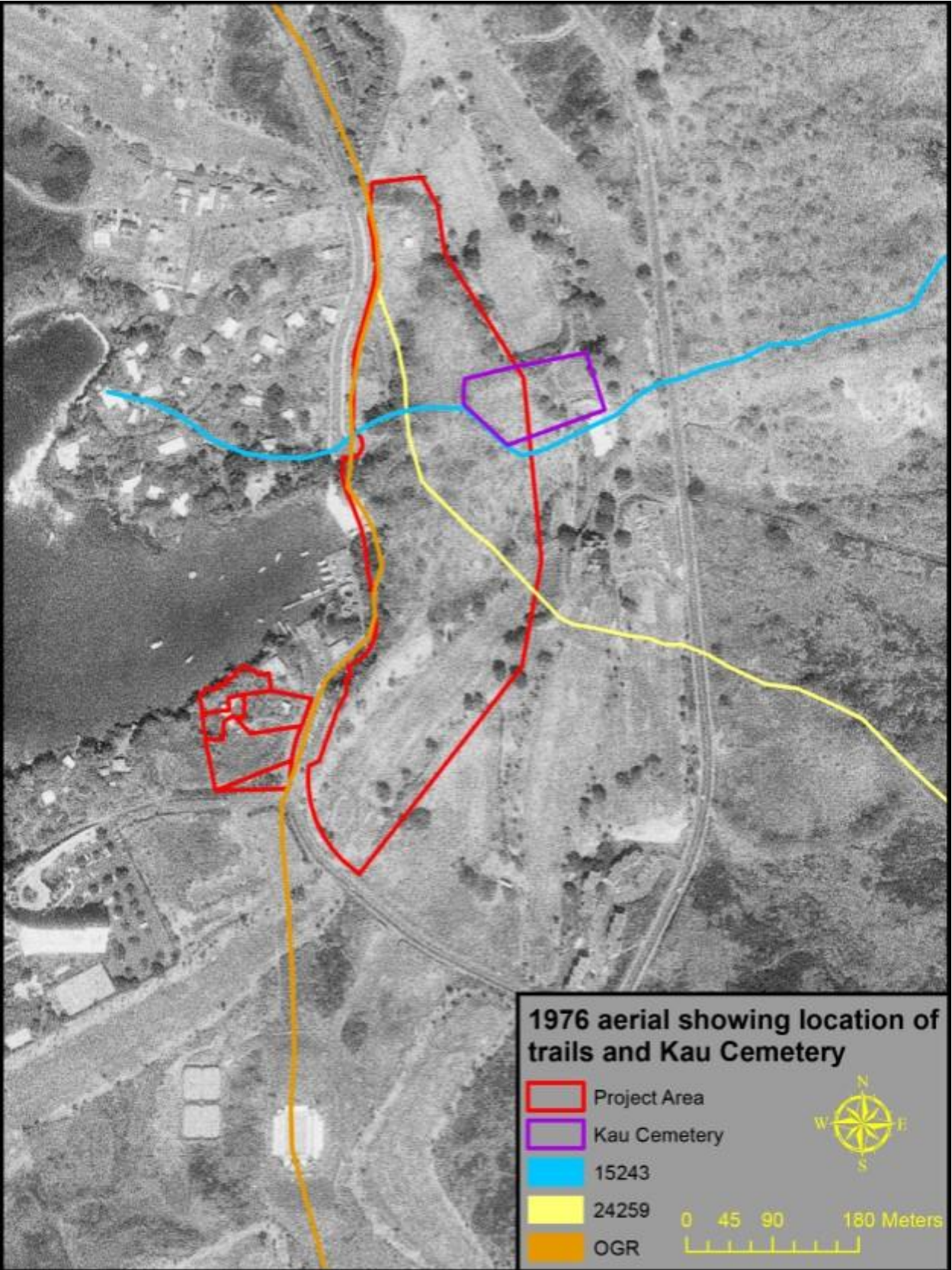


Figure 19. Project area trails on 1976 aerial view of project area vicinity (obtained from University of Hawai'i at Manoa online library).



Figure 20. Site 15243 corridor cleared of grass (view to east-southeast).



Figure 21. Site 15243 corridor cleared of grass (view to west).

knoll, with the eastern two thirds of the cemetery having been destroyed by the construction of the adjacent golf course. The top of the knoll shows evidence of grubbing, consisting of weathered scarring on rocks created by a metal-tracked vehicle and uniform height of the *koa haole* trees in the area (**Figure 22**).

A section of formed concrete is present in the portion of the Kau Cemetery survey area cleared by FSI (see **Figure 22**). One surface of the concrete was smooth and does not show any of the large pebble and small cobble aggregate within the rest of the fragment and most likely represents its outer surface. The side opposite of the outer surface is covered with large a'ā pebbles and small cobbles. It is possible that section of concrete may be a portion of a disturbed grave, possibly a fragment of a capstone, that has been displaced by the grubbing of the area.



**Figure 22. Cleared portion of Kau Cemetery showing section of concrete (view to northwest).**

Site 24261 was also observed within the reported location of the Kau Cemetery (see **Figure 17**). As previously discussed, this is a large paved area located on the northern side of a knoll in the northeastern portion of TMK: 7-8-010:044, and was interpreted as the foundation for a permanent habitation structure by Haun and Henry (2010a). This site is slated for data recovery. It is possible that this site may also represent a remnant of the Kau Cemetery. The surface of the pavement is currently completely overgrown by guinea grass, but it was assessed during an earlier phase of this project.

The southern corridor follows the reported location of the Site 24259 trail, encompassing an area of approximately 0.71-acres. This corridor is mostly devoid of boulders and cobbles, and the *koa haole* trees are of uniform height, many of which have multiple trunks suggesting they had been cut or cleared to the ground in the past (**Figure 23**). Linear mounds created by bulldozer blades were observed in the area. The inland most part of the corridor had been grubbed more recently than the rest of the corridor. The *koa haole* trees are younger than the rest of the trees in the area and a line of tree stumps and boulders and cobbles created by a bulldozer blade delineated the western edge of this more recent grubbing (**Figure 24**). No remnant of the Site 24259 trail is present.



Figure 23. Site 24259 corridor cleared of grass (view to northwest).



Figure 24. Site 24259 corridor showing recently cleared area (view to south).



**TMK: (3) 7-8-010:049** is a 0.3-acre roughly triangular-shaped parcel located at the intersection of Kaleiopapa Road and Ehukai Streets. It has been graded and landscaped with a lawn, ornamental plants, propane torches, and a sign for the Outrigger Kona Resort and Spa (**Figure 25**). No historic properties are present in this parcel.

**TMK: (3) 7-8-012:004** is a 0.25-acre parcel located to the northwest of the Haun and Henry (2010b) survey area. The reconnaissance in this area identified a complex comprised of a house foundation, retaining walls, and walking paths designated as **Site 1608.2**. An overview of the site is presented in **Figure 26**. This site is depicted on Kekahuna's (1954) map of Keauhou Bay as having been owned Mrs. E.P. Hodgins (see **Figure 9**). It is also located in the approximate location of LCA 9698 that was awarded to Kapela in the *Māhele*. This site will also require AIS level documentation. Site 1608.2 is tentatively assessed as significant under Criterion "d" for its information content and will likely be recommended for no further work following AIS documentation.

**TMK: (3) 7-8-012:007** is a 0.4-acre parcel situated to the north of Parcels 004 and 065. The survey of this area indicates that the walking paths from Parcel 4 extend into it (**Figure 27**), and that there is a small pavilion at the west end of the parcel. According to Kekahuna's 1954 map, the western half of parcel 7 was occupied by Mrs. E.P. Hodgins. A wall bisects this parcel, designated as **Site 1608.3**. As with Sites 1608.1 and 1608.2, this site will also require AIS level documentation. It is tentatively assessed as significant under Criterion "d" for its information content and will likely be recommended for no further work following AIS documentation.

**TMK: (3) 7-8-012:065** is an 0.6-acre parcel located to the northeast of the Haun and Henry (2010b) survey area. This parcel has been partially developed for use as boat storage and parking area. The wall in TMK: (3) 7-8-012:007 extends into this parcel (**Figure 28**). The portion of this parcel north of the boat parking and east of the wall is covered by dense bougainvillea, night-blooming cereus, and *kiawe*. The vegetation needs to be cleared to facilitate an AIS.



Figure 25. Overview of Parcel (3) 7-8-010:049 (view to southwest).

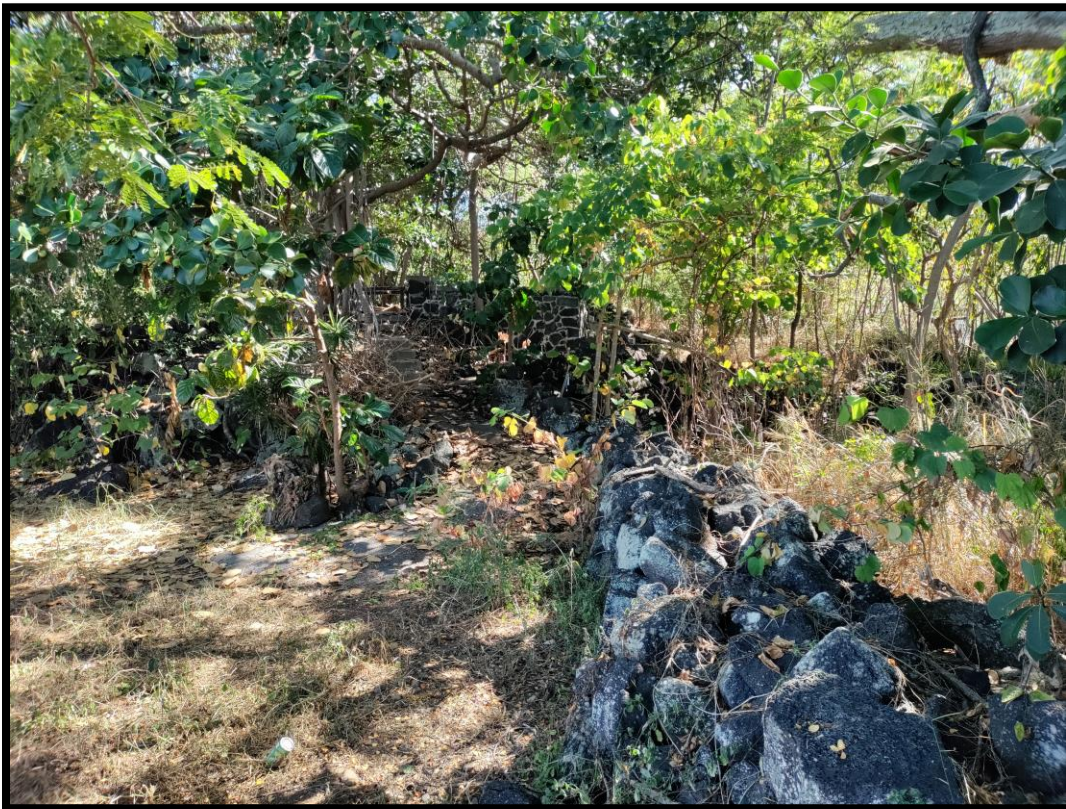


Figure 26. Overview of Site 1608.2 (view to southwest).



**Figure 27. Walking path in TMK: (3) 7-8-012:007 (view to north).**



**Figure 28. View towards wall in TMK: (3) 7-8-012:065 (view to north).**

## SITE CONDITION UPDATE

As stated, efforts were made to relocate six archaeological sites previously identified by Haun and Henry (2010a) during an AIS of the 25.239-acre TMK: (3) 7-8-010:044. These consist of three sites recommended for data recovery (Sites 5674, 24261 and 24266) and three sites that were recommended for preservation (Sites 4348, 24263, and 24264; see **Figure 11** and **Figure 12**). Of these six sites, five were relocated (excluding Site 5674). The nine remaining sites identified by Haun and Henry (2010a) were recommended for no further work. The results of the Site Condition Update are presented below.

### Site 4348

Site 4348 consists of the Kauikeaouli (Kamehameha III) Birth Stone situated within a mortared stone enclosure inland of Kaleiopapa Road and seaward of the Ahu‘ula Cliff. The site was documented by Kekahuna (1954), Emory et al. (1971), Hammett (1980), Rosendahl et al. (1983), and Haun and Henry (2010a). This site is depicted on Kekahuna’s 1954 map of Keauhou Bay (see **Figure 9**) which provides the following description:

A monument to the memory of King Ka-mehameha III, or Kau-i-ke-ao-uli, now in charge of the Daughters of Hawaii, here lies an enclosure near the base of ‘Ahu-‘Ula Cliff. On this spot, Queen Keo-opu‘-o-lani, tabu state wife (wahine kapu) of King Kamehameha I, gave birth, following a bath in the cold water of the near-by sea-spring of Ku-hala-lua, to the stillborn prince Kau-i-ke-ao-uli. Providentially he was resuscitated to become the future king. (Born Aug 11, 1813; made King in June 6, 1825; married his Queen Ka-lama, daughter of Ka-pihe-nui, Feb 2, 1837; died in Honolulu, Dec 15, 1854.

A plaque set in concrete on a basalt boulder is located in the landscaped interior of the enclosure that surrounds the site. According to Tomonari-Tuggle (1985), this boulder is the site where the stillborn baby was brought back to life. The plaque reads:

Kauikeaouli, Kamehameha III  
Son of Kamehameha I and Keopuolani  
Born March 17, 1814  
Died December 15, 1854  
Ka Moi Lokomaikai

According to Rosendahl et al. (1983), this plaque was originally unveiled by Queen Liliuokalani in a ceremony sponsored by the Daughters of Hawaii in Honolulu at Kawaiha‘o Church on March 17, 1914. In August 1914, the plaque was transported to its current location via a double canoe and a second ceremony was held when the plaque was set permanently onto the boulder. Site 4348 was also designated as National Register of Historic Places (NRHP) Site 78001018 in 1978 (**Appendix A**).

The enclosure surrounding the site is constructed of cut, stacked and faced cobbles and small boulders and is 16 meters long (north-south) and 4 to 4.5 meters wide. The enclosure is open to the east, facing the cliff line. A second modern plaque, provided by Keauhou Resort is located at the southern end of the enclosure, commemorating Kamehameha’s life. A concrete sidewalk is located adjacent to the southern end of the enclosure. This sidewalk extends upslope to the east, then angles to the south, paralleling the cliff line and extending to and beyond the Site 24263 pond (discussed below). A stone wall that appears identically constructed to the enclosure extends to the south from the southern edge of the sidewalk, paralleling the inland edge of Kaleiopapa Road. The area between this wall and the sidewalk is landscaped. The site was placed on the National Register of Historic Places in 1978 and has been maintained by the Daughters of Hawaii since 1973 through a 75-year lease agreement with the Bernice Pauahi Bishop Estate (Lease No. 22,571). Site 4348 was unaltered and in good condition and was recommended for preservation during the Haun and Henry (2010a) AIS.

Site 4348 was relocated during the present project. The site was not mapped during the Haun and Henry (2010a) AIS; however, a detailed map of the site was prepared during the present project (**Figure 29**). The documentation of the site during the current project indicates its condition is unchanged since the prior study. Overviews of the site are presented in **Figure 30** and **Figure 31**.

## Site 5674

Site 5674 was initially identified as a complex of five widely dispersed features or feature complexes previously identified by Rosendahl et al. (1983). According to Rosendahl et al., “These [features] were assigned a single state number by the present project, not because they are related chronologically or otherwise, but because they are a remnant population, unified by virtue of their extant and isolated status.” (1983:29). The initial features of the site consisted of a platform, which corresponded to Emory et al.’s (1971) Site D3-36, a wall (Site D3-37), the Feature B complex comprised of five historic features, the Feature C complex comprised of a cultural deposit and a mound, and the Feature D complex comprised of a large pavement and a terrace. These features were located in an area 233 meters long by 10 to 72 meters wide, encompassing an area of 7,227 square meters.

The documentation of the site area by Haun and Henry (2010a) indicates all of the features except the Site D3-37 wall have been destroyed. The Site D3-37 wall was designated Feature A1 by Haun and Henry (2010a) and a newly identified paved area was found adjacent to the Feature A1 wall (Feature A2). These features are depicted in **Figure 32**. A 1.0 by 1.0 meter test unit (TU-207.6) was excavated into the center of the pavement by Haun and Henry (2010a). This excavation revealed a stone architectural layer (Layer I), over a soil deposit (Layer II), over bedrock (see **Figure 32**). A variety of cultural material was recovered from both layers.

The remaining portions of Site 5674 were interpreted as the disturbed remnant of a permanent habitation complex. The Feature A wall potentially served to delineate the boundaries of a yard, which contained the Feature B pavement. Road construction and other modern/historic ground surface disturbance have apparently destroyed the east and southern sides of the enclosure, which was likely open to the west, facing the ocean. The Feature A2 pavement is too small to have functioned as the foundation for a permanent habitation structure (7.4 sq meters) based on Cordy’s (1981) definition. It is possible that this pavement may have served as the foundation for a special purpose structure such as a sleeping structure, a cookhouse, or storage area. It is possible that the bulldozed push pile located along the southeastern side of the site may represent the displaced remnant of a more substantial structure. The presence of the wall, which may have enclosed the site, suggests that this portion of the site was constructed between the late 1700s to early 1800s after free-ranging cattle became a problem and before historic artifacts were widely distributed. These features were altered and in poor to fair condition during the Haun and Henry (2010a) AIS. The site was recommended for data recovery.

Extensive efforts were made to relocate the Site 5674 permanent habitation complex during the present project; however, the reported location of this site is completely covered by dense night-blooming cereus (**Figure 33**). Clearing of vegetation at this site exhausted the budget proposal for this project and additional clearing will be required to determine the current location and condition of the site.

## Site 24261

Site 24261 is a large paved area located on the northern side of a knoll in the northeastern portion of the Haun and Henry (2010a) survey area. The pavement roughly oval in shape and is 12.9 meters long (northwest by southeast) and 9 meters wide (**Figure 34**). This paved area extends from the north side of the knoll and slopes down moderately to the north and northwest, ending at the base of the slope. Twenty waterworn basalt cobbles are scattered over the surface of the site. There is a relatively level paved area at the southeastern end of the larger pavement that is

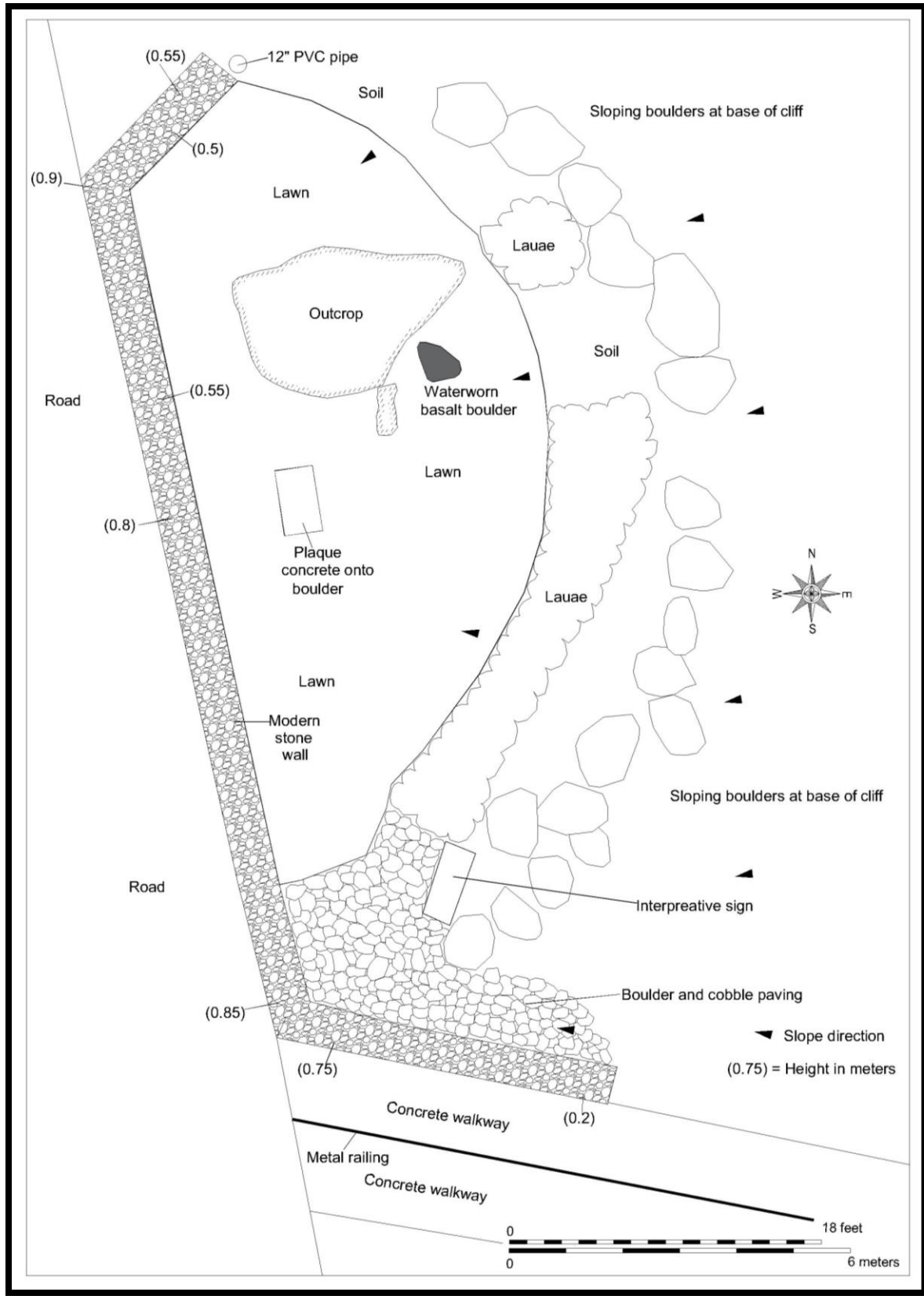


Figure 29. Site 4348 plan map.



Figure 30. Site 4348 overview (view to southeast).



Figure 31. Close-up of plaque at Site 4348 (view to southeast).

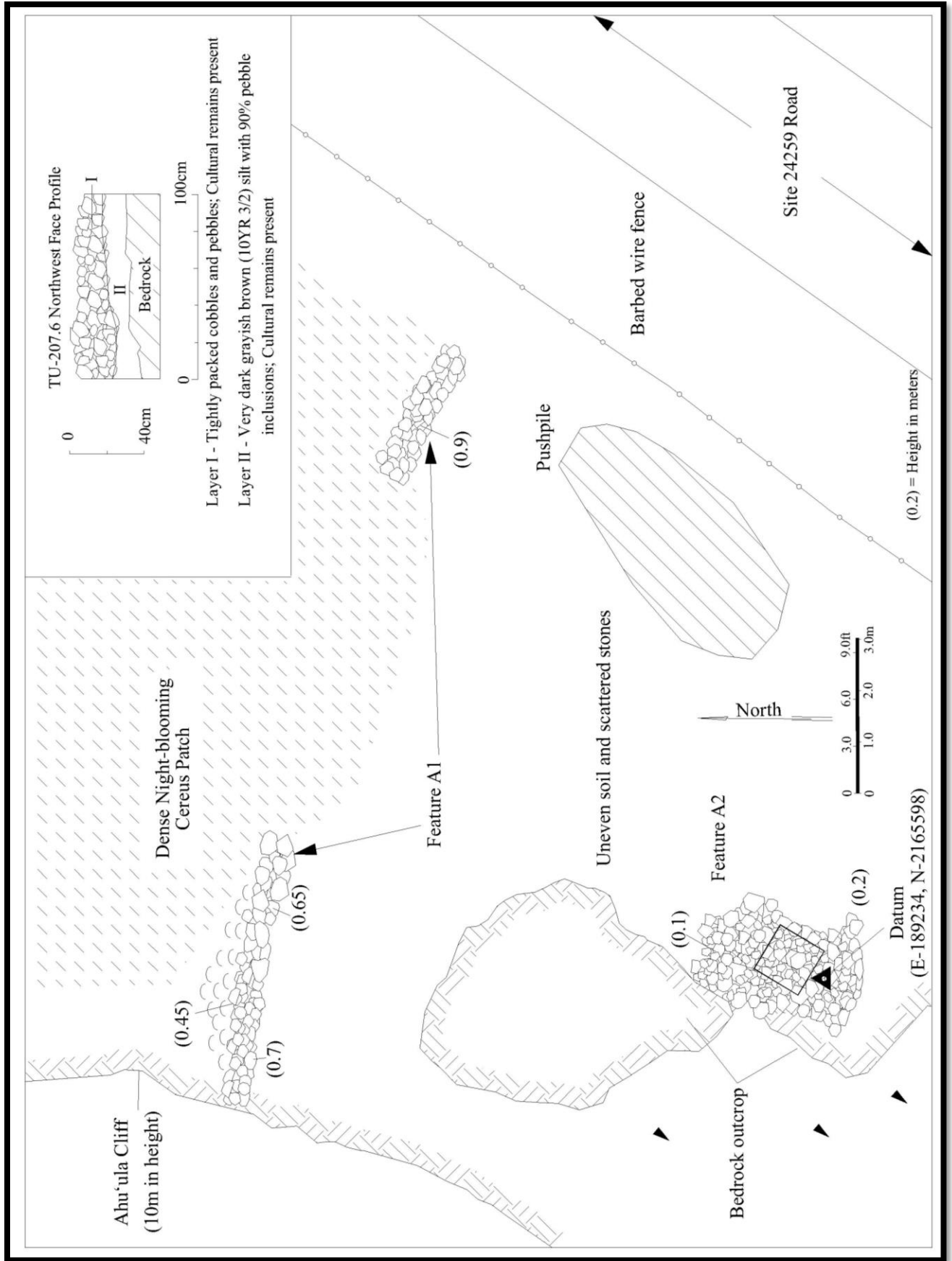


Figure 32. Site 5674 plan map and profile of TU-207.6 (from Haun and Henry 2010a:31).





**Figure 33. Night-blooming cereus in Site 5674 area (view to north).**

7.6 m long (east-west) and from 2.2 to 3.65 meters wide. An alignment of four small boulders is situated near the northern edge of this level pavement, measuring 1.6 meters in length. Two of the 20 waterworn basalt cobbles noted at the site are located on the surface of the level pavement. No other cultural material was noted on the surface of the site by Haun and Henry (2010a).

Haun and Henry (2010a) excavated a 3.0 meter long (east-west) by 1.0 meter wide test unit (TU-207.3) into the level pavement in the area containing the four aligned small boulders. This excavation revealed a stone architectural layer (Layer I) overlying two soil deposits (Layers II and III) resting on bedrock (see **Figure 34**). Cultural material was recovered from Layers I and II, although none was present in Layer III. Site 24261 was interpreted as the foundation for a permanent habitation structure by Haun and Henry (2010a). The site was unaltered and in fair condition and was recommended for data recovery.

Site 24261 was relocated during the present project. The site has not been significantly impacted since the Haun and Henry (2010a) AIS, except for a back dirt pile on the surface of the structure created during the excavation of TU-207.2. The plan map of this site (see **Figure 34**) has been modified to depict the pile. Current overviews of the site are presented in **Figure 35** and **Figure 36**.

### **Site 24263**

Site 24263 is an anchialine pond located at the base of the Ahu'ula Cliff in the southwestern portion of the Haun and Henry (2010a) project area. The site is located 62 meters south of the Site 4348 Kauikeaouli Birth Stone, situated between a concrete sidewalk and the base of the cliff. The pond is roughly L-shaped and is 5.1 meters long (northeast by southwest) and ranges in width from 3.0 to 4.8 meters wide. An area of stacked boulders line the pool along the northwest side, measuring 1.4 to 1.8 meters in height above the surface of the water. The water varies in depth from





Figure 35. Current condition of Site 24261 (view to west).



Figure 36. Current condition of Site 24261 (view to south-southwest).

0.3 to 0.6 meters. There is a retaining wall of stacked cobbles and boulders along the south side of the pond at the base of the cliff. A low overhang is located south of the wall, containing a large waterworn basalt boulder and the skeleton of a cat. The area surrounding the pool is landscaped and there is an interpretative sign describing the flora adjacent to the pool.

Kekahuna's 1954 map of Keauhou Bay depicts the Ho'okūkū Pond which apparently was once located on both sides of Kaleiopapa Road (see **Figure 9**). The inland end of this pond roughly correlates with the location of Site 24263. Item "L" on Kekahuna's map indicates that Ho'okūkū Pond was filled in at the time the map was made, although it appears likely that at least a portion of this named pond may have survived.

Site 24263 was interpreted as a probable water source that was likely utilized by occupants of the area by Haun and Henry (2010a). It was altered and in good condition during the previous AIS and was recommended for preservation.

The site was not mapped during the Haun and Henry (2010a) AIS; however, a detailed map of the site was prepared during the present project (**Figure 37**). The documentation of the site during the current project indicates it has not been significantly impacted since the prior study. Overviews of the pond are presented in **Figure 38** and **Figure 39**.

## Site 24264

Site 24264 is a cave located at the base of Ahu'ula Cliff, inland from Keauhou Bay. This cave is referenced as Mo'ikeha Cave and according to Kekahuna's (1954) map of Keauhou Bay (see **Figure 9**), the Chief Mo'ikeha, hid in the cave, "...with only his legs barely visible to escape pursuers from Kau. Fortunately he was undetected and his life was saved".

The cave was examined by Emory et al. (1971) who states that at the time of their survey, the cave was being used for wood storage. Emory et al. indicates that the cave was only of traditional importance and, "as it would be swept by high waves, the floor is not likely to preserve material of archaeological interest" (1971:45). Haun and Henry (2010a) indicates that the cave has been cleared of the wood and trash since 1980.

The entrance to the cave is situated at the base of the cliff. The entrance is 9.9 meters wide (north-south) and from 1.3 to 1.8 meters in height and opens onto a large, roughly oval-shaped chamber that is 10.6 meters long (east-west) and 6.0 to 9.9 meters wide (**Figure 40**). The floor throughout the cave is comprised of level soil with scattered marine shell and small amounts of modern debris. An area of surface bedrock is present along the east and northeast sides of the chamber. The interior ceiling heights range from 0.5 to 1.8 meters.

Several modern modifications were noted by Haun and Henry (2010a) within the interior of the cave. A small 1.4 meter square enclosure is located on the exposed bedrock floor at the northeast end of the cave. The enclosure walls are 0.32 to 0.5 meters wide and 0.3 to 0.35 meters in height. The interior of the enclosure is filled with ash and burnt wood suggesting that the enclosure functions as a modern fire pit. A second modification was noted along the southern wall, consisting of a narrow, linear terrace. This terrace is 5.1 meters long (northeast by southwest), 0.4 to 0.85 meters wide and 0.4 to 0.5 meters in height. A concentration of cow bones is present on the surface of the terrace at the west end and modern trash is scattered over the surface. The terrace appears to be recently constructed.

Haun and Henry excavated a 1.0 by 1.0 meter test unit (TU-207.4) into the cave floor, 2.0 meters east of the dripline. This excavation revealed eight soil deposits over bedrock. All eight of the soil layers contained cultural material. The upper two deposits (Layers I and II) contained mixed historic and indigenous cultural material, with the underlying layers containing only indigenous material. The testing revealed substantial stratified cultural deposits extending to nearly a meter in depth. The majority of the deposits were likely deposited by wave action based on the coarse sandy nature of the layers and the presence of waterworn inclusions; however, the Layer III deposit is comprised of a silty clay that is probably a colluvial deposit.

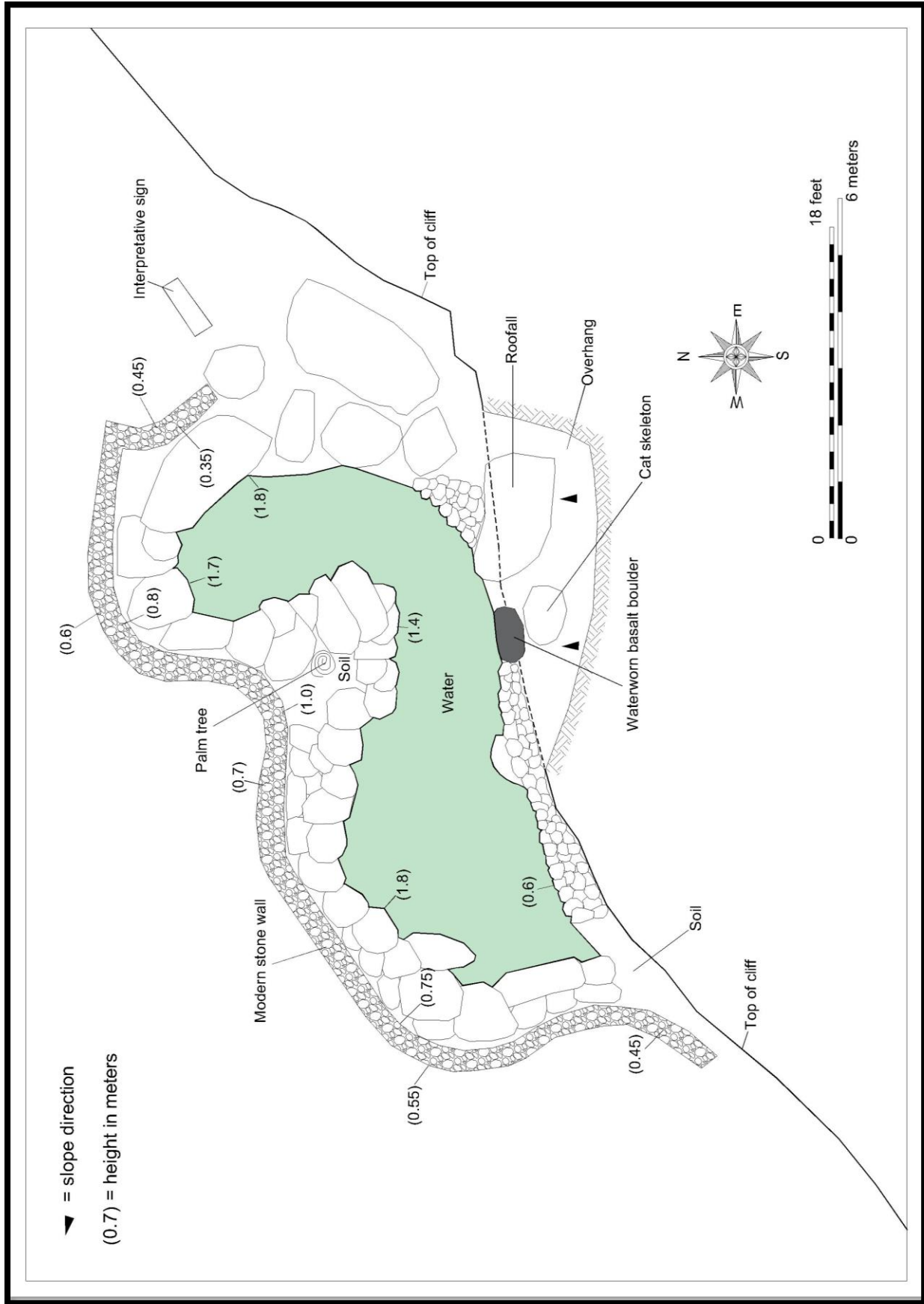


Figure 37. Plan map of Site 24263.



Figure 38. Overview of Site 24263 pond (view to southwest).



Figure 39. Overview of Site 24263 pond (view to south).



Site 24264 was interpreted as a recurrently utilized temporary habitation site by Haun and Henry (2010a). based on its formal type and on the presence of the stratified cultural deposits. It was altered and in good condition and was recommended for preservation.

The site was relocated during the present project. The documentation of the site indicates the cave was dismantled impacted since the Haun and Henry (2010a) AIS. The Site 24265 house and snorkel shop to the northwest of the cave has been abandoned and the areas to the west of the entrance are comprised of a *hala* grove. There are several new piles of soil and or gravel inside the cave, along with waterworn and subangular stones and a log that were not present during the previous AIS. The plan map of this site (see **Figure 40**) has been modified to depict the pile. The current condition of Site 24264 is shown on the cover of this report and in **Figure 41** and **Figure 42**.

## Site 24266

Site 24266 is a low pavement located in the southern half of the Haun and Henry (2010a) survey area, situated in an area of uneven soil, outcrops and scattered stones, at the base of a slope that angles down to the west (**Figure 43**). The pavement is roughly oval in shape and is 6.5 meters long (east-west) and from 2.3 to 2.6 meters in width. The east and west sides of the structure are comprised of rough, uneven cobble pavements that range in height from 0.15 to 0.3 meters. The central portion of the site consists of a level cobble pavement that ranges in height from 0.13 to 0.24 meters above the surrounding ground surface. Cultural material noted on the surface of the site consist of seven waterworn basalt cobbles and on small waterworn basalt boulder.

Haun and Henry (2010a) excavated a 2.3 meter long by 1.0 meter wide test unit (TU-207.5) through the center of the level cobble pavement. This excavation revealed an architectural layer (Layer I), over two soil deposits. Cultural material was recovered from Layer I and II, with none present in Layer III.

Site 24266 was interpreted as the foundation for a permanent habitation structure by Haun and Henry (2010a). It was unaltered and in fair condition and was recommended for data recovery.

The site was relocated during the present project. With the exception of a back dirt pile on the surface of the structure adjacent to TU-207.5, the site has not been altered since the Haun and Henry (2010a) AIS. The plan map of this site (see **Figure 43**) has been modified to depict the pile. Current overviews of the site are presented in **Figure 44** and **Figure 45**.





Figure 41. Current condition of entrance to Site 24264 Mo'ikeha Cave (view to southeast).



Figure 42. Current condition of interior of Site 24264 Mo'ikeha Cave (view to east).

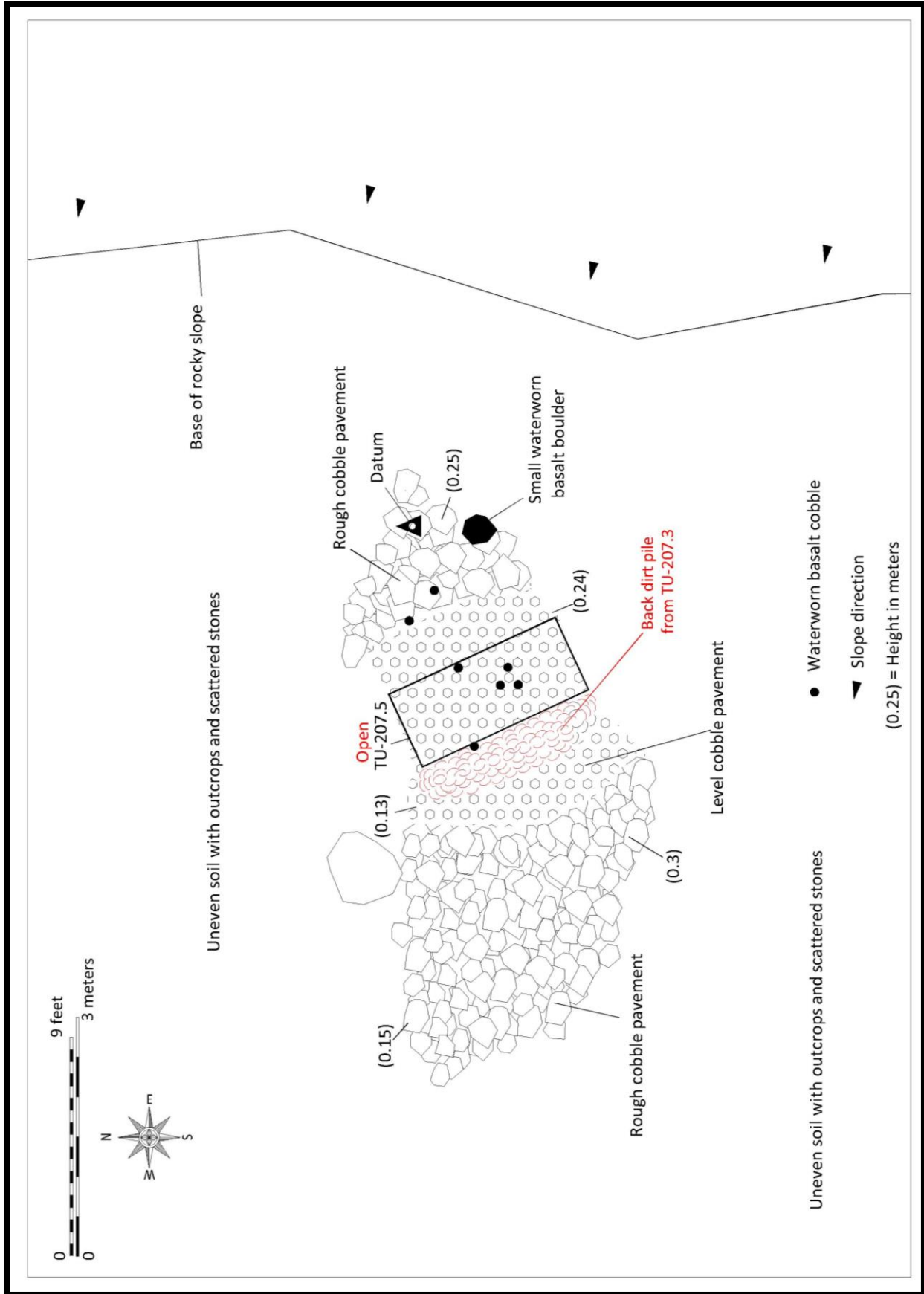


Figure 43. Site 27266 plan map (modified from Haun and Henry 2010a:67).



**Figure 44. Current condition of Site 24266 (view to north).**



**Figure 45. Current condition of Site 24266 (view to west).**

## CONCLUSION

The current project resulted in the identification of three previously unidentified sites (Sites 1608.1, 1608.2 and 1608.3), the relocation of three preservation sites (Sites 4348, 24263, and 24264) and two data recovery sites (Sites 24261 and 24266) previously identified by Haun and Henry (2010a). The third data recovery site (Site 5674) was not relocated during the project. The sites in the project area parcels are assessed for significance based on Hawai'i Administrative Rules (HAR) §13-284-6. According to (HAR) §13-284-6 (b), a site must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and shall meet one or more of the following criteria:

1. **Criterion "a"**: Be associated with events that have made an important contribution to the broad patterns of our history;
2. **Criterion "b"**: Be associated with the lives of persons important in our past;
3. **Criterion "c"**: Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;
4. **Criterion "d"**: Have yielded, or is likely to yield, information important for research on prehistory or history; and
5. **Criterion "e"**: Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

Sites 1608.1 and 1608.2 are preliminarily interpreted as historic habitations with associated features, and Site 1608.3 as an historic wall likely used to restrict the movement of cattle. These sites appear to be altered and are in poor to fair condition. They are tentatively assessed as significant under Criterion "d". Following documentation these sites will likely be recommended for no further work.

Sites 4348, 24263 and 24264 were recommended for preservation by Haun and Henry (2010a:76). Site 4348 consists of the Kauikeaouli Birth Stone. The site is unaltered and in good condition and was assessed as significant under Criterion "b", "d" and "e" by Haun and Henry (*ibid.*). Site 24263 consists of the Ho'okūkū Pond. It is altered and in good condition and was assessed as significant under Criterion "c", "d" and "e". Site 24264 is the Mo'ikeha Cave. It is altered and in good condition and was assessed as significant under Criterion "d" and "e".

Sites 24261 and 24266 were recommended for data recovery by Haun and Henry (*ibid.*). These sites were interpreted as permanent habitations during the initial AIS. They are unaltered and in fair condition, and were assessed as significant under Criterion "d". As stated, Site 5674 was not relocated during the present project. This site was also interpreted as a permanent habitation by Haun and Henry (*ibid.*) and assessed as significant under Criterion "d".

Additional work required to mitigate or preserve the sites within the project area will consist of the following:

1. Clear dense vegetation in TMK: (3) 7-8-012:065 north of the boat parking area and east of the Site 1608.3 wall to determine if previously undocumented sites are present;
2. Clear vegetation at Sites 1608.1, 1608.2 and 1608.3 and at any sites identified in TMK: (3) 7-8-012:065.
3. Complete AIS level documentation for Sites 1608.1, 1608.2, and 1608.3 and for any additional sites identified during clearing. This will include preparation of scaled plan maps, site descriptions, photographic documentation, and subsurface testing if warranted. Permanent SIHP site numbers will be obtained to replace the temporary designations assigned during the Reconnaissance Survey. On completion of the AIS report, it will be submitted to SHPD for review and approval;
4. Clear dense vegetation in vicinity of Site 5674 to determine current site condition;

5. Prepare Archaeological Data Recovery Plan (ADRP) for Sites 5674, 24261 and 24266 to be submitted to SHPD for review and approval;
6. Conduct data recovery at Sites 5674, 24261 and 24266 following SHPD approval of ADRP;
7. Prepare and submit Archaeological Data Recovery Report (ADRR) to SHPD for review and approval;
8. Prepare Archaeological Site Preservation Plan (ASPP) for Sites 4348, 24263, and 24264 to be submitted to SHPD for review and approval; and
9. Implement ASPP.

Consultation was conducted with the Nā Ala Hele Hawai‘i Trail and Access System and the Ala Kahakai National Historic Trail regarding the trails and roads present in the project area. These agencies provided nearly identical recommendations for the Site 15243 Keauhou Trail, the Site 24259 (Old Kailua Road or Road to Kainaliu), and the Old Government Beach Road that once through and adjacent to the seaward side of the project area.

The recommendations are as follows:

#### Site 15243 (Keauhou Trail)

- Verify any archaeological evidence for any trail remains, combined with historical map references. Include onsite consultation with Nā Ala Hele and the Ala Kahakai National Historic Trail staff;
- Honor the alignment of the Keauhou Trail, even if archaeological evidence has been displaced. Consider utilizing the trail corridor as a pedestrian access incorporated into the interpretive path network. Consult with Nā Ala Hele and the Ala Kahakai National Historic Trail staff on interpretive signage content; and
- As part of the re-establishment of the Old Kona Road, mark the crossing of the Keauhou Trail with inlaid natural, native stone pavers.

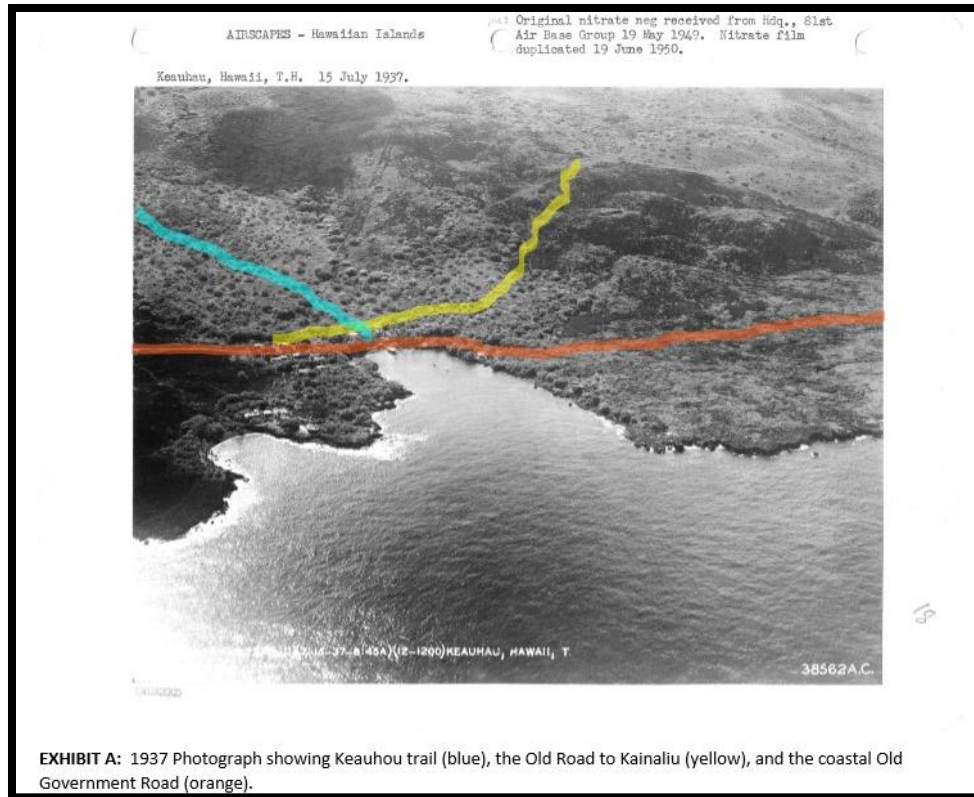
#### Site 24259 (Old Kailua Road or Road to Kainaliu)

- Verify any archaeological evidence for any remnant precursor trail that escaped the construction of the Old Kona Road, combined with historical map references. Include onsite consultation with Nā Ala Hele and the Ala Kahakai National Historic Trail staff;
- Include the re-established Old Kona Road as a public access vehicular easement; and
- Honor the alignment of the Kainaliu Trail, even if archaeological evidence has been displaced. Consider incorporating the trail alignment into the interpretive path network. Incorporate the alignment as part of the pedestrian infrastructure for “Boutique Resort”. Consult with Nā Ala Hele and Ala Kahakai National Historic Trail staff on interpretive signage content.

#### Old Government Road (Beach Road)

- Honor the alignment of the Old Government Road by designing better continuity for pedestrian access flow, connecting Kamehameha III Road and Kaleiopapa Road. Uphold the commitments of the 2003 MOA and the resulting Cultural Trails Plan. Include onsite consultation with Nā Ala Hele and Ala Kahakai National Historic Trail staff; and
- As part of the project area trail network discussed in the EISPN and community meeting, please consider including the interpretation of the alanui aupuni (OGR)/ala loa as part of the overall interpretation of this special place.

**Figure 46** is a 1937 aerial photograph of the Keauhou Bay area obtained from Nā Ala Hele that has the three trails plotted on it. This image shows the Keauhou Trail and the Old Kailua Road or Road to Kainaliu, extending inland from the coast, with the Old Government roughly paralleling the shoreline. These trails were then superimposed onto a 1954 aerial photograph of the area obtained from the University of Hawai‘i at Manoa online library (<http://magis>).



**EXHIBIT A:** 1937 Photograph showing Keauhou trail (blue), the Old Road to Kainaliu (yellow), and the coastal Old Government Road (orange).

**Figure 46. Project area trails on 1937 aerial view of project area vicinity (obtained from Nā Ala Hele).**

manoa.hawaii.edu; see **Figure 18**), onto a proposed development map (**Figure 47**) and onto the Haun and Henry (2010a) site location map for TMK: (3) 7-8-010:044 (**Figure 17**). These overlays indicate that the Site 15243 Keauhou Trail roughly follows the path of the trail as depicted on other maps, with the Old Government Road following the current path of Kaleopapa Road in the south, Kamehameha III Road in the north, and extending slightly into the project area in the intervening areas. The Site 24259 Old Kailua Road or Road to Kainaliu however diverges inland from the path as depicted by Haun and Henry (2010a), extending southeast outside the project rather than continuing south.

Nā Ala Hele also noted the presence of the Kau Cemetery on a 1924-1925 map of Keauhou 1 (see **Figure 8**) and indicate it is in the B4 Zone of the proposed development. The seaward half of the cemetery is reportedly situated in the northeastern portion of the project area in an area impacted by bulldozer disturbance.

As discussed, 1.97-acres within TMK: 7-8-010:044 were cleared of vegetation and examined in order to determine if any portions of the Sites 15243 and 24259 trails and the Kau Cemetery remain in the project area. No sections of either trail are present, although a section of concrete possibly representing a capstone or other remnant of the cemetery was observed. It is also possible that the Site 24261 pavement, recommended for data recovery, may be associated with the cemetery. Widespread mechanical disturbance within TMK: 7-8-010:044 appears to have occurred between 1954 and 1976, indicated by aerials views of the area presented in **Figure 18** and **Figure 19**. This disturbance was also observed by Haun and Henry (2010a) during the AIS of the parcel (see **Figure 17**). These impacts potentially resulted in the destruction of the Sites 15243 and 24259 trails and the Kau Cemetery. Additional clearing with the Kau Cemetery area, along with data recovery of the Site 24261 pavement is required to determine if extant remnants of this site remain.

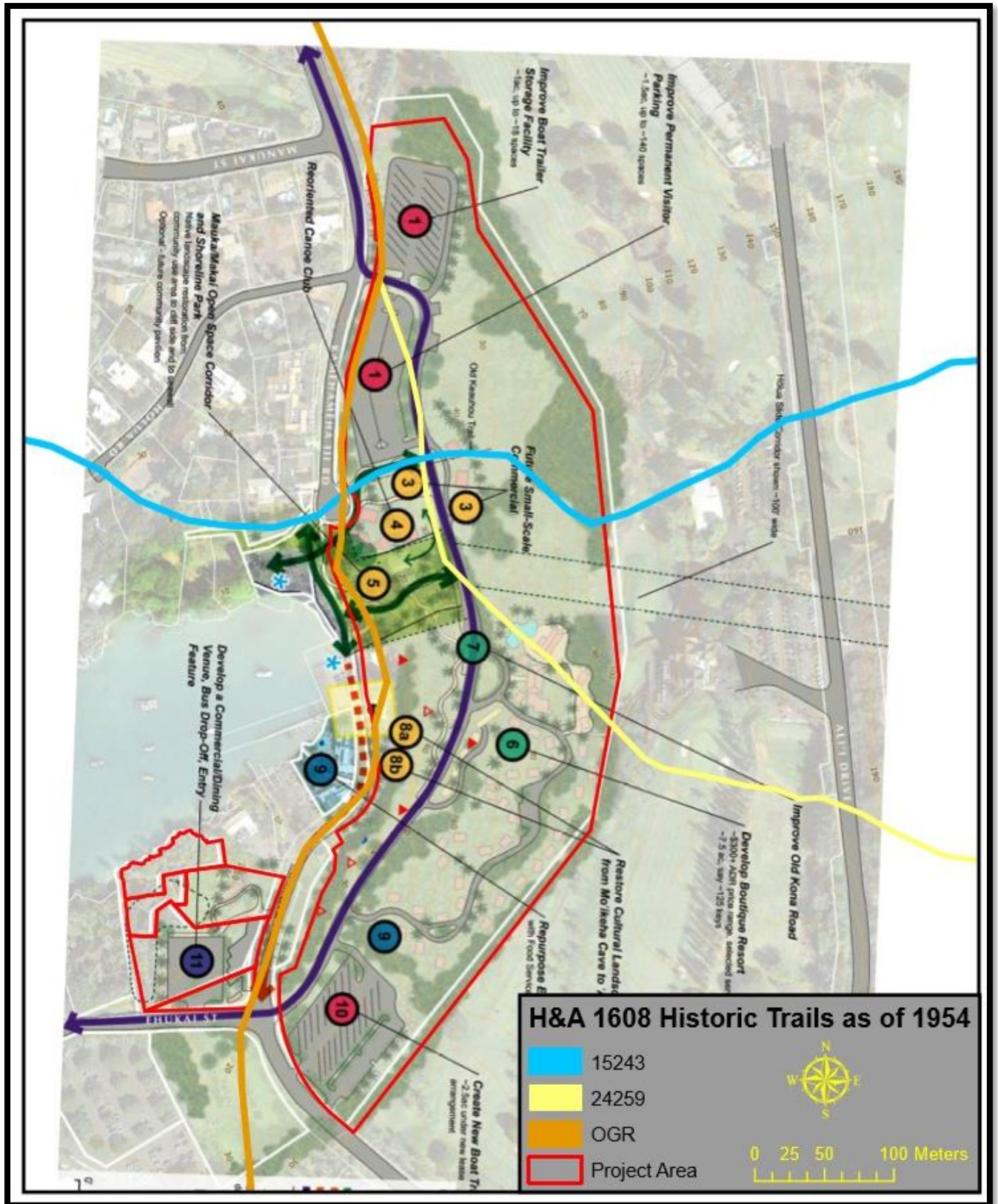


Figure 47. Project area trails on proposed development map.

## TRANSLATION OF HAWAIIAN WORDS<sup>1</sup>

*ahupua'a* - traditional Hawaiian land unit usually extending from the uplands to the sea

*āpana* - piece, slice, portion, fragment, section, segment, installment, part, land parcel, lot, district, sector, ward, precinct; chop, as of lamb. A kuleana, land division may consist of several *āpana*.

*hala* - pandanus or screw pine (*Pandanus odoratissimus*)

*heiau* - pre-Christian place of worship, shrine

*hōlua* - sled, especially the ancient sled used on grassy slopes; the sled course

*kapu* - taboo, prohibition

*kāula* - prophet, seer, magician

*kīhāpai* - small land division

*konohiki* - headman of an *ahupua'a* land division under the chief

*kou* - native tree (*Cordia subcordata*)

*kuleana* - small piece of property, as within an *ahupua'a*

*loulou* - native fan palms(*Pritchardia*)

*Māhele* - land division of 1848

*māla* - garden, plantation, patch, cultivated field

*makai* - towards ocean

*mauka* - inland

*ononā* - native shrub (*Touchardia latifolia*)

*pu'u* - hill, peak or cone

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<sup>1</sup> - from wehewehe.org



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# APPENDIX A. NRHP SITE 78001018 FORM

Form No. 10-300 (Rev. 10-74) **PH0661597**

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

**NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM**

FOR NPS USE ONLY  
RECEIVED JAN 30 1978  
DATE ENTERED JUL 24 1978

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

---

**1 NAME**

HISTORIC **\*\*** Kamehameha III's Birthplace

AND/OR COMMON  
Kauikeaouli Stone

---

**2 LOCATION**

STREET & NUMBER

CITY, TOWN Keauhou VICINITY OF COUNTY Hawaii CODE 001  
STATE Hawaii CODE 15

CONGRESSIONAL DISTRICT 2

---

**3 CLASSIFICATION**

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> BUILDING(S)	<input checked="" type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL
<input type="checkbox"/> SITE	<input type="checkbox"/> PUBLIC ACQUISITION	<input type="checkbox"/> ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT
	<input type="checkbox"/> BEING CONSIDERED	<input checked="" type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> INDUSTRIAL
		<input type="checkbox"/> NO	<input type="checkbox"/> MILITARY
			<input type="checkbox"/> MUSEUM
			<input checked="" type="checkbox"/> PARK
			<input type="checkbox"/> PRIVATE RESIDENCE
			<input type="checkbox"/> RELIGIOUS
			<input type="checkbox"/> SCIENTIFIC
			<input type="checkbox"/> TRANSPORTATION
			<input type="checkbox"/> OTHER:

---

**4 OWNER OF PROPERTY**

NAME Daughters of Hawaii

STREET & NUMBER 2913 Pali Highway

CITY, TOWN Honolulu VICINITY OF STATE Hawaii 96817

---

**5 LOCATION OF LEGAL DESCRIPTION**

COURTHOUSE, REGISTRY OF DEEDS, ETC. Hawaii Bureau of Conveyances

STREET & NUMBER 403 South Queen Street

CITY, TOWN Honolulu STATE Hawaii 96809

---

**6 REPRESENTATION IN EXISTING SURVEYS**

TITLE State Historic Preservation Office Site #10-37-4383

DATE 1973

DEPOSITORY FOR SURVEY RECORDS State Office of Historic Preservation

CITY, TOWN Honolulu STATE Hawaii

**7 DESCRIPTION**

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input checked="" type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input checked="" type="checkbox"/> RUINS	<input type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Originally a pili (grass) house stood in the near vicinity of the Kauikeaouli stone. This house was where the birth actually occurred. No remains of the house or house foundations are visible today.

The Kauikeaouli Stone is a rounded, dark, volcanic boulder protruding about 24 inches from the ground at its highest point, and about 4 inches at its lowest point. It is about 18 inches across and was originally somewhat saucer-shaped. It is presently capped with a bronze tablet set in a cement base. The tablet bears the inscription: "Kauikeaouli Kamehameha III Son of Kamehameha I and Keopulani. Born March 17, 1814 Died December 15, 1854. Ka Moi Lokomaikai"

The stone is situated on a .035 acre parcel of land bounded by a low lava stone and mortar wall on the ocean or makai side and a cliff on the mountain or mauka side. The stone and surrounding land are maintained in good condition by its owner the Daughters of Hawaii.



Appendix E

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# **Historic Architecture Reconnaissance Level Survey**





**Project Name: Keauhou Bay Hind house (Sea Quest Hawai'i) and Machado House (Fair Wind Cruises)**

**Prepared: January 2023**

Ms. Mayu Tamayori on behalf of G70 conducted this Architectural Reconnaissance Level Survey (RLS). Ms. Tamayori is qualified as an Architectural Historian per the Secretary of the Interior Professional Qualifications Standards.

Statement of Project Objectives

This project is under a state historic preservation review per HRS 6E-42. An RLS was conducted per the State Historic Preservation Division's requirement as part of an application of the renovation permit application for the buildings.

Methodology

Historical research was conducted via a review of archival resources, public repositories, and other primary sources such as past studies, published books and other professional publications, and a succinct review of articles from professionally trustworthy online sources. Additionally, a site visit was completed on August 18, 2022, to verify: 1) the current condition of the building, 2) if original features that lend to the building's historical integrity still exist, and 3) how the building has changed over time from the original design.

Historic Context

By the early 20th century, the Kona uplands were becoming rapidly developed for agricultural and ranching purposes. At Keauhou Bay, infrastructure was built to support these activities including stacked rock corrals, water troughs, a pump house, gates, and wharf to operate inter-island cattle shipping. The landscape of the area was also improved with the planting of monkeypod and Kiawe trees to provide shade as well as grasses to support the cattle. Thomas C. White, who was a rancher and businessman, was one of the ranchers who shipped cattle out from the bay. He leased the land along the bayfront as well as the uplands of Keauhou and Kahalu'u where he operated a cattle ranch.

A circa 1900 photo of the bay shows his house where he and his wife Elizabeth hosted many celebrations. One of the notable ones is a ceremony to unveil a stone tablet commemorating the centennial of King Kamehameha III's birth on August 15, 1914. Queen Lili'uokalani and other noted Hawaiians attended the ceremony and breakfast was served at the White residence.

On April 1, 1946, a tsunami struck the coast of Keauhou Bay, destroying multiple homes and a pier. The Thomas C. White house was among the homes destroyed. Following the tsunami, Charles Machado obtained leases from Bishop Estates to redevelop areas damaged at Keauhou Bay. It is unknown when precisely that Thomas White ended the lease of the land, however a 1924 survey map shows that Mr. White had constructed and reconfigured the stone walls near the base of the 'Ahu'ula Cliff mauka of his residence. During an in interview in 2004 with Mr. White's nephew, Billy Paris, he mentioned that after his uncle gave up the lease in Keauhou and Kahalu'u, his grandfather Robert Hind began leasing the land at Keauhou.<sup>1</sup> The

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<sup>1</sup> Hawaii Cattlemen's Association, Paniolo Hall of Fame with Billy Paris by La'i Mitchell, August of 2004.

dates were not specified during the interview, but this conveyance might have happened during the 1930s to 1940s when Charles Machado also began to lease land at Keauhou Bay.

Charles Machado was born in Kona, Hawai'i in 1916 and began his career as a police officer for the Kona Police during World War II. He was the manager of the Machado Coffee Farms and Machado Stores in Captain Cook and Nāpō'opo'o and later started the Kona Marine Railway. He also established the Captain Cook Cruise tours and the Leilani Pearl Harbor Cruise. He was active with marine sports and was a past member of the Kona Rotary Club, the Waikīkī Rotary Club, and the Hōnaunau Canoe Club. In addition, he was a member of the canoe team that won eight gold medals in the 1936 Territorial races held at Honolulu Harbor. He passed on August 8<sup>th</sup>, 1994, at age of 78.

The first group of projects Charles Machado worked on as part of the bay's reconstruction was to build a dry dock and wooden pier to serve his small fleet of fishing boats and recreational boats between 1950 and 1954. Moorings for his vessels were also developed in the bay in the 1950s and 1960s in a rather disorderly fashion using discarded metal objects as anchors. His fleet included twelve boats in total, nine of which were moored in the bay. After the completion of this first group of projects, he next began construction of a house for his family in 1956, which is currently being used as an office for Sea Quest Hawai'i. This house has often been referred to as the Hind House. The "Hind" name might come from Robert Hind since he was leasing the land prior to Charles Machado.

Charles Machado built another house, referred to as the Machado House, in 1960 or 1961 which is currently used as an office and retail space for the Fair Wind Cruises charter boat tour company.<sup>2</sup> It is unknown when Charles Machado ended the lease of the land from the Bishop Estates, but most likely these two house's ownerships transferred to the Bishop Estate when the lease ended. He also leased the land where the existing Keauhou Cone Club is located. The Cone Club moved its current location about forty years ago, therefore it is presumed that the lease was ended in the late 1960s to early 70s.<sup>3</sup>

Resort development around the Keauhou Bay area began in the 1960s. To support the growth of this area, Charles Machado's wooden pier was upgraded in 1973 or 1974. A concrete boat ramp was constructed in the early 1980s shortly after the Hawai'i Department of Transportation assumed authority of the harbor facilities in 1978. In 1992 the harbor facilities were transferred to the Department of Land and Natural Resources, Division of Ocean Recreation and Boating .

It is unknown when Machado's two houses began to be used for commercial office/retail spaces. After the 2011 tsunami struck the area, both houses underwent extensive renovations to repair the damages inflicted. The Hind house completed a major renovation of both exterior and interior spaces which included the provision of a new floor plan for dining, serving lanai,

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<sup>2</sup> Hawaii county's real property record shows the first house was built in 1952 and second house was in 1961. The 1956 and 1960/1961 date was referred from the interview with Charles Machado's son Lionel Machado on Department of Land and Natural Resources, *Draft Environmental Assessment Keauhou Bay Offshore Moorings*, 51.

<sup>3</sup> Group 70 International, Inc. Cultural Impact Assessment for Kamehameha Schools' Keauhou Bay, page 102.

kitchen, bathrooms, and storage in 2013. In addition to these repairs, the Machado house also added a new ramp and sidewalk to meet Americans with Disabilities Act (ADA) requirements.

### Site Location

The Hind house (Sea Quest Hawai'i) is located at TMK (3) 7-8-012:013, with a 10,005 S.F. lot and the Machado house (Fair Wind Cruises) is located at TMK (3) 7-8-012:014, with a 14,354 S.F. lot. Both buildings are located along the Keauhou Bay and are owned by Kamehameha Investment Corporation.

### Description of the Structures

#### Hind House (Sea Quest Hawai'i)

The Hind House is a single story, new 2x4 wood studs framed structure with new wood sidings and has a covered lanai and open pavilion. The current L shaped footprint measures about 57' long x 22' wide on the north side and 43' wide on the south side. Originally it was built as a single wall construction with lava rock pony wall and canec ceiling but was renovated to the double wall construction with gypsum board ceiling when the structure went through the renovation and repair works after the 2011 tsunami. The original footprint was a rectangular structure with open lanai approximately 51' long x 32' wide. The structure sits on a concrete slab foundation and has a corrugated metal gable roof. Most of the original features such as the windows have been replaced and newly installed with vinyl or wood framed windows, and doors are also replaced and newly installed with wood sliding doors or metal roll up doors. The interior of the building has a retail space, one women and men bathrooms, storages, and a commercial kitchen.

The north front elevation has the following:

- A new detached concrete paved open pavilion with wood posts and corrugated metal gable roof.
- A new ADA concrete ramp leading to the original lanai area on the south end of the covered lanai.
- The original concrete covered lanai is 6" higher from the open pavilion area, which has the original lava rock pony wall with round ohia wood posts for roof. The lava rock pony wall is 16" wide x 22" high with a concrete cap. On top of the ohia wood posts, square wood posts were placed to meet the new roof height. The lanai runs the entire original front elevation length and is approximately 51' long x 7' wide.
- North end retail space has two roll up doors. 8' wide x 8' high concrete lava rock veneer wall sits next to the roll up door. A new metal swing door was installed approximately 5' away from the wall.
- South end new addition wall has a vinyl sliding window.

The east elevation (short width side) has the following:

- The 3'- 6" wide opening between the structure and original lava rock pony wall which leads to the lanai.
- The structure has an original lava rock pony wall and the new 2x4 wood studs double wall, with three new vinyl single hung windows.

The south rear elevation has the following:

- The original lava rock pony wall continues from the east elevation and ends at the 51' point. From there, a new addition of the double wood wall was added for approximately 6'.
- From the east end, the exterior wall has three new vinyl single hung windows and two new vinyl windows.
- At the west end, a new flat roof storage area was added.

The west elevation (long width side) has the following:

- New 2x4 wood studs framed with new wood sidings exterior wall.
- From the south end, the exterior wall has a new vinyl sliding window and new metal roll up door.

### Machado House (Fair Wind Cruises)

The Machado house is located on a slightly higher site than the rest of the area of the bay and has lava rock retaining walls surrounding the site. It is a single story, new wood studs framed structure with new wood sidings, and has a covered lanai. The rectangular shaped footprint measures about 87' long x 20' wide. The original single wall is partially left at the south end and the rest were replaced with the double walls. The structure sits on a concrete masonry unit foundation with combination/intersecting corrugated metal roof. Most of the original features such as the windows and doors have been replaced or newly installed. The interior of the building has a retail space, two bathrooms, storages, two offices, and a commercial kitchen. At the center of the structure, where the retail space is has four original, 2'-9" wide x 6'-9" high lava rock pony walls. The retail area has an open ceiling with exposed roof rafters. The south office space where the partial single wall is, has an original wood panel ceiling.

The east front elevation has the following:

- Concrete covered lanai which measures approximately 36' long x 9'-5" wide with wood posts to support the new roof. And a concrete step which runs the entire length of the lanai leading to the retail space.
- The new ADA concrete ramp leading to the covered lanai is located at the south end of the elevation.
- From the center retail space to the north end storage space, there is an open covered corridor. The wood stairs with wood railings leading to the entry of the storage are located at the south end of the corridor.
- The center retail space has three new vinyl sliding doors. Two new two fixed windows and new two jalousie windows are at the intersecting roof end.
- South end office space has two new vinyl sliding windows.

The north elevation has the following:

- Two new vinyl single hung windows and new wood screen at the gable roof end.

The east rear elevation has the following:

- The rear elevation area is enclosed with a new wooden fence.

- It has two new wood structure additions. One is a storage area with corrugated shed roof on the south side of the elevation which is detached from the main structure. And another is attached to the main structure with a commercial kitchen and storage spaces, which is located slightly north from the center of the main structure with a combination roof.
- From the north end storage space to the new commercial kitchen space, there is a concrete open covered corridor with concrete steps. The north end storage has a new wood door.
- The bathroom is located next to the north end storage space and has a new wood door. Another storage space is located next to the bathroom and has a new wood door.
- Two new circle casement windows are located at the center of the exterior wall, between the shed roof addition and the commercial kitchen addition.
- The south end office has a new wood door and wood stairs that leads to the space. Its exterior wall has two new vinyl sliding windows.

The south elevation has the following:

- One new vinyl sliding window at the west side and window opening which has a window unit at the east side of the exterior wall.
- One third of the east wall is an original single wall.

### Evaluation of Significance

Both Sea Quest Hawaii Building and Fair Wind Cruises Building were evaluated against the Hawai'i Administrative Rules (HAR) Sec. 13-275-6 Evaluation of Significance.

Under Criterion (1)a, both buildings are eligible for its association with development of the Keauhou Bay area history and development. However, much of the area has been altered historically with very few remnants of other contributing elements still remaining.

Under Criterion (1)b, both buildings do not have direct association with an important historic person. Although both buildings are built by Charles Machado, it does not appear that that his role and contributions to broad patterns of history of Keauhou go beyond the provided information.

Under Criterion (1)c, neither buildings are eligible since they both went through several renovations and do not have many original features.

Under Criterion (1)d, both buildings are not considered likely to yield information important for research on prehistory or history.

Under Criterion (1)e, both buildings do not have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts--these associations being important to the group's history and cultural identity.

## Seven Aspects of Integrity

### Hind House (Sea Quest Hawai'i)

Location Design Setting Materials Workmanship Feeling Association

The building is located at the original site.

### Machado House (Fair Wind Cruises)

Location Design Setting Materials Workmanship Feeling Association

The building is located at the original site.

## Bibliography

### Newspaper

1. Machado, Charles "Charley" Pihanaokalani Sr. Obituary. September 9, 1994. Honolulu Advertiser.

### Report

1. Department of Land and Natural Resources, Division of Boating and Ocean Recreation. Draft Environmental Assessment Keauhou Bay Offshore Moorings. February 2016.
2. Group 70 International, Inc. Cultural Impact Assessment for Kamehameha Schools' Keauhou Bay Management Plan. April 2022.
3. Hawaii Cattlemen's Association, Paniolo Hall of Fame with Billy Paris by La'i Mitchell, August of 2004.
4. Kumu Pono Associates LLC. Appendix A– Oral History Interviews: ' Ina Lei Ali'i – Keauhou A Me Kahalu'U Ma Kona, Hawai'i A Cultural Synthesis For The Royal Lands of Keauhou And Kahalu'U, District Of Kona, Island Of Hawai'i (Tmk Overview Sheet 7-8-10). April 2004.

### Public Record

1. County of Hawaii Real Property Tax Office. Parcel No. (3) 7-8-012:013.
2. County of Hawaii Real Property Tax Office. Parcel No. (3) 7-8-012:014.

Photos

Sea Quest Hawaii Building



1. North Elevation



2. East Elevation



3. South Elevation



4. West Elevation





5. Covered Lanai with Original Lava Rock Pony Wall And Ohia Tree Wood Posts



6. Newly Renovated Retail Space

Fair Wind Cruises Building



7. East Elevation



8. North Elevation



9. East Elevation



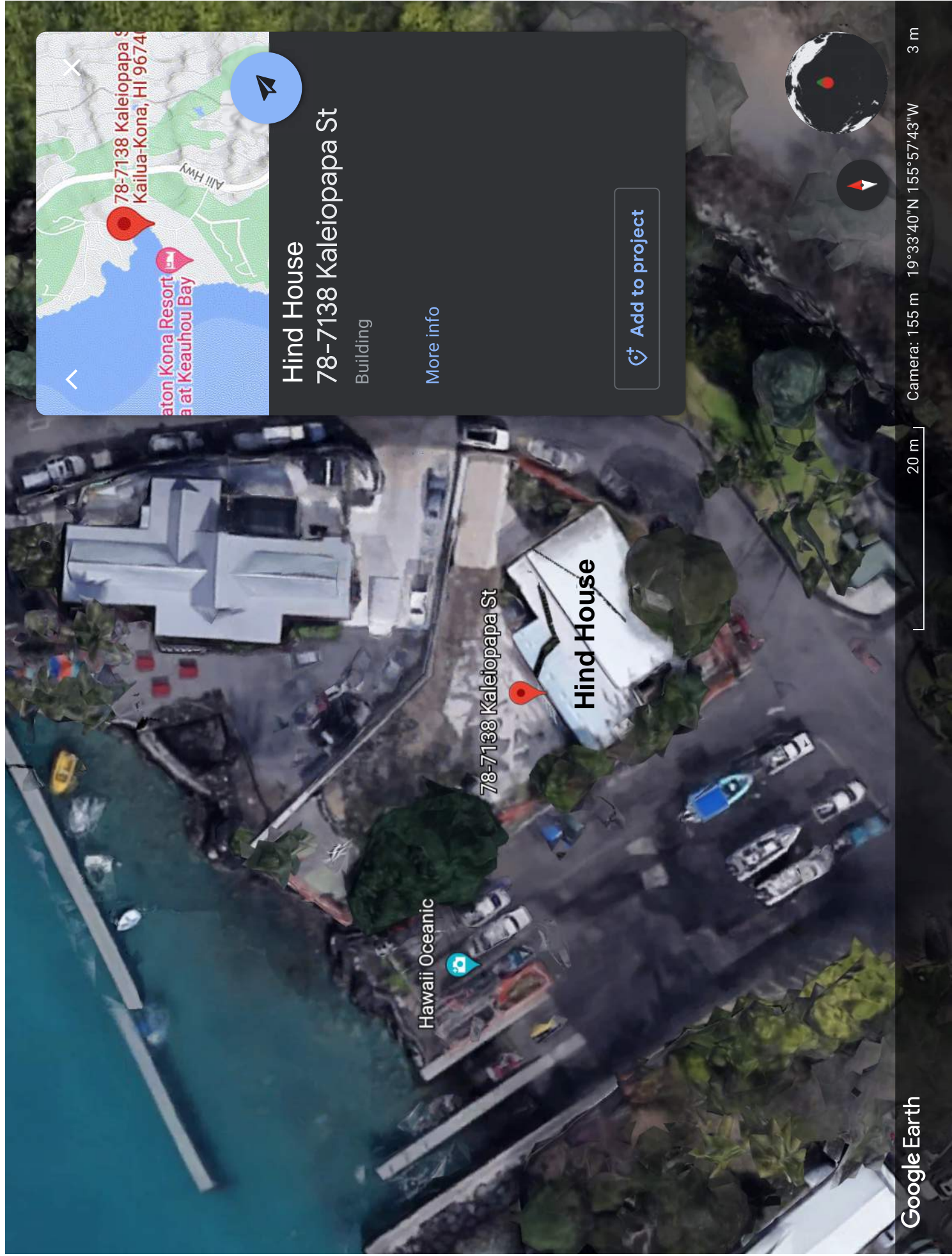
10. South Elevation



11. Original Interior Lava Rock Pony Wall



12. Original Interior Single Wall Office Space



78-7138 Kaleiopapa St  
Kailua-Kona, HI 96741

Maui Hwy

Kona Kona Resort  
at Keauhou Bay

**Hind House**  
78-7138 Kaleiopapa St

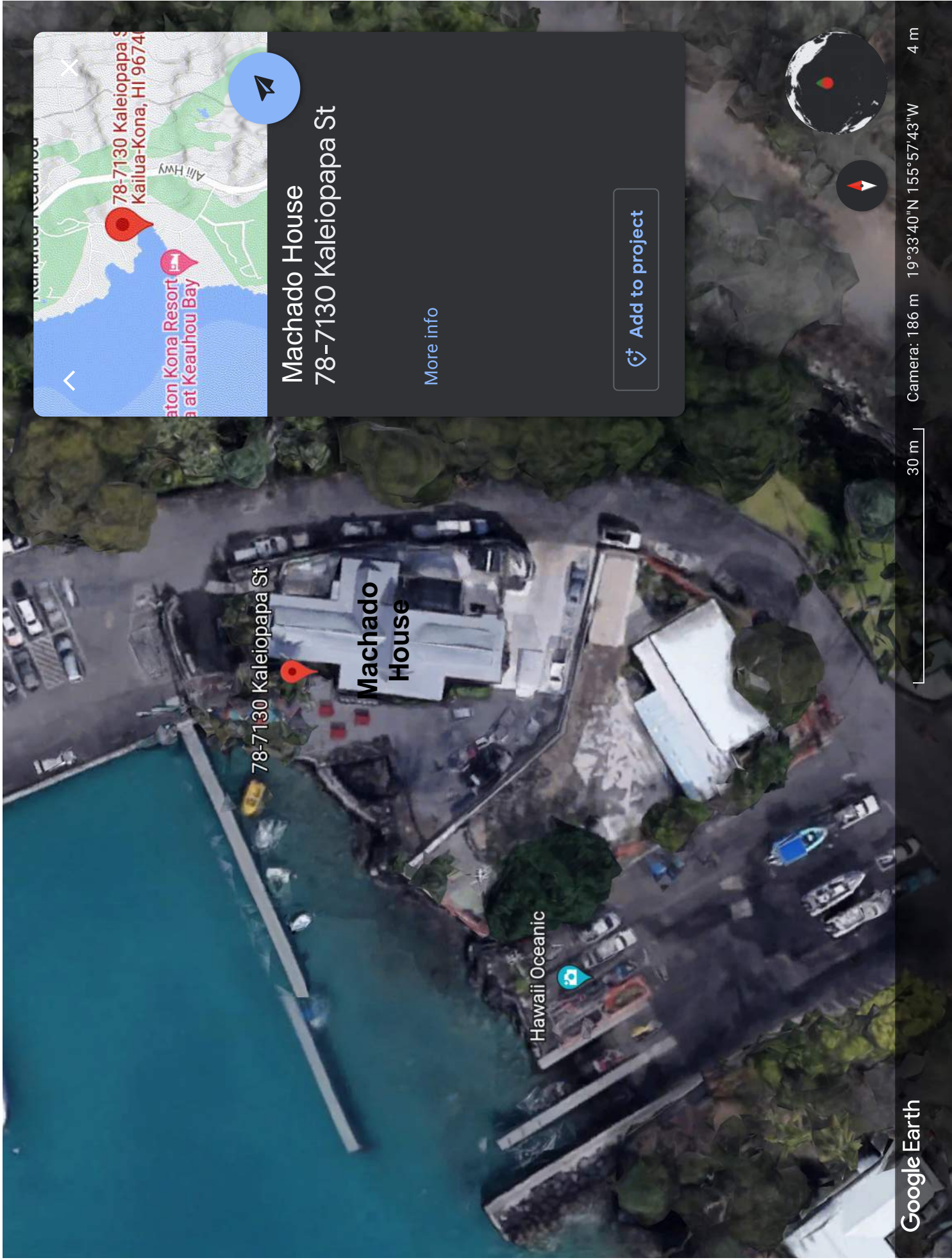
Building

More info

Add to project

20 m

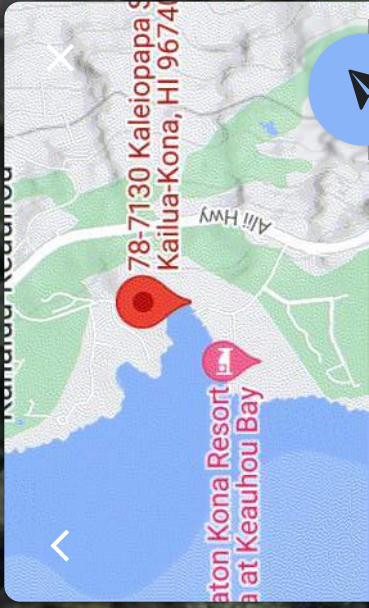
Camera: 155 m 19°33'40"N 155°57'43"W 3 m



78-7130 Kaleiopapa St

**Machado House**

Hawaii Oceanic



**Machado House**  
78-7130 Kaleiopapa St

More info

Add to project



30 m

Camera: 186 m 19°33'40"N 155°57'43"W 4 m

Appendix F

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# Biological Assessment





**A natural resources assessment  
for selected Kamehameha Schools parcels  
at Keauhou Bay on the Island of Hawai'i**

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*AECOS* Inc.  
45-939 Kamehameha Highway  
Suite 104  
Kāneʻohe, Hawai'i 96744

May 20, 2021

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# A natural resources assessment for selected Kamehameha Schools parcels at Keauhou Bay on the Island of Hawai‘i

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May 20, 2021

AECOS No. 1681

**Eric B. Guinther, Reginald E. David, and David Miranda**

AECOS Inc.

45-939 Kamehameha Highway Suite 104

Kāne‘ohe, Hawai‘i 96744

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## Introduction

Kamehameha Schools (KS) is the major landowner at Keauhou Bay, located in North Kona District 5.8 mi (9.3 km) south of Kailua-Kona (Figure 1). Well-known for its rich cultural resources, ocean recreational activities, and resort-quality environment, the Bay is heavily used by visitors and community groups, resulting in congestion and conflict of uses. Kamehameha Schools has developed a management plan (Keauhou Bay Management Plan) to provide near- (10-year) and long-term (20-year) management and land use recommendations consistent with KS Strategic Plan 2020-Kūhanauna and the draft West-Hawai‘i Regional Action Plan, while also responding to community issues within KS *kuleana* (KS, 2018).

AECOS Inc. was contracted to conduct terrestrial natural resources surveys of selected parcels (TMKs: 7-8-010: 044 and 100; 7-8-012:004, 007, 013, 014, 049, 061, 065, 098, 101, and 103) around Keauhou Bay as part of KS due diligence for entitlements and management considerations for future development on the subject parcels. This report presents the results of surveys undertaken by AECOS biologists<sup>1</sup>.

## Site Description

The KS parcels around Keauhou Bay surveyed for this report are shown in Figure 2. The largest parcel, TMK: 7-8-010:044, is the least developed, having a

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<sup>1</sup> This report is intended to become part of the public record and incorporated into an EA for the subject project.

boat yard parking near the north end off Kamehameha III Road, some structures in the middle near the harbor area, and partly bisected north to south by an abandoned unimproved road. A cluster of six parcels along the south shore of the Bay are mostly unoccupied but show concrete foundations and pads of former dwellings. Two parcels in the harbor area are fully occupied by active businesses. The three parcels at the north side of the harbor off Kamehameha III Road are developed as a roadway and a park, but parcel TMK: 7-8-012:027 is mostly submerged land at the back end of the Bay.



**Figure 1. Location of Keauhou Bay on the west coast of the Island of Hawai'i.**

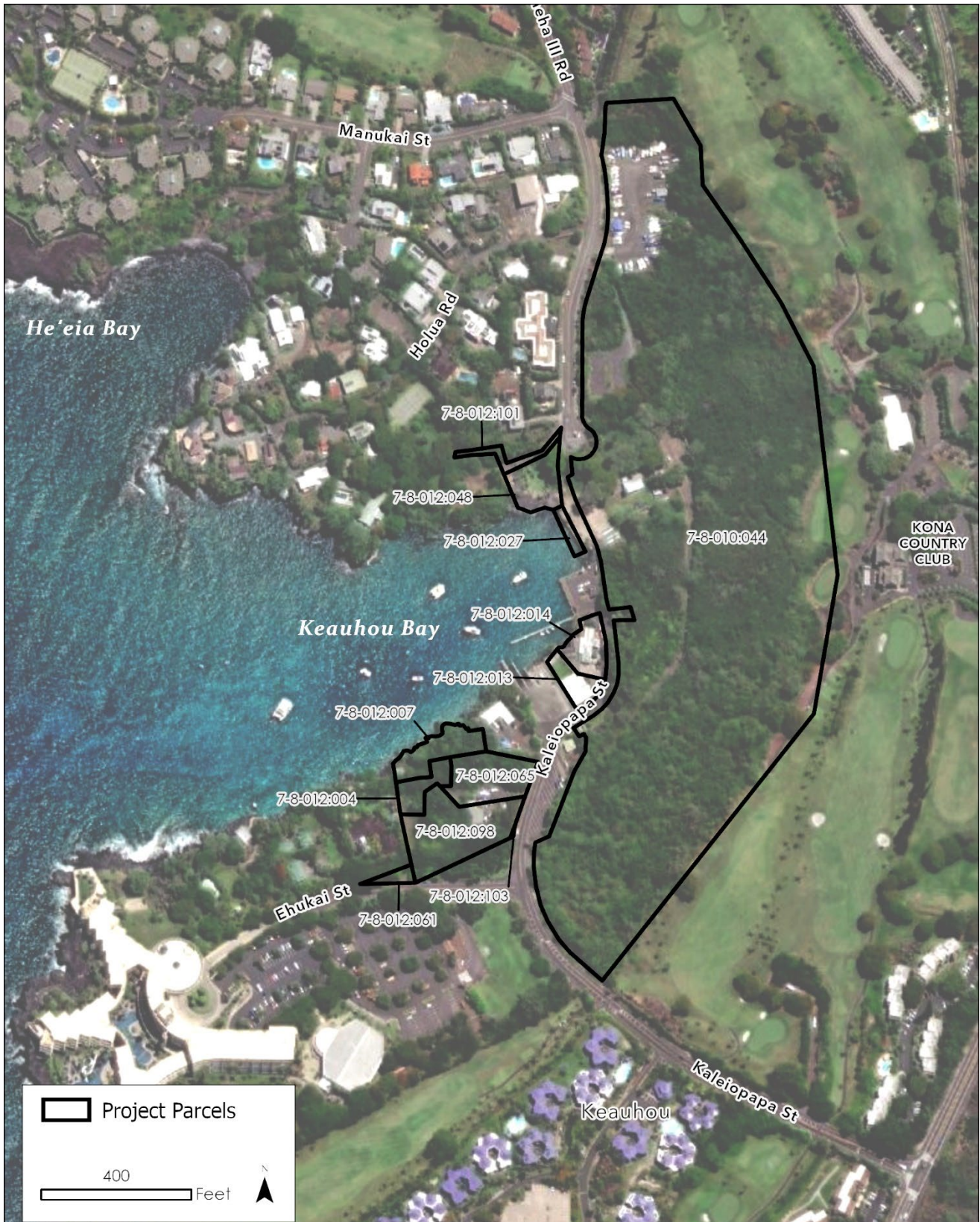


Figure 2. Kamehameha Schools parcels at Keauhou Bay, Island of Hawai'i.

## Methods

### Botanical Survey

AECOS botanists Eric Guinther and David Miranda surveyed the Project site on October 27, 2021. Plant species were identified as they were encountered during wandering transects that covered 11 of the subject parcels<sup>2</sup>. Species names follow *Manual of the Flowering Plants of Hawai'i* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized flowering plants *Hawai'i's Ferns and Fern Allies* (Palmer, 2003) for ferns, and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental plants. More recent name changes for naturalized plant species follow Imada (2019).

### Terrestrial Vertebrates Survey

#### *Avian Survey*

A bird survey was conducted by Reginald David in the morning hours of October 27, 2021. Birds were identified to species by audio and visual observation aided by Leica 8 X 42 binoculars, and by listening for vocalizations. Avian species abundance was estimated at 8 count-stations distributed more or less evenly across the project area. A single eight-minute avian point-count was made at each of the count-stations. Weather conditions were ideal, with unlimited visibility, no precipitation, and winds between 1 and 5 kilometers per hour. The avian phylogenetic order and nomenclature used in this report follows the AOU Check-List of North and Middle American Birds 2020 and the Sixty second Supplement to the Check-list of North American Birds (Chesser et al., 2020, 2021).

#### *Mammalian Survey*

A list was made of mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005). Hawaiian names are given for native species.

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<sup>2</sup> One parcel, TMK: 7-8-012:061, could not be accessed as it was inside a walled compound surrounding a private residence. Parcel TMK: 7-8-012:027 appears to be mostly submerged land.

## Results

### Vegetation

A majority of the survey area, as represented by parcel TMK: 7-8-010: 044, is forested, with an understory of mostly grasses. Parcels on the south side of the Bay are similarly in forest, but this area shows much evidence of former structures (concrete pads and walkways). Parcels abutting the southeast shore are developed into commercial use areas and landscaping. Parcels abutting the inner north side off the Bay are developed as a park (see cover photo). TMK: 7-8-012:027 is absent vegetation.

### Flora

A listing of plants recorded during the October 2021 survey is presented as Table 1 and shows 112 species observed by the survey as occurring on the Project properties. Of these, 7 are native (all indigenous; no endemics) and 6 are early Polynesian introductions. The native species are: two sedges (*Cyperus polystachyos* and *Fimbristylus cymosa*), *hala* (*Pandanus tectorius*), *naupaka kahakai* (*Scaevola sericea*), *hau* (*Hibiscus tiliaceus*), *'uhaloa* (*Waltheria indica*), and *'ilie'e* (*Plumbago zeylanica*). All are common species in Hawai'i. The early Polynesian introductions are: *niu* (*Cocos nucifera*), *ki* (*Cordyline fruticosa*), *kou* (*Cordia subcordata*), *milo* (*Thespesia populnea*), *'ihi'ai* (*Oxalis corniculata*), and *noni* (*Morinda citrifolia*). These species are as well very common throughout the islands.

**Table 1. Plant species observed at the Project site.**

Species listed by family	Common name	Status	Abundance	Notes
<b>FERNS AND FERN ALLIES</b>				
<b>NEPHROLEPIDACEAE</b>				
<i>Nephrolepis multiflora</i> (Roxb.) F.M. Jarrett ex C.V. Morton	swordfern	Nat	U	
<b>POLYPODIACEAE</b>				
<i>Phymatosorus grossus</i> (Langsd. & Fisch.) Brownlie.	<i>laua'e</i>	Nat	R	
<b>PTERIDACEAE</b>				
<i>Pityrogramma calomelanos</i> (L.) Link	silver fern	Nat	R	
<i>Pteris vitata</i> L.	ladder fern	Nat	R	<1>

Table 1 (Continued).

Species listed by family	Common name	Status	Abundance	Notes
<b>FLOWERING PLANTS</b>				
<b>MONOCOTS</b>				
<b>ALOEACEAE</b>				
<i>Aloë vera</i> (L.) N.L. Burman	aloe vera	Orn	R	
<b>ARACEAE</b>				
<i>Epipremnum pinnatum</i> (L.) Engler	pothos	Nat	Ua	
<i>Xanthosoma</i> sp.	---	Nat	R	<1>
<b>ARECACEAE</b>				
<i>Cocos nucifera</i> L.	<i>niu</i> , coconut palm	<b>Pol</b>	U	
<i>Dypsis lutescens</i> (H. Wendl.) Beentje & J. Dransfield	areca palm	Orn	R	
<i>Livistona chinensis</i> (Jacq.) R. Br. ex Mart.	Chinese fan palm	Nat	R	<2>
<i>Pitchardia thurstonii</i> F. Mueller & Drude	---	Orn	Uo	
<b>ASPARAGACEAE</b>				
<i>Cordyline fruticosa</i> (L.) A. Chev.	<i>ki</i> , <i>ti</i>	<b>Pol</b>	R	<1,2>
<i>Dracaena sanderiana</i> M.T. Masters	sanderiana	Orn	R	
<i>Sansevieria trifasciata</i> Prain	bowstring-hemp	Orn	R	
<i>Xanthosoma</i> sp.	---	Orn	R	<3>
<b>BROMELIACEAE</b>				
<i>Billbergia pyramidalis</i> (Sims) Lindley	summer-torch	Orn	R	
Indet.	---	Orn	R	<2>
<b>COMMELINACEAE</b>				
<i>Commelina benghalensis</i> L.	hairy <i>honohono</i>	Nat	Uc	
<b>CYPERACEAE</b>				
<i>Cyperus polystachyos</i> Rottb.	---	<b>Ind</b>	U	
<i>Cyperus rotundus</i> L.	nut grass	Nat	Uc	
<i>Fimbristylus cymosa</i> <i>spathaceae</i> (Roth) T. Koyama	---	<b>Ind</b>	Uo	
<i>Kylinga brevifolia</i> Rottb.	<i>kili'o'opu</i>	Nat	R	
<i>Kylinga mindorensis</i> Steud.	<i>kili'o'opu</i>	Nat	Uo	
<b>HELICONIACEAE</b>				
<i>Heliconia</i> sp.	---	Orn	R	
<i>Heliconia rostrata</i> Ruiz & Pavón	parrot's-beak heliconia	Orn	R	
<b>LILIACEAE</b>				
<i>Crinum asiaticum</i> L.	giant lily	Nat	R	

Table 1 (Continued).

Species listed by family	Common name	Status	Abundance	Notes
<b>PANDANACEAE</b>				
<i>Pandanus tectorius</i> S. Parkinson ex Z.	<i>hala</i>	<b>Ind</b>	U	
<b>POACEAE</b>				
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat	O	<2>
<i>Chloris divaricata</i> R. Br.	stargrass	Nat	R	
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat	U	<2>
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	Nat	U	
<i>Eragrostis amabilis</i> (L.) Wight & Arnott	Japanese lovegrass	Nat	Oc	
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Nat	Uo	
<i>Megathyrsus maximus</i> (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat	AA	<2>
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat	C	<2>
<i>Sporobolus</i> sp.	rattail grass	Nat	O	
<b>ZINGIBERACEAE</b>				
<i>Alpinia purpurata</i> (Vieil.) K. Schum.	red ginger	Orn	R	
<b>FLOWERING PLANTS</b>				
<b>EUDICOTS</b>				
<b>ACANTHACEAE</b>				
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	Nat	A	<2>
<i>Barleria repens</i> C. Nees	---	Nat	Uo	
<i>Justicia betonica</i> L.	white shrimp plant	Nat	Oc	
<i>Pseuderanthemum carruthersii</i> (Seem.) Guillaumin	false eranthemum	Orn	R	<2>
<b>AMARANTHACEAE</b>				
<i>Amaranthus viridus</i> L.	slender amaranth	Nat	R	
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat	R	
<b>ANACARDIACEAE</b>				
<i>Mangifera indica</i> L.	mango, <i>manakō</i>	Nat	R	
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	Nat	O	<2>
<b>APOCYNACEAE</b>				
<i>Nerium oleander</i> L.	oleander	Orn	R	
<i>Plumeria rubra</i> L.	graveyard flower	Orn	R	
<i>Thevetia peruviana</i> (Pers.) K. Schum.	be-still tree	Orn	U	
<b>ASCLEPIADACEAE</b>				
<i>Stapelia gigantea</i> N. E. Brown	giant toad plant	Nat	Uc	<2>



Table 1 (Continued).

Species listed by family	Common name	Status	Abundance	Notes
<b>ASTERACEAE (COMPOSITAE)</b>				
<i>Bidens cynapiifolia</i> Kunth	---	Nat	R	
<i>Pluchea indica</i> (L.) Less.	Indian fleabane	Nat	U	<2>
<i>Sphagneticola trilobata</i> (L.) Pruski	wedelia	Nat	O	
<i>Tridax procumbens</i> L.	coat buttons	Nat	C	<2>
<b>BORAGINACEAE</b>				
<i>Cordia subcordata</i> Lam.	<i>kou</i>	<b>Pol</b>	Oo	
<i>Tournefortia argentea</i> L. fil.	tree heliotrope	Nat	R	
<b>BUDDLEIACEAE</b>				
<i>Buddleia asiatica</i> Lour.	dog tail, <i>huelo 'ilio</i>	Nat	R	
<b>CACTACEAE</b>				
<i>Hylocereus undatus</i> (Haworth) Britt. & Rose	night-blooming cereus	Nat	Uo	<2>
<i>Opuntia ficus-indica</i> (L.) Mill.	pānini	Nat	R	
<b>CAPPARACEAE</b>				
<i>Cleome gynandra</i> L.	wild spider flower	Nat	U	
<b>CARICACEAE</b>				
<i>Carica papaya</i> L.	papaya	Nat	R	
<b>CLUSIACEAE</b>				
<i>Clusia rosea</i> Jacq.	autograph tree	Nat	C	<2>
<b>COMBRETACEAE</b>				
<i>Conocarpus erectus</i> L.	button mangrove	Orn	U	<2>
<i>Terminalia catappa</i> L.	tropical almond	Nat	Uo	
<b>CONVOLVULACEAE</b>				
<i>Ipomoea obscura</i> (L.) Ker-Gawl	---	Nat	O	
<b>CRASSULACEAE</b>				
<i>Crassula</i> cf. <i>ovata</i> (P. Mill.) Druce	jade plant	Orn	R	
<i>Kalanchoë tubiflora</i> (Harv.) Raym.-Hamet	chandelier plant	Nat	R	<1>
<b>CUCURBITACEAE</b>				
<i>Momordica charantia</i> L.	balsam pear	Nat	R	
<b>GOODENACEAE</b>				
<i>Scaevola sericea</i> L.	<i>naupaka kahakai</i>	<b>Ind</b>	R	
<b>EUPHORBIACEAE</b>				
<i>Codiaeum variegatum</i> (L.) Blume	croton	Orn	R	
<i>Euphorbia hypericifolia</i> L.	graceful spurge	Nat	R	
<i>Euphorbia hirta</i> L.	garden spurge	Nat	Uc	<2>
<i>Euphorbia prostrata</i> Aiton	prostrate spurge	Nat	R	

Table 1 (Continued).

Species listed by family	Common name	Status	Abundance	Notes
<b>EUPHORBIACEAE (cont.)</b>				
<i>Euphorbia tirucalli</i> L.	pencil tree	Nat	R	
<i>Phyllanthus debilis</i> Klein ex Willd.	niruri	Nat	R	
<i>Phyllanthus tenellus</i> Roxb.	---	Nat	R	<2>
<i>Ricinus communis</i> L.	castor bean	Nat	R	
<b>FABACEAE</b>				
<i>Bauhinia</i> sp.	orchid tree	Orn	R	<3>
<i>Calliandra haematocephala</i> Haskarl	<i>lehua haole</i>	Orn	R	
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	Nat	U	<2>
<i>Delonix regia</i> (Bojer ex Hook.) Raf.	royal poinciana	Nat	R	<1>
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat	U	<2>
<i>Desmodium tortuosum</i> (Sw.) DC.	Florida beggarweed	Nat	R	
<i>Indigofera suffruticosa</i> Mill.	indigo	Nat	R	
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>koa haole</i>	Nat	A	<2>
<i>Mimosa pudica</i> L.	sensitive plant	Nat	U	
<i>Neonotonia wightii</i> (Wight & Arnott) Lackey	glycine vine	Nat	R	
<i>Pithecelobium dulce</i> (Roxb.) Benth.	<i>'opiuma</i>	Nat	O	<2>
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	<i>kiawe</i>	Nat	C	
<i>Samanea saman</i> (Jacq.) Merr	monkeypod	Nat	O	
<i>Senna occidentalis</i> (L.) Link	coffee senna	Nat	Uc	<2>
<i>Tamarindus indica</i> L.	tamarind	Orn	R	
<b>LECYTHIDACEAE</b>				
<i>Barringtonia asiatica</i> (L.) Kurz	autograph tree	Nat	O	
<b>MALVACEAE</b>				
<i>Abutilon grandifolium</i> (Wild.) Sweet	hairy abutilon	Nat	R	<2>
<i>Talipariti tiliaceum</i> (L.) Fryxell	<i>hau</i>	<b>Ind</b>	R	
<i>Sida ciliaris</i> L.	---	Nat	Uo	
<i>Sida rhombifolia</i> L.	Cuba jute	Nat	U	
<i>Thespesia populnea</i> (L.) Sol ex Correa	<i>milo</i>	<b>Pol</b>	Oc	
<i>Waltheria indica</i> L.	<i>'uhaloa</i>	<b>Ind</b>	Oc	<2>

Table 1 (Continued).

Species listed by family	Common name	Status	Abundance	Notes
<b>MORACEAE</b>				
<i>Ficus microcarpa</i> L. f.	Chinese banyan	Nat	U	<2>
<b>NYCTAGINACEAE</b>				
<i>Boerhavia coccinea</i> Mill.	false <i>alena</i>	Nat	R	
<i>Bougainvillea spectabilis</i> Wild.	bougainvillea	Orn	U	
<b>OXALIDACEAE</b>				
<i>Oxalis corniculata</i> L.	' <i>hi'ai</i>	<b>Pol</b>	R	
<b>PASSIFLORACEAE</b>				
<i>Passiflora foetida</i> L.	running pop	Nat	U	
<i>Passiflora suberosa</i> L.	<i>huehue haole</i>	Nat	R	
<b>PHYTOLACCACEAE</b>				
<i>Rivina humilis</i> L.	coral berry	Nat	R	
<b>PLUMBAGINACEAE</b>				
<i>Plumbago auriculata</i> Lam.	blue plumbago	Orn	R	
<i>Plumbago zeylanica</i> L.	' <i>ilie'e</i>	<b>Ind</b>	R	
<b>PORTULACACEAE</b>				
<i>Portulaca pilosa</i> L.	---	Nat	R	
<i>Talinum triangulare</i> (Jacq.) Willd.	---	Nat	C	<2>
<b>RUBIACEAE</b>				
<i>Hedyotis corymbosa</i> (L.) Lam.	---	Nat	R	
<i>Morinda citrifolia</i> L.	<i>noni</i>	<b>Pol</b>	O	
<i>Pentas lanceolata</i> (Forsk.) Deflers	pentas	Orn	R	

## Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:

**Ind** = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.

**Nat** = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.

**Orn** = A cultivated plant; a species not thought to be naturalized (spreading on its own) in Hawai'i.

**Pol** = An early Polynesian introduction. Introduced before 1778.

ABUNDANCE = occurrence ratings for plant species:

R - Rare seen in only one or perhaps two locations.

U - Uncommon seen at most in several locations

O - Occasional seen with some regularity

C - Common observed numerous times during the survey

A - Abundant found in large numbers; may be locally dominant.

AA - Very abundant abundant and dominant; defining vegetation type.

Table 1 (Continued).

Lower case letters (o, c, a) following qualitative rating of abundance indicate a localized abundance greater than occurrence rating. For example, Oc would be a plant encountered fairly regularly and common within a local area.

NOTES: <1> - Naturalized species found here planted in the landscaping as an ornamental.

<2> - Component of the forest *mauka* of the harbor (undeveloped portion of TMK: 7-8-010: 04 mauka of the old unimproved road).

<3> - Plant lacking key diagnostic characteristics (flower, fruit); identification, therefore, uncertain.

### Avian Fauna

A total of 295 individual birds of 13 species, representing 11 separate families, were recorded during station counts (Table 2). One of the species detected Pacific Golden-Plover (*Pluvialis fulva*) or *kolea* is an indigenous migratory shorebird species. The remaining 12 species recorded during the course of this survey are alien to the Hawaiian Islands.

**Table 2. Avian species detected on KS Lands at Keauhou Bay  
October 2021**

Common Name	Species	Order Family	Status	RA
COLUMBIFORMES				
COLUMBIDAE - Pigeons & Doves				
Spotted Dove	<i>Streptopelia chinensis</i>		A	2.38
Zebra Dove	<i>Geopelia striata</i>		A	9.13
CHARADRIIFORMES				
CHARADRIIDAE - Lapwings & Plovers				
Charadriinae - Plovers				
Pacific Golden-Plover	<i>Pluvialis fulva</i>		<b>IM</b>	0.13
PELECANIFORMES				
ARDEIDAE - Herons, Bitterns & Allies				
Cattle Egret	<i>Bubulcus ibis</i>		A	0.13

Table 2 (continued).

Common Name	Species	Order Family	Status	RA
		PSITTACIFORMES		
		PSITTACULIDAE - Lories, Lovebirds, and Indomalayan and Papua-Australasian Parrots		
Rose-ringed Parakeet	<i>Psittacula krameri</i>		A	0.50
		PASSERIFORMES		
		ZOSTEROPIDAE - White-eyes		
Warbling White-eye	<i>Zosterops japonicus</i>		A	8.88
		STURNIDAE - Starlings		
Common Myna	<i>Acridotheres tristis</i>		A	10.00
		ESTRILDIDAE – Estrildid Finches		
Java Sparrow	<i>Padda oryzivora</i>		A	0.88
Common Waxbill	<i>Estrilda astrild</i>		A	0.38
		PASSERIDAE - Old World Sparrows		
House Sparrow	<i>Passer domesticus</i>		A	0.50
		FRINGILLIDAE - Fringilline and Carduline Finches & Allies		
		Carduelinae - Carduline Finches and Hawaiian Honeycreepers		
House Finch	<i>Haemorhous mexicanus</i>		A	2.75
		CARDINALIDAE - Cardinals & Allies		
Northern Cardinal	<i>Cardinalis cardinalis</i>		A	0.63
		THRAUPIDAE - Tanagers		
		Thraupinae - Core Tanagers		
Yellow-billed Cardinal	<i>Paroaria cocapitata</i>		A	0.63

## Key to Table2.

**Status:**

A = Naturalized, non-native species (introduced).

IM = Indigenous, migratory species.

**RA** : Relative Abundance ~ Species count / number of point-count stations (n=8).

Avian diversity and densities were in keeping with the generally developed nature of much of the site. Two species, Common Myna (*Acridotheris tristis*) and Zebra Dove (*Geopelia striata*), accounted for 52% of all birds recorded during station counts. The most frequently recorded species was Common Myna, accounting for 27% of the total number of individual birds recorded.

## Mammals

Three terrestrial mammalian species were detected during the course of this survey. We saw numerous small Indian mongoose (*Herpestes javanicus auropunctatus*) within the area. Domestic cat (*Felis catus*) was seen at several

locations within the Project area. Domestic dog (*Canis lupus familiaris*) was seen being walked on a leash, and several dogs were heard barking from locations outside of the survey area. As well, tracks and scat of dogs, cats, and mongooses were encountered along the proposed roadway corridor.

## Discussion and Recommendations

Recommendations are partly based on U.S. Fish and Wildlife Service, Animal Avoidance and Minimization Measures (USFWS-PIFWO, nd). Implementation of the recommendations (provided below as bulleted items) by the Project contractor will minimize impacts to listed species to the maximum extent practicable.

### Floral Resources

No plants listed by either state or federal statute as threatened or endangered were found on the Project parcel (HDLNR, 1996; USFWS, nd-a). Although 12% of the extant plant species are indigenous natives or early Polynesian introductions (“canoe plants”), none is particularly rare in the Islands or abundant in the survey area. This percentage of “native” to total species is a typical result for lowland surveys in Hawai‘i. Nearly all native plants recorded are rare or uncommon here but widely distributed state-wide and many are represented by plantings and not natural populations. No adverse impacts to rare or culturally sensitive or listed (HDLNR, 1998; USFWS, nd-a) plant species will result from the proposed project.

An area at the back of the harbor abutting TMK: 7-8-010: 044 but not included in our survey and not on land that is part of the subject project plans surrounds Ho‘okūkū Pond and has been carefully planted and maintained in a variety of native plant species. Project plans call for extending this native vegetation and connecting walkway as part of improvements proposed for the back of the harbor area that is on KS land (KS, 2022).

### Invertebrate Resources

Blackburn’s sphinx moth (*Manduca blackburni*) is an endangered sphingid moth known from limited locations on the Island of Hawai‘i (HDLNR, 2005; HDLNR-DOFAW, 2021). The larva of this species is a Solanaceae specialist and its’ native host plants are not present on the site nor in the general vicinity. However, as these native host species have become exceedingly rarer in nature, this endemic moth has adapted to non-native solanaceous species, particularly

tree tobacco (*Nicotiana glauca*), a common weed in the islands. We did not record tree tobacco in the area nor were any other plants in the Family Solanaceae observed.

## Avian Resources

The findings of the avian survey are consistent with the location of the property and habitats present there. As previously mentioned, one of the species detected is a native species. Pacific Golden-Plover is an indigenous migratory shorebird species that nests in the high Arctic during the late spring and summer months, returning to Hawai'i and the tropical Pacific to spend the fall and winter months each year. The birds usually leave Hawai'i and return to the Arctic in late April or the very early part of May. Pacific Golden-Plover is a commonly countered shorebird throughout the Hawaiian Islands during late summer through mid-spring months.

### **Waterbirds**

No waterbirds were detected during this survey and no suitable habitats exist for either of the two endangered Hawaiian waterbirds: Hawaiian Coot (*Fulica alai*) or the endemic sub-species of the Black-necked Stilt (*Himantopus mexicanus knudseni*) found on the Kona coast. Nēnē (*Branta sandvicensis*) is present in North Kona, but so far not seen in the Keauhou area (David, 2022).

### **Seabirds**

It is possible that the endangered Hawaiian Petrel (*Puffinus sandwichis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and the threatened Newell's Shearwater (*Puffinus newelli*) over-fly the Project area between April and the middle of December each year in small numbers. The primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai'i is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitat exists within or close to the project area for any of the three seabird species discussed here.

The principal potential impact that the construction of the proposed project poses to protected seabirds is the increased threat that birds will be downed after becoming disoriented by lights associated with the project during the nesting season. The two main areas that outdoor lighting could pose a threat to these nocturnally flying seabirds is if, 1) during construction it is deemed expedient, or necessary to conduct night-time construction activities, 2) following build-out, the potential operation of security lighting during the seabird nesting season.

- If night-time construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and if flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground (Reed et al., 1985; Teller et al., 1987). Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours and all outdoor lighting installed is fully “dark sky compliant” (HDLNR-DOFAW, 2016). HDLNR recommends avoiding construction-related night-time lighting between September 15 and December 15 (DLNR, 2022).

### ***Hawaiian Hawk***

Hawaiian Hawk (*Buteo solitarius*) was not recorded during this survey, nor expected as this species is rarely seen at the low elevations of the Keauhou area (David, 2022). The proposed redevelopment of these lands will not have adverse impacts on this state-listed species.

## **Mammalian Resources**

The findings of the mammalian survey are consistent with the location of the properties and habitats present. Although no rodents were recorded in our survey, it is likely that some of the four established alien Muridae found on Hawai‘i—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*)—use various resources found within the general project area on a seasonal basis. All of these introduced rodents are deleterious to native ecosystems and the native fauna dependent on them.

No mammalian species currently protected or proposed for protection under either the federal or State of Hawai‘i endangered species programs were detected during the course of this survey (DLNR, 2015; USFWS, n. d.).



### ***Hawaiian hoary bat***

It is probable that Hawaiian hoary bats overfly the project area on a seasonal basis, as they have regularly been seen foraging and displaying over Keauhou Bay in the fall (David, 2022). The principal impact that construction may pose to bats is during clearing and grubbing phases when vegetation is removed. The removal of vegetation within the project area could temporarily displace individual bats using trees for roosting. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of the vegetation is likely to be minimal. However, during the pupping season, females carrying their pups may be less able to vacate a roost site as the tree is felled. Further, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled.

- Potential adverse impacts from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 m (15 ft) between June 1 and September 15, the period in which bats may have pups.

### **Other Resources of Potential Concern**

Both endangered Hawaiian monk seals (*Monarchus schauinslandi*) and the threatened Pacific green sea turtle (*Chelonia mydas*) are regularly reported from Kona waters (David, 2022). Although unlikely, either species could haul out along the shoreline close to the dock or by the canoe club beach landing.

- If either species is detected within 100 m (300 ft) of ongoing construction, operations must cease and not continue until the animal has departed the area on its own accord.

### ***Critical Habitat***

No federally delineated Critical Habitat for any species occurs within the Project area (USFWS, nd-b). There is no equivalent designation under State of Hawai'i endangered species statutes.

## **Summary Conclusions**

The terrestrial field surveys conducted in October 2021 by AECOS biologists found no species listed as threatened or endangered by state or federal statutes on any of the project parcels at Keauhou Bay. All of the surveyed parcels are much disturbed or are developed (commercial operations, access roads, public

park). The potential does exist that several listed species might transit or utilize the general area on occasion. These include: Black-necked Stilt, Nēnē, Hawaiian Petrel, Band-rumped Storm-Petrel, Newell's Shearwater, Hawaiian monk seal, and Pacific green sea turtle. In all such cases, the general precaution applies whenever an endangered animal species is observed within 100 m (300 ft) of on-going construction activity: work potentially disturbing to the animal should cease until the animal departs the area voluntarily. Only the endangered Hawaiian hoary bat is deemed to potentially utilize resources within the project area. Adverse impacts to this species could occur if trees over 4.6 m (15 ft) in height are removed between June 1 and September 15.

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Appendix G

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# **Biological Survey of Ho'okūkū Pond**





## Biological Survey for Ho'okūkū Pond

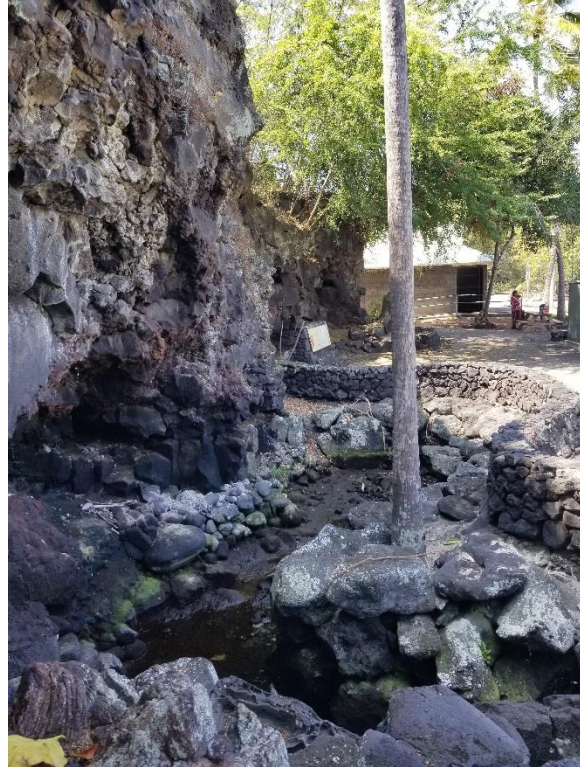
Keauhou Bay, Kona, Hawai'i Island  
March 2022

A biological survey of the Ho'okūkū Pond was performed by Janice Jensen of G70 at approximately 10:30 am on Thursday March 10, 2022.

The anchialine pool appeared overall to be in an advanced state of degradation. The Pond contains a large buildup of mud and organic matter, particularly around the edges, leaving the water to pool towards the center. The water level at the time of the survey was extremely low (estimated < 2 inches in depth.) Majority of the pool was covered in thick mats of filamentous green algae (*Rhizoclonium sp.*)



**Figure 2** Large buildup of organic matter and sediment in the Pond. Filamentous green algae mats occupy majority of the remaining area where water pools.



**Figure 1** View of Ho'okūkū Pond from the upper walkway, facing toward the public restroom. Water levels were extremely low.

In one corner of the pond where sediment had built up, black and yellow mud dauber wasps (*Sceliphron caementarium*) were observed continuously visiting holes at the base of the rock wall, likely the location of a nest.

Six juvenile individuals of a single species of freshwater prawn (*Macrobrachium sp.*) were observed in the pool. Though the individuals could not be examined close-up to accurately determine their species, a baseline assessment of the Pond conducted by Aquatic Resources Management (2019) noted both the native *Macrobrachium grandimanus* and the

introduced Tahitian prawn (*Macrobrachium lar*) as potential species. Hundreds of brown shells of the red-rimmed melania snail (*Melanoides tuberculata*) were scattered throughout the Pond, particularly in

the thick algae mats. No fish, native 'ōpae 'ula, or other species of marine invertebrates previously known to inhabit the Pond were observed during this survey.



**Figure 3** Sediment build up and the potential location of a black and yellow mud dauber wasp nest in the northeastern corner of the Pond.



**Figure 3** Close up of Pond biota: filamentous green algae, two juveniles of the *Macrobrachium* sp. of freshwater prawn, and a cluster of red-rimmed melania snails.



**Figure 5** Juvenile freshwater prawns amidst a collection of the Pond's organic detritus.

The table below lists the species observed in Ho'okūkū Pond during the survey on March 10, 2022. A single alga taxa was identified along with three invertebrate taxa, two of which were marine. A key with explanations of the abbreviations used in the checklist is provided below.

**CHECKLIST KEY**

*Biogeographic Status*

- Nat Naturalized: Introduced to Hawai'i by humans, either directly or indirectly, since Western contact. Includes ornamentals and plants that may have formerly been cultivated.
- Ind Indigenous species: Occurs naturally both within and outside of the Hawaiian Islands.
- Inv Invasive species: An alien species which has been introduced by human assistance and is recognized to have deleterious effects on the native species or environment.
- Unk Unknown: Species could not be identified.

*Abundance*

- R Rare: 1-3 individuals observed.
- U Uncommon: Several to a dozen individuals observed.
- O Occasional: Found regularly at the site.
- C Common: Observed numerous times; makes up a large portion of the community.
- A Abundant: Large numbers observed; likely a locally-dominant species.

Scientific Name	Common/Hawaiian Names	Status	Abundance
<b>ALGAE</b>			
<b>CLADOPHORACEAE</b>			
<i>Rhizoclonium sp.</i>	filamentous green algae	Nat	A
<b>INVERTEBRATES</b>			
<b>PALAEMONDIAE</b>			
<i>Macrobrachium sp.</i>	freshwater prawn	Unk	U
<b>SPHECIDAE</b>			
<i>Sceliphron caementarium</i>	black and yellow mud dauber wasp	Nat	U
<b>THIARIDAE</b>			
<i>Melanooides tuberculata</i>	red-rimmed melania/brown spiral shells	Nat	A



Appendix H

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# Mobility Analysis Report





# Keauhou Bay Management Plan: Mobility Analysis Report (Draft)

Prepared for  
Group 70 International, Inc.

May 12, 2022

FEHR  PEERS

SD21-0408

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# 1. Executive Summary

This report presents the results of the Mobility Analysis Report (MAR) for the proposed Keauhou Bay Management Plan (KBMP) project (the project). The plan is for a 53-acre site located on the western shore of the Hawai'i Island, approximately 14 miles south of Kona International Airport and six (6) miles south of central Kailua-Kona. Regional access to the site is provided by Ali'i Drive with local access provided by Kamehameha III Road and Kaleiopapa Street. The project site and study area are depicted on **Figure 1**.

The KBMP will guide development within the site for the next 20 years, and the project proposes to construct new development and relocate and repurpose existing land uses for Kamehameha Schools. The project includes a variety of cultural and recreation uses, commercial activities, and resort facilities. Development will occur over time and a new formalized roadway link between Kamehameha III Road and Kaleiopapa Street using the Old Kona Road alignment will improve overall site access and enhance area connectivity.

The study first forecasts 2035 traffic volumes without the development of the project, and then forecasts volumes with the development of the proposed project uses. It documents estimated traffic movements at the analyzed intersections then determines average delay times and the resulting level of service (LOS) ratings. This study recommends specific mitigation measures to address locations where undesirable levels of service are projected. In addition, potential impacts to pedestrian, bicycle and transit facilities and services were also evaluated.

The project is estimated to generate 1,928 new weekday daily vehicle trips, including approximately 155 new vehicle trips during the weekday morning peak hour, 230 new vehicle trips during the weekday afternoon peak hour, and 361 new vehicle trips during the Saturday midday peak hour.

The traffic impact analysis was evaluated pursuant to guidelines established by the County of Hawai'i. The State of Hawai'i Department of Transportation Highways Division (HDOT) does not maintain or operate any facilities within the study area. Weekday a.m. and p.m. peak hour and Saturday midday peak hour capacity analysis was conducted for the four (4) existing study intersections in the vicinity of the project site. All four of the intersections currently operate at a desirable operating level during all three peak hours.

For the baseline analysis, four (4) intersections were analyzed. The baseline intersection conditions include the improvement of the Old Kona Road alignment with the project condition, along with growth in background traffic in the study area. While these changes are expected to increase delays in 2035, all intersections are expected to operate at a desirable operating level during three peak hours. The project is



not expected to result in any significant vehicular impacts. A review of the potential shift in existing traffic volumes with the new roadway connection indicates that a shift is unlikely and would only result in up to one additional vehicle per minute during the highest peak hour period on a Saturday. Regardless, the study intersections would all still operate well above the desired minimum operating level.

The proposed project is expected to generate bicycle and pedestrian trips to and from the project site, although the total volumes are expected to be low. Regardless, the project will provide a shared-use path for pedestrians and bicycles along the Old Kona Road alignment to enhance safety and improve multimodal connectivity between the existing and proposed land uses (parks, open spaces, hotels, restaurants, etc.). Accordingly, the project is not expected to result in any significant active transportation impacts.

It is also expected that there will be a slight increase in transit ridership however is not anticipated to increase to a level that would substantially affect existing transit facilities and services.



## 2. Introduction

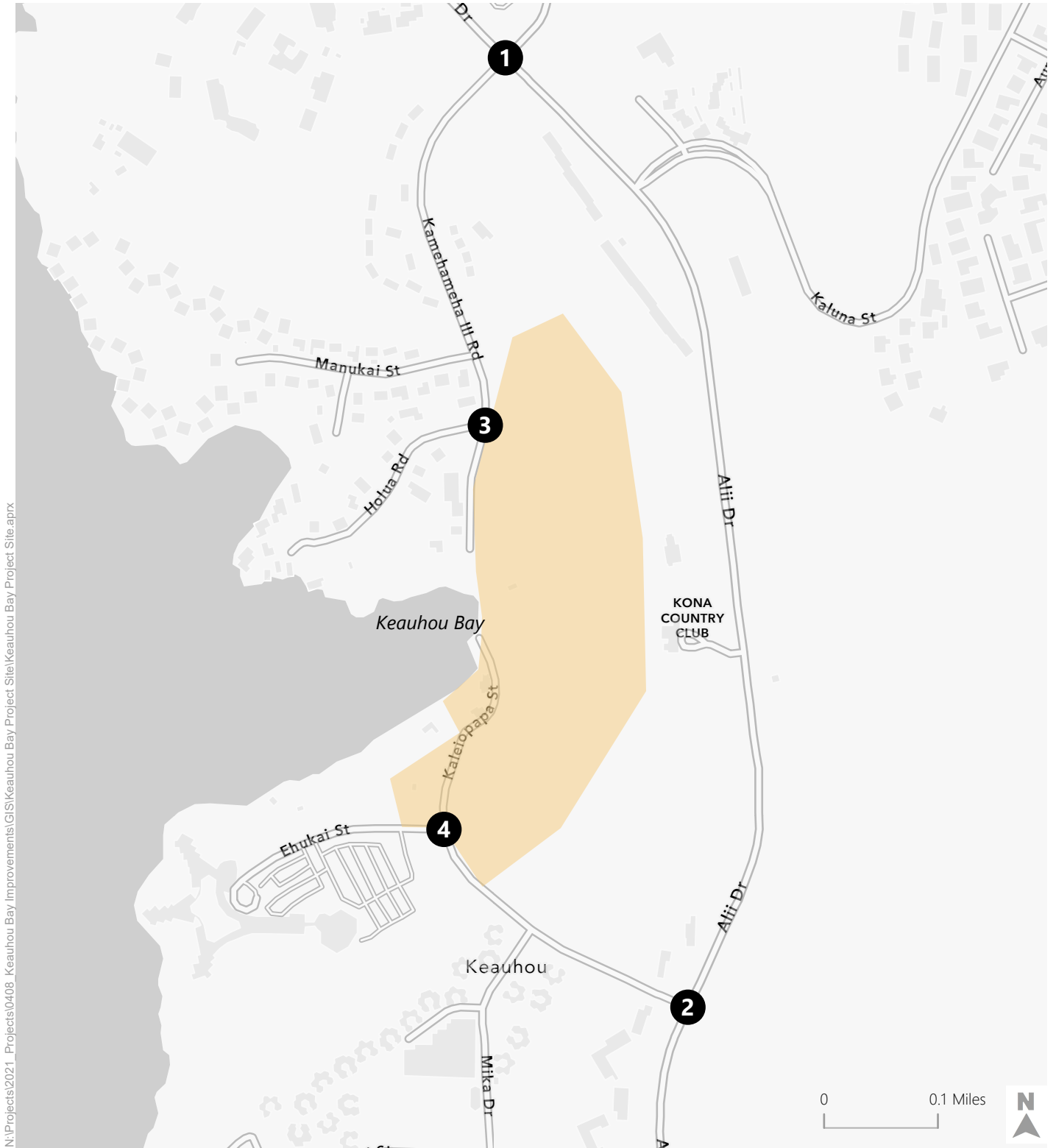
This mobility analysis report (MAR) presents the results of the study conducted by Fehr & Peers for the Keauhou Bay Management Plan (KBMP) (hereafter referred to as “project”) located in the Kahaluu-Keauhou region of the Hawai‘i Island. Under the direction of Kamehameha Schools, the KBMP will guide development within the project site for the next 20 years, and the plan includes construction of new uses in addition to relocating, repurposing, and enhancing existing land uses. Fehr & Peers provided transportation planning and engineering services to assist with the development of the project site plan including input on required infrastructure (e.g., roadways) and multi-modal facilities to provide access to and through the site. In addition, this MAR will inform the environmental impact statement (EIS) for the project.

The MAR identifies the impacts of the proposed project on the surrounding transportation system and was conducted in accordance with the requirements of the County of Hawai‘i, which has jurisdiction over all the study roadways and transportation facilities within the study area. The State of Hawai‘i Department of Transportation – Highways Division (HDOT) does not own or operate any roadways within the study area. This chapter includes a description of the assumptions and methods used to conduct the study, as well as a discussion of the results.

### 2.1 Project Description

The project site is located on the western shore of the Hawai‘i Island approximately 14 miles south of Kona International Airport, and six (6) miles south of central Kailua-Kona. Regional access to the site is provided by Ali‘i Drive with local access provided by Kamehameha III Road and Kaleiopapa Street. The site is generally bounded by Kamehameha III Road, Ali‘i Drive, Kaleiopapa Street, and Keauhou Bay. **Figure 1** illustrates the study area for the proposed project and its site location.





 Project Site Study


 Intersections



Figure 1

## Project Site and Study Intersections

The site for this project includes approximately 29 acres and includes a variety of existing recreation uses, commercial activities, and underutilized parcels. The project proposes to construct new development and to relocate and repurpose existing land uses under the direction of Kamehameha Schools. New uses will include a variety of cultural and recreation opportunities, commercial activities, and resort facilities. In addition, new formalized off-street parking lots will be constructed to minimize impacts to existing public streets and to minimize parking intrusion into adjacent neighborhoods.

Project development will occur over 20 years and a new formalized roadway link between Kamehameha III Road and Kaleiopapa Street using the Old Kona Road alignment will improve overall site access and enhance area connectivity. According to the project team, the proposed site redevelopment is expected to be completed and fully operational by 2035. **Figure 2** illustrates the proposed project site plan and improvements.

## 2.2 Project Study Area

The transportation analysis focused on evaluating the potential project-related traffic impacts at four (4) existing intersections in the vicinity of the proposed project. The analyzed intersections are listed below:

1. Ali'i Drive / Kamehameha III Road
2. Ali'i Drive / Kaleiopapa Street
3. Kamehameha III Road / Hōlua Road (w/ future site driveway connection)
4. Kaleiopapa Street / Ēhukai Street (w/ future site driveway connection)

Turning movement counts data collection at intersections were conducted on September 16, 2021, and September 18, 2021. And segments counts were collected on September 16 through 18, 2021 and September 30 through October 2, 2021. The study intersections were evaluated during the highest one-hour of travel demand of the weekday morning (6:00 to 9:00 AM) and evening (3:30 to 6:30 PM) peak periods, as well as Saturday midday (11:30 AM to 1:30 PM) peak periods. Traffic counts were collected during the weekday AM, weekday PM, and Saturday midday peak periods at the first two study intersections in September 2019. The total number of bicyclists and pedestrians crossing each street leg were also counted at each study intersection.

## 2.3 Intersection Analysis Scenarios

The operations of the study intersections were evaluated during the weekday morning and evening peak hours for the following scenarios:



Existing (2021) Conditions – The analysis of existing traffic conditions was based on 2021 counts collected for analyzed peak hours. The existing conditions analysis includes a description of key area streets and highways and an assessment of bicycle, pedestrian, and transit facilities and services in the study area.

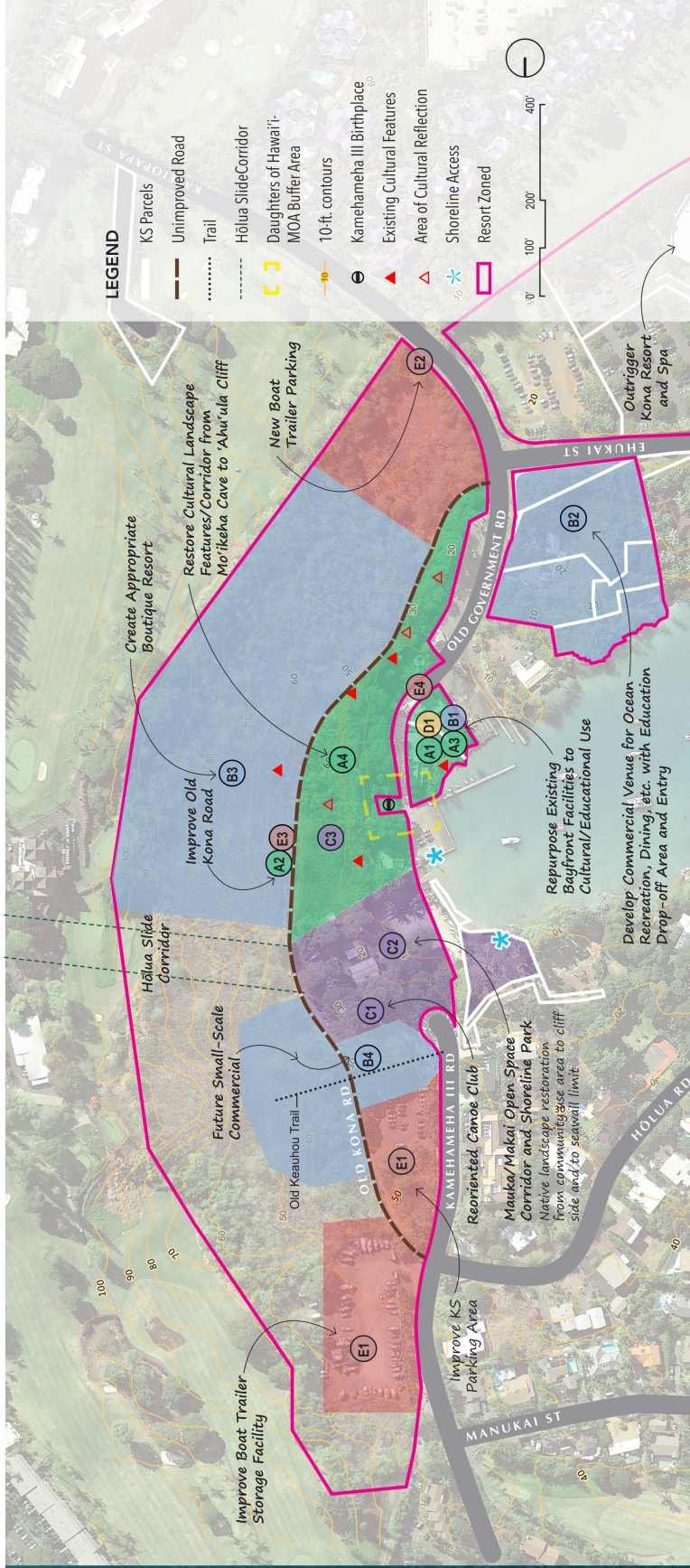
Baseline (2035) Conditions – Future traffic volumes in the anticipated completion year of full project buildout were projected by increasing the existing volumes using an annual growth factor to account for ambient growth. This scenario does not include any project traffic.

Baseline (2035) Plus Project Conditions – Traffic projections from baseline Conditions plus traffic estimated from the completion and full occupancy of the project.



## THE PLAN

- Includes short-term and long-term management and land use plans to guide operations and prioritize future improvements at Keauhou Bay based upon community values and Kamehameha Schools' Strategic Plan.
- The project area includes approximately 29 acres of Kamehameha Schools lands in the Keauhou Bay area.
- Facilitates cooperation and collaboration between Kamehameha Schools, community/education partners and stakeholders in the management of natural, cultural, and commercial resources.



## KEAUHOU BAY MANAGEMENT PLAN RECOMMENDATIONS

A Establish a Heritage Management Corridor	B Reposition & Develop Commercial Bayfront Areas and Appropriate Density Resort Area	C Reorient Recreational and Community Use	D Maintain and Establish New Place-based Cultural Educational Areas	E Manage Vehicle, Boat and Pedestrian Circulation & Wayfinding
<p>A1 <b>Relieve</b> commercial/vehicle congestion away from wahi pana.</p> <p>A2 <b>Re-establish</b> old Kona road as main vehicle thoroughfare.</p> <p>A3 <b>Repurpose</b> existing commercial facilities to culture/education to reduce impact in corridor.</p> <p>A4 <b>Restore</b> Cultural Landscape and extend pedestrian friendly walking path along Ahu'ula Cliff to Mo'ikeha Cave.</p>	<p>B1 <b>Relocate</b> existing commercial operators away from culturally sensitive areas.</p> <p>B2 <b>Organize</b> existing ocean recreation commercial operators and food and beverage establishment in a new facility.</p> <p>B3 <b>Create</b> sustainable, low rise, Boutique Resort on resort-zoned upper plateau of Bay area.</p> <p>B4 <b>Explore</b> opportunities for commercial kipuka where appropriate.</p>	<p>C1 <b>Improve</b> public access by establishing a Mauka/Makai Corridor.</p> <p>C2 <b>Expand</b> Ka'i'ihinehe Beach Park as the entry to an open space, Shoreline Corridor.</p> <p>C3 <b>Consider</b> open space and walking path above 'Ahu'ula Cliff to ensure protection of view planes and culturally significant areas.</p>	<p>D1 <b>Repurpose</b> existing Bayfront facilities to support educational programming with a community collaborator.</p> <p>D2 <b>Cultivate</b> community collaborator capacity to include Bay area management &amp; community-based economic development.*</p>	<p>E1 <b>Improve</b> boat and vehicle parking on north side of Bay.</p> <p>E2 <b>Alleviate</b> congestion by exploring opportunities with DINR/DOBOR on potential relocation/expansion of boat trailer parking.</p> <p>E3 <b>Re-establish</b> old Kona road to relieve vehicular congestion at Bayfront in heritage corridor.</p> <p>E4 <b>Explore</b> access management opportunities with Hawai'i County &amp; DINR to address traffic and deliveries at Harbor/Pier.</p> <p>E5 <b>Organize</b> active commercial/resort uses to the south side, and community/recreational use to the north side.*</p> <p>E6 <b>Implement</b> a comprehensive wayfinding &amp; interpretive signage plan.*</p>

\* Applies to entire project area



Figure 2

## Project Site Plan



## 2.4 Traffic Analysis Methods

The analysis of roadway operations performed for this study is based on procedures presented in the *Highway Capacity Manual 6<sup>th</sup> Edition* (HCM 6), published by the Transportation Research Board in 2016. The operations of roadway facilities are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, which is the least congested operating conditions, to LOS F, which is the most congested operating conditions. LOS E represents “at-capacity” operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions. The methodologies for signalized and unsignalized intersections are described below.

### 2.4.1 Signalized Intersections

The method described in Chapter 19 of HCM 6 was used to prepare the LOS calculations for the signalized study intersections. This LOS method analyzes a signalized intersection’s operation based on average control delay per vehicle. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using the Synchro 11.0 analysis software and is correlated to a LOS designation as shown in **Table 1**.

### 2.4.2 Unsignalized Intersections

Unsignalized intersection operations were evaluated using the method contained in Chapter 20: Two-Way Stop-Controlled Intersections of the HCM. LOS ratings for stop-sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street-stop-controlled intersections, the average control delay is calculated for each minor-street-stopped movement and the major street left turns, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. For approaches with multiple lanes, the control delay is computed for each movement; the movement with the worst (i.e., longest) delay is presented for two-way stop-controlled (TWSC). The average control delay for unsignalized intersections is calculated using Synchro 11.0 analysis software and is correlated to a LOS designation as shown in **Table 2**.



**Table 1: Signalized Intersection Level of Service Criteria**

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual 6<sup>th</sup> Edition*, Transportation Research Board, 2016.

**Table 2: Unsignalized Intersection Level of Service Criteria**

Level of Service	Description	Delay in Seconds
A	Little or no delay	≤ 10.0
B	Short traffic delay	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual 6<sup>th</sup> Edition*, Transportation Research Board, 2016.

### 2.4.3 Significant Impact Criteria

The analysis of future conditions compares the baseline or “no project” condition with conditions that include project-generated traffic assuming full build-out and occupancy. This is done to determine



whether the addition of project traffic is expected to result in a significant impact on the surrounding roadways. Based on Guidelines from the County of Hawai'i Chapter 25 (Zoning), Article 2 (Administration and Enforcement), Division 4 (Amendments), Section 46 (Concurrency Requirements), the minimum desired operating standard for a signalized intersection is LOS D for the overall intersection. Additionally, a significant impact is defined to occur when the operations of an intersection changes from LOS D or better to LOS E or F. Also, when evaluating intersection movement or approach LOS at any location, other factors should be considered in the analysis, such as traffic volumes and potential secondary impacts to pedestrian, bicycle, and transit travel.

Each of the identified significant impacts could be further categorized as either a cumulative impact or a project-specific impact. At a signalized intersection, if the addition of project traffic is expected to degrade desirable service levels (LOS D or better) to undesirable service levels (LOS E or F), then the new development is considered to have a project-specific-impact. Alternatively, if the intersection LOS is determined to be LOS E or F without the project and the project adds traffic to this location, causing the delay to increase by five (5) seconds or more, then this result would be characterized as a cumulative impact.

For unsignalized intersections, the criterion for a project impact is the same as for signalized intersections regarding LOS as described above, but one or more signal warrants must also be met. The signal warrants used for this evaluation are those described in Chapter 4C of the Manual of Uniform Control Devices (MUTCD, 2009) published by the U.S. Department of Transportation Federal Highways Administration (FHWA). However, the project is determined to have a potentially significant cumulative impact when it adds traffic to a study location which includes a controlled approach operating at an unacceptable level (i.e., LOS E or F) *and* one or more volume-based signal warrants are met.

The County of Hawai'i does not publish impact criteria for pedestrian, bicycle, and transit impacts. For this analysis, these impacts are evaluated based on whether a proposed project would: 1) conflict with the existing or planned pedestrian, bicycle, or transit facilities and services, or 2) create substantive walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. Existing facilities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality and scope of facilities/services currently in place. The assessments of planned pedestrian, bicycle, and transit facilities were conducted using the information in planning documents, such as the *Bike Plan Hawai'i (2012)*, *Statewide Pedestrian Master Plan (2013)*, and *County of Hawai'i Transit and Multi-Modal Transportation Master Plan (2018)*. For these modes, if the proposed project is expected to conflict with existing or planned improvements to pedestrian and bicycle facilities, or if the project is expected to generate a substantial demand which could warrant additional transit service, then the project would be determined to have a project-specific impact to non-motorized modes of transportation.



## 3. Existing Conditions

This chapter describes the study area's existing transportation network and includes a discussion of the roadway, bicycle, pedestrian, and transit facilities. Overall, the assessment of the existing conditions relevant to this study establishes the scenario against which the future baseline and proposed project changes may be compared.

### 3.1 Roadway System

The key roadways providing access to the site are described below.

**Ali'i Drive** is a two-lane County collector road serving the coast of Hawai'i between Kona and Captain Cook. Ali'i drive passes through the Keauhou area and is the only link between Kamehameha III Road and Kaleiopapa Street. North of Kamehameha III Road, Ali'i Drive is a 2-lane undivided road with bike lanes and a 30 miles per hour (mph) speed limit. South of Kamehameha III Road, Ali'i Drive becomes a 2-lane roadway with a center buffer lane that is used for left-turn pockets at intersections and a 35-mph speed limit. Within the project vicinity, parking is not allowed on the street.

**Kamehameha III Road** is a two-lane County collector road connecting Ali'i Drive to the Hawai'i Belt Road (Highway 11) according to the Kona Community Development Plan. In the vicinity of the project, Kamehameha III Road transitions to a local road with a speed limit of 25 mph makai of Ali'i Drive. Between Manukai Street and Keauhou Bay, parking is not allowed on the street.

**Kaleiopapa Street** is a two-lane local County local road serving the southern side of Keauhou Bay. On-street parking is allowed on both sides of the street except on some sections where signage prohibit parking. Kaleiopapa Street's posted speed limit is 25 mph. Presence of speed humps on this street helps to moderate vehicle travel speed (see **Figure 3**).

### 3.2 Transit Facilities

The County of Hawai'i Mass Transit Agency provides bus service to Hawai'i Island in the form of Hele-On busses. Two Hele-on routes serve stops in the project vicinity. Route 201, the Kona Trolley serves Keauhou shopping center at the intersection of Ali'i Drive and Kamehameha III Road. Route 204 serves the Outrigger Kona Resort & Spa at Kaleiopapa Street.



Figure 3: Speed hump on Kaleiopapa Street



### 3.3 Pedestrian Facilities

Pedestrian facilities consist of crosswalks, curb ramps, and pedestrian signals at signalized intersections, as well as sidewalks and paths along segments between intersections. Partial sidewalks are present along the mauka of Ali'i Drive between the Keauhou Shopping Center and Kaluna Street, and the mauka of Kamehameha III Road between Manukai Street and its southern terminus at Keauhou Bay Beach Park. Pedestrians were observed walking on the shoulders where sidewalks are not provided along Kamehameha III Road and Ali'i Drive. No sidewalk is provided on Kaleiopapa Street. However, pedestrians were observed on the shoulder and on the street during the field observation (see **Figure 4**). Speed humps on Kaleiopapa helps to reduce vehicle speed. High visibility crosswalks are provided at the intersections on Ali'i Drive at Kamehameha III Road and at Kaleiopapa Street.

Pedestrian access across the Bayfront from Kamehameha III Road and Kaleiopapa Street does not include a continuous accessible and well-signed path. The most direct path between Kamehameha III Road and Kaleiopapa Street includes an asphalt path that leads to the beach area behind the sea wall where outrigger canoes are stored. Pedestrians must cross the beach and then use a narrow opening to access a short flight of stairs leading to the parking lot asphalt parking lot adjacent to the Fair Wind Hula Kai Cruise building entrance. This path does not comply with American with Disabilities Act (ADA) requirements and is not intuitive for first-time visitors to the site. Potential pedestrian safety concerns were observed during the field visit and are explained in Section 3.6.



Figure 4: Pedestrians at the End of Kaleiopapa Street



### 3.4 Bicycle Facilities

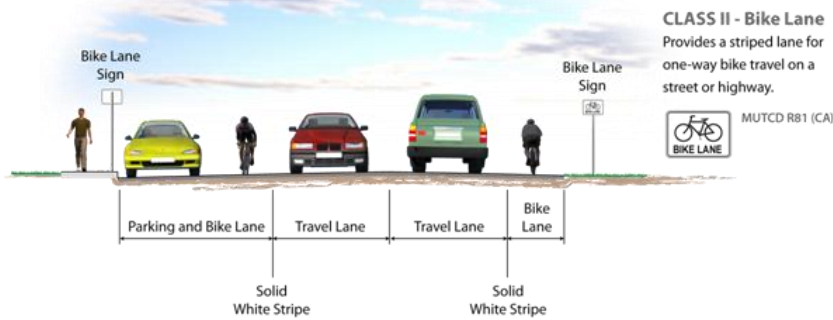
Bicycle facilities generally consist of four types of facilities, which are outlined below:

- ***Bike or Shared Use Paths*** provide a separate right-of-way and are designated for the exclusive use of bicycles and pedestrians (or exclusively bicycles) with vehicle and pedestrian cross-flow minimized. Generally, the recommended pavement width for a two-directional bike or multi-use path is ten (10) feet.



- ***Bike Lanes*** provide a restricted right-of-way and are designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.

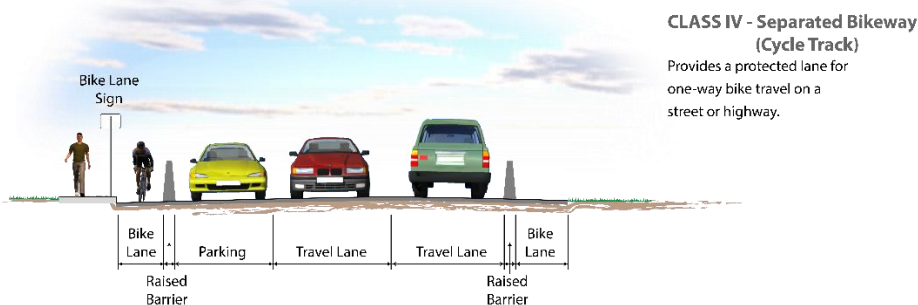




- *Bike Route or Signed Shared Roadways* provide for a right-of-way designated by signs or shared lane pavement markings, or “sharrows,” for shared use with pedestrians or motor vehicles.



- *Separated Bikeways of Cycle Tracks* provide a restricted right-of-way with physical separation and are designated for the use of bicycles with a raised barrier such as curbs or bollards. Separated bikeways are generally five (5) feet wide with a three (3) foot minimum horizontal and vertical separation area. Adjacent vehicle parking is permitted, and vehicle/pedestrian cross-flow is restricted to selected locations (e.g., driveways) indicated by breaks in the barrier and buffer.



No bicycle facilities or signage is provided indicating cycling routes within the project area. During the field observations, bicyclists were observed riding on the shoulders along Ali'i Drive, Kamehameha III Road, and Kaleiopapa Street (see **Figure 5**).



Figure 5: Bicyclist on Ali'i Drive



### 3.5 Existing Traffic Operations

Four (4) existing signalized intersections were studied:

- Ali'i Drive and Kaleiopapa Street, and
- Ali'i Drive and Kamehameha III Road.
- Kamehameha III Road & Hōlua Road
- Kaleiopapa Street & Ēhukai Street

The AM peak hour traffic in the study area occurs from 7:15 – 8:15 AM for intersections, and the PM peak hour occurs between 3:45 and 4:45 PM for Ali'i Drive and Kaleiopapa Street, and between 4:00 and 5:00 PM for Ali'i Drive and Kamehameha III Road. Existing lane configurations and signal timing and phasing were obtained through field observation.

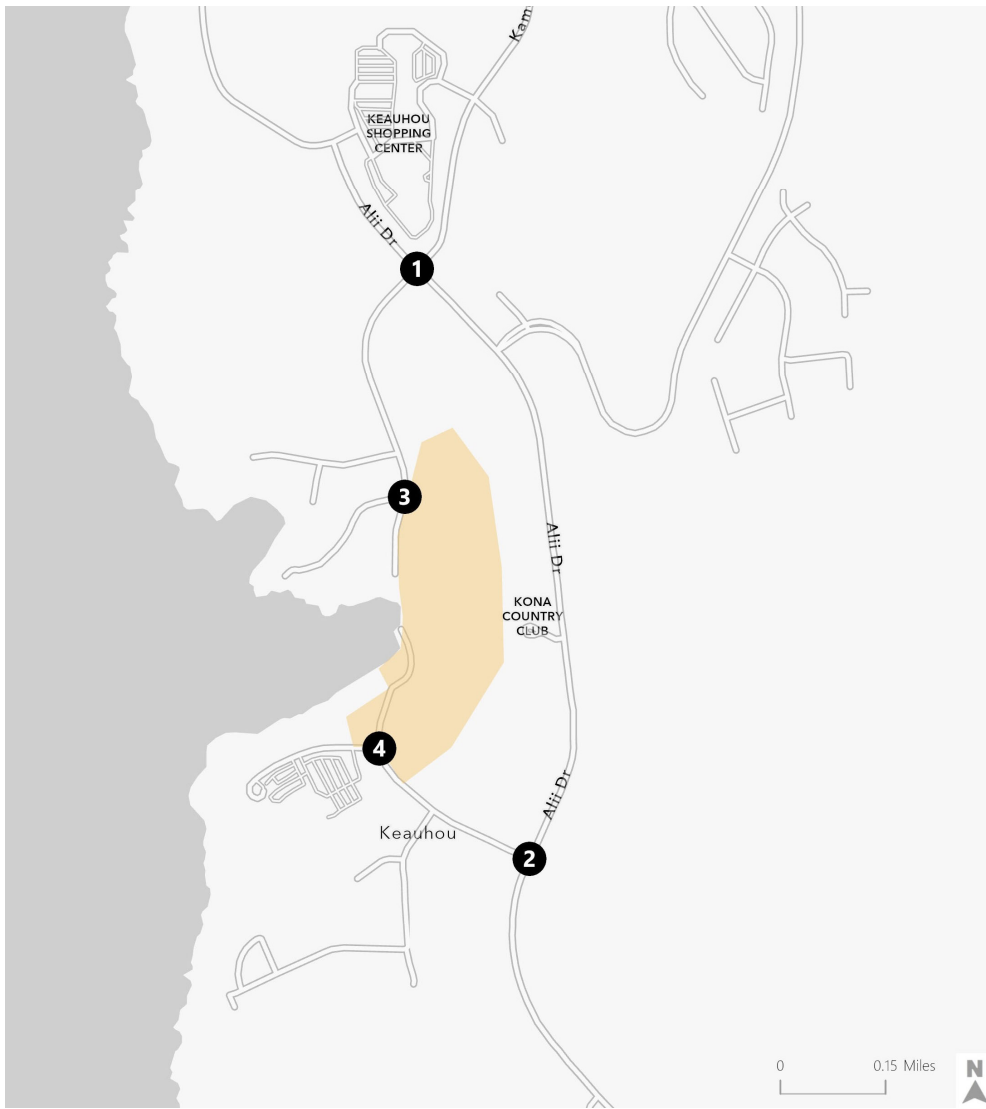
**Figure 6** shows existing peak hour AM and PM turning movement counts for weekdays, and Midday (MD) peak hour counts for Saturdays, as well as lane configurations and traffic control devices at each study intersection. Traffic count data sheets are provided in **Appendix A**.

Roadway segment counts were collected for a Thursday through Saturday on Kaleiopapa Street just north of the Ēhukai Street and Kamehameha III Road just south of the Hōlua Street. They were used to validate the project trip generation and quantify the amount of traffic that uses that segment of the road.

Roadway segment counts are provided in **Appendix A**.







**LEGEND**

● Study Intersections

Project Site

Weekday AM (PM) [Saturday MD] Peak Hour Traffic Volumes

↕ Lane Configuration

AM PM SAT MD Level of Service (LOS)

A-C
D
E
F

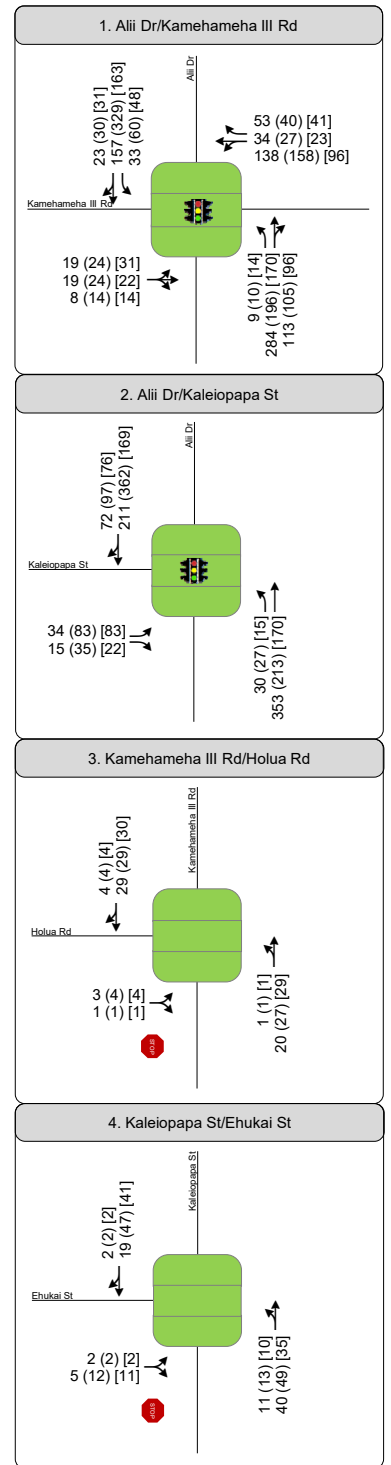


Figure 6

Peak Hour Traffic Volumes and Lane Configurations Existing (2021) Conditions



Existing peak-hour vehicle volumes and lane configurations were used to calculate levels of service for each of the study intersections. The results of the existing LOS analysis are presented below in **Table 3**, and the corresponding LOS calculation sheets are included in **Appendix B**. The results of the calculations indicate that both intersections operate at a desirable service level (LOS D or better) during all peak periods. No overall intersection or individual turning movement has a LOS below B.

**Table 3: Existing Intersection Level of Service**

Study Intersection	Traffic Control	Peak Hour	Existing (2021) Conditions	
			Delay	LOS
1. Ali'i Drive & Kamehameha III Road	Signalized	Weekday AM	10.2	B
		Weekday PM	10.5	B
		Sat MD	9.2	A
2. Ali'i Drive & Kaleiopapa Street	Signalized	Weekday AM	5.6	A
		Weekday PM	8.2	A
		Sat MD	7.3	A
3. Kamehameha III Road & Hōlua Road	Side Street Stop Control	Weekday AM	8.7	A
		Weekday PM	8.8	A
		Sat MD	8.8	A
4. Kaleiopapa Street & Ēhukai Street	Side Street Stop Control	Weekday AM	8.6	A
		Weekday PM	8.7	A
		Sat MD	8.7	A

Source: Fehr & Peers, 2021.

### 3.6 Field Observations

Field observations conducted in September 2021 showed that traffic moves well throughout the study area during the AM and PM peak hour and during the Saturday midday peak hour. No significant vehicle queues were observed during the field visit. Overall, the calculated existing peak hour intersection operating levels at the study intersections shown in **Table 3** are representative of field conditions. There were delays at the end of Kamehameha III Road and Kaleiopapa Street due to drivers of cars and boat trailers seeking on-street parking and making U-turn if there was no parking space available.

The driveway connects the end of Kaleiopapa Street at the boat ramp to the parking lot adjacent to the dock operates as a shared road for pedestrians, tour vans, boats, and vehicles. However, it does not have the characteristics of a typical shared street which include things like tactile pavement (delineates use) and treatments to reduce traffic speeds like visual street narrowing, street trees/landscaping, and changes in



materials and colors. Additionally, drivers have limited sight distance for observing pedestrians on the driveway due to vehicles parked at the turn, shadows, etc. (see **Figure 7**).

Lastly, this road does not provide a formalized turn around area for vehicles at the end of the Kaleiopapa Street near the boat ramp where drivers look for available parking. Vehicles that turn around at this location temporarily cause delay for other vehicles and can result in safety concerns for pedestrian and bicyclists in the area.

*Figure 7: Pedestrians on Bayfront Road*



### 3.7 Parking Observations

Parking observations were conducted in two broad areas: Kamehameha III Road and Kaleiopapa Street.

#### Kamehameha III Road

Two parking lots on the east side of the Kamehameha III Road near its southern terminus on the project site. The parking lot on the north side (mostly north of the Hōlua Drive intersection) is a designated for boat trailer parking that serves the Keauhou Bay. Boat trailer parking was observed to be nearly half-full during the peak periods. The parking area on the south side (Sea Quest Hawai'i Parking) is a public parking lot intended for use by visitors to the various commercial uses.

On-street parallel parking is allowed on both sides of the Kamehameha III Road south of Manukai Street except near driveways where signs are installed to prohibit parking. In addition to the parallel spaces, nine (9) parking stalls are striped in the cul-de-sac at the south end of the street. On-street parking serves both the buildings across the street (Keauhou Kai Apartment Buildings) and Keauhou Bay visitors. On-street parking was observed to be nearly full during the Friday AM and Saturday Midday peak periods. Some vehicles were observed to travel down the street to end and turn back due to lack of available street parking. A few Keauhou Bay visitors were observed to park on the north side of the Hōlua Road intersection and were not captured in the tube counts. **Table 4** summarizes the detailed parking counts based on field observations.

**Table 4: On-Street and Off-Street Parking Counts on Kamehameha III Road**

Location	Field Observation Day/Time		
	Friday 8:30 AM	Friday 4:00 PM	Saturday 10:30 AM
Parking Area at the South End of Kamehameha III Road	4	5	7
Kamehameha III Road South of Hōlua Road	17	6	14
Kamehameha III Road North of Hōlua Road	3	2	6

Source: Fehr & Peers, 2021.

#### Kaleiopapa Street

Multiple parking areas are provided along Kaleiopapa Street. At the north end of Kaleiopapa Street just south of the beach area, nine (9) parking stalls are provided for passenger vehicles. On the east side of Kaleiopapa Street just north of the Ēhukai Street, sixteen parking stalls including one (1) accessible space are provided for vehicles with boat trailers. At the top of the boat ramp, four (4) parking stalls are provided for passenger vehicles, including two accessible spaces.



On-street parking is allowed on both sides of the street in designated areas except near driveways and turning areas where signage and pavement markings prohibit parking. The area was observed to be generally full during the field visit. Some visitors with boat trailers were also observed to use the on-street parking available just south of the Ēhukai Street. **Table 5** details the on- and off-street parking counts for the Kaleiopapa Street area based on field observations.

**Table 5: On- and Off-Street Parking Counts on Kaleiopapa Street**

Location	Field Observation Day/Time		
	Friday 8:30 AM	Friday 4:00 PM	Saturday 10:30 AM
Parking Area at the End of Kaleiopapa Street	9	9	6
Boat Trailer Parking Area	10	7	2
Parking Area at the Top of the Boat Ramp	4	4	2
On-street Parking North of Ēhukai Street	23	11	17
On-street Parking South of Ēhukai Street	23	0	28

Source: Fehr & Peers, 2021.



## 4. Baseline (2035) No Project Conditions

To evaluate the potential impacts of traffic generated by the proposed project on the surrounding street system, it was necessary to first develop estimates of future traffic conditions in the area without the project. Baseline traffic conditions without the project reflect traffic increases due to regional growth and development. This scenario is referred to as baseline or “no project” conditions. The forecasted future traffic volumes were then used as a baseline to identify impacts on the roadway system from the project. Development of this baseline traffic scenario is described in this chapter.

### 4.1 Baseline (2035) Traffic Volumes

A growth factor was applied to existing traffic volumes to account for future study area growth. This factor was derived using State of HDOT historical counts. HDOT average daily traffic (ADT) counts on Ali'i Drive between Kaleiopapa Street and Kaluna Street shows a 0.5% annual increase in vehicular volumes from 2015 to 2016. Therefore, a background annual growth rate of 1% was used to provide more conservative baseline volumes. The growth rates were compounded over the fourteen-year timeframe (2021 to 2035) and applied to each of the existing intersection turning movement traffic volumes collected in September 2021. The resulting volumes were also rounded to the nearest ten (10).

### 4.2 Baseline (2035) Street Roadway Improvements

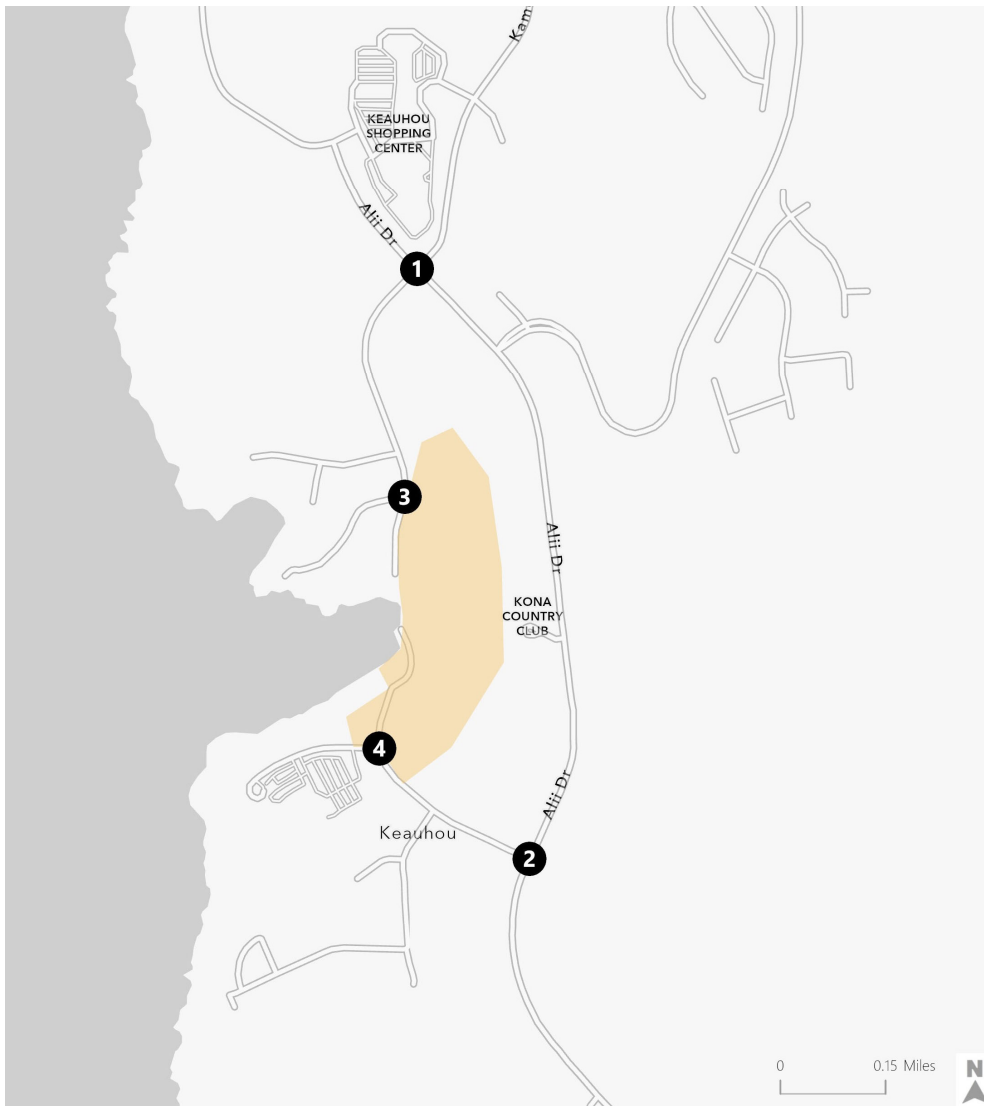
No significant developments or future construction projects are expected in the surrounding area that would significantly affect the roadway geometrics (e.g., number of lanes, lane width, roadway boundary) or traffic volumes at the study intersections. This is based on research according to The HDOT Highways Program Status map<sup>1</sup> and Kona Community Development Plan (Amended September 2019). The intersection lane configurations and traffic control devices are expected to remain the same as under Existing Conditions.

**Figure 8** illustrates the forecasted peak hour traffic volumes for the Baseline (2035) No Project Conditions.

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<sup>1</sup> <https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de>





**LEGEND**

● Study Intersections

Project Site

Weekday AM (PM) [Saturday MD] Peak Hour Traffic Volumes

↕ Lane Configuration

AM  
PM  
SAT MD

A-C

D

E

F

Level of Service (LOS)

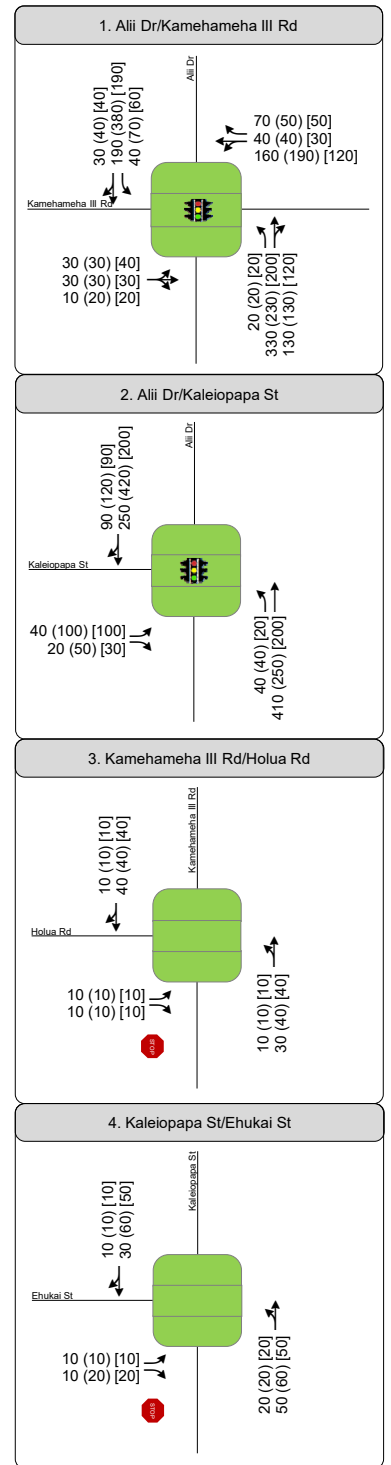


Figure 8

Peak Hour Traffic Volumes and Lane Configurations  
Baseline (2035) Conditions



### 4.3 Baseline (2035) No Project Levels of Service

Levels of service (LOS) calculations were conducted using the data in Sections 4.2 and 4.3 to evaluate the operating levels of the study intersections under Baseline (2035) No Project Conditions with the forecasted growth in traffic. The results of the LOS analysis are presented in **Table 6**. The corresponding LOS calculation sheets are included in **Appendix C**. The analysis results indicate that all study intersections are expected to continue operating at LOS D or better under Baseline (2035) No Project Conditions. The changes in operations from Existing Conditions are the result of the addition of the forecast traffic growth.

**Table 6: Baseline (2035) No Project Intersection Level of Service**

Study Intersection	Traffic Control	Peak Hour	Beeline (2035) Conditions	
			Delay <sup>1</sup>	LOS
1. Ali'i Drive & Kamehameha III Road	Signalized	Weekday AM	11.1	B
		Weekday PM	11.9	B
		Sat MD	10.1	B
2. Ali'i Drive & Kaleiopapa Street	Signalized	Weekday AM	6.1	A
		Weekday PM	8.8	A
		Sat MD	7.7	A
3. Kamehameha III Road & Hōlua Road	Side Street Stop Control	Weekday AM	9.3	A
		Weekday PM	9.3	A
		Sat MD	9.3	A
4. Kaleiopapa Street & Ēhukai Street	Side Street Stop Control	Weekday AM	9.4	A
		Weekday PM	9.5	A
		Sat MD	9.4	A

Source: Fehr & Peers.

Notes:

<sup>1</sup> Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. The vehicular delay for the worst movement is reported for side-street stop-controlled intersections.





# 5. Project Traffic Estimates

This chapter describes the anticipated number of vehicle trips and directionality of those trips that would result from implementation of the proposed project. Future traffic added to the roadway system by the project is estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of project-generated traffic which will be added to the roadway network. The second step identifies the direction of travel to and from the project site and the proportion of traffic on each potential travel path. The new trips are assigned to specific street segments and intersection turning movements during the third step. This process is described in more detail in the following sections.

## 5.1 Trip Generation

The vehicle trip generation for the proposed project was estimated using a combination of standard trip rates from national and other sources, published in the *Trip Generation Manual* (11<sup>th</sup> Edition, 2020) by the Institute of Transportation Engineers (ITE). For land uses such as beach park that do not have an equivalent in the ITE manual, we used *Brief Guide of Vehicular Traffic Generation Rates for the San Diego region*<sup>2</sup> developed by the San Diego Association of Governments (SANDAG). These trip totals were then adjusted using the Mixed-Use (MXD) Trip Generation Model developed by Fehr & Peers and the Environmental Protection Agency (EPA), which is based on statistically superior data compared to the mixed-use methodology used by ITE alone. This model accounts for the site context and other factors to estimate potential internalization and multimodal trip reductions, where trips will be made by walking, bicycling and transit.

As shown in **Table 7**, the proposed project is expected to generate a total of 1,928 net new daily vehicle trips on a weekday, including 155 net new vehicle trips during the AM peak hour (98 inbound/57 outbound) and 230 net new vehicle trips during the PM peak hour (109 inbound/121 outbound). On a Saturday, the project is estimated to generate 361 net new vehicle trips during Saturday midday peak hour (181 inbound/180 outbound). The number of daily Saturday trips is not provided however, it could be generally estimated if needed based on the relationship between the average of the weekday AM and PM proportions of weekday daily traffic.

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<sup>2</sup> [https://www.sandag.org/uploads/publicationid/publicationid\\_1140\\_5044.pdf](https://www.sandag.org/uploads/publicationid/publicationid_1140_5044.pdf)



**Table 7: Project Vehicle Trip Generation Estimates**

Strategy	Trip Generation Category (Source)	Size	Unit	Weekday						Saturday <sup>5</sup>			
				Daily	AM			PM			Midday		
					In	Out	Total	In	Out	Total	In	Out	Total
A3/D1	Library (ITE)	2	ksf	144	1	1	2	8	9	17	14	12	26
A4	Beach, Ocean or Bay shoreline park (SANDAG)	0.9	acre	54	4 <sup>1</sup>	2 <sup>1</sup>	6 <sup>1</sup>	2	4	6	6 <sup>2</sup>	10 <sup>2</sup>	16 <sup>2</sup>
A4	Beach, Ocean or Bay shoreline park (SANDAG)	2.0	acre	120	8 <sup>1</sup>	5 <sup>1</sup>	13 <sup>1</sup>	5	8	13	14 <sup>2</sup>	20 <sup>2</sup>	34 <sup>2</sup>
B2	Strip Retail Plaza (<40k) (ITE)	11.62	ksf	633	17	11	28	39	38	77	46	31	77
	Fast Casual Restaurant (ITE)	3	ksf	252	21 <sup>1</sup>	17 <sup>1</sup>	38 <sup>1</sup>	21	17	38	54	44	98
B3	Resort Hotel (ITE)	150	room	503	35	13	48	27	35	62	33 <sup>3</sup>	43 <sup>3</sup>	76 <sup>3</sup>
B4	Strip Retail Plaza (<40ksf) (ITE)	2	ksf	109	3	2	5	7	7	14	8	6	14
C2	Beach, Ocean or Bay shoreline park (SANDAG)	2.2	acre	132	9 <sup>1</sup>	6 <sup>1</sup>	15 <sup>1</sup>	6	9	15	16 <sup>2</sup>	23 <sup>2</sup>	39 <sup>2</sup>
<b>Total</b>				<b>1,947</b>	<b>98</b>	<b>57</b>	<b>155</b>	<b>115</b>	<b>127</b>	<b>242</b>	<b>191</b>	<b>189</b>	<b>380</b>
<b>Reduction<sup>4</sup></b>				<b>1,947</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6</b>	<b>6</b>	<b>12</b>	<b>10</b>	<b>9</b>	<b>19</b>
<b>Net Trip</b>				<b>1,928</b>	<b>98</b>	<b>57</b>	<b>155</b>	<b>109</b>	<b>121</b>	<b>230</b>	<b>181</b>	<b>180</b>	<b>361</b>

Source: Fehr & Peers, ITE Trip Generation Manual (11<sup>th</sup> Edition, 2020), and SANDAG Trip Generation Rates.

Notes:

<sup>1</sup> PM trip rates are used as the AM trip rates. Because the AM trip rates were lower than what this land use in this project is expected to generate.

<sup>2</sup> Saturday trip generation rate for this land use is not provided. To calculate the Saturday trips, the ratio of weekday PM to Saturday rates from the public park land use from ITE Trip Generation Manual multiplied by weekday PM trip rates of this land use.

<sup>3</sup> Similar to the previous note with only difference that Hotel land use from the ITE Trip Generation Manual used as a reference land use to calculate the PM weekday to Saturday trip rate.

<sup>4</sup> It is expected that the reduction is underestimated given all of the complementary uses on the site. The actual trip gen would be lower than estimated.

<sup>5</sup> The number of daily Saturday could be generally estimated based on the relationship between the average of the weekday AM and PM proportions of weekday daily traffic.



## 5.2 Trip Distribution and Assignment

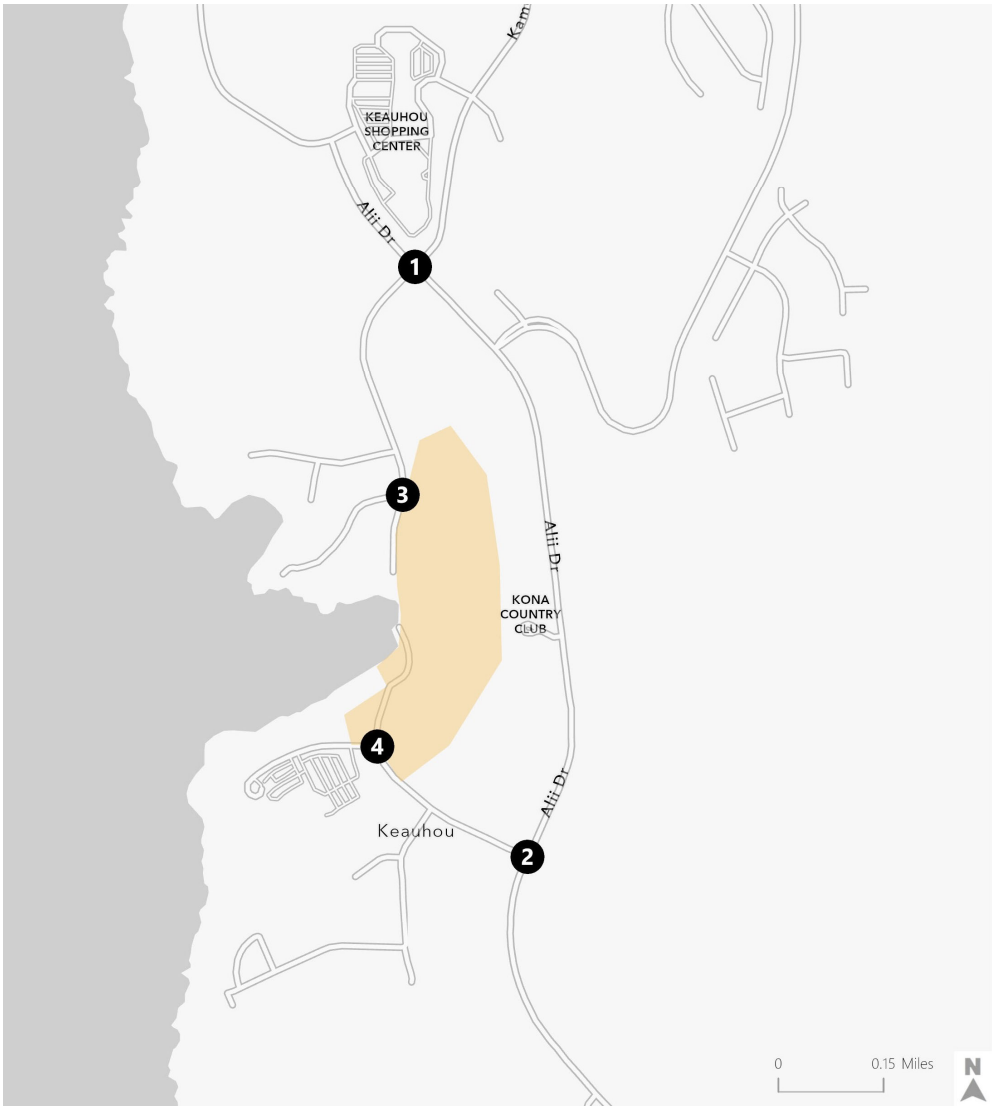
The geographic distribution of trips generated by the proposed project is dependent on characteristics of the street system serving the project site; the level of accessibility of routes to and from the project site; and recreational and retail areas to which local residents and other visitors would be drawn (e.g., parks, shopping destinations, services, and restaurants), as well as lodging area that would draw visitors from Hawai'i Island, the rest of the State, and elsewhere. The resulting overall trip distribution pattern estimates for the peak hour project-generated traffic are shown on **Figure 9** and are listed below:

- 60% to/from the north along Ali'i Drive
- 25% to/from the south along Ali'i Drive
- 15% to/from the east Kamehameha III Road

Using the estimated trip generation and the distribution patterns discussed above, the traffic generated by the proposed project was assigned to the individual turning movements at intersections within the street network. **Figure 10** details the project's trip assignment at each study intersection.

Also, with addition of the project, the trip assignment on Kaleiopapa Street and Kamehameha III Road will change based on the new and repurposed land uses, the parking locations, and the new connection of Old Kona Road. Therefore, the baseline no project volumes were reassigned for conditions with the project in place.





- LEGEND**
- Study Intersections
  - Project Site
  - ↔ X Trip Distribution Percentage

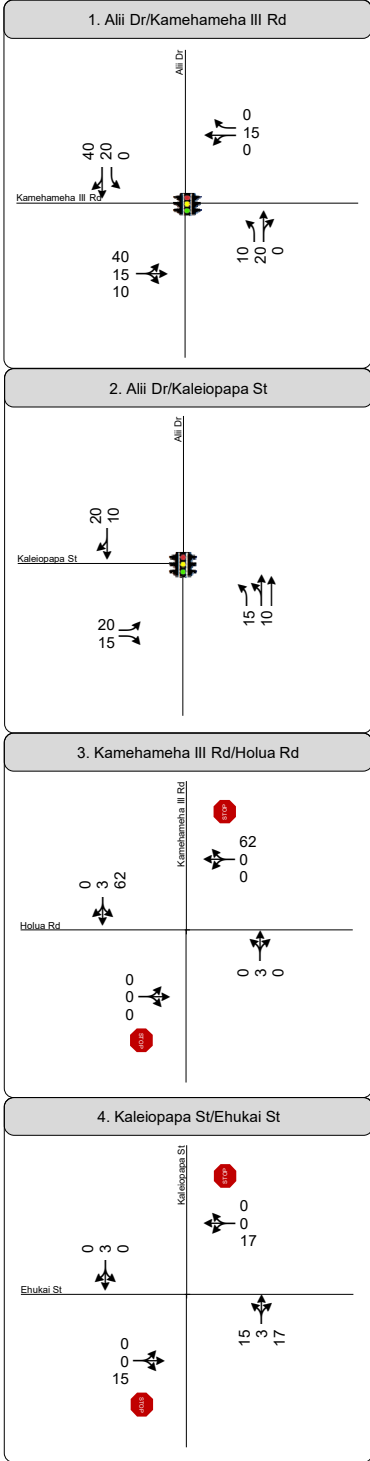
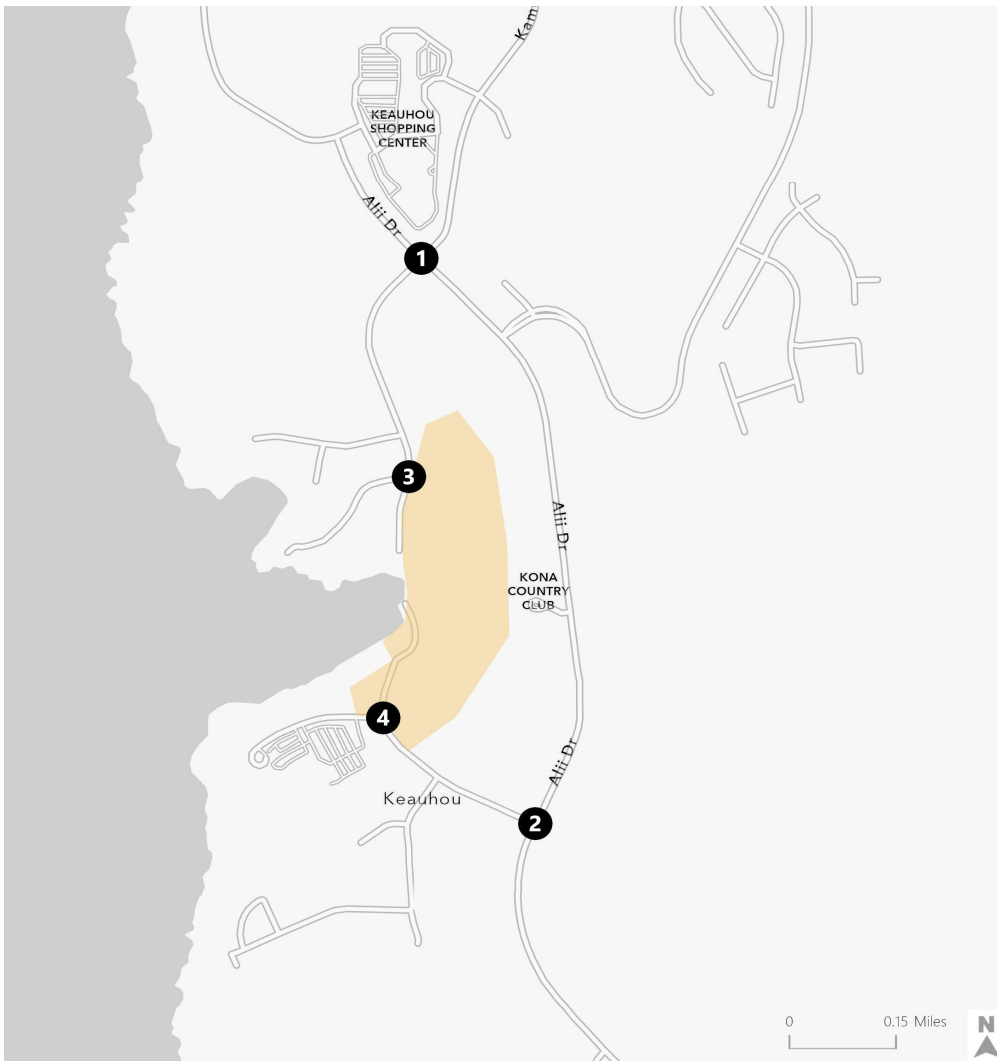


Figure 9

Project Trip Distribution





**LEGEND**

- Study Intersections
- Project Site

Weekday AM (PM) [Saturday MD] Peak Hour Traffic Volumes

↕ Lane Configuration

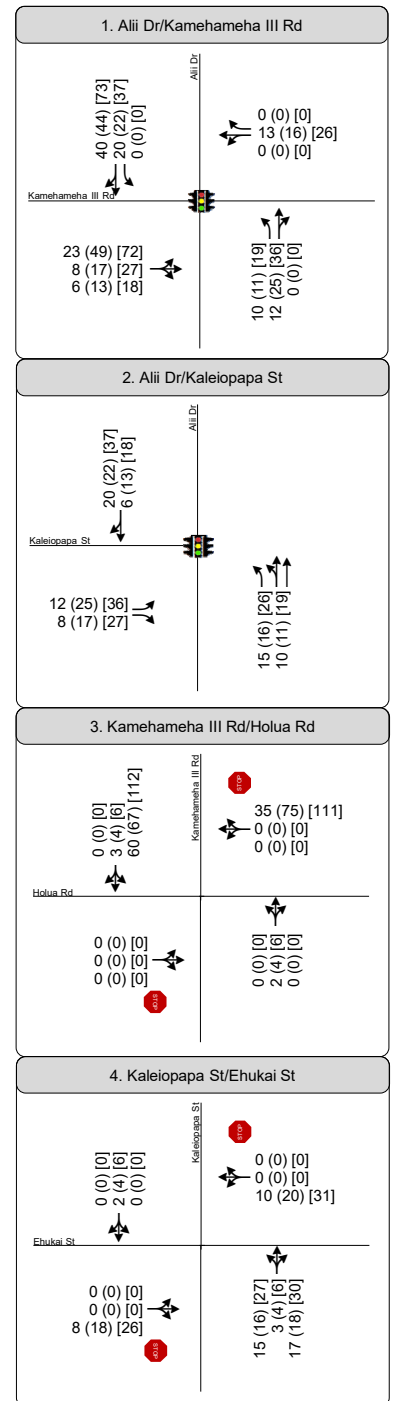


Figure 10

Project Trip Assignment



# 6. Baseline (2035) Plus Project Conditions

This section describes the analysis of potential impacts on the roadway system due to projected future increases in traffic, including traffic generated by the project in 2035. The Baseline (2035) Plus Project roadway network is the same network assumed under the Baseline No Project scenario. The analysis compares the project levels of service (LOS) at each study intersection with and without the addition of project-generated trips to determine potential impacts on the transportation network.

## 6.1 Project Roadway Improvements

The proposed project will improve the Old Kona Road to provide improved connectivity between Kaleiopapa Street to Kamehameha III Road and to enhance access to some new developments along the road. No other roadway improvements for vehicular movements are proposed as part of the project.

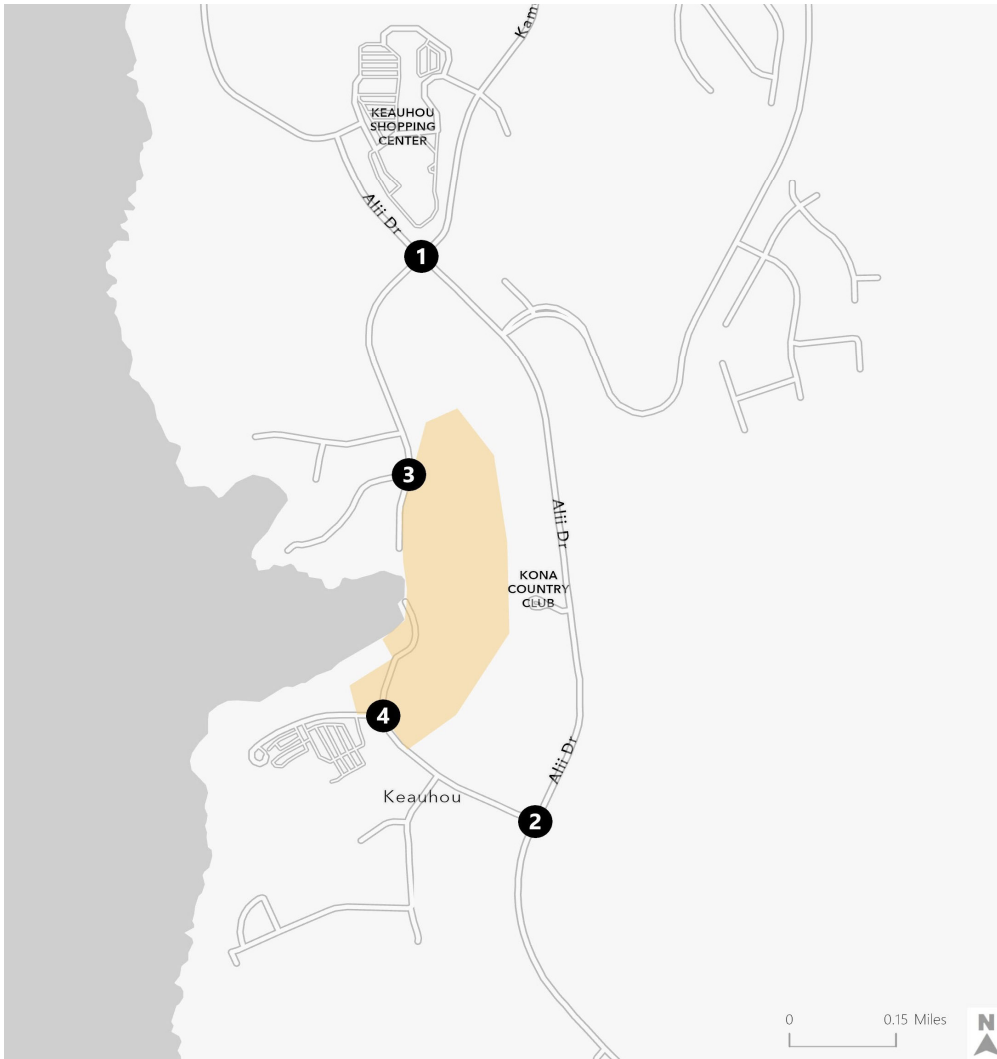
## 6.2 Baseline (2035) Plus Project Intersection Level of Service

**Figure 11** presents the forecasted Baseline (2035) Plus Project AM, PM, and Saturday midday peak hour volumes. The peak hour volumes were used to analyze operations using the LOS methodology described in **Section 2.4**.

The LOS analysis results for the study intersections under both Baseline (2035) No Project and Plus Project conditions are presented in **Table 8**. Detailed LOS results for intersection movements and corresponding LOS calculation sheets are included in **Appendix D**. The results indicate that under Baseline (2035) Plus Project conditions, all study intersections are anticipated to continue to operate at LOS D or better during the AM and PM peak hours with the addition of project-generated traffic.

All unsignalized intersections are projected to operate with acceptable LOS (LOS D or better), so no signal warrant analysis is needed.





**LEGEND**

- Study Intersections
- Project Site

Weekday AM (PM) [Saturday MD] Peak Hour Traffic Volumes

↕ Lane Configuration

Level of Service (LOS)

AM PM SAT MD

**A-C** **D** **E** **F**

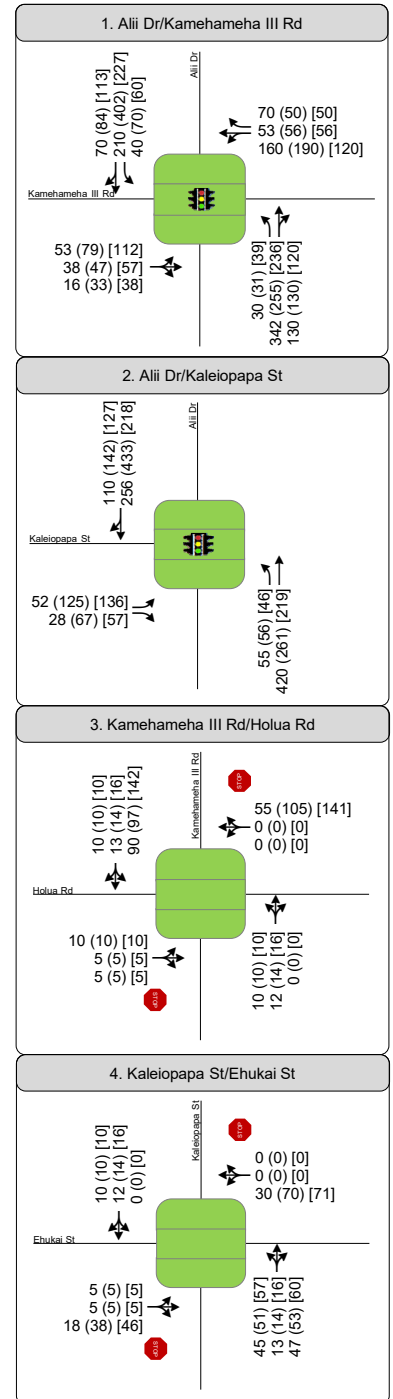


Figure 11

Peak Hour Traffic Volumes and Lane Configurations  
Baseline (2035) Plus Project Conditions



**Table 8: Baseline (2035) Plus Project Intersection Level of Service**

Study Intersection	Traffic Control	Peak Hour	Beeline (2035) Conditions		Baseline Plus Project Conditions		Change in Delay
			Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	LOS	
1. Ali'i Drive & Kamehameha III Road	Signalized	Weekday AM	11.1	B	11.5	B	0.4
		Weekday PM	11.9	B	12.8	B	0.9
		Sat MD	10.1	B	11.4	B	1.3
2. Ali'i Drive & Kaleiopapa Street	Signalized	Weekday AM	6.1	A	6.6	A	0.5
		Weekday PM	8.8	A	9.6	A	0.8
		Sat MD	7.7	A	8.9	A	1.2
3. Kamehameha III Road & Hōlua Road	Side Street Stop Controlled	Weekday AM	9.3	A	11.1	B	1.8
		Weekday PM	9.3	A	11.7	B	2.4
		Sat MD	9.3	A	13.2	B	3.9
4. Kaleiopapa Street & Ēhukai Street	Side Street Stop Controlled	Weekday AM	9.4	A	10.5	B	1.1
		Weekday PM	9.5	A	11.4	B	1.9
		Sat MD	9.4	A	11.8	B	2.4

Source: Fehr & Peers.

Notes:

<sup>1</sup> Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. The vehicular delay for the worst movement is reported for side-street stop-controlled intersections.

## 6.3 Potential Traffic Impacts

Based upon the impact significance criteria and the results of the operations analysis presented in Section 6.2, development of the proposed project is not expected to result in any significant traffic impacts under any of the study peak periods.

As noted in Section 5.2, new trips to the project site were distributed based on a variety of factors including existing traffic volumes, street characteristics and accessibility, and the location of new land uses and new parking areas. No diversion of existing traffic volumes was assumed in the analysis included in Section 6.2 because: 1) the general arrangement of land uses (e.g., commercial vs beach uses) is not changing substantially with the project, 2) the roadway on the Old Kona Road alignment is planned to be designed as an internal circulation access roadway (i.e., with narrow lanes and speed control devices) and not as a higher capacity through road, and 3) it is not possible to accurately estimate the specific number of existing vehicles that might shift with the new connection since the shift will be based on individual





driver behavior/choice. That said, the existing volumes were reviewed to determine the maximum shift that could occur. Based on the distribution of existing traffic that predominantly access the bay to and from the north, the potential shift could involve some traffic that currently uses Kaleiopapa Street to use Kamehameha III Road with the planned connection. It is estimated that no more than 30 vehicle trips per direction could be diverted from Kaleiopapa Street to Kamehameha III Road during the Saturday peak hour, which includes the highest volumes at the site. This additional volume could be an average of up to one additional vehicle per minute but would not significantly affect operations at the intersections on Kamehameha III Road, or be noticeable to other drivers on the roadway.

## 6.4 Active Transportation and Transit Impacts

### 6.4.1 Planned Active Mode and Transit Improvements

Some pedestrian and cycling facilities, and transit route improvements are planned for the project area and vicinity. All planned active transportation and transit improvements are focused on Ali'i Drive or roadways outside the immediate project area, with none planned for Kaleiopapa Street or Kamehameha III Road makai of Ali'i Drive.

Planned pedestrian facilities from *the Kona Community Development Plan* include sidewalks along Ali'i Drive and a path along the planned Kahului – Keauhou Parkway<sup>3</sup>. The project area is not included in any areas of concern in the *Hawai'i Statewide Pedestrian Master Plan*; however, the plan does include broader recommendations for pedestrian facilities across the state.

*Bike Plan Hawai'i* (2003) includes multiple improvements in the project vicinity for bicycling infrastructure. The Ali'i Drive extension is a path planned between Lekeleke Bay and Kealakekua Bay south of the project site. Additionally, a signed shared road is planned on Ali'i Drive between Palani Road and Keauhou Road. Shared road marking and signage are planned for Kamehameha III Road between Kuakini Highway (Highway 19) and Ali'i Drive in the project vicinity<sup>4</sup>.

The *County of Hawai'i Transit and Multi-Modal Transportation Master Plan* includes three routes which serve the project area, with two currently serving the area and a third planned. Route 90 will provide select trips between Pahala and South Kohala, along Ali'i Drive and Kamehameha III Road.

### 6.4.2 Potential Active Mode and Transit Impacts

Implementation of the proposed project will not conflict with any existing pedestrian facility, and it will not preclude the implementation of any other potential enhancements to walking (e.g., a path or sidewalk

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<sup>3</sup> County of Hawai'i Kona Community Development Plan, 2008.

<sup>4</sup> Hawai'i Department of Transportation Bike Plan Hawai'i Master Plan, Appendix E – Proposed Bicycle Facilities (Map List). 2012



along a facility where it does not currently exist). Similarly, bicycle trips will be generated by the project, but development of the project is not expected to conflict with any existing or planned bicycle facility. For people who walk and bike, separate pedestrian and bicycle facilities are not currently provided near Keauhou Bay. The proposed project is expected to generate bicycle and pedestrian trips to and from the project site, although the total volumes are expected to be low. Regardless, the project will provide a shared-use path for pedestrian and bicycles along the Old Kona Road alignment to enhance safety and improve multimodal connectivity between the existing and proposed land uses (parks, open space, hotel, restaurant, etc.). This will allow a park-once option for all site visitors such that they will be able to visit multiple uses within the site without having to drive a vehicle.

The proposed project is also expected to generate new transit trips by visitors to the site, as well as by employees of the commercial uses and the resort. New transit users are expected to utilize Route 204 and the existing stop on Kaleiopapa Street as the nearest transit stop. However, this increase in ridership is not expected to increase to a level that would substantially affect existing transit facilities and services.



# 7. Site Access, Circulation, and Parking

This chapter includes a review of the site access and on-site circulation for vehicles, pedestrians, and bicyclists.

## 7.1 Site Access Assessment

Primary vehicular site access will be provided via Kaleiopapa Street and Kamehameha III Road. While these access points exist today, the new connection between them via Old Kona Road does not. This new linkage will allow vehicles destined for the site to now use either Kamehameha III Road or Kaleiopapa Street to access the site. As noted in Chapter 6, Both approaches on Old Kona Road at these intersections will be controlled by a stop sign.

The parking lot serving the commercial area located makai of Ēhukai and Kaleiopapa Streets will provide vehicular access via a driveway located on each fronting street. Access to the proposed resort will also be provided by driveways along Old Kona Road. The only other parking lot not directly accessed by Old Kona Road is the proposed boat trailer lot at the south end of the site, and the outbound and inbound driveways will intersect Kaleiopapa Street approximately 50 and 200 feet mauka of the Old Kona Road intersection, respectively.

Because the largest parking field will be located at the north end of the site and the primary source of trips is to and from the north in Ali'i Drive, no substantial change in travel patterns is anticipated. Due to relatively low traffic volumes and desirable operating levels during peak periods, no additional vehicular access points are needed or recommended.

Bicyclists and pedestrians are also expected to access the project site. As noted in Section 6.6, multimodal access to the site will be enhanced by providing a shared-use path linking different uses of the site. In addition, the implementation of new sidewalks along Ali'i Drive and the shared road signing and striping on Kamehameha III Road and Ali'i Drive will provide access for pedestrians and bicycles to the surrounding land uses such as the Keauhou Bay shopping center.

Overall, site access is considered acceptable, and no additional access modifications.



## 7.2 On-Site Circulation & Parking

Most vehicles accessing the site will park in the designated lots located at either end of Old Kona Road. This roadway will link the north and south ends of the site, but this connection is intended to be a low-speed, local connection with characteristics similar to a driveway or alley (i.e., not a collector-type roadway intended to serve through traffic). As such, we recommend that it include narrow travel lanes and traffic calming devices such as speed humps (or raised crosswalks where appropriate) at 300- to 600-foot intervals to moderate travel speeds and to minimize through traffic between the neighborhoods located on the north and south sides of Keauhou Bay.

Use of the Old Kona Road alignment will minimize potential congestion and provide a more formalized circulation path for vehicles which reduces conflicts and improve safety. It is also intended to minimize the traffic shift as a result of the connection provided between Kamehameha III Road and Kaleiopapa Street. For example, with the connection provided by Old Kona Road, boats parked in the boat parking lot on Kamehameha III Road no longer need to turn around and enter from Kaleiopapa Street to launch their boats into the Bay. Overall, on-site circulation is considered adequate, and no modifications are recommended.

The proposed project will provide 126 parking stalls in lot at the north end of the site to accommodate visitors to the beach park, cultural sites, outrigger canoes, educational uses, and tour vendors. An approximate 60-space lot is proposed for the commercial uses and dining venue located near the Ēhukai Street/Kaleiopapa Street intersection, and the existing 10 parking spaces close to the boat pier will be maintained. In addition, parking for the proposed resort will include a total of roughly 170 spaces or roughly one space per unit plus some additional parking for employees. Provision of all these spaces is intended to reduce the amount of on-street parking and to ensure that the site accommodates as much parking on-site as feasible.

Given the mix of proposed uses, many visitors to the site are expected to visit more than one use during a single trip. For example, some beachgoers and canoe paddlers are expected to visit the commercial/dining uses, as will resort visitors and people using the boat ramp. Thus, the site will benefit from a "park once" strategy and will ultimately less parking than would be required for each individual land use. Even if parking demand exceeds the site supply at selected times, on-street parking is expected to be available given the substantial increase in off-street supply to serve the existing and new uses. This approach is more sustainable in that it will utilize an existing resource, and require less new impermeable surfaces for parking.

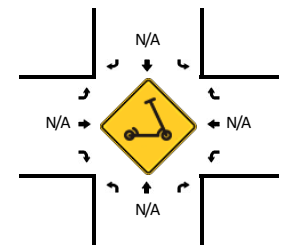
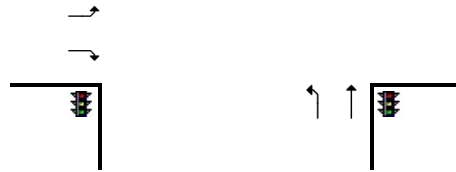
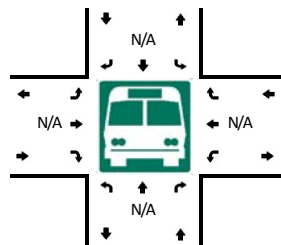
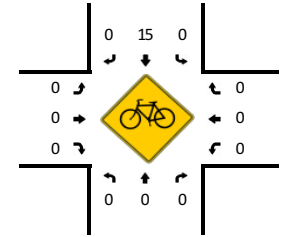
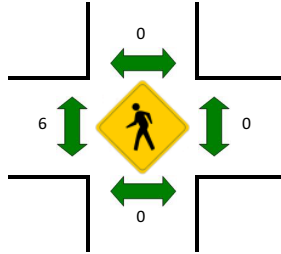
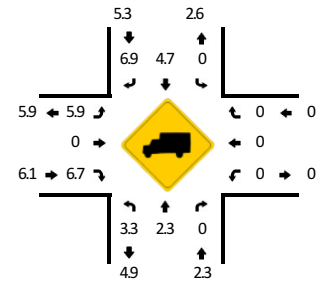
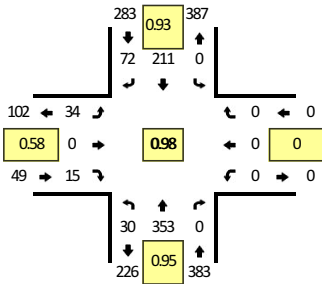


# Appendix A: Traffic and Segment Counts

**LOCATION:** Alii Hwy -- Kaleiopapa St  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561801  
**DATE:** Thu, Sep 16 2021

Peak-Hour: 7:15 AM -- 8:15 AM  
 Peak 15-Min: 7:15 AM -- 7:30 AM

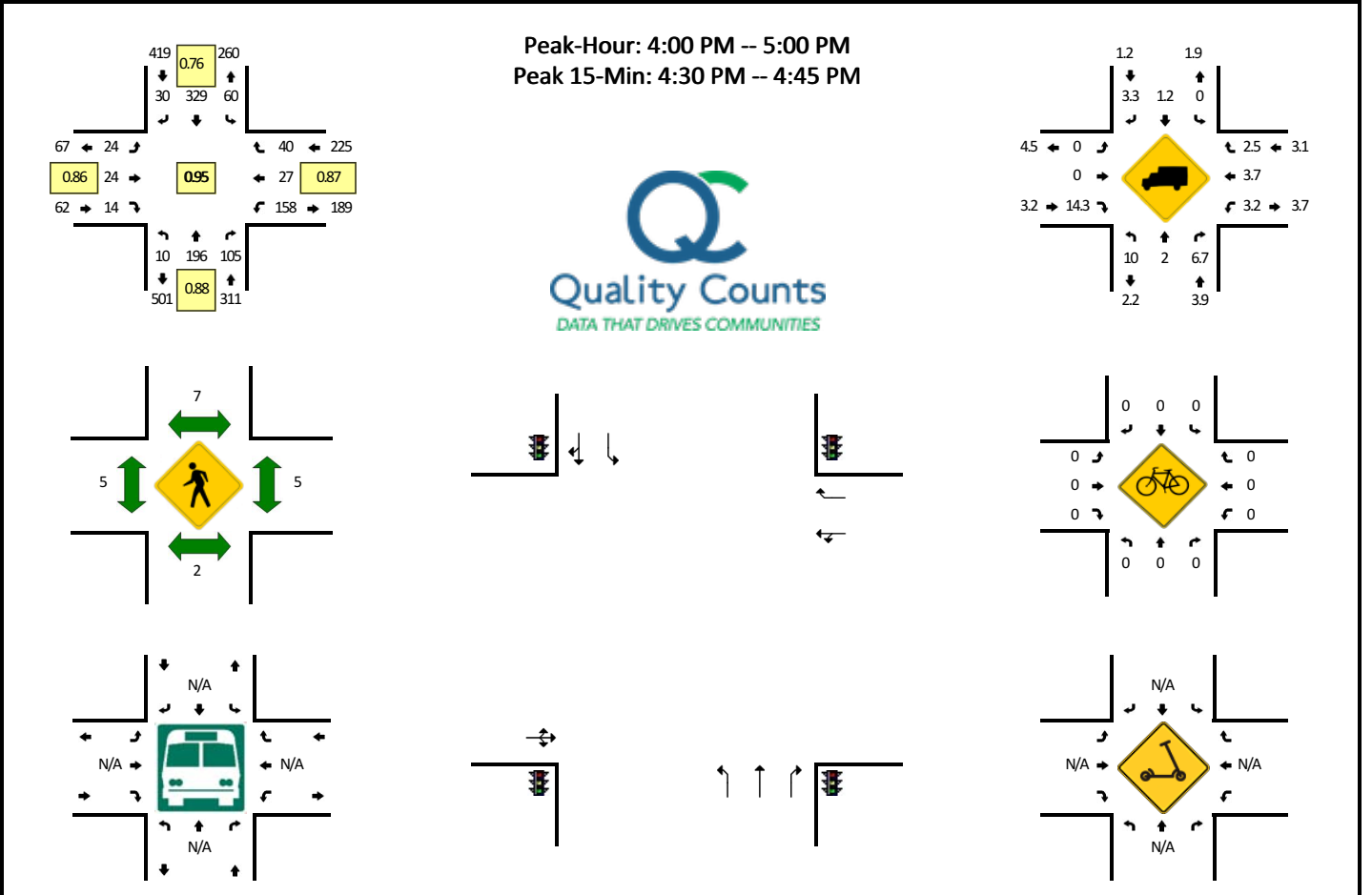


15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kaleiopapa St (Eastbound)				Kaleiopapa St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	1	17	0	0	0	10	4	0	5	0	1	0	0	0	0	0	38	
6:15 AM	0	33	0	0	0	8	7	0	10	0	2	0	0	0	0	0	60	
6:30 AM	5	45	0	0	0	34	7	0	9	0	2	0	0	0	0	0	102	
6:45 AM	5	71	0	0	0	36	9	0	5	0	0	0	0	0	0	0	126	326
7:00 AM	2	60	0	0	0	45	19	0	8	0	2	0	0	0	0	0	136	424
7:15 AM	7	94	0	0	0	50	22	0	6	0	4	0	0	0	0	0	183	547
7:30 AM	11	89	0	0	0	60	10	0	9	0	0	0	0	0	0	0	179	624
7:45 AM	8	78	0	0	0	58	18	0	5	0	4	0	0	0	0	0	171	669
8:00 AM	4	92	0	0	0	43	22	0	14	0	7	0	0	0	0	0	182	715
8:15 AM	4	54	0	0	0	35	19	0	12	0	6	0	0	0	0	0	130	662
8:30 AM	7	50	0	0	0	39	10	0	7	0	4	0	0	0	0	0	117	600
8:45 AM	2	61	0	0	0	55	5	0	13	0	6	0	0	0	0	0	142	571
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	28	376	0	0	0	200	88	0	24	0	16	0	0	0	0	0	732	
Heavy Trucks	0	12	0	0	0	8	4	0	4	0	0	0	0	0	0	0	28	
Buses																		
Pedestrians	0	0			0	0			8				0	0			8	
Bicycles	0	0			0	4	0		0	0	0		0	0	0		4	
Scoters																		

Comments:

**LOCATION:** Alii Hwy -- Kamehameha III Rd  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561805  
**DATE:** Thu, Sep 16 2021

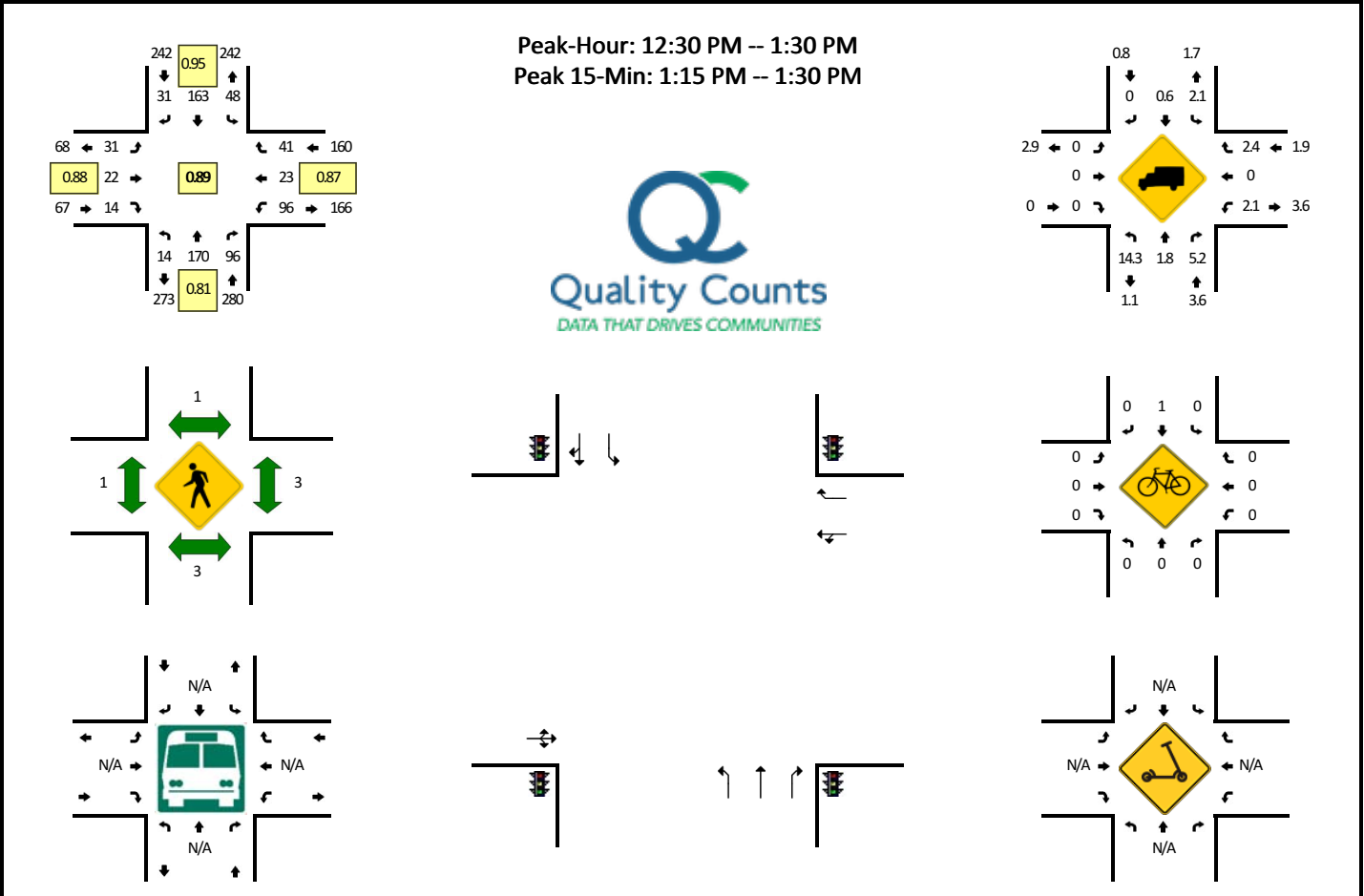


15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kamehameha III Rd (Eastbound)				Kamehameha III Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	2	60	25	0	6	59	7	0	4	7	2	0	37	10	14	0	233	
3:45 PM	1	54	30	0	11	54	7	0	8	13	3	0	55	4	16	0	256	
4:00 PM	1	48	39	0	12	72	5	0	2	7	6	0	40	8	10	0	250	
4:15 PM	4	47	27	0	10	71	8	0	7	5	3	0	44	6	9	0	241	980
4:30 PM	2	42	25	0	20	107	10	0	10	6	2	0	32	4	7	0	267	1014
4:45 PM	3	59	14	0	18	79	7	0	5	6	3	0	42	9	14	0	259	1017
5:00 PM	2	40	20	0	16	73	9	1	2	8	3	0	41	7	13	0	235	1002
5:15 PM	1	45	24	0	19	72	10	0	4	1	2	0	42	1	9	0	230	991
5:30 PM	2	36	16	0	18	69	11	0	5	3	2	0	41	7	9	0	219	943
5:45 PM	2	23	19	0	10	61	7	0	7	9	2	0	36	5	15	0	196	880
6:00 PM	3	26	34	0	11	53	6	0	11	7	1	0	40	6	14	0	212	857
6:15 PM	1	26	25	0	14	39	6	0	8	4	3	0	31	2	9	0	168	795
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	168	100	0	80	428	40	0	40	24	8	0	128	16	28	0	1068	
Heavy Trucks	0	0	12		0	12	4		0	0	0		12	0	0		40	
Buses																		
Pedestrians		8				12				4				4			28	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*

**LOCATION:** Alii Hwy -- Kamehameha III Rd  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561806  
**DATE:** Sat, Sep 18 2021



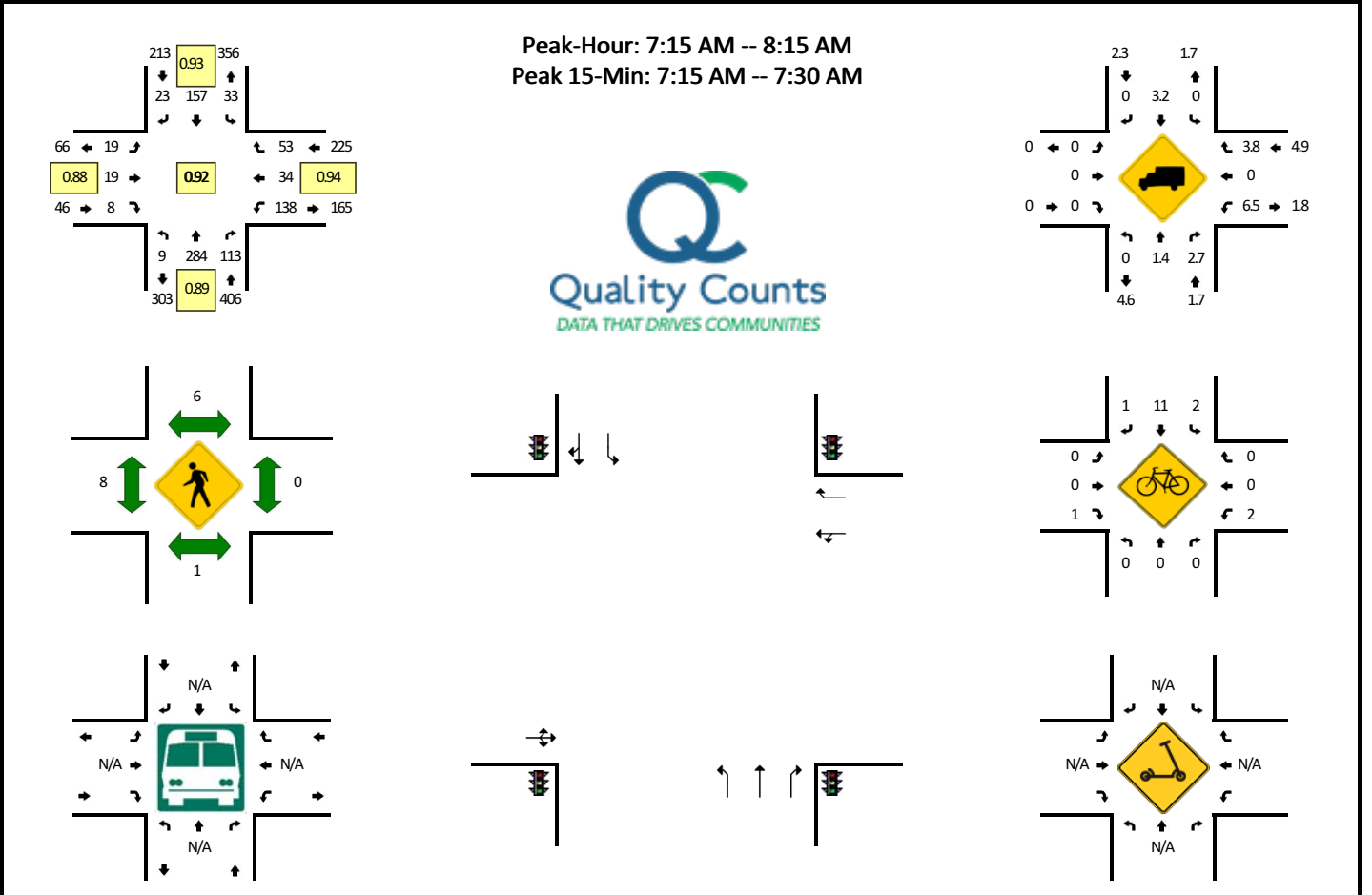
15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kamehameha III Rd (Eastbound)				Kamehameha III Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:30 AM	3	42	27	0	14	37	6	0	9	4	1	0	20	2	13	0	178	
10:45 AM	0	33	24	0	19	47	6	0	9	9	3	0	24	5	14	0	193	
11:00 AM	1	47	18	0	14	49	4	0	5	4	1	0	24	2	13	0	182	
11:15 AM	2	48	24	0	19	44	5	0	3	7	5	0	15	1	12	0	185	738
11:30 AM	2	39	23	0	17	49	3	0	4	5	1	0	27	4	12	0	186	746
11:45 AM	1	38	21	0	14	50	10	0	3	2	4	0	19	3	13	0	178	731
12:00 PM	3	57	25	0	16	42	2	2	5	5	3	0	24	6	7	0	197	746
12:15 PM	0	40	27	0	10	45	7	0	1	3	3	0	24	5	16	0	181	742
12:30 PM	4	29	27	0	12	45	7	0	5	6	4	0	19	3	8	0	169	725
12:45 PM	1	44	22	0	7	38	9	0	8	8	2	0	21	8	11	0	179	726
1:00 PM	8	40	19	0	19	37	8	0	7	2	6	0	26	7	11	0	190	719
1:15 PM	1	57	28	0	10	43	7	0	11	6	2	0	30	5	11	0	211	749
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	228	112	0	40	172	28	0	44	24	8	0	120	20	44	0	844	
Heavy Trucks	4	4	8		0	4	0		0	0	0		4	0	4		28	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

*Comments:*



**LOCATION:** Alii Hwy -- Kamehameha III Rd  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561804  
**DATE:** Thu, Sep 16 2021



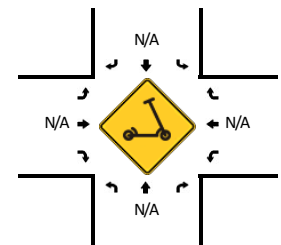
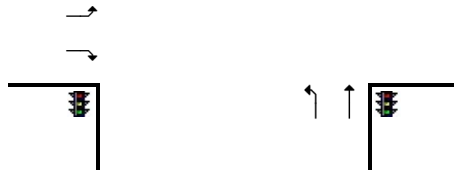
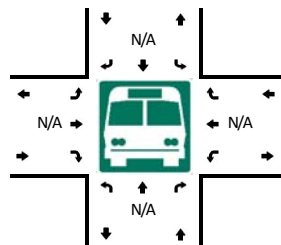
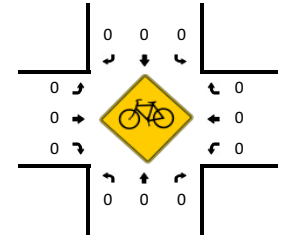
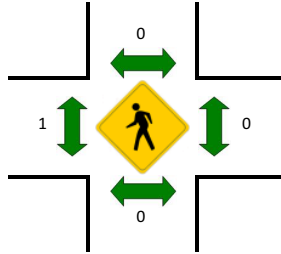
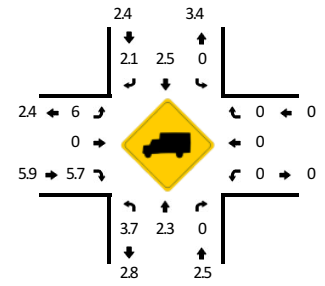
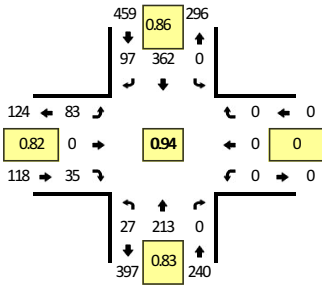
15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kamehameha III Rd (Eastbound)				Kamehameha III Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	7	13	0	4	9	1	0	0	5	1	0	8	0	3	0	51	
6:15 AM	1	18	26	0	5	9	2	0	1	1	1	0	13	2	3	0	82	
6:30 AM	1	35	20	0	8	26	2	0	1	2	1	0	14	2	9	0	121	
6:45 AM	4	54	29	0	7	23	4	0	8	3	1	0	32	7	6	0	178	432
7:00 AM	0	42	24	0	7	34	5	0	2	6	5	0	27	2	13	0	167	548
7:15 AM	0	83	31	0	7	42	6	0	4	6	3	0	36	10	14	0	242	708
7:30 AM	5	67	26	0	6	36	9	0	8	1	2	0	37	8	14	0	219	806
7:45 AM	2	69	22	0	6	47	4	0	2	7	1	0	33	8	14	0	215	843
8:00 AM	2	65	34	0	14	32	4	0	5	5	2	0	32	8	11	0	214	890
8:15 AM	3	43	30	0	14	26	5	0	6	0	3	0	28	1	11	0	170	818
8:30 AM	1	44	19	0	15	36	6	0	5	4	1	0	25	3	15	0	174	773
8:45 AM	5	49	30	0	6	27	4	0	5	7	1	0	25	5	17	0	181	739
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	332	124	0	28	168	24	0	16	24	12	0	144	40	56	0	968	
Heavy Trucks	0	4	4		0	8	0		0	0	0		0	0	0		16	
Buses																		
Pedestrians	0	0	0		0	0	0		0	4	0		0	0	0		4	
Bicycles	0	0	0		0	16	4		0	0	4		4	0	0		28	
Scoters																		

Comments:

**LOCATION:** Alii Hwy -- Kaleiopapa St  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561802  
**DATE:** Thu, Sep 16 2021

**Peak-Hour: 3:45 PM -- 4:45 PM**  
**Peak 15-Min: 4:30 PM -- 4:45 PM**



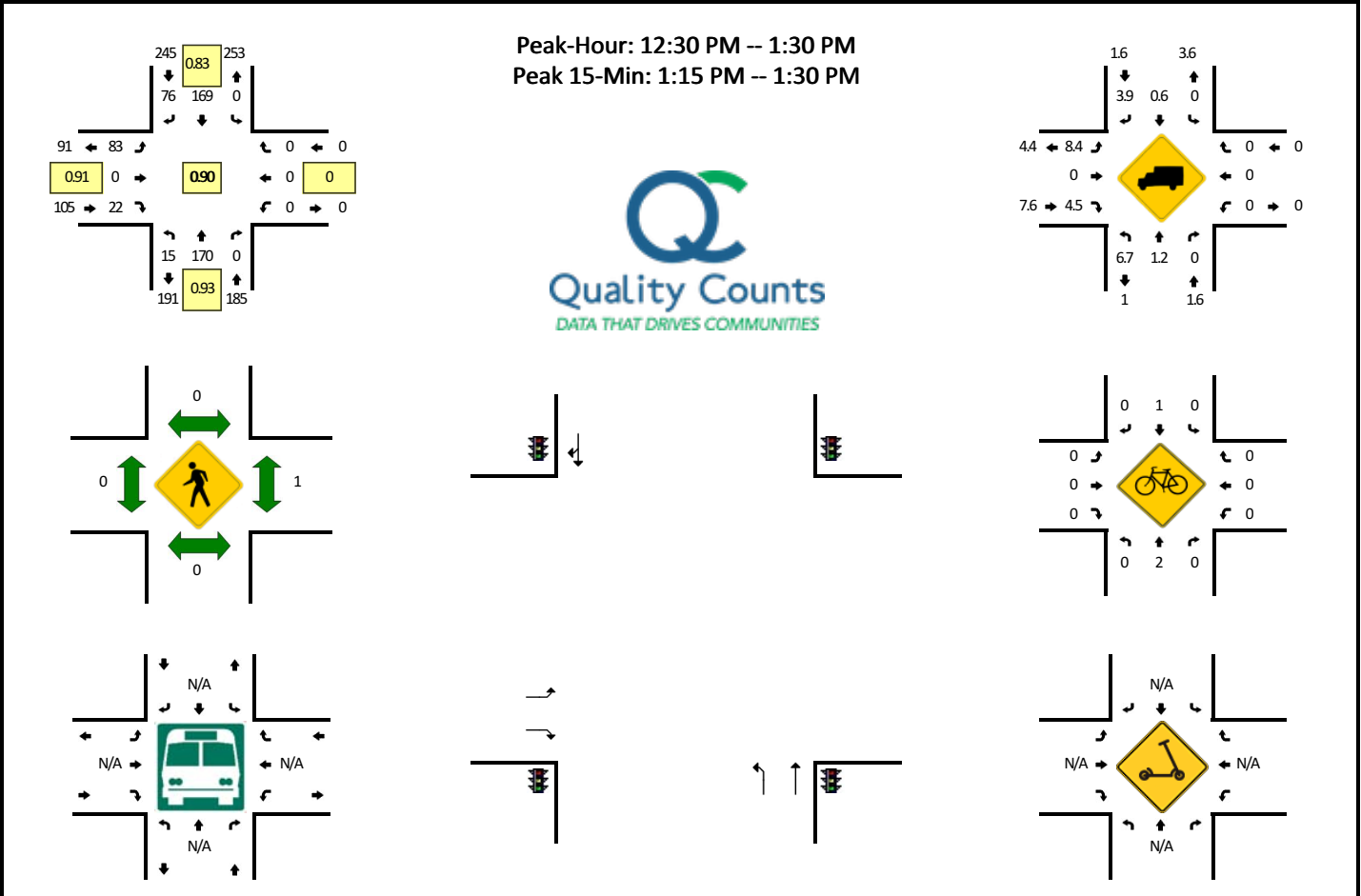
15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kaleiopapa St (Eastbound)				Kaleiopapa St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	1	62	0	0	0	65	18	0	18	0	7	0	0	0	0	0	171	
3:45 PM	8	64	0	0	0	66	38	0	25	0	11	0	0	0	0	0	212	
4:00 PM	10	45	0	0	0	90	19	0	25	0	10	0	0	0	0	0	199	
4:15 PM	5	55	0	0	0	91	21	0	14	0	3	0	0	0	0	0	189	771
4:30 PM	4	49	0	0	0	115	19	0	19	0	11	0	0	0	0	0	217	817
4:45 PM	5	50	0	0	0	85	25	0	13	0	7	0	0	0	0	0	185	790
5:00 PM	7	37	0	0	0	85	28	0	18	0	8	0	0	0	0	0	183	774
5:15 PM	10	32	0	0	0	85	26	0	29	0	9	0	0	0	0	0	191	776
5:30 PM	7	34	0	0	0	71	33	0	20	0	3	0	0	0	0	0	168	727
5:45 PM	3	18	0	0	0	69	26	0	22	0	6	0	0	0	0	0	144	686
6:00 PM	7	32	0	0	0	53	33	0	25	0	7	0	0	0	0	0	157	660
6:15 PM	4	29	0	0	0	50	22	0	19	0	7	0	0	0	0	0	131	600
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	196	0	0	0	460	76	0	76	0	44	0	0	0	0	0	868	
Heavy Trucks	0	4	0	0	0	20	8	0	12	0	8	0	0	0	0	0	52	
Buses																		
Pedestrians		0				0				4				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

**LOCATION:** Alii Hwy -- Kaleiopapa St  
**CITY/STATE:** Kahaluu-Keauhou, HI

**QC JOB #:** 15561803  
**DATE:** Sat, Sep 18 2021

Peak-Hour: 12:30 PM -- 1:30 PM  
 Peak 15-Min: 1:15 PM -- 1:30 PM



15-Min Count Period Beginning At	Alii Hwy (Northbound)				Alii Hwy (Southbound)				Kaleiopapa St (Eastbound)				Kaleiopapa St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:30 AM	2	38	0	0	0	40	10	0	20	0	1	0	0	0	0	0	111	
10:45 AM	3	37	0	0	0	42	19	0	23	0	5	1	0	0	0	0	130	
11:00 AM	2	32	0	0	0	50	17	0	26	0	6	0	0	0	0	0	133	
11:15 AM	2	58	0	0	0	47	12	0	13	0	2	0	0	0	0	0	134	508
11:30 AM	2	37	0	0	0	52	11	0	17	0	3	0	0	0	0	0	122	519
11:45 AM	4	47	0	0	0	46	20	0	12	0	5	0	0	0	0	0	134	523
12:00 PM	3	52	0	0	0	54	12	0	15	0	3	0	0	0	0	0	139	529
12:15 PM	7	44	0	0	0	49	15	0	18	0	3	0	0	0	0	0	136	531
12:30 PM	6	34	0	0	0	26	22	0	20	0	4	0	0	0	0	0	112	521
12:45 PM	4	42	0	0	0	42	16	0	20	0	6	0	0	0	0	0	130	517
1:00 PM	3	47	0	0	0	51	14	0	20	0	9	0	0	0	0	0	144	522
1:15 PM	2	47	0	0	0	50	24	0	23	0	3	0	0	0	0	0	149	535
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	188	0	0	0	200	96	0	92	0	12	0	0	0	0	0	596	
Heavy Trucks	0	4	0	0	0	4	4	0	4	0	0	0	0	0	0	0	16	
Buses																		
Pedestrians		0				0				0				4			4	
Bicycles	0	8	0		0	0	0		0	0	0		0	0	0		8	
Scoters																		

Comments:

Type of report: Tube Count - Volume Data

LOCATION: Kaleiopapa St just N of Ehukai St						QC JOB #: 15561807				
SPECIFIC LOCATION:						DIRECTION: SB				
CITY/STATE: Kahaluu-Keauhou, HI						DATE: Sep 30 2021 - Oct 2 2021				
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM				2	2	2	0		1	
12:15 AM				0	0	0	0		0	
12:30 AM				0	2	1	1		1	
12:45 AM				1	0	1	0		0	
01:00 AM				0	1	1	1		1	
01:15 AM				1	2	2	3		2	
01:30 AM				1	0	1	1		1	
01:45 AM				0	0	0	0		0	
02:00 AM				0	0	0	0		0	
02:15 AM				2	0	1	0		1	
02:30 AM				0	0	0	1		0	
02:45 AM				0	0	0	1		0	
03:00 AM				1	2	2	0		1	
03:15 AM				2	0	1	0		1	
03:30 AM				0	0	0	3		1	
03:45 AM				6	2	4	0		3	
04:00 AM				0	0	0	2		1	
04:15 AM				0	3	2	2		2	
04:30 AM				2	4	3	1		2	
04:45 AM				4	2	3	4		3	
05:00 AM				2	2	2	3		2	
05:15 AM				8	12	10	12		11	
05:30 AM				3	9	6	8		7	
05:45 AM				4	0	2	2		2	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 10/5/2021 8:48 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Kaleiopapa St just N of Ehukai St							QC JOB #: 15561807			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 30 2021 - Oct 2 2021			
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 AM				2	0	1	0		1	
06:15 AM				4	5	5	4		4	
06:30 AM				4	5	5	4		4	
06:45 AM				4	10	7	3		6	
07:00 AM				6	10	8	6		7	
07:15 AM				4	9	7	8		7	
07:30 AM				8	7	8	13		9	
07:45 AM				2	14	8	19		12	
08:00 AM				5	18	12	28		17	
08:15 AM				4	8	6	22		11	
08:30 AM				10	10	10	10		10	
08:45 AM				12	18	15	6		12	
09:00 AM				12	6	9	5		8	
09:15 AM				16	12	14	9		12	
09:30 AM				12	10	11	12		11	
09:45 AM				6	4	5	12		7	
10:00 AM				13	12	13	10		12	
10:15 AM				18	16	17	16		17	
10:30 AM				10	8	9	16		11	
10:45 AM				13	11	12	18		14	
11:00 AM				8	3	6	20		10	
11:15 AM				8	15	12	14		12	
11:30 AM				12	8	10	16		12	
11:45 AM				12	11	12	15		13	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

<b>LOCATION:</b> Kaleiopapa St just N of Ehukai St <b>SPECIFIC LOCATION:</b> <b>CITY/STATE:</b> Kahaluu-Keauhou, HI						<b>QC JOB #:</b> 15561807 <b>DIRECTION:</b> SB <b>DATE:</b> Sep 30 2021 - Oct 2 2021				
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM				22	11	17	23		19	
12:15 PM				14	20	17	14		16	
12:30 PM				14	14	14	9		12	
12:45 PM				12	13	13	22		16	
01:00 PM				12	20	16	26		19	
01:15 PM				20	26	23	36		27	
01:30 PM				18	18	18	26		21	
01:45 PM				10	26	18	15		17	
02:00 PM				12	12	12	13		12	
02:15 PM				9	16	13	12		12	
02:30 PM				14	19	17	21		18	
02:45 PM				12	12	12	24		16	
03:00 PM				9	17	13	15		14	
03:15 PM				14	14	14	16		15	
03:30 PM				10	14	12	9		11	
03:45 PM				6	7	7	15		9	
04:00 PM				12	10	11	13		12	
04:15 PM				10	8	9	16		11	
04:30 PM				10	8	9	22		13	
04:45 PM				16	16	16	20		17	
05:00 PM				14	14	14	24		17	
05:15 PM				30	30	30	20		27	
05:30 PM				20	48	34	50		39	
05:45 PM				13	38	26	22		24	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
<b>Comments:</b>										

LOCATION: Kaleiopapa St just N of Ehukai St							QC JOB #: 15561807			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 30 2021 - Oct 2 2021			
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 PM				32	30	31	19		27	
06:15 PM				38	26	32	26		30	
06:30 PM				19	26	23	16		20	
06:45 PM				9	23	16	17		16	
07:00 PM				8	10	9	7		8	
07:15 PM				12	18	15	6		12	
07:30 PM				14	14	14	19		16	
07:45 PM				14	23	19	6		14	
08:00 PM				15	24	20	4		14	
08:15 PM				13	14	14	12		13	
08:30 PM				15	18	17	12		15	
08:45 PM				6	12	9	9		9	
09:00 PM				12	10	11	2		8	
09:15 PM				11	6	9	2		6	
09:30 PM				4	8	6	4		5	
09:45 PM				5	8	7	10		8	
10:00 PM				7	4	6	7		6	
10:15 PM				6	6	6	8		7	
10:30 PM				4	12	8	1		6	
10:45 PM				1	1	1	4		2	
11:00 PM				4	2	3	1		2	
11:15 PM				1	6	4	4		4	
11:30 PM				3	1	2	10		5	
11:45 PM				4	2	3	2		3	
<b>Day Total</b>				834	1008	936	1022		952	
% Weekday Average				89.1%	107.7%					
% Week Average				87.6%	105.9%	98.3%	107.4%			
AM Peak 15-min Vol				10:15 AM 18	8:00 AM 18	10:15 AM 17	8:00 AM 28		8:00 AM 17	
PM Peak 15-min Vol				6:15 PM 38	5:30 PM 48	5:30 PM 34	5:30 PM 50		5:30 PM 39	

Comments:

Type of report: Tube Count - Volume Data

<b>LOCATION:</b> Kaleiopapa St just N of Ehukai St <b>SPECIFIC LOCATION:</b> <b>CITY/STATE:</b> Kahaluu-Keauhou, HI						<b>QC JOB #:</b> 15561807 <b>DIRECTION:</b> NB <b>DATE:</b> Sep 30 2021 - Oct 2 2021				
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM				2	2	2	0		1	
12:15 AM				0	0	0	0		0	
12:30 AM				0	2	1	1		1	
12:45 AM				1	0	1	0		0	
01:00 AM				1	1	1	1		1	
01:15 AM				0	0	0	2		1	
01:30 AM				1	0	1	3		1	
01:45 AM				0	0	0	0		0	
02:00 AM				0	0	0	0		0	
02:15 AM				2	0	1	0		1	
02:30 AM				0	0	0	1		0	
02:45 AM				2	0	1	2		1	
03:00 AM				1	2	2	0		1	
03:15 AM				3	0	2	0		1	
03:30 AM				0	0	0	4		1	
03:45 AM				6	2	4	0		3	
04:00 AM				0	0	0	2		1	
04:15 AM				1	2	2	2		2	
04:30 AM				1	4	3	2		2	
04:45 AM				3	2	3	4		3	
05:00 AM				2	3	3	3		3	
05:15 AM				7	11	9	10		9	
05:30 AM				4	9	7	6		6	
05:45 AM				8	0	4	0		3	
<b>Day Total</b>										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
<i>Comments:</i>										

Report generated on 10/5/2021 8:48 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



LOCATION: Kaleiopapa St just N of Ehukai St							QC JOB #: 15561807			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 30 2021 - Oct 2 2021			
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 AM				3	1	2	1		2	
06:15 AM				4	4	4	3		4	
06:30 AM				6	6	6	8		7	
06:45 AM				6	10	8	3		6	
07:00 AM				8	14	11	9		10	
07:15 AM				6	15	11	12		11	
07:30 AM				10	9	10	14		11	
07:45 AM				8	20	14	26		18	
08:00 AM				14	23	19	28		22	
08:15 AM				10	11	11	26		16	
08:30 AM				16	13	15	10		13	
08:45 AM				15	22	19	5		14	
09:00 AM				12	8	10	6		9	
09:15 AM				13	7	10	9		10	
09:30 AM				14	12	13	12		13	
09:45 AM				6	6	6	10		7	
10:00 AM				15	14	15	12		14	
10:15 AM				16	14	15	14		15	
10:30 AM				8	8	8	15		10	
10:45 AM				18	10	14	19		16	
11:00 AM				6	4	5	20		10	
11:15 AM				10	16	13	12		13	
11:30 AM				16	8	12	18		14	
11:45 AM				13	10	12	18		14	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

LOCATION: Kaleiopapa St just N of Ehukai St							QC JOB #: 15561807			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 30 2021 - Oct 2 2021			
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM				22	12	17	22		19	
12:15 PM				14	18	16	14		15	
12:30 PM				20	12	16	11		14	
12:45 PM				11	12	12	24		16	
01:00 PM				10	19	15	26		18	
01:15 PM				22	28	25	32		27	
01:30 PM				22	22	22	26		23	
01:45 PM				6	22	14	15		14	
02:00 PM				14	14	14	17		15	
02:15 PM				10	14	12	12		12	
02:30 PM				10	19	15	20		16	
02:45 PM				14	12	13	28		18	
03:00 PM				7	11	9	14		11	
03:15 PM				16	8	12	15		13	
03:30 PM				10	17	14	7		11	
03:45 PM				8	7	8	12		9	
04:00 PM				13	12	13	13		13	
04:15 PM				13	8	11	14		12	
04:30 PM				10	6	8	20		12	
04:45 PM				18	19	19	21		19	
05:00 PM				22	18	20	28		23	
05:15 PM				30	31	31	18		26	
05:30 PM				24	47	36	52		41	
05:45 PM				20	38	29	23		27	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

LOCATION: Kaleiopapa St just N of Ehukai St							QC JOB #: 15561807			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 30 2021 - Oct 2 2021			
Start Time	Mon	Tue	Wed	Thu 30 Sep 21	Fri 1 Oct 21	Average Weekday 15-min Traffic	Sat 2 Oct 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 PM				38	28	33	18		28	
06:15 PM				38	24	31	24		29	
06:30 PM				23	28	26	15		22	
06:45 PM				9	22	16	18		16	
07:00 PM				10	12	11	10		11	
07:15 PM				14	18	16	7		13	
07:30 PM				14	14	14	20		16	
07:45 PM				18	25	22	7		17	
08:00 PM				17	24	21	5		15	
08:15 PM				16	12	14	11		13	
08:30 PM				12	14	13	14		13	
08:45 PM				8	10	9	6		8	
09:00 PM				12	7	10	2		7	
09:15 PM				7	6	7	2		5	
09:30 PM				4	7	6	5		5	
09:45 PM				5	6	6	9		7	
10:00 PM				5	4	5	6		5	
10:15 PM				5	7	6	4		5	
10:30 PM				4	9	7	2		5	
10:45 PM				2	1	2	4		2	
11:00 PM				3	2	3	2		2	
11:15 PM				1	6	4	4		4	
11:30 PM				2	1	2	6		3	
11:45 PM				3	2	3	4		3	
<b>Day Total</b>				934	1020	998	1042		999	
% Weekday Average				93.6%	102.2%					
% Week Average				93.5%	102.1%	99.9%	104.3%			
AM Peak 15-min Vol				10:45 AM 18	8:00 AM 23	8:00 AM 19	8:00 AM 28		8:00 AM 22	
PM Peak 15-min Vol				6:00 PM 38	5:30 PM 47	5:30 PM 36	5:30 PM 52		5:30 PM 41	

Comments:

Type of report: Tube Count - Volume Data

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM				0	0	0	0		0	
12:15 AM				0	2	1	2		1	■
12:30 AM				0	1	1	0		0	
12:45 AM				0	1	1	0		0	
01:00 AM				0	1	1	2		1	■
01:15 AM				0	1	1	1		1	■
01:30 AM				0	0	0	0		0	
01:45 AM				0	0	0	0		0	
02:00 AM				1	2	2	0		1	■
02:15 AM				3	1	2	0		1	■
02:30 AM				0	0	0	0		0	
02:45 AM				2	0	1	0		1	■
03:00 AM				0	0	0	1		0	
03:15 AM				1	0	1	0		0	
03:30 AM				0	0	0	1		0	
03:45 AM				0	0	0	1		0	
04:00 AM				1	0	1	0		0	
04:15 AM				0	0	0	0		0	
04:30 AM				0	1	1	0		0	
04:45 AM				0	2	1	0		1	■
05:00 AM				1	2	2	1		1	■
05:15 AM				0	0	0	0		0	
05:30 AM				0	0	0	1		0	
05:45 AM				0	4	2	4		3	■
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

Report generated on 9/22/2021 1:20 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 AM				1	7	4	9		6	
06:15 AM				0	6	3	2		3	
06:30 AM				1	3	2	0		1	
06:45 AM				5	9	7	3		6	
07:00 AM				4	12	8	5		7	
07:15 AM				10	10	10	8		9	
07:30 AM				16	14	15	14		15	
07:45 AM				3	8	6	12		8	
08:00 AM				4	6	5	14		8	
08:15 AM				0	10	5	3		4	
08:30 AM				12	8	10	3		8	
08:45 AM				2	9	6	13		8	
09:00 AM				5	3	4	7		5	
09:15 AM				12	1	7	10		8	
09:30 AM				4	11	8	10		8	
09:45 AM				6	10	8	9		8	
10:00 AM				10	8	9	4		7	
10:15 AM				4	8	6	7		6	
10:30 AM				0	5	3	9		5	
10:45 AM				2	10	6	7		6	
11:00 AM				7	4	6	4		5	
11:15 AM				6	5	6	4		5	
11:30 AM				6	8	7	2		5	
11:45 AM				6	10	8	8		8	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance										QC JOB #: 15561808
SPECIFIC LOCATION:										DIRECTION: SB
CITY/STATE: Kahaluu-Keauhou, HI										DATE: Sep 16 2021 - Sep 18 2021
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM				6	7	7	7		7	
12:15 PM				5	6	6	5		5	
12:30 PM				5	3	4	9		6	
12:45 PM				14	9	12	11		11	
01:00 PM				6	10	8	8		8	
01:15 PM				8	8	8	8		8	
01:30 PM				4	10	7	4		6	
01:45 PM				3	9	6	10		7	
02:00 PM				8	4	6	2		5	
02:15 PM				12	2	7	7		7	
02:30 PM				5	9	7	5		6	
02:45 PM				2	7	5	6		5	
03:00 PM				7	5	6	6		6	
03:15 PM				13	3	8	10		9	
03:30 PM				6	6	6	6		6	
03:45 PM				6	6	6	8		7	
04:00 PM				6	10	8	8		8	
04:15 PM				4	6	5	4		5	
04:30 PM				5	11	8	3		6	
04:45 PM				9	8	9	6		8	
05:00 PM				7	3	5	4		5	
05:15 PM				4	4	4	5		4	
05:30 PM				11	4	8	9		8	
05:45 PM				10	7	9	2		6	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: SB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 PM				8	3	6	3		5	
06:15 PM				6	7	7	5		6	
06:30 PM				3	5	4	16		8	
06:45 PM				0	0	0	6		2	
07:00 PM				4	0	2	4		3	
07:15 PM				3	3	3	5		4	
07:30 PM				2	2	2	4		3	
07:45 PM				1	0	1	7		3	
08:00 PM				6	3	5	2		4	
08:15 PM				0	4	2	0		1	
08:30 PM				2	1	2	0		1	
08:45 PM				0	3	2	1		1	
09:00 PM				0	0	0	0		0	
09:15 PM				2	7	5	0		3	
09:30 PM				0	2	1	0		1	
09:45 PM				1	0	1	1		1	
10:00 PM				1	2	2	1		1	
10:15 PM				2	2	2	1		2	
10:30 PM				0	2	1	2		1	
10:45 PM				0	2	1	0		1	
11:00 PM				0	2	1	4		2	
11:15 PM				1	0	1	0		0	
11:30 PM				0	0	0	0		0	
11:45 PM				0	0	0	3		1	
<b>Day Total</b>				343	410	393	399		383	
% Weekday Average				87.3%	104.3%					
% Week Average				89.6%	107%	102.6%	104.2%			
AM Peak 15-min Vol				7:30 AM 16	7:30 AM 14	7:30 AM 15	7:30 AM 14		7:30 AM 15	
PM Peak 15-min Vol				12:45 PM 14	4:30 PM 11	12:45 PM 12	6:30 PM 16		12:45 PM 11	

Comments:

Type of report: Tube Count - Volume Data

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 AM				0	0	0	0		0	
12:15 AM				0	1	1	2		1	■
12:30 AM				0	0	0	0		0	
12:45 AM				0	1	1	0		0	
01:00 AM				0	1	1	2		1	■
01:15 AM				0	1	1	1		1	■
01:30 AM				0	0	0	0		0	
01:45 AM				0	0	0	0		0	
02:00 AM				1	2	2	0		1	■
02:15 AM				3	1	2	0		1	■
02:30 AM				0	0	0	0		0	
02:45 AM				2	0	1	0		1	■
03:00 AM				0	0	0	1		0	
03:15 AM				2	0	1	0		1	■
03:30 AM				0	0	0	1		0	
03:45 AM				0	0	0	1		0	
04:00 AM				1	0	1	0		0	
04:15 AM				0	0	0	0		0	
04:30 AM				0	1	1	0		0	
04:45 AM				0	0	0	0		0	
05:00 AM				1	2	2	1		1	■
05:15 AM				0	0	0	0		0	
05:30 AM				0	1	1	1		1	■
05:45 AM				0	3	2	2		2	■
<b>Day Total</b>										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
<i>Comments:</i>										

Report generated on 9/22/2021 1:20 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>)



LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 AM				2	4	3	2		3	
06:15 AM				0	4	2	2		2	
06:30 AM				3	4	4	0		2	
06:45 AM				2	8	5	4		5	
07:00 AM				2	14	8	5		7	
07:15 AM				4	12	8	7		8	
07:30 AM				12	16	14	10		13	
07:45 AM				4	9	7	8		7	
08:00 AM				4	10	7	18		11	
08:15 AM				0	12	6	3		5	
08:30 AM				11	8	10	4		8	
08:45 AM				1	7	4	13		7	
09:00 AM				5	4	5	6		5	
09:15 AM				15	1	8	13		10	
09:30 AM				3	11	7	12		9	
09:45 AM				8	6	7	10		8	
10:00 AM				12	8	10	9		10	
10:15 AM				4	12	8	6		7	
10:30 AM				0	5	3	9		5	
10:45 AM				2	13	8	6		7	
11:00 AM				6	4	5	4		5	
11:15 AM				7	6	7	3		5	
11:30 AM				6	8	7	3		6	
11:45 AM				6	12	9	8		9	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										

LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
12:00 PM				8	7	8	5		7	
12:15 PM				5	6	6	4		5	
12:30 PM				4	3	4	10		6	
12:45 PM				15	7	11	13		12	
01:00 PM				6	9	8	8		8	
01:15 PM				10	8	9	10		9	
01:30 PM				3	6	5	5		5	
01:45 PM				0	6	3	15		7	
02:00 PM				9	5	7	3		6	
02:15 PM				11	2	7	7		7	
02:30 PM				6	9	8	5		7	
02:45 PM				2	8	5	6		5	
03:00 PM				9	6	8	5		7	
03:15 PM				14	7	11	14		12	
03:30 PM				4	8	6	6		6	
03:45 PM				9	8	9	6		8	
04:00 PM				5	11	8	10		9	
04:15 PM				4	4	4	2		3	
04:30 PM				8	9	9	3		7	
04:45 PM				4	7	6	6		6	
05:00 PM				4	5	5	3		4	
05:15 PM				3	3	3	4		3	
05:30 PM				6	3	5	8		6	
05:45 PM				8	8	8	4		7	
Day Total										
% Weekday Average										
% Week Average										
AM Peak 15-min Vol										
PM Peak 15-min Vol										
Comments:										




















LOCATION: Kamehameha III Rd btwn Holua Rd & Boat Parking Entrance							QC JOB #: 15561808			
SPECIFIC LOCATION:							DIRECTION: NB			
CITY/STATE: Kahaluu-Keauhou, HI							DATE: Sep 16 2021 - Sep 18 2021			
Start Time	Mon	Tue	Wed	Thu 16 Sep 21	Fri 17 Sep 21	Average Weekday 15-min Traffic	Sat 18 Sep 21	Sun	Average Week 15-min Traffic	Average Week Profile
06:00 PM				10	3	7	2		5	
06:15 PM				6	5	6	4		5	
06:30 PM				1	4	3	18		8	
06:45 PM				0	0	0	8		3	
07:00 PM				4	0	2	4		3	
07:15 PM				1	2	2	3		2	
07:30 PM				4	5	5	4		4	
07:45 PM				2	0	1	10		4	
08:00 PM				6	2	4	3		4	
08:15 PM				1	3	2	0		1	
08:30 PM				2	1	2	0		1	
08:45 PM				0	2	1	1		1	
09:00 PM				0	0	0	0		0	
09:15 PM				1	6	4	0		2	
09:30 PM				0	1	1	0		0	
09:45 PM				3	0	2	0		1	
10:00 PM				1	2	2	1		1	
10:15 PM				1	0	1	1		1	
10:30 PM				0	3	2	2		2	
10:45 PM				1	2	2	0		1	
11:00 PM				0	1	1	3		1	
11:15 PM				0	0	0	0		0	
11:30 PM				1	0	1	0		0	
11:45 PM				1	0	1	1		1	
<b>Day Total</b>				332	409	394	404		388	
% Weekday Average				84.3%	103.8%					
% Week Average				85.6%	105.4%	101.5%	104.1%			
AM Peak 15-min Vol				9:15 AM 15	7:30 AM 16	7:30 AM 14	8:00 AM 18		7:30 AM 13	
PM Peak 15-min Vol				12:45 PM 15	4:00 PM 11	12:45 PM 11	6:30 PM 18		12:45 PM 12	

Comments:

# Appendix B: Existing Conditions LOS Worksheets

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Existing Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	19	8	138	34	53	9	284	113	33	157	23
Future Volume (veh/h)	19	19	8	138	34	53	9	284	113	33	157	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		1.00	0.99		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1841	1870	1870	1856	1870	1856	1870
Adj Flow Rate, veh/h	21	21	1	150	37	0	10	309	0	36	171	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	6	2	4	2	2	3	2	3	2
Cap, veh/h	272	203	7	420	52		516	511		447	488	60
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.00	0.01	0.27	0.00	0.04	0.30	0.30
Sat Flow, veh/h	562	1146	41	1188	293	1560	1781	1870	0	1781	1611	198
Grp Volume(v), veh/h	43	0	0	187	0	0	10	309	0	36	0	192
Grp Sat Flow(s),veh/h/ln	1748	0	0	1481	0	1560	1781	1870	0	1781	0	1809
Q Serve(g_s), s	0.0	0.0	0.0	3.0	0.0	0.0	0.1	4.5	0.0	0.4	0.0	2.6
Cycle Q Clear(g_c), s	0.6	0.0	0.0	3.6	0.0	0.0	0.1	4.5	0.0	0.4	0.0	2.6
Prop In Lane	0.49		0.02	0.80		1.00	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	482	0	0	472	0		516	511		447	0	548
V/C Ratio(X)	0.09	0.00	0.00	0.40	0.00		0.02	0.60		0.08	0.00	0.35
Avail Cap(c_a), veh/h	1726	0	0	1600	0		2216	2691		1233	0	1727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	11.9	0.0	0.0	8.0	9.8	0.0	7.7	0.0	8.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.9	0.0	0.0	0.0	1.3	0.0	0.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.0	0.0	12.1	0.0	0.0	8.0	10.2	0.0	7.8	0.0	8.6
LnGrp LOS	B	A	A	B	A		A	B		A	A	A
Approach Vol, veh/h		43			187	A		319	A		228	
Approach Delay, s/veh		10.8			12.1			10.2			8.4	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	13.9		11.0	5.2	14.8		11.0				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.4	6.5		2.6	2.1	4.6		5.6				
Green Ext Time (p_c), s	0.0	0.9		0.1	0.0	0.5		0.5				

Intersection Summary

HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Existing Conditions  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←	→	←	↑	↑	→
Traffic Volume (veh/h)	34	15	30	353	211	72
Future Volume (veh/h)	34	15	30	353	211	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1796	1856	1870	1826	1796
Adj Flow Rate, veh/h	35	1	31	360	215	62
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	6	7	3	2	5	7
Cap, veh/h	76	67	550	1041	439	126
Arrive On Green	0.04	0.04	0.04	0.56	0.33	0.33
Sat Flow, veh/h	1725	1522	1767	1870	1346	388
Grp Volume(v), veh/h	35	1	31	360	0	277
Grp Sat Flow(s),veh/h/ln	1725	1522	1767	1870	0	1734
Q Serve(g_s), s	0.5	0.0	0.3	2.9	0.0	3.5
Cycle Q Clear(g_c), s	0.5	0.0	0.3	2.9	0.0	3.5
Prop In Lane	1.00	1.00	1.00			0.22
Lane Grp Cap(c), veh/h	76	67	550	1041	0	565
V/C Ratio(X)	0.46	0.01	0.06	0.35	0.00	0.49
Avail Cap(c_a), veh/h	1276	1126	1462	4207	0	2566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	12.4	4.9	3.3	0.0	7.3
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.2	12.4	4.9	3.4	0.0	7.6
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	36			391	277	
Approach Delay, s/veh	14.2			3.5	7.6	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.2	14.6		6.2		20.8
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/3), s	12.3	5.5		2.5		4.9
Green Ext Time (p_c), s	0.0	0.8		0.0		1.0

Intersection Summary

HCM 6th Ctrl Delay		5.6	
HCM 6th LOS		A	

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	1	20	29	4
Future Vol, veh/h	3	1	1	20	29	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	1	22	32	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	58	34	36	0	0
Stage 1	34	-	-	-	-
Stage 2	24	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	949	1039	1575	-	-
Stage 1	988	-	-	-	-
Stage 2	999	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	948	1039	1575	-	-
Mov Cap-2 Maneuver	948	-	-	-	-
Stage 1	987	-	-	-	-
Stage 2	999	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1575	-	969	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	2	5	11	40	19	2
Future Vol, veh/h	2	5	11	40	19	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	5	12	43	21	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	89	22	23	0	0
Stage 1	22	-	-	-	-
Stage 2	67	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	912	1055	1592	-	-
Stage 1	1001	-	-	-	-
Stage 2	956	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	905	1055	1592	-	-
Mov Cap-2 Maneuver	905	-	-	-	-
Stage 1	993	-	-	-	-
Stage 2	956	-	-	-	-




















Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1592	-	1007	-	-
HCM Lane V/C Ratio	0.008	-	0.008	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Existing Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	24	14	158	27	40	10	196	105	60	329	30
Future Volume (veh/h)	24	24	14	158	27	40	10	196	105	60	329	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.98		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1693	1856	1841	1870	1752	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	25	25	4	166	28	0	11	206	0	63	346	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	14	3	4	2	10	2	7	2	2	3
Cap, veh/h	263	204	24	439	39		373	482		537	526	46
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.00	0.01	0.26	0.00	0.07	0.31	0.31
Sat Flow, veh/h	531	1084	129	1229	207	1585	1668	1870	0	1781	1695	147
Grp Volume(v), veh/h	54	0	0	194	0	0	11	206	0	63	0	376
Grp Sat Flow(s),veh/h/ln	1744	0	0	1437	0	1585	1668	1870	0	1781	0	1842
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	0.2	3.0	0.0	0.8	0.0	5.7
Cycle Q Clear(g_c), s	0.8	0.0	0.0	4.0	0.0	0.0	0.2	3.0	0.0	0.8	0.0	5.7
Prop In Lane	0.46		0.07	0.86		1.00	1.00		0.00	1.00		0.08
Lane Grp Cap(c), veh/h	492	0	0	478	0		373	482		537	0	571
V/C Ratio(X)	0.11	0.00	0.00	0.41	0.00		0.03	0.43		0.12	0.00	0.66
Avail Cap(c_a), veh/h	1662	0	0	1497	0		1901	2587		1246	0	1691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	12.2	0.0	0.0	8.8	10.0	0.0	7.8	0.0	9.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.9	0.0	0.0	0.0	0.9	0.0	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	0.0	0.0	12.4	0.0	0.0	8.9	10.2	0.0	7.8	0.0	10.1
LnGrp LOS	B	A	A	B	A		A	B		A	A	B
Approach Vol, veh/h		54			194	A		217	A		439	
Approach Delay, s/veh		11.0			12.4			10.1			9.8	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	13.7		11.6	5.3	15.4		11.6				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.8	5.0		2.8	2.2	7.7		6.0				
Green Ext Time (p_c), s	0.0	0.6		0.1	0.0	1.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Existing Conditions  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	35	27	213	362	97
Future Volume (veh/h)	83	35	27	213	362	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1841	1870	1870	1870
Adj Flow Rate, veh/h	88	2	29	227	385	92
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	4	2	2	2
Cap, veh/h	151	134	406	1043	512	122
Arrive On Green	0.09	0.09	0.04	0.56	0.35	0.35
Sat Flow, veh/h	1725	1535	1753	1870	1459	349
Grp Volume(v), veh/h	88	2	29	227	0	477
Grp Sat Flow(s),veh/h/ln	1725	1535	1753	1870	0	1807
Q Serve(g_s), s	1.5	0.0	0.3	1.9	0.0	7.1
Cycle Q Clear(g_c), s	1.5	0.0	0.3	1.9	0.0	7.1
Prop In Lane	1.00	1.00	1.00			0.19
Lane Grp Cap(c), veh/h	151	134	406	1043	0	634
V/C Ratio(X)	0.58	0.01	0.07	0.22	0.00	0.75
Avail Cap(c_a), veh/h	1134	1009	1207	3738	0	2376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	12.7	6.0	3.4	0.0	8.7
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.2	0.0	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.7	12.7	6.1	3.4	0.0	9.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	90			256	477	
Approach Delay, s/veh	14.6			3.7	9.4	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.3	16.5		7.7		22.8
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+I), s	12.3	9.1		3.5		3.9
Green Ext Time (p_c), s	0.0	1.5		0.1		0.6

Intersection Summary

HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	1	27	29	4
Future Vol, veh/h	4	1	1	27	29	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1	1	29	32	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	65	34	36	0	0
Stage 1	34	-	-	-	-
Stage 2	31	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	941	1039	1575	-	-
Stage 1	988	-	-	-	-
Stage 2	992	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	940	1039	1575	-	-
Mov Cap-2 Maneuver	940	-	-	-	-
Stage 1	987	-	-	-	-
Stage 2	992	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1575	-	958	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	2	12	13	49	47	2
Future Vol, veh/h	2	12	13	49	47	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	13	14	53	51	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	133	52	53	0	-	0
Stage 1	52	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	861	1016	1553	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	1016	1553	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	961	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1553	-	989	-	-
HCM Lane V/C Ratio	0.009	-	0.015	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Existing Conditions  
Saturday Midday Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	22	14	96	23	41	14	170	96	48	163	31
Future Volume (veh/h)	31	22	14	96	23	41	14	170	96	48	163	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1693	1870	1826	1870	1870	1870
Adj Flow Rate, veh/h	35	25	5	108	26	0	16	191	0	54	183	29
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	14	2	5	2	2	2
Cap, veh/h	289	98	16	375	37		521	522		589	501	79
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.00	0.02	0.28	0.00	0.06	0.32	0.32
Sat Flow, veh/h	805	788	133	1233	297	1585	1612	1870	0	1781	1569	249
Grp Volume(v), veh/h	65	0	0	134	0	0	16	191	0	54	0	212
Grp Sat Flow(s),veh/h/ln	1726	0	0	1530	0	1585	1612	1870	0	1781	0	1818
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	0.2	2.4	0.0	0.6	0.0	2.6
Cycle Q Clear(g_c), s	0.9	0.0	0.0	2.4	0.0	0.0	0.2	2.4	0.0	0.6	0.0	2.6
Prop In Lane	0.54		0.08	0.81		1.00	1.00		0.00	1.00		0.14
Lane Grp Cap(c), veh/h	403	0	0	412	0		521	522		589	0	580
V/C Ratio(X)	0.16	0.00	0.00	0.33	0.00		0.03	0.37		0.09	0.00	0.37
Avail Cap(c_a), veh/h	1796	0	0	1695	0		2140	2850		1393	0	1838
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	12.2	0.0	0.0	7.3	8.5	0.0	6.7	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	0.0	12.4	0.0	0.0	7.3	8.6	0.0	6.7	0.0	7.8
LnGrp LOS	B	A	A	B	A		A	A		A	A	A
Approach Vol, veh/h		65			134	A		207	A		266	
Approach Delay, s/veh		11.7			12.4			8.5			7.6	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	13.6		9.1	5.4	14.7		9.1				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.6	4.4		2.9	2.2	4.6		4.4				
Green Ext Time (p_c), s	0.0	0.5		0.2	0.0	0.6		0.3				

Intersection Summary

HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	83	22	15	170	169	76
Future Volume (veh/h)	83	22	15	170	169	76
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1841	1796	1870	1870	1841
Adj Flow Rate, veh/h	92	1	17	189	188	64
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	4	7	2	2	4
Cap, veh/h	157	145	498	954	393	134
Arrive On Green	0.09	0.09	0.02	0.51	0.30	0.30
Sat Flow, veh/h	1697	1560	1711	1870	1325	451
Grp Volume(v), veh/h	92	1	17	189	0	252
Grp Sat Flow(s),veh/h/ln	1697	1560	1711	1870	0	1777
Q Serve(g_s), s	1.4	0.0	0.2	1.5	0.0	3.2
Cycle Q Clear(g_c), s	1.4	0.0	0.2	1.5	0.0	3.2
Prop In Lane	1.00	1.00	1.00			0.25
Lane Grp Cap(c), veh/h	157	145	498	954	0	527
V/C Ratio(X)	0.58	0.01	0.03	0.20	0.00	0.48
Avail Cap(c_a), veh/h	1248	1147	1404	4182	0	2613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	11.2	5.6	3.6	0.0	7.8
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.1	0.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.1	11.2	5.6	3.7	0.0	8.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	93			206	252	
Approach Delay, s/veh	13.1			3.8	8.1	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.8	13.9		7.5		19.7
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/2), s	12.2	5.2		3.4		3.5
Green Ext Time (p_c), s	0.0	0.7		0.1		0.5

Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	1	29	30	4
Future Vol, veh/h	4	1	1	29	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1	1	32	33	4

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	69	35	37	0	0
Stage 1	35	-	-	-	-
Stage 2	34	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	936	1038	1574	-	-
Stage 1	987	-	-	-	-
Stage 2	988	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	935	1038	1574	-	-
Mov Cap-2 Maneuver	935	-	-	-	-
Stage 1	986	-	-	-	-
Stage 2	988	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	954	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	11	10	35	41	2
Future Vol, veh/h	2	11	10	35	41	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	12	11	38	45	2

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	106	46	47	0	0
Stage 1	46	-	-	-	-
Stage 2	60	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	892	1023	1560	-	-
Stage 1	976	-	-	-	-
Stage 2	963	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	886	1023	1560	-	-
Mov Cap-2 Maneuver	886	-	-	-	-
Stage 1	969	-	-	-	-
Stage 2	963	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.6	0
HCM LOS	A		




















Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	999	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



# Appendix C: Baseline Conditions LOS Worksheets

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) No Project Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	10	160	40	70	20	330	130	40	190	30
Future Volume (veh/h)	30	30	10	160	40	70	20	330	130	40	190	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	0.99		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1841	1870	1870	1856	1870	1856	1870
Adj Flow Rate, veh/h	33	33	4	174	43	0	22	359	0	43	207	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	6	2	4	2	2	3	2	3	2
Cap, veh/h	276	224	21	439	64		481	521		408	477	64
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.00	0.03	0.28	0.00	0.05	0.30	0.30
Sat Flow, veh/h	571	1058	99	1172	301	1560	1781	1870	0	1781	1589	215
Grp Volume(v), veh/h	70	0	0	217	0	0	22	359	0	43	0	235
Grp Sat Flow(s),veh/h/ln	1728	0	0	1473	0	1560	1781	1870	0	1781	0	1804
Q Serve(g_s), s	0.0	0.0	0.0	3.5	0.0	0.0	0.3	5.8	0.0	0.6	0.0	3.6
Cycle Q Clear(g_c), s	1.1	0.0	0.0	4.5	0.0	0.0	0.3	5.8	0.0	0.6	0.0	3.6
Prop In Lane	0.47		0.06	0.80		1.00	1.00		0.00	1.00		0.12
Lane Grp Cap(c), veh/h	521	0	0	502	0		481	521		408	0	541
V/C Ratio(X)	0.13	0.00	0.00	0.43	0.00		0.05	0.69		0.11	0.00	0.43
Avail Cap(c_a), veh/h	1564	0	0	1440	0		2000	2448		1104	0	1566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	12.3	0.0	0.0	8.4	11.0	0.0	8.4	0.0	9.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.1	0.0	0.0	0.1	1.8	0.0	0.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	0.0	0.0	12.5	0.0	0.0	8.4	11.6	0.0	8.5	0.0	9.8
LnGrp LOS	B	A	A	B	A		A	B		A	A	A
Approach Vol, veh/h		70			217	A		381	A		278	
Approach Delay, s/veh		11.0			12.5			11.4			9.6	
Approach LOS		B			B			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	14.9		12.7	5.7	15.6		12.7				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.6	7.8		3.1	2.3	5.6		6.5				
Green Ext Time (p_c), s	0.0	1.1		0.2	0.0	0.7		0.6				

Intersection Summary

HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) No Project Conditions  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	20	40	410	250	90
Future Volume (veh/h)	40	20	40	410	250	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1796	1856	1870	1826	1796
Adj Flow Rate, veh/h	41	2	41	418	255	80
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	6	7	3	2	5	7
Cap, veh/h	88	78	506	1039	416	130
Arrive On Green	0.05	0.05	0.05	0.56	0.32	0.32
Sat Flow, veh/h	1725	1522	1767	1870	1313	412
Grp Volume(v), veh/h	41	2	41	418	0	335
Grp Sat Flow(s),veh/h/ln	1725	1522	1767	1870	0	1725
Q Serve(g_s), s	0.6	0.0	0.4	3.5	0.0	4.5
Cycle Q Clear(g_c), s	0.6	0.0	0.4	3.5	0.0	4.5
Prop In Lane	1.00	1.00	1.00			0.24
Lane Grp Cap(c), veh/h	88	78	506	1039	0	546
V/C Ratio(X)	0.47	0.03	0.08	0.40	0.00	0.61
Avail Cap(c_a), veh/h	1258	1110	1386	4147	0	2516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.7	12.4	5.2	3.5	0.0	7.9
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	0.2	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	12.4	5.3	3.6	0.0	8.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	43			459	335	
Approach Delay, s/veh	14.0			3.7	8.4	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.5	14.5		6.4		21.0
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/4), s	12.4	6.5		2.6		5.5
Green Ext Time (p_c), s	0.0	1.0		0.0		1.2

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	10	10	10	30	40	10
Future Vol, veh/h	10	10	10	30	40	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	11	33	43	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	144	89	74	0	0
Stage 1	69	-	-	-	-
Stage 2	75	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	849	969	1526	-	-
Stage 1	954	-	-	-	-
Stage 2	948	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	812	932	1497	-	-
Mov Cap-2 Maneuver	812	-	-	-	-
Stage 1	929	-	-	-	-
Stage 2	930	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	868	-	-
HCM Lane V/C Ratio	0.007	-	0.025	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	10	10	20	50	30	10
Future Vol, veh/h	10	10	20	50	30	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	22	54	33	11




















Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	177	79	64	0	0
Stage 1	59	-	-	-	-
Stage 2	118	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	813	981	1538	-	-
Stage 1	964	-	-	-	-
Stage 2	907	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	771	944	1509	-	-
Mov Cap-2 Maneuver	771	-	-	-	-
Stage 1	931	-	-	-	-
Stage 2	890	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1509	-	849	-	-
HCM Lane V/C Ratio	0.014	-	0.026	-	-
HCM Control Delay (s)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) No Project Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	30	20	190	40	50	20	230	130	70	380	40
Future Volume (veh/h)	30	30	20	190	40	50	20	230	130	70	380	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.98		1.00	0.99		1.00	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1693	1856	1841	1870	1752	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	32	32	9	200	42	0	21	242	0	74	400	39
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	14	3	4	2	10	2	7	2	2	3
Cap, veh/h	264	226	50	450	58		335	525		514	545	53
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.00	0.03	0.28	0.00	0.07	0.33	0.33
Sat Flow, veh/h	544	972	213	1187	249	1585	1668	1870	0	1781	1671	163
Grp Volume(v), veh/h	73	0	0	242	0	0	21	242	0	74	0	439
Grp Sat Flow(s),veh/h/ln	1729	0	0	1436	0	1585	1668	1870	0	1781	0	1834
Q Serve(g_s), s	0.0	0.0	0.0	4.5	0.0	0.0	0.3	4.0	0.0	1.1	0.0	8.0
Cycle Q Clear(g_c), s	1.2	0.0	0.0	5.8	0.0	0.0	0.3	4.0	0.0	1.1	0.0	8.0
Prop In Lane	0.44		0.12	0.83		1.00	1.00		0.00	1.00		0.09
Lane Grp Cap(c), veh/h	539	0	0	508	0		335	525		514	0	598
V/C Ratio(X)	0.14	0.00	0.00	0.48	0.00		0.06	0.46		0.14	0.00	0.73
Avail Cap(c_a), veh/h	1413	0	0	1275	0		1614	2206		1093	0	1435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	13.2	0.0	0.0	9.7	11.2	0.0	8.5	0.0	11.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.5	0.0	0.0	0.1	1.3	0.0	0.3	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	0.0	0.0	13.5	0.0	0.0	9.8	11.5	0.0	8.6	0.0	12.0
LnGrp LOS	B	A	A	B	A		A	B		A	A	B
Approach Vol, veh/h		73			242	A		263	A		513	
Approach Delay, s/veh		11.6			13.5			11.3			11.5	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	16.0		14.3	5.8	17.7		14.3				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	3.1	6.0		3.2	2.3	10.0		7.8				
Green Ext Time (p_c), s	0.0	0.7		0.2	0.0	1.3		0.6				

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) No Project Conditions  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	50	40	250	420	120
Future Volume (veh/h)	100	50	40	250	420	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1841	1870	1870	1870
Adj Flow Rate, veh/h	106	4	43	266	447	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	4	2	2	2
Cap, veh/h	162	144	395	1120	569	149
Arrive On Green	0.09	0.09	0.05	0.60	0.40	0.40
Sat Flow, veh/h	1725	1535	1753	1870	1417	371
Grp Volume(v), veh/h	106	4	43	266	0	564
Grp Sat Flow(s),veh/h/ln	1725	1535	1753	1870	0	1788
Q Serve(g_s), s	2.1	0.1	0.4	2.3	0.0	9.7
Cycle Q Clear(g_c), s	2.1	0.1	0.4	2.3	0.0	9.7
Prop In Lane	1.00	1.00	1.00			0.21
Lane Grp Cap(c), veh/h	162	144	395	1120	0	718
V/C Ratio(X)	0.66	0.03	0.11	0.24	0.00	0.79
Avail Cap(c_a), veh/h	983	874	1059	3240	0	2038
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	14.5	6.4	3.3	0.0	9.2
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.1	0.3	0.0	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	14.5	6.5	3.3	0.0	9.9
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	110			309	564	
Approach Delay, s/veh	16.9			3.8	9.9	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.9	19.9		8.3		26.8
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+I), s	12.4	11.7		4.1		4.3
Green Ext Time (p_c), s	0.0	1.8		0.1		0.7

Intersection Summary

HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	10	40	40	10
Future Vol, veh/h	10	10	10	40	40	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	11	43	43	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	154	89	74	0	0
Stage 1	69	-	-	-	-
Stage 2	85	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	838	969	1526	-	-
Stage 1	954	-	-	-	-
Stage 2	938	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	800	932	1497	-	-
Mov Cap-2 Maneuver	800	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	920	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	861	-	-
HCM Lane V/C Ratio	0.007	-	0.025	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	20	60	60	10
Future Vol, veh/h	10	20	20	60	60	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	22	22	65	65	11




















Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	220	111	96	0	-	0
Stage 1	91	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	768	942	1498	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	727	906	1469	-	-	-
Mov Cap-2 Maneuver	727	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	837	-	-
HCM Lane V/C Ratio	0.015	-	0.039	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) No Project Conditions  
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	20	120	30	50	20	200	120	60	190	40
Future Volume (veh/h)	40	30	20	120	30	50	20	200	120	60	190	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	0.99		1.00	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1693	1870	1826	1870	1870	1870
Adj Flow Rate, veh/h	45	34	11	135	34	0	22	225	0	67	213	39
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	14	2	5	2	2	2
Cap, veh/h	274	147	35	406	51		471	503		544	476	87
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.00	0.03	0.27	0.00	0.07	0.31	0.31
Sat Flow, veh/h	621	867	207	1198	302	1585	1612	1870	0	1781	1527	280
Grp Volume(v), veh/h	90	0	0	169	0	0	22	225	0	67	0	252
Grp Sat Flow(s),veh/h/ln	1695	0	0	1500	0	1585	1612	1870	0	1781	0	1807
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.3	3.2	0.0	0.8	0.0	3.6
Cycle Q Clear(g_c), s	1.4	0.0	0.0	3.2	0.0	0.0	0.3	3.2	0.0	0.8	0.0	3.6
Prop In Lane	0.50		0.12	0.80		1.00	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	457	0	0	458	0		471	503		544	0	563
V/C Ratio(X)	0.20	0.00	0.00	0.37	0.00		0.05	0.45		0.12	0.00	0.45
Avail Cap(c_a), veh/h	1630	0	0	1527	0		1938	2607		1254	0	1672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	0.0	12.3	0.0	0.0	8.1	9.7	0.0	7.4	0.0	8.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.8	0.0	0.0	0.1	1.0	0.0	0.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	0.0	12.5	0.0	0.0	8.1	9.9	0.0	7.5	0.0	9.0
LnGrp LOS	B	A	A	B	A		A	A		A	A	A
Approach Vol, veh/h		90			169	A		247	A		319	
Approach Delay, s/veh		11.7			12.5			9.8			8.7	
Approach LOS		B			B			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	14.0		10.9	5.7	15.4		10.9				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.8	5.2		3.4	2.3	5.6		5.2				
Green Ext Time (p_c), s	0.0	0.6		0.2	0.0	0.7		0.4				

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) No Project Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	30	20	200	200	90
Future Volume (veh/h)	100	30	20	200	200	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1841	1796	1870	1870	1841
Adj Flow Rate, veh/h	111	0	22	222	222	80
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	4	7	2	2	4
Cap, veh/h	172	159	482	989	419	151
Arrive On Green	0.10	0.00	0.03	0.53	0.32	0.32
Sat Flow, veh/h	1697	1560	1711	1870	1297	467
Grp Volume(v), veh/h	111	0	22	222	0	302
Grp Sat Flow(s),veh/h/ln	1697	1560	1711	1870	0	1765
Q Serve(g_s), s	1.8	0.0	0.2	1.9	0.0	4.1
Cycle Q Clear(g_c), s	1.8	0.0	0.2	1.9	0.0	4.1
Prop In Lane	1.00	1.00	1.00			0.26
Lane Grp Cap(c), veh/h	172	159	482	989	0	570
V/C Ratio(X)	0.64	0.00	0.05	0.22	0.00	0.53
Avail Cap(c_a), veh/h	1161	1068	1313	3892	0	2416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	5.6	3.7	0.0	8.1
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.2	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	0.0	5.7	3.7	0.0	8.4
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	111			244	302	
Approach Delay, s/veh	14.1			3.9	8.4	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.0	15.2		8.0		21.2
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/2), s	12.2	6.1		3.8		3.9
Green Ext Time (p_c), s	0.0	0.9		0.1		0.6

Intersection Summary

HCM 6th Ctrl Delay			7.7			
HCM 6th LOS			A			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	10	40	40	10
Future Vol, veh/h	10	10	10	40	40	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	11	43	43	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	154	89	74	0	0
Stage 1	69	-	-	-	-
Stage 2	85	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	838	969	1526	-	-
Stage 1	954	-	-	-	-
Stage 2	938	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	800	932	1497	-	-
Mov Cap-2 Maneuver	800	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	920	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	861	-	-
HCM Lane V/C Ratio	0.007	-	0.025	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	20	20	50	50	10
Future Vol, veh/h	10	20	20	50	50	10
Conflicting Peds, #/hr	20	20	20	0	0	20
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	22	22	54	54	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	198	100	85	0	0
Stage 1	80	-	-	-	-
Stage 2	118	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	791	956	1512	-	-
Stage 1	943	-	-	-	-
Stage 2	907	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	750	920	1483	-	-
Mov Cap-2 Maneuver	750	-	-	-	-
Stage 1	911	-	-	-	-
Stage 2	890	-	-	-	-




















Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	855	-	-
HCM Lane V/C Ratio	0.015	-	0.038	-	-
HCM Control Delay (s)	7.5	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

# Appendix D: Baseline Plus Project Conditions LOS Worksheets

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) Plus Project Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	38	16	160	53	70	30	342	130	40	210	70
Future Volume (veh/h)	53	38	16	160	53	70	30	342	130	40	210	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.98		1.00	0.99		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1811	1870	1841	1870	1870	1856	1870	1856	1870
Adj Flow Rate, veh/h	58	41	10	174	58	0	33	372	0	43	228	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	6	2	4	2	2	3	2	3	2
Cap, veh/h	309	186	34	424	87		438	529		399	399	116
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.00	0.04	0.28	0.00	0.05	0.29	0.29
Sat Flow, veh/h	693	851	156	1112	399	1560	1781	1870	0	1781	1365	395
Grp Volume(v), veh/h	109	0	0	232	0	0	33	372	0	43	0	294
Grp Sat Flow(s),veh/h/ln	1700	0	0	1511	0	1560	1781	1870	0	1781	0	1760
Q Serve(g_s), s	0.0	0.0	0.0	3.0	0.0	0.0	0.4	6.2	0.0	0.6	0.0	5.0
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.8	0.0	0.0	0.4	6.2	0.0	0.6	0.0	5.0
Prop In Lane	0.53		0.09	0.75		1.00	1.00		0.00	1.00		0.22
Lane Grp Cap(c), veh/h	530	0	0	511	0		438	529		399	0	515
V/C Ratio(X)	0.21	0.00	0.00	0.45	0.00		0.08	0.70		0.11	0.00	0.57
Avail Cap(c_a), veh/h	1494	0	0	1415	0		1897	2387		1076	0	1491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	0.0	0.0	12.4	0.0	0.0	8.5	11.2	0.0	8.6	0.0	10.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.2	0.0	0.0	0.1	2.0	0.0	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	0.0	0.0	12.6	0.0	0.0	8.5	11.9	0.0	8.6	0.0	10.9
LnGrp LOS	B	A	A	B	A		A	B		A	A	B
Approach Vol, veh/h		109			232	A		405	A		337	
Approach Delay, s/veh		11.4			12.6			11.6			10.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	15.3		13.1	6.2	15.6		13.1				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.6	8.2		3.7	2.4	7.0		6.8				
Green Ext Time (p_c), s	0.0	1.1		0.3	0.0	0.9		0.6				

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) Plus Project Conditions  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	28	55	420	256	110
Future Volume (veh/h)	52	28	55	420	256	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1796	1856	1870	1826	1796
Adj Flow Rate, veh/h	53	2	56	429	261	97
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	6	7	3	2	5	7
Cap, veh/h	107	94	498	1046	392	146
Arrive On Green	0.06	0.06	0.06	0.56	0.31	0.31
Sat Flow, veh/h	1725	1522	1767	1870	1248	464
Grp Volume(v), veh/h	53	2	56	429	0	358
Grp Sat Flow(s),veh/h/ln	1725	1522	1767	1870	0	1712
Q Serve(g_s), s	0.8	0.0	0.5	3.7	0.0	5.2
Cycle Q Clear(g_c), s	0.8	0.0	0.5	3.7	0.0	5.2
Prop In Lane	1.00	1.00	1.00			0.27
Lane Grp Cap(c), veh/h	107	94	498	1046	0	538
V/C Ratio(X)	0.50	0.02	0.11	0.41	0.00	0.67
Avail Cap(c_a), veh/h	1210	1067	1316	3987	0	2401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	12.6	5.5	3.6	0.0	8.5
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.2	0.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.3	12.6	5.5	3.7	0.0	9.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	55			485	358	
Approach Delay, s/veh	14.2			3.9	9.0	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.0	14.8		6.8		21.8
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/2), s	12.5	7.2		2.8		5.7
Green Ext Time (p_c), s	0.0	1.1		0.0		1.2

Intersection Summary

HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	5	5	0	0	55	10	12	0	90	13	10
Future Vol, veh/h	10	5	5	0	0	55	10	12	0	90	13	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	5	5	0	0	60	11	13	0	98	14	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	321	291	60	296	296	53	45	0	0	33	0	0
Stage 1	236	236	-	55	55	-	-	-	-	-	-	-
Stage 2	85	55	-	241	241	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	632	619	1005	656	616	1014	1563	-	-	1579	-	-
Stage 1	767	710	-	957	849	-	-	-	-	-	-	-
Stage 2	923	849	-	762	706	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	540	553	967	590	551	976	1533	-	-	1549	-	-
Mov Cap-2 Maneuver	540	553	-	590	551	-	-	-	-	-	-	-
Stage 1	747	652	-	932	827	-	-	-	-	-	-	-
Stage 2	844	827	-	690	648	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.1		8.9		3.3		6	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	611	976	1549	-	-
HCM Lane V/C Ratio	0.007	-	-	0.036	0.061	0.063	-	-
HCM Control Delay (s)	7.4	0	-	11.1	8.9	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	-	-

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	18	30	0	0	45	13	47	0	12	10
Future Vol, veh/h	5	5	18	30	0	0	45	13	47	0	12	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	20	33	0	0	49	14	51	0	13	11




















Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	197	222	59	209	202	80	44	0	0	85	0	0
Stage 1	39	39	-	158	158	-	-	-	-	-	-	-
Stage 2	158	183	-	51	44	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	762	677	1007	748	694	980	1564	-	-	1512	-	-
Stage 1	976	862	-	844	767	-	-	-	-	-	-	-
Stage 2	844	748	-	962	858	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	715	630	969	683	646	943	1534	-	-	1483	-	-
Mov Cap-2 Maneuver	715	630	-	683	646	-	-	-	-	-	-	-
Stage 1	926	846	-	801	728	-	-	-	-	-	-	-
Stage 2	801	710	-	919	842	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.5	3.2	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1534	-	-	836	683	1483	-	-
HCM Lane V/C Ratio	0.032	-	-	0.036	0.048	-	-	-
HCM Control Delay (s)	7.4	0	-	9.5	10.5	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0	-	-

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) Plus Project Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	47	33	190	56	50	31	255	130	70	402	84
Future Volume (veh/h)	79	47	33	190	56	50	31	255	130	70	402	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.98		1.00	0.99		1.00	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1693	1856	1841	1870	1752	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	83	49	26	200	59	0	33	268	0	74	423	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	14	3	4	2	10	2	7	2	2	3
Cap, veh/h	297	161	64	422	80		321	605		527	535	104
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.00	0.04	0.32	0.00	0.07	0.35	0.35
Sat Flow, veh/h	710	690	276	1156	341	1585	1668	1870	0	1781	1512	293
Grp Volume(v), veh/h	158	0	0	259	0	0	33	268	0	74	0	505
Grp Sat Flow(s),veh/h/ln	1675	0	0	1496	0	1585	1668	1870	0	1781	0	1805
Q Serve(g_s), s	0.0	0.0	0.0	3.3	0.0	0.0	0.5	4.7	0.0	1.1	0.0	10.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	6.4	0.0	0.0	0.5	4.7	0.0	1.1	0.0	10.5
Prop In Lane	0.53		0.16	0.77		1.00	1.00		0.00	1.00		0.16
Lane Grp Cap(c), veh/h	522	0	0	501	0		321	605		527	0	639
V/C Ratio(X)	0.30	0.00	0.00	0.52	0.00		0.10	0.44		0.14	0.00	0.79
Avail Cap(c_a), veh/h	1241	0	0	1155	0		1451	1989		1041	0	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	0.0	14.6	0.0	0.0	9.8	11.2	0.0	8.4	0.0	12.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.8	0.0	0.0	0.2	1.6	0.0	0.3	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	14.9	0.0	0.0	9.8	11.4	0.0	8.4	0.0	13.0
LnGrp LOS	B	A	A	B	A		A	B		A	A	B
Approach Vol, veh/h		158			259	A		301	A		579	
Approach Delay, s/veh		13.6			14.9			11.2			12.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	19.0		15.3	6.4	20.3		15.3				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	3.1	6.7		5.1	2.5	12.5		8.4				
Green Ext Time (p_c), s	0.0	0.8		0.5	0.0	1.6		0.7				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) Plus Project Conditions  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	125	67	56	261	433	142
Future Volume (veh/h)	125	67	56	261	433	142
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1811	1841	1870	1870	1870
Adj Flow Rate, veh/h	133	6	60	278	461	139
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	4	2	2	2
Cap, veh/h	175	155	393	1150	569	172
Arrive On Green	0.10	0.10	0.06	0.61	0.42	0.42
Sat Flow, veh/h	1725	1535	1753	1870	1367	412
Grp Volume(v), veh/h	133	6	60	278	0	600
Grp Sat Flow(s),veh/h/ln	1725	1535	1753	1870	0	1779
Q Serve(g_s), s	2.9	0.1	0.6	2.6	0.0	11.3
Cycle Q Clear(g_c), s	2.9	0.1	0.6	2.6	0.0	11.3
Prop In Lane	1.00	1.00	1.00			0.23
Lane Grp Cap(c), veh/h	175	155	393	1150	0	741
V/C Ratio(X)	0.76	0.04	0.15	0.24	0.00	0.81
Avail Cap(c_a), veh/h	907	807	977	2991	0	1872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	15.4	6.8	3.3	0.0	9.8
Incr Delay (d2), s/veh	2.6	0.0	0.1	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.1	0.3	0.0	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.2	15.5	6.9	3.4	0.0	10.6
LnGrp LOS	B	B	A	A	A	B
Approach Vol, veh/h	139			338	600	
Approach Delay, s/veh	19.1			4.0	10.6	
Approach LOS	B			A	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.5	21.6		8.8		29.2
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+I), s	12.6	13.3		4.9		4.6
Green Ext Time (p_c), s	0.0	2.0		0.1		0.8

Intersection Summary

HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	5	5	0	0	105	10	14	0	97	14	10
Future Vol, veh/h	10	5	5	0	0	105	10	14	0	97	14	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	5	5	0	0	114	11	15	0	105	15	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	365	308	61	313	313	55	46	0	0	35	0	0
Stage 1	251	251	-	57	57	-	-	-	-	-	-	-
Stage 2	114	57	-	256	256	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	591	606	1004	640	602	1012	1562	-	-	1576	-	-
Stage 1	753	699	-	955	847	-	-	-	-	-	-	-
Stage 2	891	847	-	749	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	473	539	966	573	536	974	1532	-	-	1546	-	-
Mov Cap-2 Maneuver	473	539	-	573	536	-	-	-	-	-	-	-
Stage 1	733	638	-	930	825	-	-	-	-	-	-	-
Stage 2	766	825	-	674	635	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.7		9.2		3.1		6	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	562	974	1546	-	-
HCM Lane V/C Ratio	0.007	-	-	0.039	0.117	0.068	-	-
HCM Control Delay (s)	7.4	0	-	11.7	9.2	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.2	-	-

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	38	70	0	0	51	14	53	0	14	10
Future Vol, veh/h	5	5	38	70	0	0	51	14	53	0	14	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	41	76	0	0	55	15	58	0	15	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	215	244	61	238	220	84	46	0	0	93	0	0
Stage 1	41	41	-	174	174	-	-	-	-	-	-	-
Stage 2	174	203	-	64	46	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	742	658	1004	716	678	975	1562	-	-	1501	-	-
Stage 1	974	861	-	828	755	-	-	-	-	-	-	-
Stage 2	828	733	-	947	857	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	693	609	966	636	628	938	1532	-	-	1472	-	-
Mov Cap-2 Maneuver	693	609	-	636	628	-	-	-	-	-	-	-
Stage 1	919	845	-	782	713	-	-	-	-	-	-	-
Stage 2	781	692	-	884	841	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.4		11.4		3.2		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1532	-	-	877	636	1472	-	-
HCM Lane V/C Ratio	0.036	-	-	0.059	0.12	-	-	-
HCM Control Delay (s)	7.4	0	-	9.4	11.4	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0	-	-

HCM 6th Signalized Intersection Summary  
1: Alii Dr & Kamehameha III Rd

Baseline (2035) Plus Project Conditions  
Saturday Midday Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	57	38	120	56	50	39	236	120	60	227	113
Future Volume (veh/h)	112	57	38	120	56	50	39	236	120	60	227	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	0.99		1.00	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1693	1870	1826	1870	1870	1870
Adj Flow Rate, veh/h	126	64	34	135	63	0	44	265	0	67	255	109
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	14	2	5	2	2	2
Cap, veh/h	325	108	49	381	115		397	533		514	372	159
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.00	0.05	0.28	0.00	0.07	0.30	0.30
Sat Flow, veh/h	836	554	249	1058	588	1585	1612	1870	0	1781	1227	524
Grp Volume(v), veh/h	224	0	0	198	0	0	44	265	0	67	0	364
Grp Sat Flow(s),veh/h/ln	1638	0	0	1647	0	1585	1612	1870	0	1781	0	1751
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	0.7	4.1	0.0	0.9	0.0	6.4
Cycle Q Clear(g_c), s	4.1	0.0	0.0	3.5	0.0	0.0	0.7	4.1	0.0	0.9	0.0	6.4
Prop In Lane	0.56		0.15	0.68		1.00	1.00		0.00	1.00		0.30
Lane Grp Cap(c), veh/h	482	0	0	496	0		397	533		514	0	532
V/C Ratio(X)	0.46	0.00	0.00	0.40	0.00		0.11	0.50		0.13	0.00	0.68
Avail Cap(c_a), veh/h	1460	0	0	1429	0		1706	2395		1159	0	1488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	0.0	0.0	12.6	0.0	0.0	8.4	10.4	0.0	7.8	0.0	10.7
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	1.1	0.0	0.0	0.2	1.3	0.0	0.2	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.8	0.0	0.0	8.5	10.6	0.0	7.9	0.0	11.2
LnGrp LOS	B	A	A	B	A		A	B		A	A	B
Approach Vol, veh/h		224			198	A		309	A		431	
Approach Delay, s/veh		13.1			12.8			10.3			10.7	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	15.3		12.3	6.5	16.0		12.3				
Change Period (Y+Rc), s	* 4.8	* 5.4		* 5.5	* 4.8	* 5.4		* 5.5				
Max Green Setting (Gmax), s	* 15	* 45		* 30	* 30	* 30		* 30				
Max Q Clear Time (g_c+I1), s	2.9	6.1		6.1	2.7	8.4		5.5				
Green Ext Time (p_c), s	0.0	0.8		0.7	0.0	1.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary  
2: Alii Dr & Kaleiopapa St

Baseline (2035) Plus Project Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	136	57	46	219	218	127
Future Volume (veh/h)	136	57	46	219	218	127
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1781	1841	1796	1870	1870	1841
Adj Flow Rate, veh/h	151	5	51	243	242	114
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	8	4	7	2	2	4
Cap, veh/h	203	187	454	990	359	169
Arrive On Green	0.12	0.12	0.06	0.53	0.30	0.30
Sat Flow, veh/h	1697	1560	1711	1870	1185	558
Grp Volume(v), veh/h	151	5	51	243	0	356
Grp Sat Flow(s),veh/h/ln	1697	1560	1711	1870	0	1743
Q Serve(g_s), s	2.6	0.1	0.5	2.2	0.0	5.5
Cycle Q Clear(g_c), s	2.6	0.1	0.5	2.2	0.0	5.5
Prop In Lane	1.00	1.00	1.00			0.32
Lane Grp Cap(c), veh/h	203	187	454	990	0	528
V/C Ratio(X)	0.74	0.03	0.11	0.25	0.00	0.67
Avail Cap(c_a), veh/h	1102	1014	1189	3695	0	2266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	12.0	6.2	3.9	0.0	9.4
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.1	0.3	0.0	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	12.0	6.2	4.0	0.0	10.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	156			294	356	
Approach Delay, s/veh	15.0			4.4	10.0	
Approach LOS	B			A	A	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.0	15.1		8.7		22.1
Change Period (Y+Rc), s	5.2	* 5.8		5.0		* 5.8
Max Green Setting (Gmax), s	15	* 40		20.0		* 61
Max Q Clear Time (g_c+1/2), s	12.5	7.5		4.6		4.2
Green Ext Time (p_c), s	0.0	1.1		0.1		0.7

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.  
\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	5	5	0	0	141	10	16	0	142	16	10
Future Vol, veh/h	10	5	5	0	0	141	10	16	0	142	16	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	5	5	0	0	153	11	17	0	154	17	11

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	487	410	63	415	415	57	48	0	0	37	0	0
Stage 1	351	351	-	59	59	-	-	-	-	-	-	-
Stage 2	136	59	-	356	356	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	491	531	1002	548	528	1009	1559	-	-	1574	-	-
Stage 1	666	632	-	953	846	-	-	-	-	-	-	-
Stage 2	867	846	-	661	629	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	365	456	964	477	454	971	1529	-	-	1544	-	-
Mov Cap-2 Maneuver	365	456	-	477	454	-	-	-	-	-	-	-
Stage 1	649	557	-	928	824	-	-	-	-	-	-	-
Stage 2	711	824	-	574	555	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.2		9.4		2.8		6.4	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	459	971	1544	-	-
HCM Lane V/C Ratio	0.007	-	-	0.047	0.158	0.1	-	-
HCM Control Delay (s)	7.4	0	-	13.2	9.4	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.3	-	-

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	46	71	0	0	57	16	60	0	16	10
Future Vol, veh/h	5	5	46	71	0	0	57	16	60	0	16	10
Conflicting Peds, #/hr	20	0	20	20	0	20	20	0	20	20	0	20
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	5	50	77	0	0	62	17	65	0	17	11

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	237	269	63	264	242	90	48	0	0	102	0	0
Stage 1	43	43	-	194	194	-	-	-	-	-	-	-
Stage 2	194	226	-	70	48	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	717	637	1002	689	660	968	1559	-	-	1490	-	-
Stage 1	971	859	-	808	740	-	-	-	-	-	-	-
Stage 2	808	717	-	940	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	668	587	964	604	608	931	1529	-	-	1462	-	-
Mov Cap-2 Maneuver	668	587	-	604	608	-	-	-	-	-	-	-
Stage 1	912	843	-	759	695	-	-	-	-	-	-	-
Stage 2	759	673	-	869	839	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	9.4		11.8			3.2		0		
HCM LOS	A		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	879	604	1462	-	-
HCM Lane V/C Ratio	0.041	-	-	0.069	0.128	-	-	-
HCM Control Delay (s)	7.5	0	-	9.4	11.8	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.4	0	-	-

Appendix I

# **Preliminary Engineering Report**



# Keauhou Bay Improvements

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TMK: 7-8-010: 053, 044, 049, 059, 039, 038  
7-8-012:058, 061, 098, 004, 007, 065, 048, 103, 013, 014, 027, 054, 101, 091  
Keauhou Bay, Kahalu'u Ahupua'a  
North Kona District, Island of Hawai'i

## Preliminary Engineering Report

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**DATED: April 29, 2022**

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# 1 INTRODUCTION

## 1.1 PROJECT DESCRIPTION

The Keauhou Bay Improvements Project is located on the Big Island of Hawai'i in the North Kona District (see Figure 1, Location Map). The project encompasses multiple TMKs (7-8-010:044 & 049, 7-8-012:004, 013, 014, 065, 098; see **Figure 1 – TMK Map**) totaling approximately 30 acres. The properties are bounded by the Hōlua Resort at Mauna Loa Village to the South, Keauhou Resort Condominiums at the North, Kona Country Club to the east and the Pacific Ocean to the west. The Keauhou Bay region is rich with Hawaiian History. The Kauikeaouli birth stone and the Kāneaka Hōlua Slide are just two of the many important historic sites located within the project boundaries.

### 1.1.1 EXISTING USES

Historically, the Keauhou Bay area was known as a gathering place for Hawaiian Royalty. As time elapsed, the use of the bay shifted away from a center for cultural practices to homesteading and eventually to its present-day use of a tourism hub. To this day, the Keauhou Bay area still contain remnants of the cultural practices that took place in the bay centuries ago. Its current use includes commercial, community recreation, resort, residential dedicated heritage sites, and open space. The existing parcels included in the Keauhou Bay Improvements Project have largely been developed except for the largest of the properties, parcel 044 (TMK 7-8-010:044).

At the north end of the project there is an existing boat storage lot and visitor parking lot. Both lots are unpaved and lack any supporting infrastructure typical to a vehicular parking lot and as required by County standards. The boat storage lot known as “Keauhou Bay Boat Park” currently houses around 35 boats ranging in size from a small personal watercraft to 30-foot-long tour boat vessels. The visitor parking lot is currently used by the Fair Winds and Hula Kai tours that operate out of Keauhou Bay. The capacity of the 0.3-acre lot is unknown as it is rarely full and does not have any delineated stalls.

At the center of the bay is the Keauhou Bay Beach Park. This public space is shared by the Keauhou Canoe club and used as a gathering space and ocean access point for the users of the bay.

Further south of the beach park is a commercial center where the recreational tours operate their businesses. These businesses depend on the State of Hawai'i Department of Boating and Recreation (DOBAR) facilities which consist of a small vehicle parking lot, boat ramp and boat trailer parking lot. Also in this area is a sewer pump station which collects wastewater from the south side of the bay and pumps wastewater to the treatment plant on the north side of the bay.

### 1.1.2 PROPOSED USE

The Keauhou Bay Improvements project will include a variety of land uses including resort, commercial, mixed use, visitor accommodations, park, conservation, and cultural education. The project is comprised of five different project groups. Each of these project groups are broken down further into individual project numbers.

#### **Project Group A**

Project Group A encompasses improvements to the existing vehicle parking facilities within Keauhou Bay including Projects #1 and #10. Project #1 involves improving the existing boat storage and visitor parking lots within TMK: 7-8-010:044 located adjacent to each other at the north end of the bay. These two facilities have been neglected over the years and do not meet the County standards and do not provide



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amenities and infrastructure in comparisons to similar facilities in the West Hawai'i area. The boat storage facility is proposed to accommodate at a minimum 18 boat storage parking stalls. The visitor parking lot will target to accommodate visitor 140 parking stalls (see **Figure 2 –Parking and Boat Storage Lot Site and Grading Plan**). Project #10 looks to add to the current DOBAR boat trailer parking to the south end of TMK: 7-8-010:044. This relocation of the boat parking will be funded by DOBAR. Eight 15' x 55' stalls will be provided to meet the recreation boating demand of Keauhou Bay (see **Figure 3 – New Boat Trailer Parking Site and Grading Plan**).

### **Project Group B**

Project Group B is broken down into five sub-projects that all focus on redirecting the use of the bay towards becoming a cultural education center of West Hawai'i. Project #8A involves restoring the cultural landscape on the mauka side of Mo'ikeha to 'Ahu'ula. (see **Figure 4 – Landscape Master Plan**). This project will focus on improving the Mo'ikeha to 'Ahu'ula landscape from its current overgrown state into an area that is usable and attractive. A pedestrian trail with small shelters, benches, and trash receptacles will weave through a landscaped zone. This project will serve as a catalyst for Project Group B.

Following the completion of Project #8A, Projects #8B, #4 and #5 will be developed to further restore and improve the landscape of the bay. Project #8B will restore the cultural landscape makai of the 'Ahu'ula cliff area. The focal point of this restoration will be the birthplace of Kauikeaouli. Project #4 will involve the reorganization of the Keauhou Canoe Club space. Over the years, the Keauhou Canoe Club has expanded its footprint and is now encroaching on other parts of the bay. Project #5 will involve the development of the mauka-makai corridor and shoreline park. The goal of this project is to establish a community zone to improve public accessibility to and from the bay.

After these three projects are completed, Project #3 will finalize completion of Project Group B by developing local vendor kiosks to complement the restoration of the bay. These 200-square foot pop up kiosks will depend on the other Projects in Group B to increase the pedestrian traffic and allow for commercial activity to be feasible.

### **Project Group C**

Project Group C is a resort and infrastructure development project that will provide a large increase in usage of the Keauhou Bay region. This project group includes two projects, Project #6 and #7. Project #6 will look to develop approximately 7.5 acres of the hillside land into a boutique resort (see **Figure 5 – Boutique Resort Site Plan**). This resort will revolve around a bungalow approach to minimize the need for extensive mass grading. A total of 80 bungalows (150 keys) is programmed with the public back of house of 13,000 square feet. This resort will take a low-density and low impact approach to development and will look to capitalize on the growing interest in lifestyle centric resorts while incorporating the rich historical significance of Keauhou Bay.

In conjunction with the development of the resort, Project #7 looks to restore existing Old Kona Road (see **Figure 6 – Old Kona Road Overview Plan**). Adding an accessway to provide circulation from one side of the bay to the other will be crucial to the development of the boutique resort. Old Kona Road will be a private roadway owned and maintained by the Kamehameha Schools. All utilities that will be needed for the large resort development will be installed along this roadway corridor.

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**Project Group D**

Project Group D will look to repurpose the existing bayfront facilities in Project #9 (see **Figure 7 – Repurpose Existing Bay Front Facilities Plan**). These facilities currently include the Fairwinds Tours operating center, a cultural/education center and lawn terrace. The proposed renovations will look to divert the use of these buildings away from commercial towards a culture education center.

**Project Group E**

Project Group E will involve the group of TMK parcels (TMK: 7-8-010:049, 7-8-012:004, 065, 098) at the intersection of Kaleiopapa Street and 'Ehukai Street. The project will look to incorporate the history and legacy of the bay into a modern-day commercial development. (see **Figure 8 – Keauhou Bay Commercial Development Project**).

## **2 SITE ACCESS**

### **2.1 EXISTING CONDITIONS**

Keauhou Bay is accessed off of Ali'i Drive mauka of the project area. Ali'i Drive is under the jurisdiction of the County of Hawai'i and has a 40-foot ROW with one lane headed in each direction. Shoulder lanes are present on both sides.

From Ali'i Drive, the north side of Keauhou Bay is accessed through Kamehameha III Road. Kamehameha III Road is a two-lane 50-foot-wide right-of-way (ROW) with a 10-foot lane in each direction and 8-foot on-street parking. This road has curb and gutters and sidewalks on both sides along some lengths of the roadway. The posted speed limit is 25 mph. Kamehameha III Road ends with a cul-de-sac at the north end of the bay.

Access off of Ali'i Drive from the south side of Keauhou Bay is through Kaleiopapa Street. It is a two-lane 40-foot-wide ROW with a 12-foot lane in each direction. An eight-foot shoulder on each side provides parking and a pedestrian walkway for the public. The posted speed limit is 25 mph. This road splits to a boat ramp and a parking lot owned by the State of Hawai'i (TMK 7-8-012:055).

Currently there is no vehicular access between Kamehameha III Road and Kaleiopapa Street. Property and survey records indicate that these two roadways are connected by a Government Road Right of Way (ROW) and may have been accessible by vehicle in the past. However, in the existing condition, there isn't any existing road as the ROW crosses through the beach area.

The existing gravel road in parcel 7-8-010:044 is what remains of what is believed to be a former emergency evacuation route known as Old Kona Road. Despite that belief, the County of Hawai'i Department of Public Works Engineering Division does not have any record of this route being designated as an emergency evacuation route. The width of the path varies from 34-feet at its widest point to 12-feet at its narrowest. In its present condition, much of this road is passable by foot or vehicle but needs to be cleared.

The north end of Old Kona Road is currently used as a vehicle access way, primarily by the Keauhou Canoe Club, to the center of the bay. Access to the south end of the road is prohibited by cattle gates at the center of the parcel and at Kaleiopapa Street. This section of Old Kona Road is overgrown with vegetation. The entire Old Kona Road lies within the property, which is owned by Kamehameha Schools.

## **2.2 PROPOSED ACCESS INFRASTRUCTURE**

### **2.2.1 ONSITE ROADWAYS**

All roadways within the property will be privately owned and maintained by Kamehameha Schools or its lessees. The roadways will be designed in conformance with County standards. The road will be public accessible and connect the two ends of Keauhou Bay. Pavement design and recommendations will conform to the geotechnical recommendations that will be given during the design phase.

The main roadway that is planned within the project will be the improvement of Old Kona Road in Project Group C. The approximately 1,800-foot roadway is planned to have a 40-foot right-of-way with 12-foot lanes in each direction. The alignment of Old Kona Road will generally follow the existing alignment deviating only when necessary to accommodate the other project improvements. The road will be asphalt paved with a sidewalk on the makai side of the roadway. A drainage swale will be constructed on the mauka edge of the road to catch and divert upstream runoff.

A system of concrete and gravel pedestrian walkways are planned throughout the project. Paths will connect the parking areas with the cultural landscaped areas and education center, the boutique resort, and the commercial development.

## **3 GRADING AND EROSION CONTROL**

### **3.1 EXISTING CONDITIONS**

#### **3.1.1 CLIMATE**

The project site is located on the leeward side of Mauna Loa along the Kona coast. The predominant trade winds of Hawai'i Island originate from the east. Keauhou Bay is largely sheltered from the trades by Mauna Loa. Most wind in the area come from the South with onshore breezes during the nighttime hours. As a result, the rainfall pattern is relatively dry with the chance of rainfall increasing in the summertime. The average annual rainfall in the Keauhou area is approximately 20 to 50 inches.

#### **3.1.2 TOPOGRAPHY AND GEOLOGY**

The Keauhou bay parcels generally slope in the makai direction from Ali'i Drive down to the center of the bay. The slope of the site varies from 2% to 33% at its steepest. Near the bottom of the bay is a steep drop off known as 'Ahu'ula cliffs.

Since Mauna Loa is considered an active volcano, much of the site is covered in volcanic soils. The Keauhou bay area is not within any recorded historic lava flow paths and is classified by USGS as Lava Hazard Zone 4. With Zone 1 being the highest hazard and zone 9 being the lowest, Zone 4 falls near the middle where lava coverage is proportionally smaller (about 5 percent since 1800) and less than 15 percent within the past 750 years.

#### **3.1.3 SOILS**

The NRCS Soil Survey shows that the project site consists primarily of three different types of soil. Starting from the north end of the site, 'a'a rock, Wai'aha medial silt, and Punalu'u lava flows make up this portion of the Keauhou area. These are all soils that are typically found at the lower elevations of Mauna Loa (see **Figure 9 – USGS Soil Survey Map**).

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Lava Flows, 'a'ā – This soil is rough and broken, consisting of a mass of clinkery, hard, glassy, sharp pieces piled in tumbled heaps. There is practically no soil covering and it is typically bare of vegetation, except for mosses, lichens, ferns and a few small 'ōhi'a trees. In areas of high rainfall, it contributes substantially to the underground water supply and is used for watershed. The capability classification is VIII, non-irrigated. Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife or water supply or aesthetic purposes. The subclass is "s," meaning the soil is limited because it is shallow, droughty, or stony.

Medial Silt, Wai'aha – Wai'aha silt loam is derived from volcanic ash over pahoehoe lava. This soil is well drained with the depth to water supply being very low (about 1.6 inches). The typical profile consists of around 8 inches of medial silt loam, 7 inches of extremely cobbly medial fine sandy loam and bedrock thereafter. The Wai'aha family of soil is not considered prime farmland with the primary vegetation being of a grass type.

Lava Flows, Punalu'u – The Punalu'usoil class consists of a combination of organic material and volcanic ash over pahoehoe lava. Like the other soils on site, it is well drained with rock fragments ranging in size from gravel to cobble sized lava rocks. This soil is not a considered prime farmland with its main vegetation being guinea grass and haole.

### **3.1.4 GRADING**

The existing ground surface within the project site is primarily covered by 'a'ā rock, Wai'aha medial silt, and Punalu'u lava flows. In the areas that have not been developed, the rock surface is rough and uneven. Due to the minimal rainfall and permeability of the lava rock, the existing ground surface is not eroded and there are no visible existing drainage ways throughout the property.

The proposed development will generally follow the existing topography to minimize earthwork activities. Due to the steep topography of the site, retaining walls will be needed meet proposed grades. Earthwork activities will include excavation and embankment for roadways, rough grading and landscaping of the cultural landscaped areas, utility installation, and site grading for the proposed developments.

Due to the predominance of volcanic soils and historic lava flows on site, the earthwork activities may include blasting, rock crushing, and pneumatic hammering to excavate lava rock. The import of soil may be required for areas that that will be landscaped due to the shallow depth of the topsoil on site.

### **3.1.5 EROSION CONTROL**

The nearshore waters off the Property are classified as "AA" by the State DOH. According to DOH Water Quality Standards, "It is the objective of class AA waters that these waters remain in their natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions" (HAR §11-54-03(c)(1)). To the extent practicable the wilderness character of these areas shall be protected. Therefore, storm runoff from the improvements of Keauhou Bay will be contained within project site to a reasonable extent that is possible. Total maximum daily load of discharge must not exceed the amount specified in HAR §11-54-06.

Soil erosion and sediment control BMPs will be implemented to minimize and control erosion of soils and dust during construction. BMPs are pollution control measures, applied to nonpoint sources, on-site or off-site, to control erosion and the transport of sediments and other pollutants which have an adverse impact on waters of the State. Construction BMPs are temporary measures installed before construction commences and removed after construction completion. Potential construction BMPs include but are not limited to gravel entrance, water trucks, dust screen, silt fence, sedimentation basins, diversion

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berm/ditches, and grading procedures that follow Hawai'i County Code Chapter 10 – Erosion and Sediment Control.

Unlike construction BMPs, permanent BMPs are designed to remain part of the project features after the site grading operation is complete. The permanent BMPs are intended to reduce storm water pollution typically associated with the increased impervious surfaces. Permanent BMPs will consist of the lava swales and infiltration trenches, grass swales, vegetated buffers, and rain gardens along with the general development of landscaped areas. Increase in runoff rates resulting from the development will be mitigated by infiltrating excess runoff into the ground and the implementation of BMPs. As a result, the proposed project will not create an adverse impact to the near shore waters.

## **4 DRAINAGE**

### **4.1 EXISTING CONDITIONS**

#### **4.1.1 FLOODING AND TSUNAMI HAZARDS**

The Federal Emergency Management Agency's (FEMA) Flood Rate Insurance Maps (FIRM) indicate that the project area is within the Flood Zones VE, AE and X, with established base flood elevations at 14 ft msl. Flood zone VE is designated as a coastal hazard zone with a 1% annual change of flooding. Flood zone AE designated as a 1% chance of flooding with a defined base flood elevation. Most of the project area is within Flood zone X. Zone X is defined as an area outside the 500-year flood limits. Any development that occurs within the Flood Zone AE and VE are subject to regulation through the County flood hazard ordinance and FEMA regulations (see **Figure 10 – FEMA Flood Map**).

#### **4.1.2 EXISTING DRAINAGE INFRASTRUCTURE**

Currently, there is no existing drainage infrastructure or visible drainage ways on the Keauhou Bay project parcels. It is expected that most of the rainfall infiltrates due to the high permeability of the ground. Offsite, existing drainage infrastructure is limited to gutters, swales, and inlets to dry wells along Kaleiopapa and Kamehameha Road.

There are no drainage reports or calculations on file with the County of Hawai'i or State of Hawai'i, Department of Transportation for the adjacent public roadways or surrounding developed properties.

#### **4.1.3 EXISTING HYDROLOGY**

The West Hawai'i region consistently slopes from the top of Mauna Loa down to the ocean. The Keauhou area does not differ from this generalization and consists of moderate to steep slopes of highly permeable volcanic soils consisting of primarily 'a'ā lava rock. Due to the low frequency of substantial rainfall and high permeability of the soils throughout the project area, surface runoff generally does not occur in the typical rainfall occurrence. The runoff either percolates into the underlying groundwater or is evaporated into the atmosphere. As a result, there is no visible natural gulches or waterways on the property. It can also be assumed that any stormwater run on from uphill properties is negligible as the water infiltrates soon after entering the project boundary. (see **Appendix C, NOAA Precipitation Frequency Estimates**).

**TABLE 4.1 – EXISTING STORMWATER RUNOFF PEAK FLOW ESTIMATES**

Intensity of 1 hr Rainfall (Tm=10 years)      i(10) = 1.86 in/hr      NOAA Atlas 14 Volume 4 Version 2.1  
 Intensity of 1 hr Rainfall (Tm=50 years)      i(50) = 2.78 in/hr      NOAA Atlas 14 Volume 4 Version 2.1

<b>Project Group</b>	<b>Area (Acres)</b>	<b>C</b>	<b>Tc (Min)</b>	<b>I</b>	<b>Q<sub>10</sub>/Acre (cfs)</b>	<b>Total Q<sub>10</sub> (cfs)</b>
Project Groups A,B,C	25.24	0.60	14.00	1.86	1.90	57.70
Project Group D	0.61	0.85	7.25	1.86	3.97	2.42
Project Group E	2.71	0.60	16.00	1.86	1.82	5.93

## 4.2 PROPOSED CONDITIONS

### 4.2.1 COUNTY OF HAWAI'I DRAINAGE STANDARDS

The proposed drainage systems hydrologic criteria will be developed in accordance with County of Hawai'i Standards with the exception of applying NOAA Atlas 14 Volume 4 Version 2.1 in lieu of Plates 1 and 2 (Intensity of 1-hr Rainfall for 10- and 50-year Return Periods). Plates 1 and 2 of the County Drainage Standards are based on the U.S. Department of Commerce Technical Paper 43, Rainfall Frequency Atlas of the Hawaiian Islands (TP-43) published in 1962. The isopluvial (rainfall intensity) maps in NOAA Atlas 14 Volume 4 Version 2.1 are the result of interpolation of frequency estimates of a larger sample of rain stations with longer years of record than TP-43. Hence NOAA Atlas 14 Volume 4 Version 2.1 portrays a more accurate representation of the rainfall intensity than the current County of Hawai'i Drainage Standards.

For drainage areas of 100 acres or less, the County of Hawai'i Drainage Standards stipulates that the drainage system be designed for a return period of 10-years. To determine the runoff quantity for these areas, the rational method will be used. The rational method is based on the drainage area, runoff coefficient (ground cover conditions) and the rainfall intensity for duration equal to the time of concentration. For drainage areas greater than 100 acres, the County of Hawai'i uses Plates 6 and 6A in the Drainage Standards where peak discharge is a function of the drainage area and the location of the drainage area (runoff zone).

### 4.2.2 PROPOSED DRAINAGE INFRASTRUCTURE

In the post-developed condition, stormwater runoff will be generated from the replacement of porous lava with top spoil, vegetation, and impervious surfaces. Strategies to mitigate the increase in runoff will be implemented. Those strategies include but are not limited to detaining, retaining and infiltrating runoff into the ground. Since it is assumed that there is no pre-developed runoff, the drainage system sizing will be based solely on the pre-developed runoff.

Due to the site characteristics, the location of the property and the proposed masterplan, the project is well suited to implementation of Low Impact Development (LID) strategies. LID is a stormwater management strategy that promotes conservation of existing natural features and use of localized small-scale stormwater systems to mimic the natural hydrologic patterns while minimizing stormwater infrastructure. LID practices and stormwater systems that can be incorporated into the project include:

- Minimize impervious area, use permeable surfaces where possible including permeable sidewalk and roadway/driveway paving
- Plan site around existing site features – retain and incorporate natural topography
- Minimize grading and disturbed area – maximize existing undisturbed lava fields

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- Narrow roads and minimize driveway lengths/widths, use wheel strips and shared driveways
- Provided connected bike and pedestrian pathways
- Sidewalks on one side of street
- Plant trees – especially large canopy, plant in well thought out locations
- Use source control of stormwater for pollutant control and groundwater recharge
- Minimize conventional infrastructure including curb and gutter, piping and drain inlets
- Utilize the lava rock onsite – lava sumps, lava swales, lava trenches, shallow drywells, drainage injection wells, detention, and retention basins.

In areas with high density such as “Project #11 Commercial and Dining Area”, conventional stormwater infrastructure will be implemented including curb, gutter, drain inlets and drainpipes. The piped drainage system will be conveyed into an existing drainage injection well or retention/detention basin or another type of detention/infiltration system.

Outside of the high-density development areas, minimal stormwater management is anticipated due to the high infiltration rates of the lava-based soils. Should mitigation strategies be needed, the stormwater runoff will be conveyed using natural lava swales or grass swales through localized infiltration structures such as lava sumps or lava trenches. Other infiltration practices using shallow drywells, drainage injection wells and detention/retention basins will be utilized where necessary.

During the design phase of the project, a drainage masterplan will be developed that incorporates the stormwater management strategies listed above to establish the project drainage concept and to provide design criteria for each project group. The Drainage master plan will be based on detailed topographic survey and proposed mass grading of the project and will include LID stormwater strategies, infiltration and stormwater system sizing criteria, detention/retention analysis, flood analysis, and drainage system schematics and plans.

Though not required by the County of Hawai'i Drainage Standards, the implementation of LID stormwater strategies will allow management of runoff at the source and sizing of stormwater facilities will be dependent on the individual site and its specified use. Increase in runoff rates resulting from the development will be mitigated by infiltrating excess runoff into the ground and the implementation of Permanent BMPs. As a result, the proposed project will not create an adverse impact due to increases in peak flow rates downstream of the project site. The table below shows the estimated stormwater runoff peak flows per acre of land to provide a generalized estimate of total peak flow for the project.

**TABLE 4.2 – PROPOSED STORMWATER RUNOFF PEAK FLOW ESTIMATES**

Intensity of 1 hr Rainfall (Tm=10 years)      i(10) = 1.86 in/hr      NOAA Atlas 14 Volume 4 Version 2.1  
 Intensity of 1 hr Rainfall (Tm=50 years)      i(50) = 2.78 in/hr      NOAA Atlas 14 Volume 4 Version 2.1

Project Group	Area (Acres)	C	Tc (Min)	I	Q <sub>10</sub> /Acre (cfs)	Total Q <sub>10</sub> (cfs)
Project Groups A,B,C	25.24	0.70	10.75	1.86	2.90	75.11
Project Group D	0.61	0.85	7.25	1.86	3.97	2.42
Project Group E	2.71	0.70	12.00	1.86	2.81	8.70

## 5 WATER

### 5.1 EXISTING CONDITIONS

The project site is in the Keauhou Aquifer System Area, which is within the Hualalai Aquifer Sector Area on the western slope of Mauna Loa which spans from Keauhou to Kukio (Hawai'i Water Plan, July 2019). The properties around Keauhou Bay are served by the County of Hawai'i Department of Water Supply's (DWS) North Kona Water System which is sourced from the Kahalu'u Shaft Wells. The wells feed the Kahalu'u tanks No.4 and 4a at an elevation of 310 feet msl. These tanks provide water service to the DWS distribution mains in the Keauhou Bay region.

The Keauhou Bay area is serviced by a water main loop that starts and ends in Ali'i Drive from the Kamehameha III Road intersection to the north and Kaleiopapa Street. intersection to the south. Both ends are connected to the same 12" water main in Ali'i Drive. The loop begins as an 8" water main and transitions to a 12" somewhere near the intersection of Kamehameha III Road and Hōlua Road. This main travels through the project site at the bottom of the bay and back up through Kaleiopapa Street; ultimately connecting back to the 12" water main at the intersection of Kaleiopapa Street and Ali'i Drive.

### 5.2 PROPOSED WATER SUPPLY SYSTEM

The proposed water supply system that will serve the improvements will connect to the existing infrastructure currently owned and operated by the DWS. The project groups that will require potable water are Project Groups B, C, D, and E.

Project Group B will require potable water for the reorientation of the canoe club and the planned small-scale commercial kiosks. A domestic lateral will be connected to the existing water main located within Kamehameha III Road. The demand of the group of projects is not anticipated to exceed 300 GPD daily average.

Project Group C's boutique resort is projected to have the largest potable water demand of the proposed developments. A 4" domestic lateral will connect to the existing water main located within Kaleiopapa Street and run under Old Kona Road. Fire protection for the resort will be provided by an 8" lateral that will run adjacent to the 4" domestic lateral in Old Kona Road. Fire hydrants will be spaced per DWS requirements.

Project Group D is not expected to generate a large increase in water demand since the use of the facility will remain relatively similar. Improvements to the water system is not anticipated in the bayfront facilities.

Project Group E will generate the second largest demand for potable water out of the project groups. The commercial development will require at a minimum 1 ½" water lateral from Kaleiopapa Street to serve its domestic water demand. There are fire hydrants along 'Ehukai Street and Kaleiopapa Street. If the commercial buildings are equipped with automatic fire sprinklers, a separate fire protection system will need to be designed.

The proposed water system outside of the water mains will be privately owned and maintained. Use of the water system will be metered to the individual users. The proposed water and irrigation systems are shown on **Figure 6 – Old Kona Road Overview**.



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**5.2.1 WATER DEMAND**

In total, the proposed projects will result in an average water demand of approximately 86,385 gpd, which is equivalent to 240 water credits from DWS (see **Appendix A – Water Demand Calculations**). DWS will need to determine whether the system in the Keauhou region has enough capacity to honor the credits or if alternative sources of water are required. There is an understanding in place between DWS and KS to develop additional water wells for the West Hawai'i Region. The water demand estimates for potable uses were performed using domestic and irrigation usage rates from the Board of Water Supply Water System Standards (2002); Table 100-18. See Table 5.1 below for cumulative demand estimates. Detailed demand calculations are included in the appendix. Potable water will be used for domestic and irrigation purposes.

**TABLE 5.2 – POTABLE WATER AVERAGE DAILY DEMAND ESTIMATE**

<b>Project Group</b>	<b>Unit of Measurements</b>	<b># of Units</b>	<b>GPD/Unit</b>	<b>GPD Average</b>
Project Group A - Irrigation Demand	-	-	-	465.8
Project #3 - Small scale commercial and Beyond - Dry Retail*	Per acre	0.05	3,000	150.0
Project #4 - Reorient Canoe Club - Canoe Halau <sup>1*</sup>	Per acre	0.05	3,000	150.0
Project #3 - Small Scale Commercial and Beyond - Irrigation Demand	-	-	-	962.3
Project #4, 5 - Open Lawn - Irrigation Demand	-	-	-	1,561.6
Project #6 - Boutique Resort - Guest Rooms	Per bedroom	172	400	68,800.0
Project #6 - Boutique Resort - Irrigation Demand	-	-	-	2,383.6
Project #7 - Old Kona Road - Irrigation Demand	-	-	-	684.9
Project #9 - Repurpose Existing Bayfront Facilities <sup>3</sup>	Existing Information	-	1,373	1,373.0
Project #11 - Commercial and Dining - Dry Retail	Per acre	0.04	3,000	120.0
Project #11 - Commercial and Dining - F&B Retail	Per seat	135	60	8,100.0
Project #11 - Commercial and Dining - Retail Outdoor	Per acre	0.06	3,000	180.0
Project #11 - Commercial and Dining - Employees	Per capita	32	25	800.0
Project #11 - Commercial and Dining - Pavilion/Restrooms	Per capita	400	6	2,400.0
Project #11 - Commercial and Dining - Restaurant	Per seat	150	60	9,000.0
Project #11 - Commercial and Dining - Microfarm	Per acre	0.06	3,500	210.0
<b>TOTAL MAX DAILY DEMAND (Avg. * 1.5)</b>				<b>146,199.2</b>
<b>TOTAL PEAK HOUR DEMAND (IN GPD) (Avg. * 5.0)</b>				<b>487,330.8</b>
<b>TOTAL AVERAGE DAILY DEMAND</b>				<b>97,466.2</b>

## **6 WASTEWATER**

### **6.1 EXISTING CONDITIONS**

The Keauhou Bay area is served by the He'eia Waste Water Reclamation Facility (WWRF). The facility is privately owned and operated by Keauhou Community Services Inc. (KCS), a subsidiary of Kamehameha Schools/Kamehameha Investment Corporation (KS/KIC) and is operated by Aqua Engineers, Inc. This facility is currently undergoing a change in ownership from the current KCS owners to Hawai'i Water Service, a subsidiary of California Water Service.

The He'eia WWRF has a stated 1.8 MGD capacity. Of that capacity, only 1.35 MGD of the system capacity is in use as of 2016. It is expected that the He'eia WWRF treatment plant has capacity to serve additional development. Further study is needed to determine the capacity of the individual components of the Keauhou sewer system.

The wastewater from the Keauhou Bay area is collected and conveyed to the Keauhou Pump Station located within the project area at the bottom of the bay. From the pump station wastewater is pumped to the He'eia WWRF for treatment. The resulting treated effluent is disposed of through irrigation of the Kona Country Club golf course.

The property is also subject to the State DOH Underground Injection Control (UIC) regulations (HAR Chapter 11-23) which govern the location, construction, and operation of injection wells with the intention of protecting the quality of Underground Sources of Drinking Water (USDW). The project site is located on the makai side of the UIC line and is within an exempted aquifer. No cesspools are programmed to be constructed regardless of the UIC status.

### **6.2 Proposed Sewer System**

The proposed sewer system that will serve the improvements will connect to the existing infrastructure currently owned and operated by the Hawai'i Water Service; a subsidiary of California Water Service. The project groups that will require sewer service are Project Groups C, D, and E.

Project Group C's boutique resort is projected to produce the largest amount of wastewater flow in the improvements. The proposed sewer main for the boutique resort will be located within Old Kona Road. This sewer main will gravity flow and connect to the existing sewer main in Kaleiopapa Street. The flow generated from the resort project will require the a 6-inch pipe to meet the design requirements. Sewer laterals the commercial development project and the cultural resource center will also gravity flow and connect into the sewer main in Kaleiopapa Street.

Project Group D is not expected to generate a large increase in wastewater flow since the use of the facility will remain relatively similar. Improvements to the current lateral will not be required.

Project Group E will generate another large increase in wastewater flow. The commercial development will use a 6" lateral that will connect to the existing gravity main in Kaleiopapa Street.

These proposed sewer utilities will connect to the Keauhou Pump station where it will be sent via force main to the He'eia WWRF. The He'eia WWRF will treat to R-1 quality and utilize it as irrigation for the Kona Country Club Golf Course.

**6.2.1 WASTEWATER FLOW PROJECTIONS**

The wastewater flow projections for the projects are based on land use areas, unit counts and estimated population using demand rates from the State HAR Chapter 11-62, Appendix D.

**TABLE 6.2 – WASTEWATER FLOW PROJECTIONS**

<b>Project Group</b>	<b>Unit of Measurements</b>	<b># of Units</b>	<b>GPD/Unit</b>	<b>GPD Average</b>
Project #6 - Boutique Resort - Guest Rooms	Room	172	200 gpd/Per Bedroom	34,400
Project #9 - Repurpose Existing Bayfront Facilities <sup>1</sup>	Existing Information	-	-	1098
Project #11 - Commercial and Dining - Dry Retail <sup>3</sup>	1000 sf	1800 sf	100 gpd/Per 1000 sf	108
Project #11 - Commercial and Dining - F&B Retail <sup>4</sup>	Seat	135	50 gpd/Per Seat	6,750
Project #11 - Commercial and Dining - Retail Outdoor	1000 sf	2400 sf	60 gpd/Per 1000 sf	144
Project #11 - Commercial and Dining - Employees	Capita	37	25 gpd/Per Capita	925
Project #11 - Commercial and Dining - Restaurant	Seat	150	50 gpd/Per Seat	7,500
<b>TOTAL DESIGN AVERAGE DAILY FLOW</b>				<b>50,925</b>

As previously stated, it is expected that the He'eia WWRF will have capacity to accommodate the increase in wastewater flows based on the information from 2016. Further study will be needed to find out if any capital improvements of the WWRF and facilities leading up to it will need improvements with this increase in flow.

**7 SOLID WASTE**

**7.1 EXISTING CONDITIONS**

The County of Hawai'i operates a network of 22 recycling and transfer stations and two landfills. The West Hawai'i Sanitary Landfill in Pu'uana'hulu will receive the solid waste from the Keauhou area. The County of Hawai'i does not have a curbside pickup system and instead depends on private waste collection companies to transport waste to the nearest transfer station. The Keauhou transfer station is approximately 7 miles mauka of the project site.

**7.2 WASTE GENERATION**

The 2019 IRSWMP update includes a waste stream assessment and historic waste generation rates for the County on a per capita basis. For the fiscal year 16-17, the County of Hawai'i waste generation rate was 7.1 pounds/capita/day using resident population. When transient population is added using the State of Hawai'i de facto population, the waste generation rate drops to 6.4 pounds/capita/day. Due to the transient nature of the development, the diversity of land use types, and the 20-year projection, the County waste generation rate is probably conservative. Additionally, the County anticipates a diversion rate of 8% due to existing and new programs and investment in new technologies.

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Solid waste from the project is anticipated to generate 0.457 tons per day, as shown in the table below. The increase in waste generation will not have a significant impact on the County’s waste stream and disposal. The project anticipates recycling food waste, cardboard, glass, and plastics, which will be coordinated with private entities.

**TABLE 7.2 – SOLID WASTE GENERATION PROJECTIONS**

<b>Project Group</b>	<b>Unit of Measurements</b>	<b># of Units</b>	<b>Use Rate</b>	<b>Expected Usage (lbs/day)</b>
Project #3 – Vendor Kiosk	Square foot	2,000	0.026 lbs/sf/day	52
Project #6 - Boutique Resort	Room	172	2.5 lbs/room/day	430
Project #9 - Repurpose Existing Bayfront Facilities	Square foot	2,000	0.026 lbs/sf/day	52
Project #11 - Commercial Retail and Dining	Square foot	14,620	0.026 lbs/sf/day	380
<b>TOTAL</b>				<b>914</b>
				<b>0.457 tons/day</b>

## **8 POWER AND COMMUNICATIONS**

### **8.1 EXISTING CONDITIONS**

The multiple parcels being master planned for improvement and development as part of the Keauhou Master Plan are connected to HELCO’s Kahalu’u substation, which is located near the intersection of Kamehameha III Road and Keali’i Street. According to available record drawings, power runs from the Kahalu’u substation via 3-5” HELCO underground conduits down Keali’i Street onto Kaluna Street. Where Kaluna Street meets Ali’i Highway, the 3-5” underground conduits continue north and south along Ali’i Highway. North at the intersection of Ali’i Highway and Kamehameha III Road, the 3-5” underground conduits branch and continue onto Kamehameha III Road. Similarly, south at the intersection of Kaleiopapa Street and Ali’i Highway, the 3-5” underground conduits branch and continue onto Kaleiopapa Street. The 3-5” underground conduits run south along Kamehameha III Road and north along Kaleiopapa Street until they connect with each other. HELCO has four pad-mounted switches in the project area, two located on the mauka side of the street at the intersection of Maukai Street and Kamehameha III Road and two located on the mauka side of the street at the intersection of Ehukai Street and Kaleiopapa Street. These switches are used to control the various underground circuits throughout the area and serve as a means of protection for HELCO’s distribution network. Currently there are no existing underground electrical ducts along Old Kona Road.

Both Hawaiian Telecom (HTCO) and Charter Communications (Spectrum) have underground ducts along Kaleiopapa Street and Kamehameha III Road, which connect underneath Keauhou Beach Park. According to available record drawings, HTCO has 4-4” underground conduits and Spectrum has 1-3” underground conduit. Charter also has two trunk line amplifiers (used to boost the signal power in their cables) in the area, one at the intersection of Manukai Street and Kamehameha III Road, and the other at the intersection of Ehukai Street and Kaleiopapa Street. These Charter trunk line amplifiers will be the points of interconnection to the Charter system if they are chosen as the future telecommunications provider. The closest Hawaiian Telecom boxes are located on Ali’i Highway just south of the Ali’i Highway and Kaluna Street intersection. The HTCO boxes located there will be the point of connection to the

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HTCO system. HTCO will run additional cabling in their underground duct system if they are chosen as the future telecommunications provider.

**8.2 ELECTRICAL AND TELECOMMUNICATIONS DEMAND**

The projected electrical demand and telecommunications requirements for each project in the Keauhou Master Plan are summarized in Table 8.2 below.

**TABLE 8.2 – ELECTRICAL DEMAND AND TELEPHONE LINE REQUIREMENTS**

<b>Electric and Comm. Master Plan</b>	<b>Electric Demand (kiloVolt-Amperes kVA)</b>	<b>Telecommunication Requirement</b>
<b>Project 1:</b> Improve Parking / Boat Trailer Storage	8.52	N/A
<b>Project 3:</b> Small Scale Commercial (Kiosks)	32.4	Internet / Phone
<b>Project 4:</b> Reorient Canoe Club	11.58	N/A
<b>Project 5:</b> Mauka-Makai Corridor and Shoreline Park	18.3	N/A
<b>Project 6:</b> Boutique Resort	2,582.7	Internet / Phone / TV
<b>Project 7:</b> Old Kona Road Improvements	4.38	N/A
<b>Project 8A &amp; 8B:</b> Restore Cultural Landscape – Moikehua to Ahu’ula	36.12	N/A
<b>Project 10:</b> New Boat Trailer Parking	8.52	N/A
<b>Project 11:</b> Commercial Dining and Retail	479.34	Internet / Phone / TV

The electrical demand figures for commercial and other land uses are baseline planning figures used by HELCO planning personnel for system capacity planning. For commercial, resort, and other land uses, the acreage assigned to that land use is multiplied by an electrical demand rate per acre characteristic of that land use. The telecommunication requirements were based on whether the individual project guidelines indicated that a data connection was needed for future operational use.

**8.3 PROPOSED ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS**

**8.3.1 HELCO ELECTRICAL**

HELCO’s electrical distribution system within the development area will be required for each specific project described above. As part of this Master Plan, HELCO completed a preliminary engineering analysis of their system to determine if any improvements will be needed. To begin, HELCO conducted an analysis of the capacity of their Kahalu’u substation. HELCO reported that the capacity of their Kahalu’u substation is adequate to serve all of the proposed projects, and no substation upgrades are required. Upgrades to HELCO’s existing underground distribution system are needed to provide power to all proposed projects. The upgrades include:

- New underground concrete encased electrical ducts along the entirety of Kamehameha III Road and Kaleiopapa Street. Minimum duct improvements of 2-5” conduits with 2 sets of 1000 kcmil PEICN 15kv conductors and 2-4” conduits with 2 sets of #4/0 AWG AL PEICN 15kv conductors.
- New 6’ by 11’ manholes along the new underground electrical ducts.
- Installation of new pad mounted switches to support the new distribution system in the area. The location and quantity of switches cannot be determined at this time. The design of the new

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distribution system will determine the best locations and number of switches required, which will be a future project for Kamehameha or the developer to undertake.

These upgrades are based on HELCO's current system conditions (as of April 2022). If other significant development or changes occur in the area served by the Kahalu'u substation, the electrical upgrades required may change and may need to be reevaluated.

Along with the above HELCO distribution system upgrades, the HELCO distribution system will have to be extended onto Old Kona Road. We recommend that the 2-5" conduits and 2-4" conduits that HELCO has proposed as an upgrade to their electrical distribution system connecting Kamehameha III Road and Kaleiopapa Street, is branched off to include 2-5" conduits and 2-4" conduits along the entirety of Old Kona Road. This will allow HELCO's distribution system to be accessible along the entirety of Old Kona Road. Figure 12 and 13 show the proposed electrical site distribution system.

### **8.3.2 PROJECT SPECIFIC SITE ELECTRICAL**

Electrical distribution system within each project area will be required to meet the specific electrical needs of each project. Our proposed layout can be found in Figure 13. Projects 1, 3, 4, 5, 7, and 8 will connect to a shared service equipment located adjacent to projects 1 and 3. The service equipment will be comprised of a transformer to step down HELCO's 12.47 kV distribution network power to 480Y/277V power, a HELCO meter, and a distribution panel. Projects 1, 4, 5, 7, and 8 will require only site/landscape lighting which can be served by 277V light fixtures and power to the irrigation system controllers regulating the various areas. Project 3 (small scale commercial kiosks) will require an additional transformer to step down the 480V power to 208Y/120V or 240/120V power and a distribution panel to provide usable 120V power to each kiosk.

Project 6 will require a dedicated service equipment because of the large electrical demand of the project. The service equipment will include a transformer to step down HELCO's 12.47 kV distribution network power to 480Y/277V power, a HELCO meter, and a switchboard. The switchboard will provide 480Y/277V power to separate panels for the HVAC equipment, pool equipment, laundry equipment, and restaurant equipment. The switchboard will also distribute 480V power across the site to stepdown transformers and distribution panels housed in the BOH buildings. Each BOH building will house a transformer to step down the 480V power to either 208Y/120V or 240/120V power via a distribution panel. The distribution panel will then feed a panel located in the BOH building and a panel in each bungalow building served by that specific BOH building. In all there will be 6 transformer/distribution panel combinations like this housed in the BOH buildings. Figure 14 shows the proposed electrical one-line diagram for project 6.

Project 10 will be provided with a dedicated service equipment for the new boat trailer parking area. The service equipment will consist of a transformer to step down HELCO's 12.47 kV distribution network power to 3-phase 208Y/120V power, a HELCO meter, and a distribution panel. Project 10 only requires site/landscape lighting which can be served by 120V light fixtures and power to the irrigation system controller serving the area.

Project 11 will also require a dedicated service equipment because of the large electrical demand of the project. The service equipment will include a transformer to step down HELCO's 12.47 kV distribution network power to 208Y/120V power and a switchboard. The switchboard will house fourteen (14) HELCO meters; one for each retail space, one for the restaurant, and one for the common spaces. Each of the fourteen HELCO meters will be connected to a panel to house the circuits for that space. Part of the area for project 11 is designated as Flood Zone AE. The installation of electrical service equipment (i.e. electrical panels, transformers, switchboards, etc.) in areas inside the Flood Zone AE will be very

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expensive because the equipment will need to be installed on elevated platforms. The platform height will be dependent on what the expected mean sea level rise and storm surge predictions are for the area. Figure 15 shows the proposed electrical one-line diagram for project 11.

**8.3.3 TELECOMMUNICATIONS**

Telecommunications service is required for projects 3, 6 and 10. Both Hawaiian Telecom and Spectrum Charter have underground telecommunications ducts along Kaleiopapa Street and Kamehameha III Road. Whichever service provider is chosen will install new underground conduits along Old Kona Road. This installation will be within a multi conduit duct system with conduits carrying both telecommunications and power cables. The proposed installation along Old Kona Road is 3-4” conduits for use by either Hawaiian Telecom or Spectrum depending on the preferred service provider. Project 3, 6, and 10 will each require a main telecom box to be installed by the preferred service provider. From the telecom boxes, separate telecom service cables can be run to the required areas across each site.

**8.3.4 ROADWAY LIGHTING**

Depending on the road type designation Old Kona Road is developed as (i.e. private, dedicable, ag or resort), that will determine the exact requirements the roadway lighting will need to conform to. Dedicable roads would have the strictest lighting requirements followed by ag, private and finally resort roads. Resort roads allow for light installation at the discretion of the resort developer. As of June 2021, the Hawai'i County Street Light Standards has a list of approved Light Emitting Diode (LED) roadway luminaires that are acceptable for installation within Hawai'i County. Any roadway lighting system would be energized through metered electrical connections to HELCO secondary power sources situated along Old Kona Road. All roadway lighting will consist of fully shielded light fixtures and comply with Hawai'i's Outdoor Lighting Ordinances and Dark-Sky regulations.

**9 ORDER OF MAGNITUDE COSTS**

Construction costs for the proposed civil infrastructure have been estimate and order of magnitude budgets are shown in the table below.

**TABLE 9.1 – ORDER OF MAGNITUDE COSTS**

<b>Project Number</b>	<b>QTY</b>	<b>UNIT</b>	<b>TOTAL</b>
Project #1 – Parking and Boat Storage	1	LS	\$3,210,000
Project #3 – Vendor Kiosks	1	LS	\$1,937,000
Project #4 – Canoe Club	1	LS	\$528,000
Project #5 – Mauka Makai Open Space	1	LS	\$2,736,000
Project #6 – Boutique Resort Hotel	1	LS	\$87,922,000
Project #7 – Old Kona Road	1	LS	\$9,299,000
Project #8A – Kamauae	1	LS	\$998,000
Project #8B – Ahu'ula	1	LS	\$2,474,000
Project #9 – Repurpose Exist. Bayfront Facilities	1	LS	\$481,000
Project #10 – New Boat Trailer Parking	1	LS	\$1,748,000
Project #11 – Commercial/Dining Venue Site and Bldg	1	LS	\$10,453,000
Project #11 – Commercial/Dining Venue Lanais	1	LS	\$920,000
Project #11 – Commercial/Dining Venue Tenant Improvements	1	LS	\$1,071,000
Project #11 – Commercial/Dining Venue Common Elements	1	LS	\$448,000
		<b>TOTAL</b>	<b>\$124,225,000</b>

Note – cost estimate provided by **J.Uno and SJ Consulting**

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State of Hawai'i Department of Transportation Highways Division (Approved 6/10/75). *Hawai'i Belt Road – Kahuku To Papa, Project No. 11E-01-75*

**Websites Used**

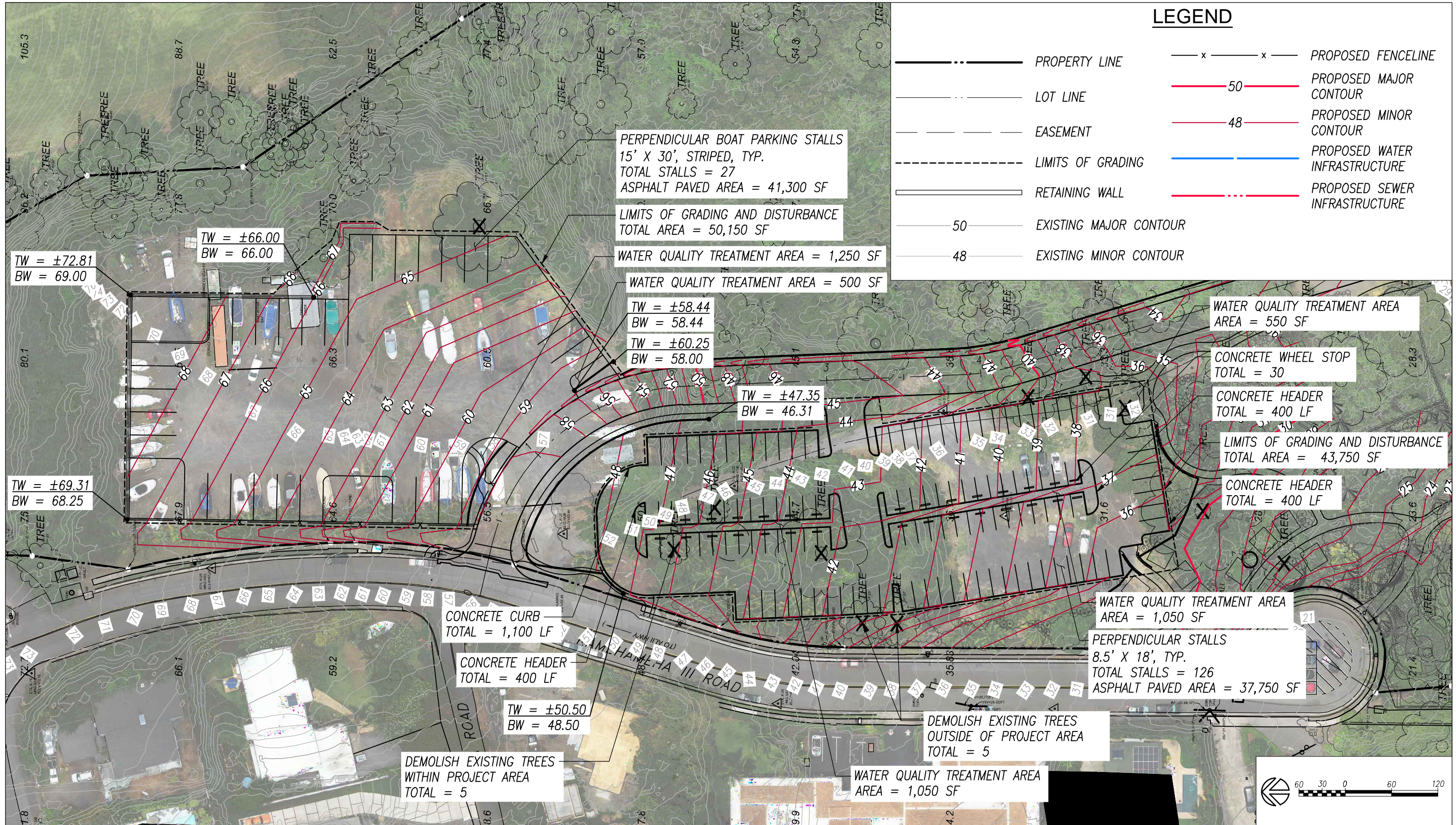
State of Hawai'i, Department of Business, Economic Development and Tourism  
Hawai'i Statewide GIS Program  
<http://Hawaii.gov/dbedt/gis/>

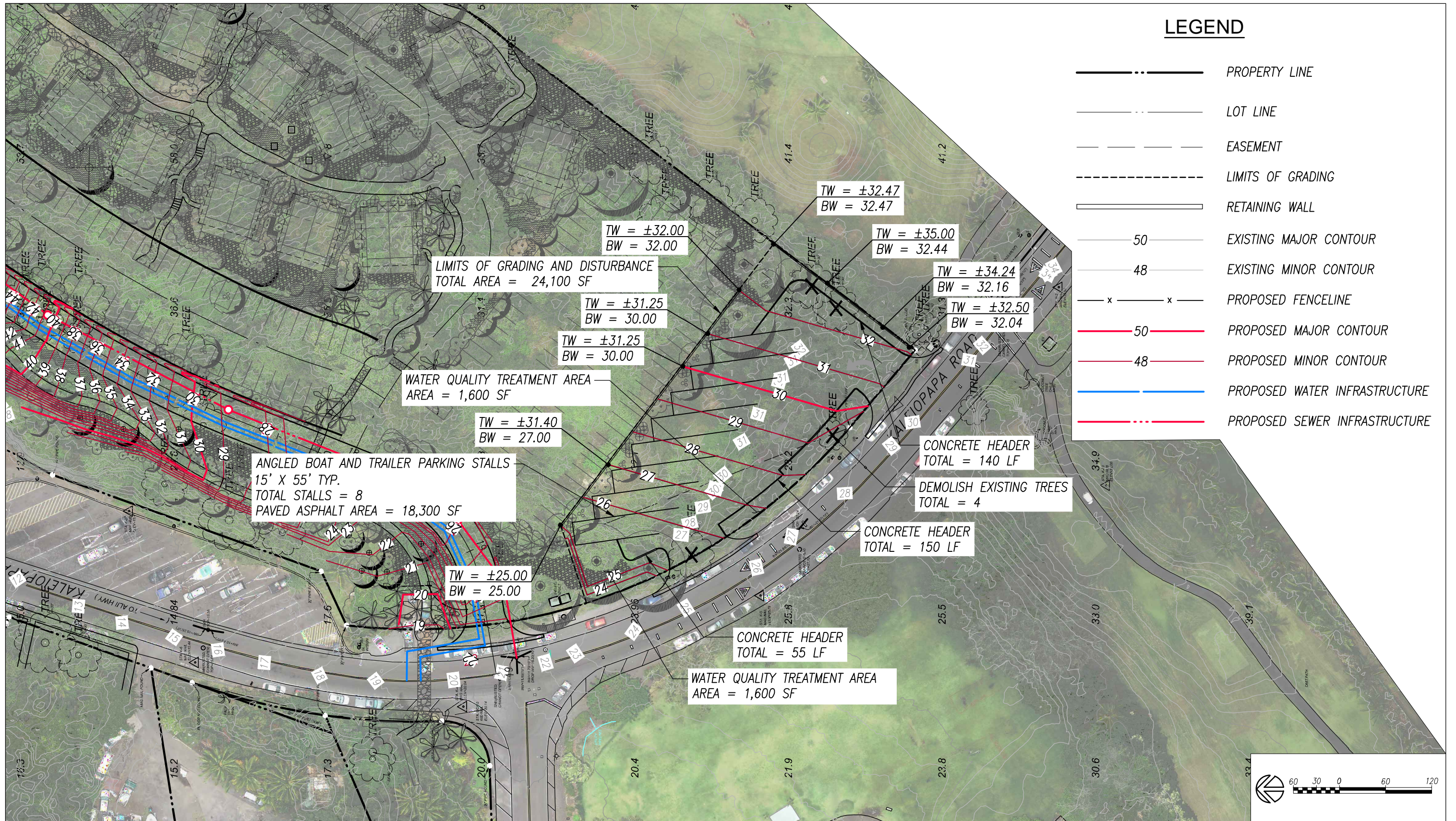
U.S. Department of Agriculture, Natural Resource Conservation Service  
Soil Data Mart  
<http://soildatamart.nrcs.usda.gov/>

U.S. National Oceanic and Atmospheric Administration, National Weather Service  
HDSC Precipitation Frequency Data Server  
[http://hdsc.nws.noaa.gov/hdsc/pfds/hi/hi\\_pfds.html](http://hdsc.nws.noaa.gov/hdsc/pfds/hi/hi_pfds.html)

## **FIGURES**









- PLAN KEY**
- Lava Rock Groundcover
  - Cinder Groundcover
  - Crushed Cinder Pathway
  - Boardwalk
  - Native Shrubs - Large
  - Native Shrubs - Medium
  - Native Groundcovers
  - Native Shrubs - Flowering
  - Cultural Plants
  - Native Grasses / Sedges
  - Beach Plants
  - Monkeypod tree
  - Banana / Sugar Cane
  - Niu (Coconut)
  - Loulu Palm
  - Hala
  - ulu (breadfruit tree) / Kamani Tree
  - Kukui tree
  - Milo / Kou / Kamani
  - Oha lehua / Kaula / Hao / papala
  - Kaula / Ho'awa / Lama / Wahi / Aha'e
  - Mamane
  - Plumeria
  - Wiliwili Tree

SCALE  
 0 70' 140' 210'

March 2022

221053-01 Keauhou Bay Improvements  
**G7O**

All figures are approximate and should be used only for conceptual planning purposes.



### 150 Key Hotel

Hotel Program Summary

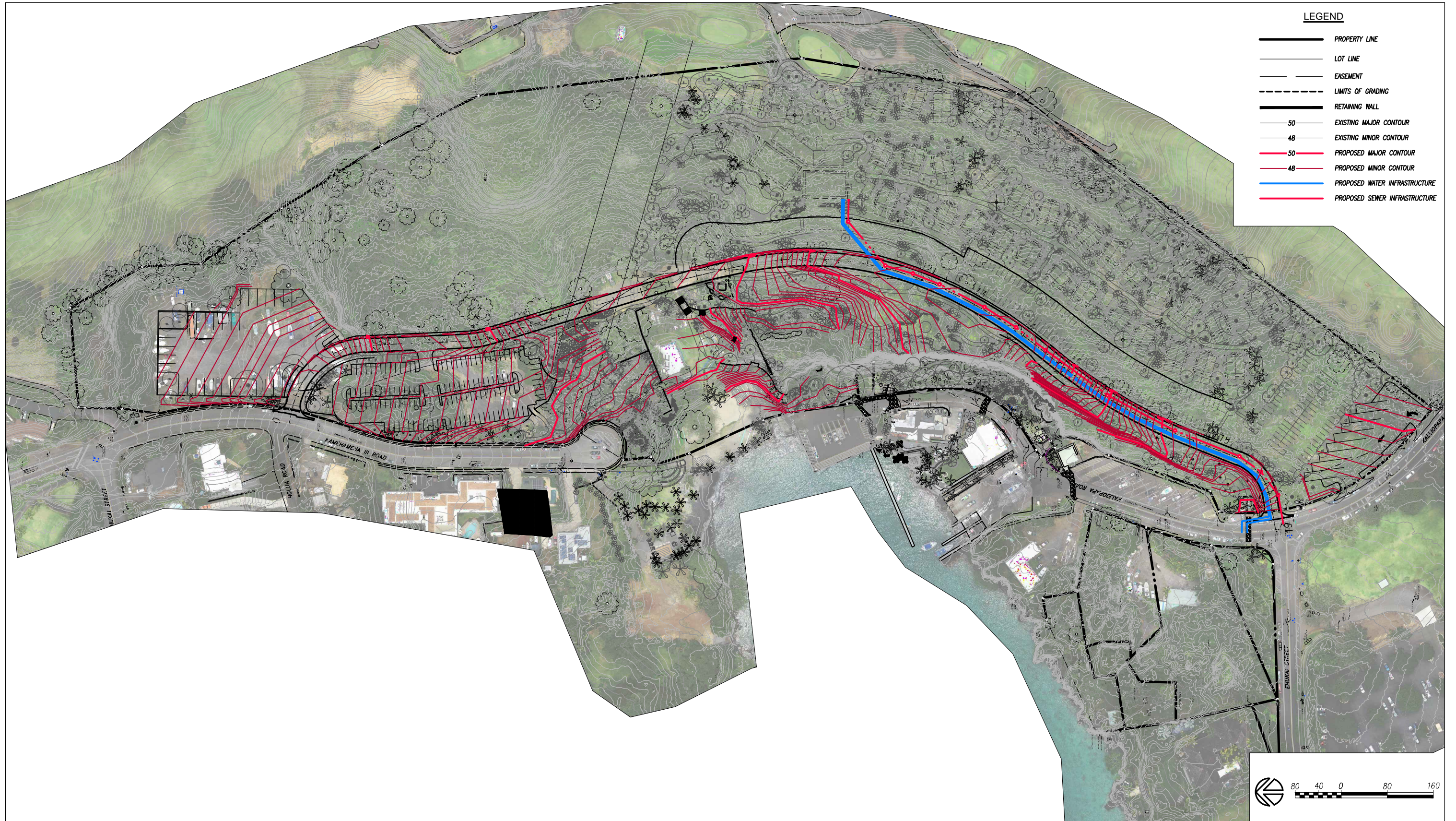
- 43 two story 4 plex bungalows
- 172 total unit bays w/ ~10% suite mix
- ~150 keys
- Typical bungalow = ~1,800sf
- Total bungalows sf = ~77,400sf
- ~14,500sf public & BOH buildings area
- ~2,500sf pool
- ~3,000sf pool deck
- ~3,000sf event lawn
- Parking at bottom of site
- ~188 parking spaces provided
- 3 loading spaces required & provided
- Target spot elevations shown in red
- Existing grade shown



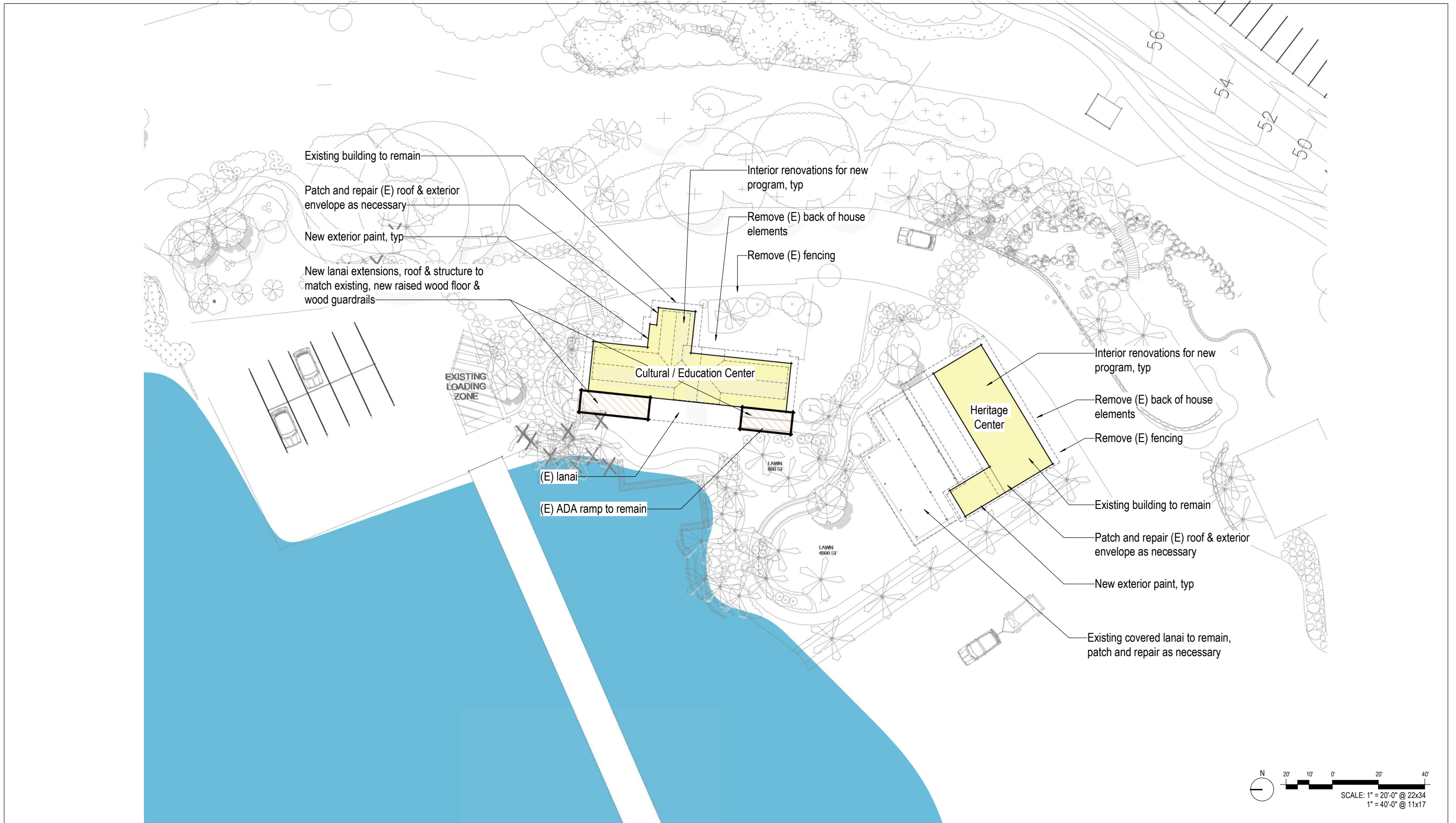
221053-01 Keauhou Bay Improvements



All figures are approximate and should be used only for conceptual planning purposes.







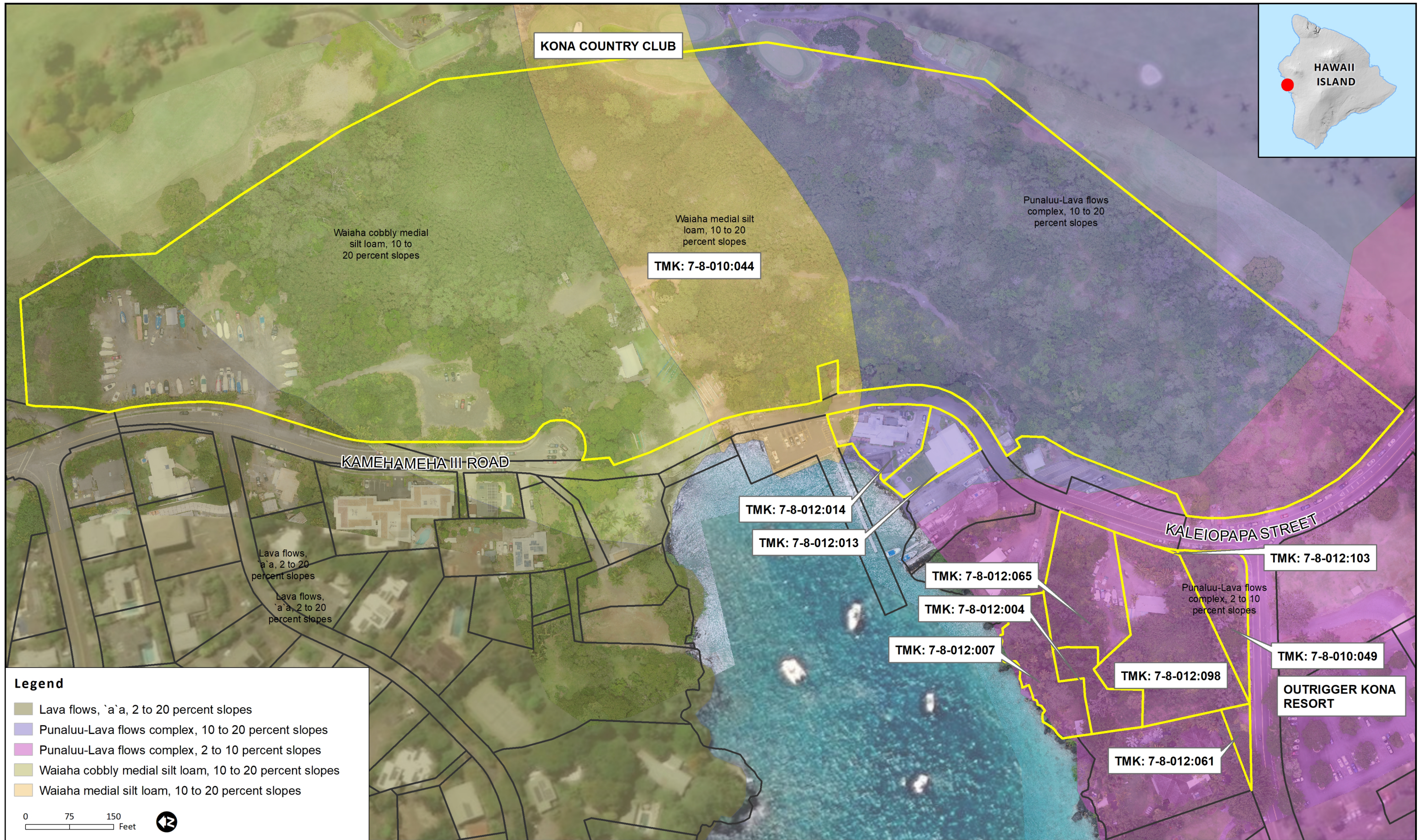


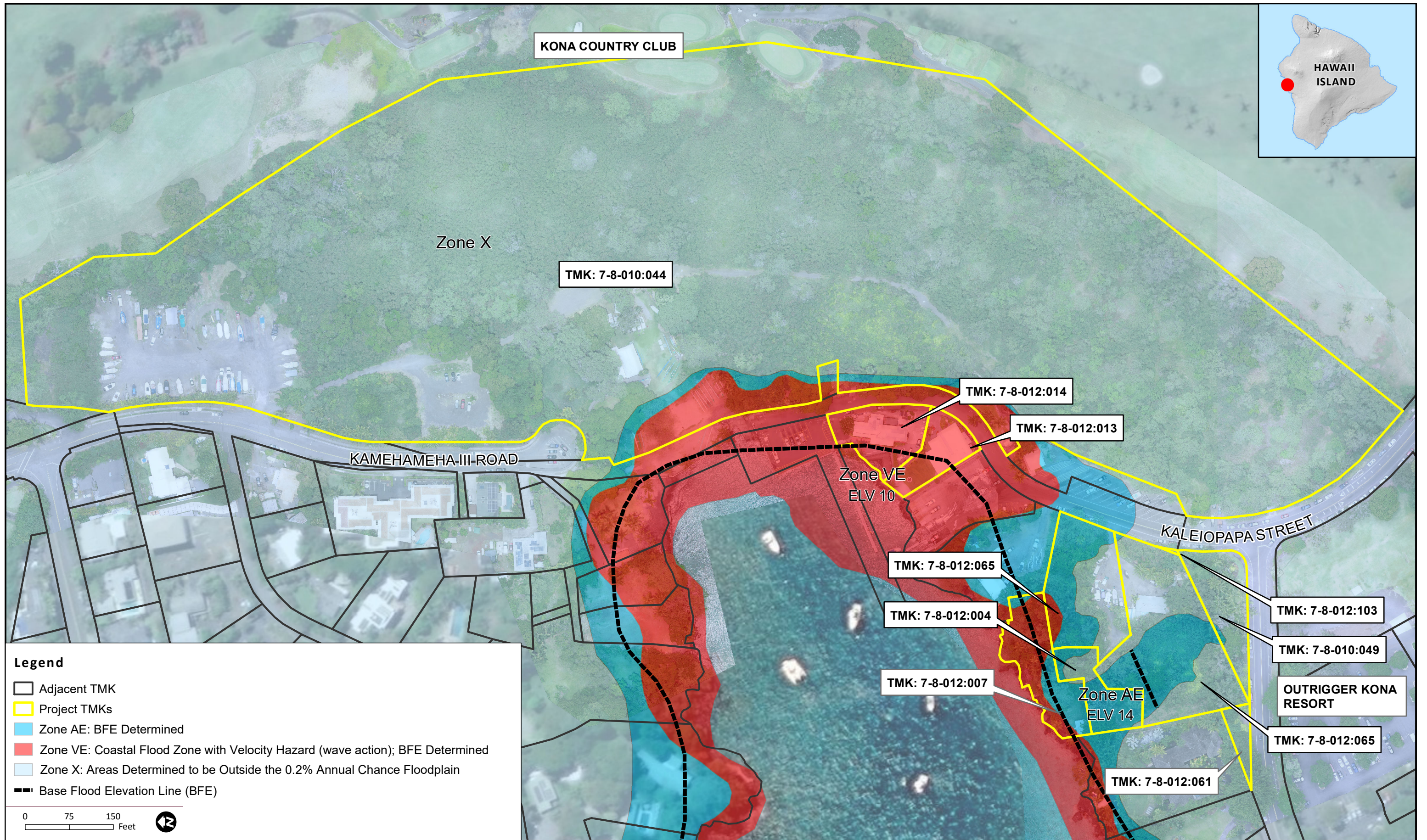
221053-01 Keauhou Bay Improvements



COMMERCIAL IMPROVEMENTS PROJECT | FIGURE 8

04.22.2022

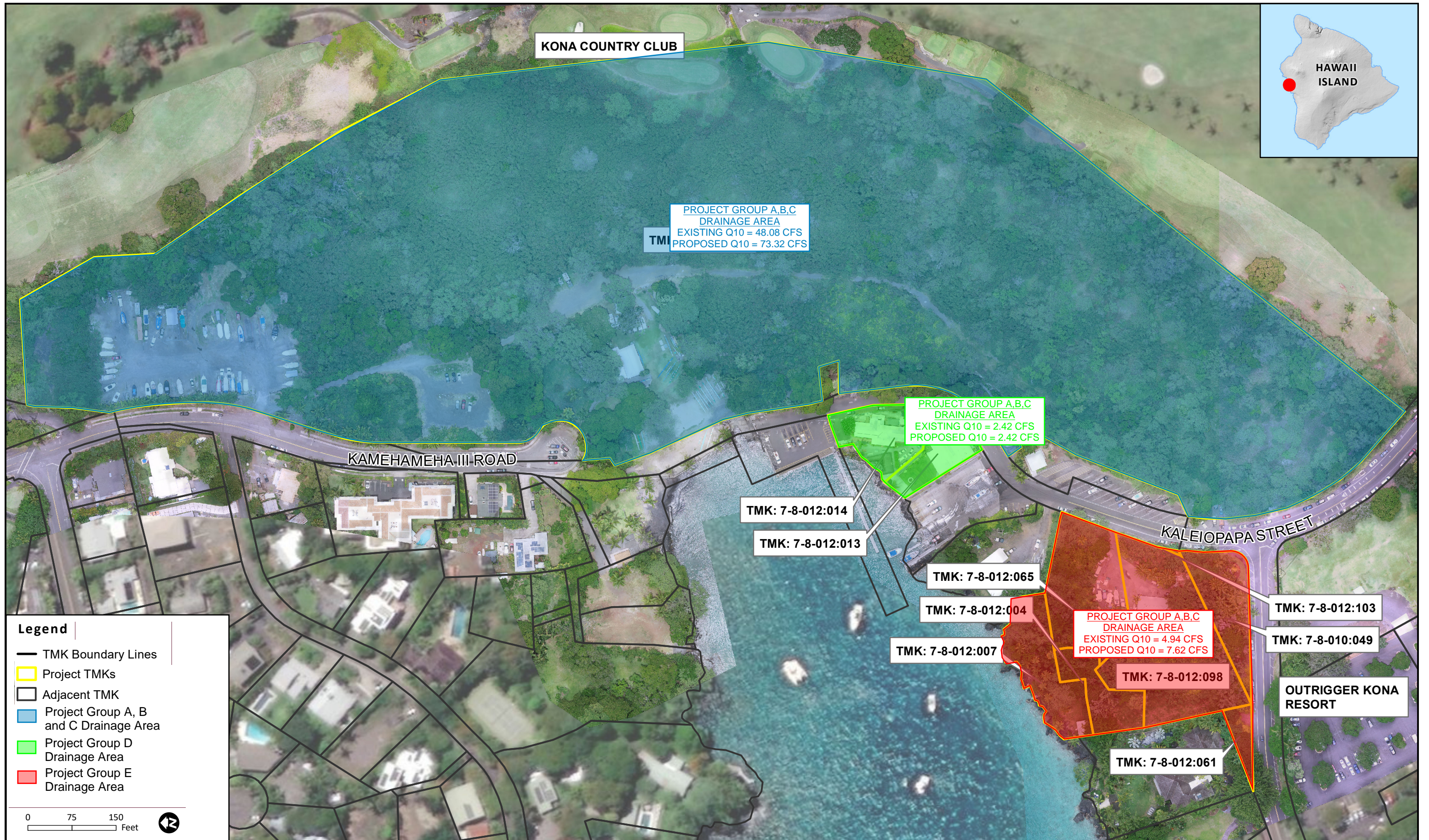






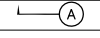


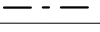






**Legend**

- Adjacent TMK
- Project TMKs
- Zone AE: BFE Determined
- Zone VE: Coastal Flood Zone with Velocity Hazard (wave action); BFE Determined
- Zone X: Areas Determined to be Outside the 0.2% Annual Chance Floodplain
- Base Flood Elevation Line (BFE)






0 75 150 Feet



### EXTERIOR ELECTRICAL SYMBOLS

EXISTING	NEW	DESCRIPTION	EXISTING	NEW	DESCRIPTION
		HECO PAD-MOUNTED TRANSFORMER			DUCT SECTION INDICATOR, SECTION "A" INDICATED
		HECO PAD-MOUNTED SWITCH			UNDERGROUND ELECTRIC DUCTLINE
		PRIMARY ELECTRIC HANDHOLE, 4' X 6'			
		HAWAIIAN TELCOM OR SPECTRUM TRUNK AMPLIFIER BOX			
		ELECTRICAL EQUIPMENT, TYPE AS INDICATED			
		POLE OR STANCHION MOUNTED AREA LIGHT, DOT INDICATES POLE.			

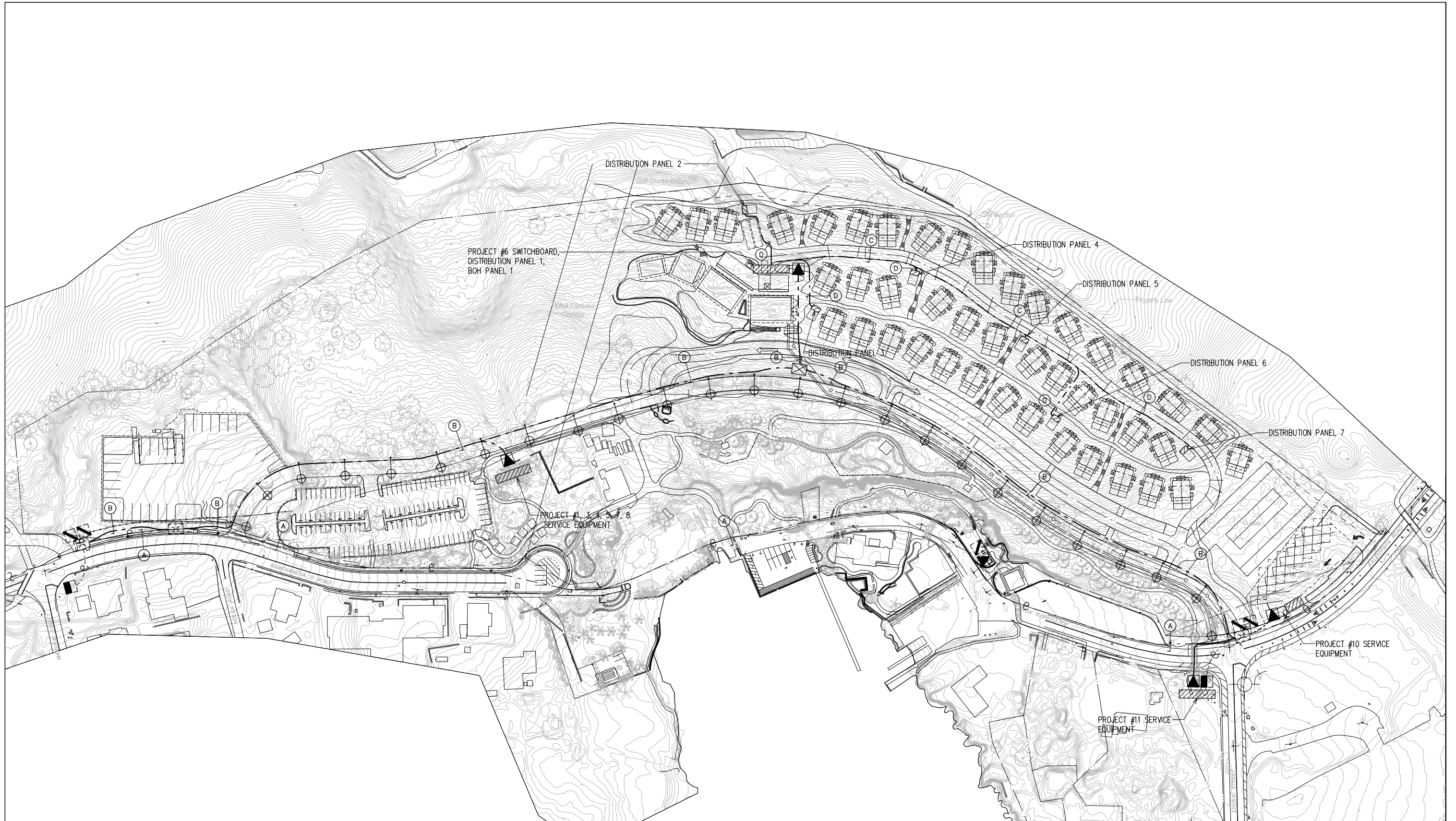
### ONE-LINE DIAGRAM ELECTRICAL SYMBOLS

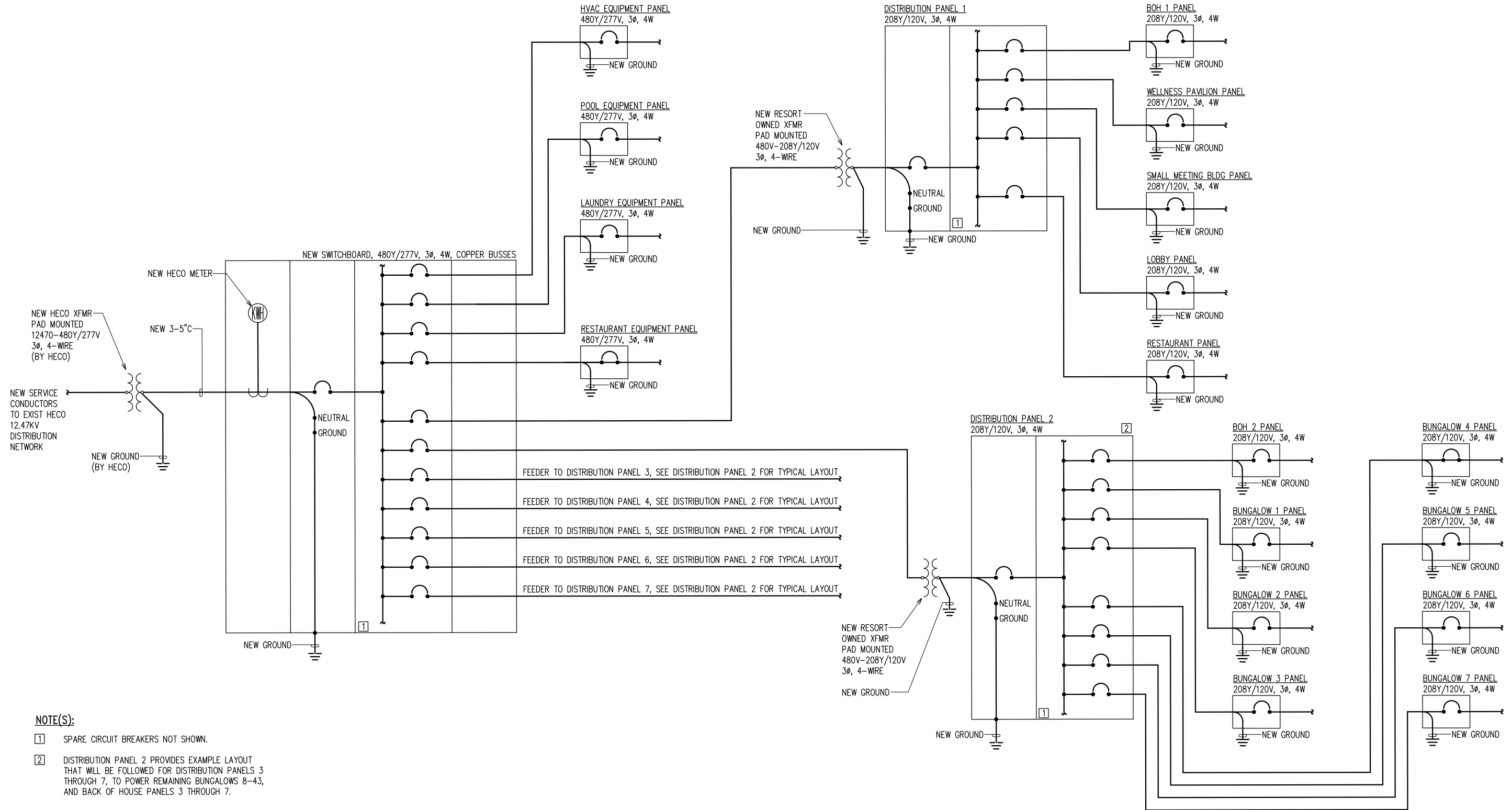
EXISTING	NEW	DESCRIPTION	EXISTING	NEW	DESCRIPTION
		TRANSFORMER, VOLTAGE AS INDICATED			CIRCUIT BREAKER
					GROUND
		HECO METER			
		CURRENT TRANSFORMER			

### DUCT SCHEDULE

NO.	DUCT SIZE / DESTINATION OR USE
(A)	EXISTING 3-5" HELCO; EXISTING 4-4" HAWAIIAN TELCOM; EXISTING 1-3" SPECTRUM
(B)	NEW 2-5" , 2-4" HELCO; NEW 3-4" HAWAIIAN TELCOM OR SPECTRUM
(C)	NEW 4-4" SITE POWER; NEW 4-2" SITE TELECOMMUNICATIONS
(B)	NEW 2-4" SITE POWER; NEW 2-2" SITE TELECOMMUNICATIONS

### DUCT SECTION DETAILS



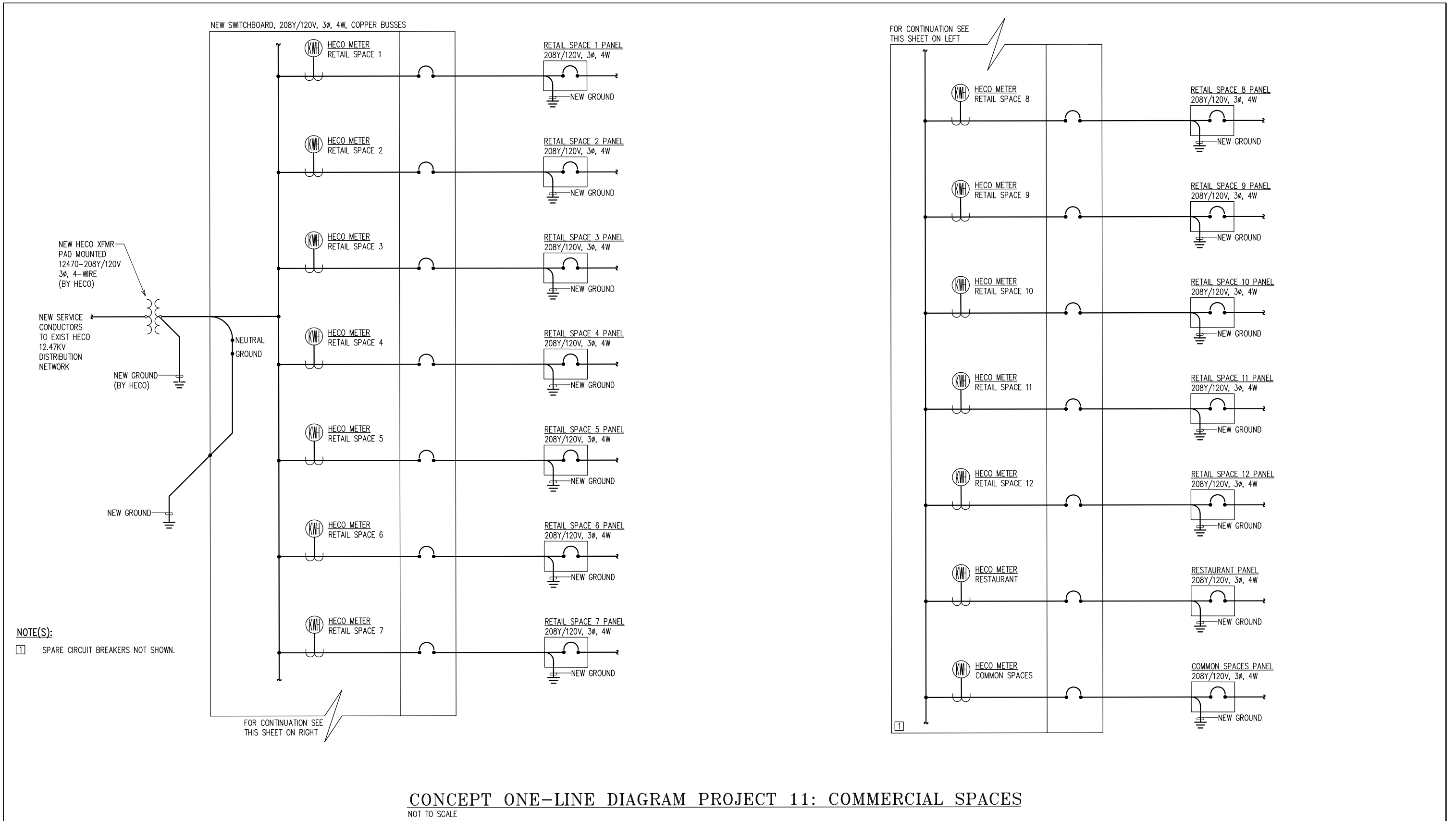


**NOTE(S):**

- ① SPARE CIRCUIT BREAKERS NOT SHOWN.
- ② DISTRIBUTION PANEL 2 PROVIDES EXAMPLE LAYOUT THAT WILL BE FOLLOWED FOR DISTRIBUTION PANELS 3 THROUGH 7, TO POWER REMAINING BUNGALOWS 8-43, AND BACK OF HOUSE PANELS 3 THROUGH 7.

**CONCEPT ONE-LINE DIAGRAM PROJECT 6: DEVELOP BOUTIQUE RESORT**  
 NOT TO SCALE







## APPENDIX A – WATER DEMAND CALCULATIONS

# PROJECTED WATER DEMAND KEAUHOU BAY IMPROVEMENTS PROJECT

\*See State of Hawaii Water System Standards  
pg. 111.3 Table 100-18 for Domestic  
Consumption Guidelines

Project Group	UNIT OF MEASUREMENT	NUMBER OF UNITS	GPD/Unit	GPD Average
<b>PROJECT GROUP A (TMK: 7-8-010:044)</b>				
No Projected Water Domestic Demand	-	-	-	-
Project Group A - Irrigation Demand	-	-	-	465.8
<b>PROJECT GROUP B (TMK: 7-8-010:044)</b>				
Project #3 - Small scale commercial and Beyond - Dry Retail*	Per acre	0.05	3,000	150.0
Project #4 - Reorient Canoe Club - Canoe Halau <sup>1*</sup>	Per acre	0.05	3,000	150.0
Project #3 - Small Scale Commercial and Beyond - Irrigation Demand	-	-	-	962.3
Project #4, 5 - Open Lawn - Irrigation Demand	-	-	-	1,561.6
<b>PROJECT GROUP C (TMK: 7-8-010:044)</b>				
Project #6 - Boutique Resort - Guest Rooms	Per bedroom	172	400	68,800.0
Project #6 - Boutique Resort - Irrigation Demand	-	-	-	2,383.6
Project #7 - Old Kona Road - Irrigation Demand	-	-	-	684.9
<b>PROJECT GROUP D (TMK: 7-8-012:014, 7-8-012:013)</b>				
Project #9 - Repurpose Existing Bayfront Facilities <sup>3</sup>	Existing Information	-	1,373	1,373.0
<b>PROJECT GROUP E<sup>3</sup> (TMK: 7-8-010:049, 7-8-012:098, 7-8-012:004, 7-8-012:065, 7-8-012:061)</b>				
Project #11 - Commercial and Dining - Dry Retail	Per acre	0.04	3,000	120.0
Project #11 - Commercial and Dining - F&B Retail	Per seat	135	60	8,100.0
Project #11 - Commercial and Dining - Retail Outdoor	Per acre	0.06	3,000	180.0
Project #11 - Commercial and Dining - Employees	Per capita	32	25	800.0
Project #11 - Commercial and Dining - Pavilion/Restrooms	Per capita	400	6	2,400.0
Project #11 - Commercial and Dining - Restaurant	Per seat	150	60	9,000.0
Project #11 - Commercial and Dining - Microfarm	Per acre	0.06	3,500	210.0
Project #11 - Commercial and Dining - Employees	Per capita	5	25	125.0
<b>TOTAL AVERAGE DAILY DEMAND</b>				<b>97,466.2</b>
<b>TOTAL MAX DAILY DEMAND (Avg. * 1.5)</b>				<b>146,199.2</b>
<b>TOTAL PEAK HOUR DEMAND (IN GPD) (Avg. * 5.0)</b>				<b>487,330.8</b>

<sup>1</sup> Project B assumed to be equivalent to commercial industry

<sup>2</sup> Bayfront Facilities use will not change. No projected increase in water demand

<sup>3</sup> Project Group E Water Demands taken directly from Land Area 6 previous work. Program has not changed since.

<sup>4</sup> Irrigation demand retrieved from Landscape Architect projected yearly demand. See attached landscape demand for full breakdown of irrigation demand.

## **APPENDIX B – SEWER DEMAND CALCULATIONS**

## PROJECTED WASTEWATER FLOW KEAUHOU BAY IMPROVEMENTS PROJECT

Project Group	RATE	AREA (SF)	UNITS	GPD/Unit	QTY	GPD Average
<b>PROJECT GROUP A (TMK: 7-8-010:044)</b>						
No projected wastewater flow	-	-	-	-	-	-
<b>PROJECT GROUP B (TMK: 7-8-010:044)</b>						
No projected wastewater flow	-	-	-	-	-	-
<b>PROJECT GROUP C (TMK: 7-8-010:044)</b>						
Project #6 - Boutique Resort - Guest Rooms	200 gpd/Per Bedroom	77,400	Room	200	172	34,400.0
<b>PROJECT GROUP D (TMK: 7-8-012:014, 7-8-012:013)</b>						
Project #9 - Repurpose Existing Bayfront Facilities <sup>1</sup>	1098 GPD	-	-	-	-	1,098.0
<b>PROJECT GROUP E<sup>2</sup> (TMK: 7-8-010:049, 7-8-012:098, 7-8-012:004, 7-8-012:065, 7-8-012:061)</b>						
Project #11 - Commercial and Dining - Dry Retail <sup>3</sup>	100 gpd/Per 1000 sf	1,800	1000 sf	60	1.8	108.0
Project #11 - Commercial and Dining - F&B Retail <sup>4</sup>	50 gpd/Per Seat	5,400	Seat	50	135	6,750.0
Project #11 - Commercial and Dining - Retail Outdoor	60 gpd/Per 1000 sf	2,400	1000 sf	60	2.4	144.0
Project #11 - Commercial and Dining - Employees	25 gpd/Per Capita	-	Capita	25	37	925.0
Project #11 - Commercial and Dining - Restaurant	50 gpd/Per Seat	1,500	Seat	50	150	7,500.0
<b>TOTAL DESIGN AVERAGE DAILY DEMAND</b>						<b>50,925.0</b>

<sup>1</sup> Bayfront Facilities Wastewater assumed to be equivalent to 80% of Existing water demand. No change in wastewater flow expected

<sup>2</sup> Project Group E Wastewater Flows taken directly from Land Area 6 previous work. Program has not changed since.

<sup>3</sup> Dry retail spaces assume indoor retail water fixtures limited to a lavatory and mop sink. Outdoor retail water fixtures limited to hose bibb. Assume wastewater generation 80% of water consumption factor.

<sup>4</sup> Food and Beverage (F&B) water consumption factor based on 15 seats per bay at 50 gpd/seat.

<sup>5</sup> Reference Chapter 11.62 Appendix D for all other GPD per unit

## APPENDIX C – NOAA RAINFALL DATA



**NOAA Atlas 14, Volume 4, Version 3**  
**Location name: Kailua Kona, Hawaii, USA\***  
**Latitude: 19.562°, Longitude: -155.9614°**  
**Elevation: 28.79 ft\*\***  
 \* source: ESRI Maps  
 \*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

S. Perica, D. Martin, B. Lin, T. Parzybok, D. Riley, M. Yekta, L. Hiner, L.-C. Chen, D. Brewer, F. Yan, K. Maitaria, C. Trypaluk, G. M. Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps & aerals](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)<sup>1</sup></b>										
<b>Duration</b>	<b>Average recurrence interval (years)</b>									
	<b>1</b>	<b>2</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	<b>1000</b>
<b>5-min</b>	3.71 (3.38-4.10)	4.62 (4.03-5.26)	5.66 (4.93-6.47)	6.46 (5.57-7.42)	7.46 (6.40-8.69)	8.21 (6.97-9.66)	8.90 (7.46-10.6)	9.58 (7.93-11.6)	10.4 (8.46-12.9)	11.0 (8.80-13.9)
<b>10-min</b>	2.75 (2.51-3.04)	3.43 (2.99-3.89)	4.20 (3.65-4.80)	4.79 (4.13-5.50)	5.53 (4.74-6.44)	6.08 (5.17-7.16)	6.60 (5.53-7.86)	7.10 (5.88-8.60)	7.72 (6.27-9.57)	8.15 (6.52-10.3)
<b>15-min</b>	2.30 (2.10-2.55)	2.87 (2.50-3.26)	3.52 (3.06-4.02)	4.01 (3.45-4.60)	4.63 (3.97-5.39)	5.10 (4.33-6.00)	5.52 (4.63-6.58)	5.94 (4.92-7.20)	6.46 (5.25-8.01)	6.82 (5.46-8.62)
<b>30-min</b>	1.62 (1.48-1.79)	2.02 (1.76-2.30)	2.48 (2.15-2.83)	2.82 (2.43-3.24)	3.26 (2.79-3.80)	3.59 (3.05-4.22)	3.89 (3.26-4.63)	4.18 (3.47-5.07)	4.55 (3.70-5.64)	4.80 (3.84-6.07)
<b>60-min</b>	1.07 (0.974-1.18)	1.33 (1.16-1.51)	1.63 (1.42-1.86)	1.86 (1.60-2.13)	2.15 (1.84-2.50)	2.36 (2.00-2.78)	2.56 (2.15-3.05)	2.75 (2.28-3.33)	2.99 (2.43-3.71)	3.16 (2.53-3.99)
<b>2-hr</b>	0.699 (0.640-0.773)	0.820 (0.714-0.933)	1.01 (0.876-1.16)	1.16 (0.996-1.33)	1.35 (1.15-1.57)	1.49 (1.26-1.76)	1.64 (1.37-1.96)	1.78 (1.47-2.16)	1.97 (1.59-2.45)	2.11 (1.68-2.68)
<b>3-hr</b>	0.518 (0.471-0.578)	0.621 (0.540-0.704)	0.769 (0.668-0.878)	0.887 (0.765-1.02)	1.05 (0.894-1.22)	1.17 (0.989-1.38)	1.30 (1.08-1.55)	1.42 (1.18-1.73)	1.60 (1.29-1.98)	1.73 (1.37-2.19)
<b>6-hr</b>	0.318 (0.285-0.360)	0.396 (0.345-0.449)	0.499 (0.433-0.569)	0.583 (0.502-0.670)	0.702 (0.599-0.816)	0.798 (0.674-0.939)	0.899 (0.750-1.07)	1.01 (0.826-1.22)	1.16 (0.930-1.43)	1.27 (1.01-1.61)
<b>12-hr</b>	0.185 (0.163-0.212)	0.235 (0.204-0.268)	0.302 (0.262-0.346)	0.357 (0.308-0.411)	0.435 (0.370-0.507)	0.498 (0.419-0.587)	0.564 (0.469-0.674)	0.635 (0.520-0.770)	0.734 (0.588-0.911)	0.814 (0.639-1.03)
<b>24-hr</b>	0.110 (0.097-0.126)	0.140 (0.123-0.160)	0.182 (0.159-0.208)	0.215 (0.187-0.247)	0.260 (0.224-0.302)	0.296 (0.252-0.347)	0.333 (0.280-0.394)	0.371 (0.307-0.445)	0.424 (0.343-0.517)	0.465 (0.368-0.577)
<b>2-day</b>	0.065 (0.058-0.074)	0.082 (0.073-0.093)	0.106 (0.093-0.120)	0.124 (0.109-0.142)	0.150 (0.130-0.173)	0.171 (0.146-0.199)	0.192 (0.162-0.226)	0.214 (0.178-0.255)	0.245 (0.199-0.297)	0.268 (0.214-0.331)
<b>3-day</b>	0.048 (0.043-0.055)	0.061 (0.054-0.069)	0.078 (0.069-0.088)	0.091 (0.080-0.104)	0.110 (0.095-0.127)	0.125 (0.107-0.145)	0.140 (0.118-0.165)	0.155 (0.130-0.185)	0.177 (0.144-0.215)	0.194 (0.154-0.239)
<b>4-day</b>	0.040 (0.035-0.045)	0.050 (0.044-0.056)	0.064 (0.056-0.072)	0.075 (0.066-0.085)	0.090 (0.078-0.104)	0.102 (0.087-0.118)	0.114 (0.096-0.134)	0.126 (0.105-0.150)	0.143 (0.116-0.174)	0.156 (0.124-0.193)
<b>7-day</b>	0.027 (0.024-0.031)	0.034 (0.030-0.039)	0.043 (0.038-0.049)	0.051 (0.045-0.058)	0.060 (0.053-0.070)	0.068 (0.059-0.079)	0.076 (0.064-0.089)	0.084 (0.070-0.100)	0.094 (0.077-0.115)	0.103 (0.082-0.127)
<b>10-day</b>	0.022 (0.020-0.025)	0.027 (0.024-0.031)	0.035 (0.030-0.039)	0.040 (0.035-0.046)	0.048 (0.041-0.055)	0.054 (0.046-0.062)	0.060 (0.051-0.070)	0.066 (0.055-0.078)	0.074 (0.060-0.090)	0.081 (0.064-0.099)
<b>20-day</b>	0.015 (0.013-0.017)	0.018 (0.016-0.021)	0.023 (0.020-0.026)	0.027 (0.023-0.030)	0.031 (0.027-0.036)	0.035 (0.030-0.040)	0.038 (0.033-0.045)	0.042 (0.035-0.050)	0.047 (0.038-0.057)	0.050 (0.040-0.062)
<b>30-day</b>	0.013 (0.011-0.014)	0.016 (0.014-0.018)	0.019 (0.017-0.022)	0.022 (0.019-0.025)	0.025 (0.022-0.029)	0.028 (0.024-0.032)	0.030 (0.026-0.036)	0.033 (0.027-0.039)	0.036 (0.029-0.043)	0.038 (0.030-0.047)
<b>45-day</b>	0.011 (0.010-0.012)	0.013 (0.012-0.015)	0.016 (0.014-0.018)	0.018 (0.016-0.021)	0.021 (0.018-0.024)	0.023 (0.019-0.026)	0.024 (0.021-0.028)	0.026 (0.022-0.031)	0.028 (0.023-0.034)	0.029 (0.023-0.036)
<b>60-day</b>	0.010 (0.009-0.011)	0.012 (0.011-0.013)	0.014 (0.013-0.016)	0.016 (0.014-0.018)	0.018 (0.016-0.021)	0.020 (0.017-0.023)	0.021 (0.018-0.025)	0.023 (0.019-0.027)	0.024 (0.020-0.030)	0.026 (0.020-0.032)

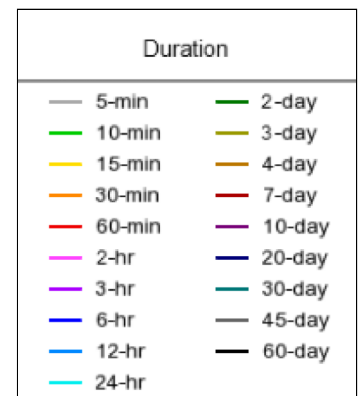
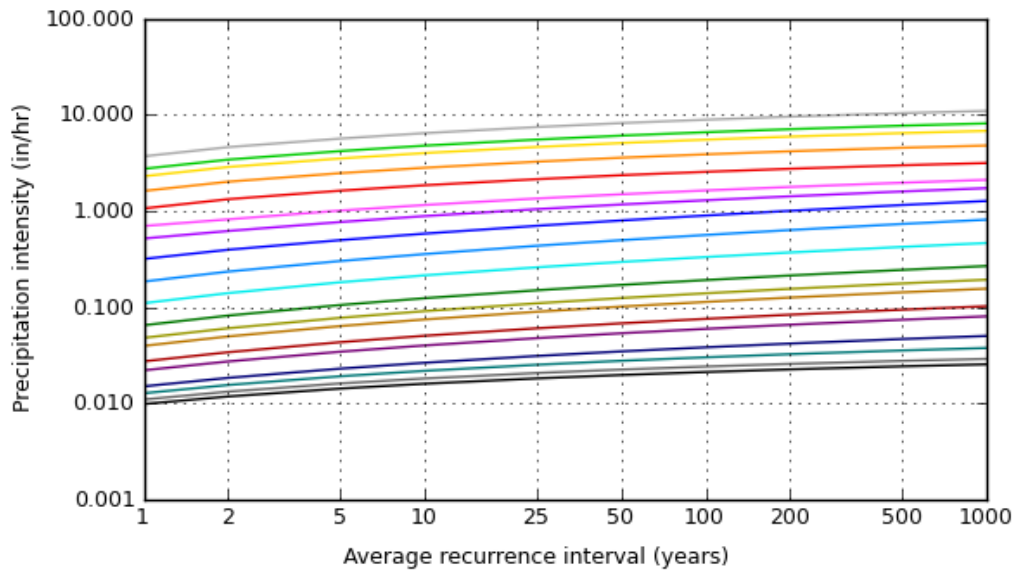
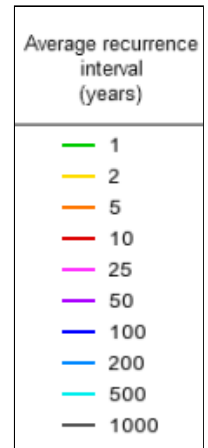
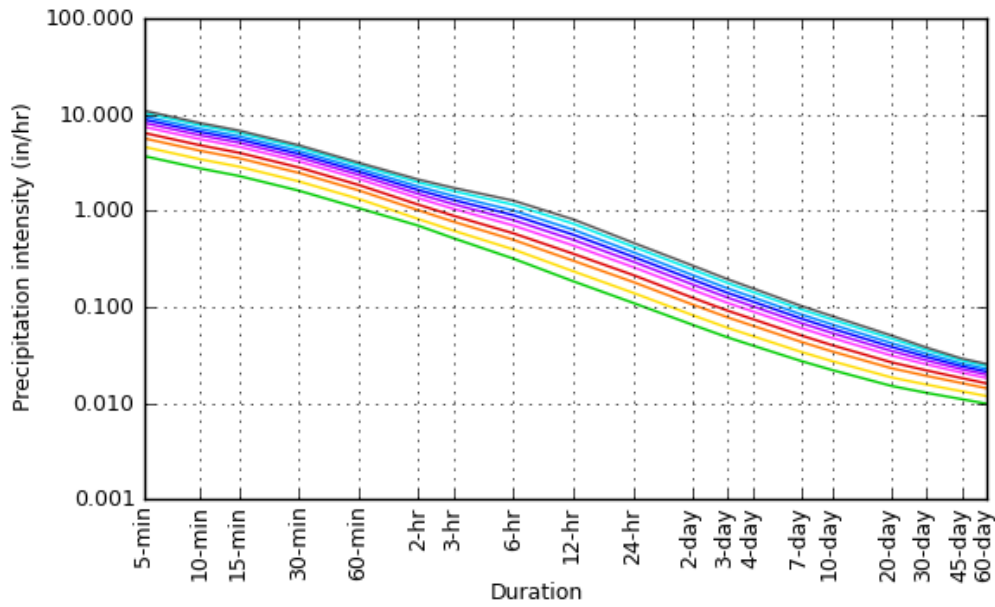
<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

**PF graphical**



PDS-based intensity-duration-frequency (IDF) curves

Latitude: 19.5620°, Longitude: -155.9614°





Appendix J

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# Acoustic Study



**ACOUSTIC STUDY FOR THE  
KEAUHOU BAY MANAGEMENT PLAN  
KAILUA-KONA, HAWAII, HAWAII**

Prepared for:

**G70**

Prepared by:

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Honolulu, Hawaii 96816**

**JUNE 2022**

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## CHAPTER 1. SUMMARY

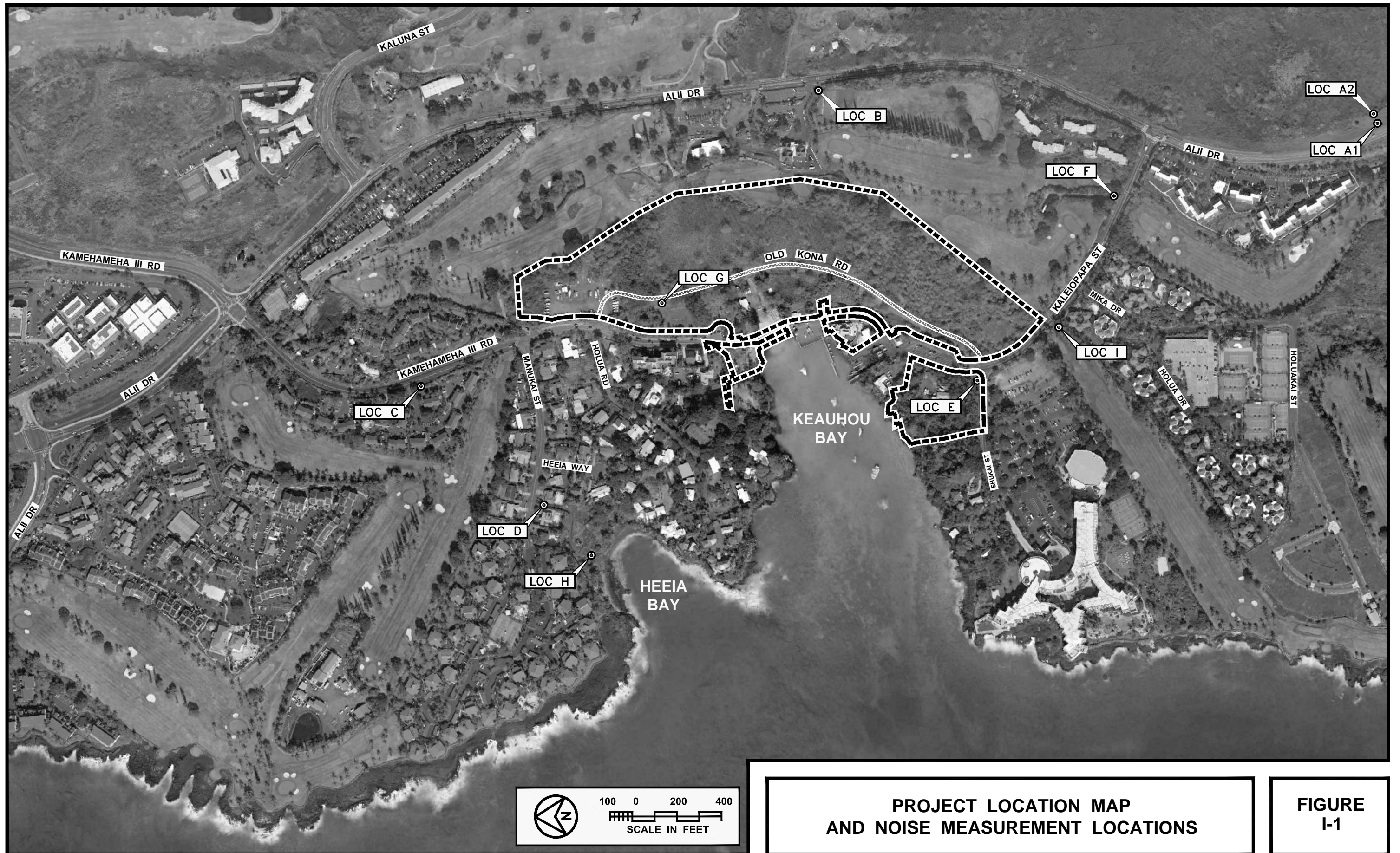
The existing and future traffic noise levels in the vicinity of the proposed Keauhou Bay Management Plan Projects were evaluated for their potential impact on present and future noise sensitive areas. Figure I-1 depicts the location of the project site. The future traffic noise levels along the primary access roadways to the project were calculated for the year 2035.

Along the existing Alii Drive, traffic noise levels were expected to increase by 1.1 to 1.4 DNL (Day-Night Average Sound Level) between CY (Calendar Year) 2021 and CY 2035 as a result of both project and non-project traffic. Traffic noise increases due to project traffic were predicted to range from 0.3 to 0.9 DNL which was greater than the range of the noise increases caused by non-project traffic (0.5 to 0.8 DNL) on Alii Drive. These increases in traffic noise levels associated with project traffic were considered to be low.

Future traffic noise levels at existing and planned noise sensitive locations along Alii Drive in the project environs are not expected to exceed 65 DNL. Existing residences between Alii Drive and mauka of Keauhou Bay and Heeia Bay were also predicted to experience future traffic noise levels less than 65 DNL. Existing residents located along Kamehameha III Road and Kaleiopapa Street were also predicted to experience future traffic noise levels less than 65 DNL. The planned improvement to Old Kona Road is not expected to exceed 65 DNL or increase background noise levels by 15 dBA (A-Weighted Decibels) at existing residences or noise sensitive properties.

Unavoidable, but temporary, noise impacts may occur during the construction of the proposed project. Because construction activities may be audible at existing and planned developed properties within the project environs (or area), the acoustic environment may be degraded during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases. For this reason, the use of quiet equipment and construction curfew periods as required under the State Department of Health noise regulations are recommended to minimize construction noise impacts.





**PROJECT LOCATION MAP  
AND NOISE MEASUREMENT LOCATIONS**

**FIGURE  
I-1**



## **CHAPTER II. PURPOSE**

The objectives of this study were to describe the existing and future noise environment in the environs of the proposed Keauhou Bay Management Plan Projects at Keauhou Bay on the island of Hawaii. Traffic noise level increases and impacts associated with the proposed plans were to be determined within the project site as well as along the public roadways expected to service the project traffic. A specific objective was to determine the future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases. Assessments of possible impacts from short term construction noise at the project site were also included in the noise study objectives. Recommendations for minimizing these noise impacts were also to be provided as required.

### CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies to assess environmental noise is the Day-Night Average Sound Level (DNL or Ldn). This descriptor incorporates a 24-hour average of instantaneous A-Weighted sound levels as read on a standard Sound Level Meter. The maximum A-Weighted sound level occurring while a noise source such as a heavy truck or aircraft is moving past a listener (i.e., the maximum sound level from a "single event") is referred to as the "Lmax value". The mathematical product (or integral) of the instantaneous sound level times the duration of the event is known as the "Sound Exposure Level", or Lse, which is analogous to the energy of the time-varying sound levels associated with a single event.

The DNL values represent the average noise during a typical day of the year. DNL exposure levels of 55 or less are typical of quiet rural or suburban areas. DNL exposure levels of 55 to 65 are typical of urbanized areas with medium to high levels of activity and street traffic. DNL exposure levels above 65 are representative of densely developed urban areas and areas fronting high volume roadways.

By definition, the minimum averaging period for the DNL descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the DNL descriptor. Because of the averaging used, DNL values in urbanized areas typically range between 50 and 75 DNL. In comparison, the typical range of intermittent noise events may have maximum Sound Level Meter readings between 75 and 105 dBA. A more complete list of noise descriptors is provided in Appendix B to this report. In Appendix B, the Ldn descriptor symbol is used in place of the DNL descriptor symbol.

Table III-1, extracted from Reference 1, categorizes the various DNL levels of outdoor noise exposure with severity classifications. Figure III-1, extracted from Reference 2, presents suggested land use compatibility guidelines for residential and nonresidential land uses. A general consensus among federal agencies has developed whereby residential housing development is considered acceptable in areas where exterior noise does not exceed 65 DNL. This value of 65 DNL is used as a federal regulatory threshold for determining the necessity for special noise abatement measures when applications for federal funding assistance are made.

As a general rule, noise levels of 55 DNL or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL, and as high as 75 DNL when the roadway is a high speed freeway. Due to noise shielding effects from intervening structures, interior lots are usually exposed to 3 to 10 DNL lower noise levels than the

**TABLE III-1**

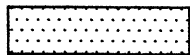
**EXTERIOR NOISE EXPOSURE CLASSIFICATION  
(RESIDENTIAL LAND USE)**

<b>NOISE EXPOSURE CLASS</b>	<b>DAY-NIGHT SOUND LEVEL</b>	<b>EQUIVALENT SOUND LEVEL</b>	<b>FEDERAL (1) STANDARD</b>
<b>Minimal Exposure</b>	<b>Not Exceeding 55 DNL</b>	<b>Not Exceeding 55 Leq</b>	<b>Unconditionally Acceptable</b>
<b>Moderate Exposure</b>	<b>Above 55 DNL But Not Above 65 DNL</b>	<b>Above 55 Leq But Not Above 65 Leq</b>	<b>Acceptable(2)</b>
<b>Significant Exposure</b>	<b>Above 65 DNL But Not Above 75 DNL</b>	<b>Above 65 Leq But Not Above 75 Leq</b>	<b>Normally Unacceptable</b>
<b>Severe Exposure</b>	<b>Above 75 DNL</b>	<b>Above 75 Leq</b>	<b>Unacceptable</b>

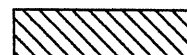
**Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.**

**(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.**

LAND USE	ADJUSTED YEARLY DAY - NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS				
	50	60	70	80	90
Residential - Single Family, Extensive Outdoor Use	Compatible	With Insulation per Section A.4			
Residential - Multiple Family, Moderate Outdoor Use	Compatible	With Insulation per Section A.4			
Residential - Multi - Story Limited Outdoor Use	Compatible	With Insulation per Section A.4	Marginally Compatible		
Hotels, Motels Transient Lodging	Compatible	With Insulation per Section A.4	Marginally Compatible		
School Classrooms, Libraries, Religious Facilities	Compatible	With Insulation per Section A.4	Marginally Compatible		
Hospitals, Clinics, Nursing Homes, Health Related Facilities	Compatible	With Insulation per Section A.4	Marginally Compatible		
Auditoriums, Concert Halls	Compatible	With Insulation per Section A.4			
Music Shells		With Insulation per Section A.4			
Sports Arenas, Outdoor Spectator Sports	Compatible	With Insulation per Section A.4			
Neighborhood Parks	Compatible	With Insulation per Section A.4			
Playgrounds, Golf courses, Riding Stables, Water Rec., Cemeteries	Compatible	With Insulation per Section A.4	Marginally Compatible		
Office Buildings, Personal Services, Business and Professional	Compatible	With Insulation per Section A.4	Marginally Compatible		
Commercial - Retail, Movie Theaters, Restaurants	Compatible	With Insulation per Section A.4	Marginally Compatible		
Commercial - Wholesale, Some Retail, Ind., Mfg., Utilities	Compatible	With Insulation per Section A.4	Marginally Compatible		
Livestock Farming, Animal Breeding	Compatible	With Insulation per Section A.4	Marginally Compatible		
Agriculture ( Except Livestock )	Compatible	With Insulation per Section A.4	With Insulation per Section A.4	Marginally Compatible	



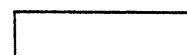
Compatible



Marginally Compatible



With Insulation per Section A.4



Incompatible

LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY - NIGHT SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.

( Source: American National Standards Institute S12.9 - 1988/Part 5 )

FIGURE III-1



front lots which are not shielded from the traffic noise.

For the purposes of determining noise acceptability for funding assistance from federal agencies, an exterior noise level of 65 DNL or lower is considered acceptable. These federal agencies include the Federal Aviation Administration (FAA), Department of Defense (DOD); Federal Housing Administration, Housing and Urban Development (FHA/HUD), and Veterans Administration (VA). This standard is applied nationally (see Reference 3), including Hawaii.

Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 DNL does not eliminate all risks of noise impacts. Because of these factors, a lower level of 55 DNL is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise (see Reference 4). For typical, naturally ventilated structures in Hawaii, an exterior noise level of 55 DNL results in an interior level of approximately 45 DNL, which is considered to be the "Unconditionally Acceptable" (or "Near-Zero Risk") level of interior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HUD and VA have selected 65 DNL as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 DNL.

In the State of Hawaii, the State Department of Health (DOH) regulates noise from on-site activities. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than DNL (see Reference 5). The noise limits apply on all islands of the State, including the island of Hawaii. Although they are not directly comparable to noise criteria expressed in DNL, State DOH noise limits for preservation/residential, apartment/commercial, and agricultural/industrial lands equate to approximately 55, 60, and 76 DNL, respectively.

Because the proposed project site is located on lands primarily designated for resort uses, DOH noise limits would be applicable along the lot boundary lines or at receptor locations for any stationary machinery, or equipment related to resort, commercial, or construction activities. These property line limits are 60 dBA and 50 dBA during the daytime and nighttime periods, respectively, for resort and commercial lots or receptors. These noise limits cannot be exceeded for more than 2 minutes in any 20-minute time period under the State DOH noise regulations. The State DOH noise regulations do not apply to aircraft or motor vehicles.

## CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic and background ambient noise levels were measured at ten locations in the project environs to provide a basis for developing the existing and future traffic noise levels along Alii Drive; Kaleiopapa Street, Ehukai Street, Kamehameha III Road, Old Kona Road, Holua Road, and Manukai Street, and for determining the existing background ambient noise levels in the project area. The locations of the noise measurement sites are shown in Figure I-1. Noise measurements were performed during February 2022. The traffic noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in Table IV-1. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. Where only background noise measurements were obtained, such as at Locations G and H, which were removed from existing roadways, traffic volumes and predicted noise levels were not shown in Table IV-1.

Traffic noise calculations for the existing conditions as well as noise predictions for the future conditions with and without the project were performed using the Federal Highway Administration (FHWA) Noise Prediction Model, Version 2.5 (Reference 6). Traffic data entered into the noise prediction model were: hourly traffic volumes, average vehicle speeds, estimates of traffic mix, and hard soil propagation loss factor. The traffic assignments for the project (Reference 7) and Hawaii State Department of Transportation counts on Alii Drive (Reference 8) were the primary sources of data inputs to the model. Appendix C summarizes the existing and future projections of AM and PM peak hour traffic volumes which were available from Reference 7.

For existing and future traffic, it was assumed that the average noise levels, or  $Leq(h)$ , during the weekday PM peak hour were 0.8 dB greater than the weekday 24-hour DNL along any roadway segment in the project environs. This assumption was based on computations of the weekday hourly  $Leq$ 's and the 24-hour DNL's of traffic noise on Alii Drive from the HDOT traffic counts in February 2019 prior to the COVID-19 crisis (see Figures IV-1 and IV-2).

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level receptors without the benefit of noise shielding effects from buildings or natural terrain features. Traffic assignments with and without the project were obtained from the project's traffic turning movements (Reference 7). The forecasted increases in traffic noise levels over existing levels were calculated for both scenarios, and noise impact risks evaluated. The relative contributions of non-project and project related traffic to the total noise levels were also calculated, and an evaluation was made of possible traffic noise impacts resulting from the project.

Evaluations of the potential noise impacts associated with the overall Management Plan and the Restaurant/Retail Complex Plan shown in Figure IV-3 were provided. These evaluations of potential traffic and construction noise impacts and

**TABLE IV-1**

**TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS**

Page IV - 2

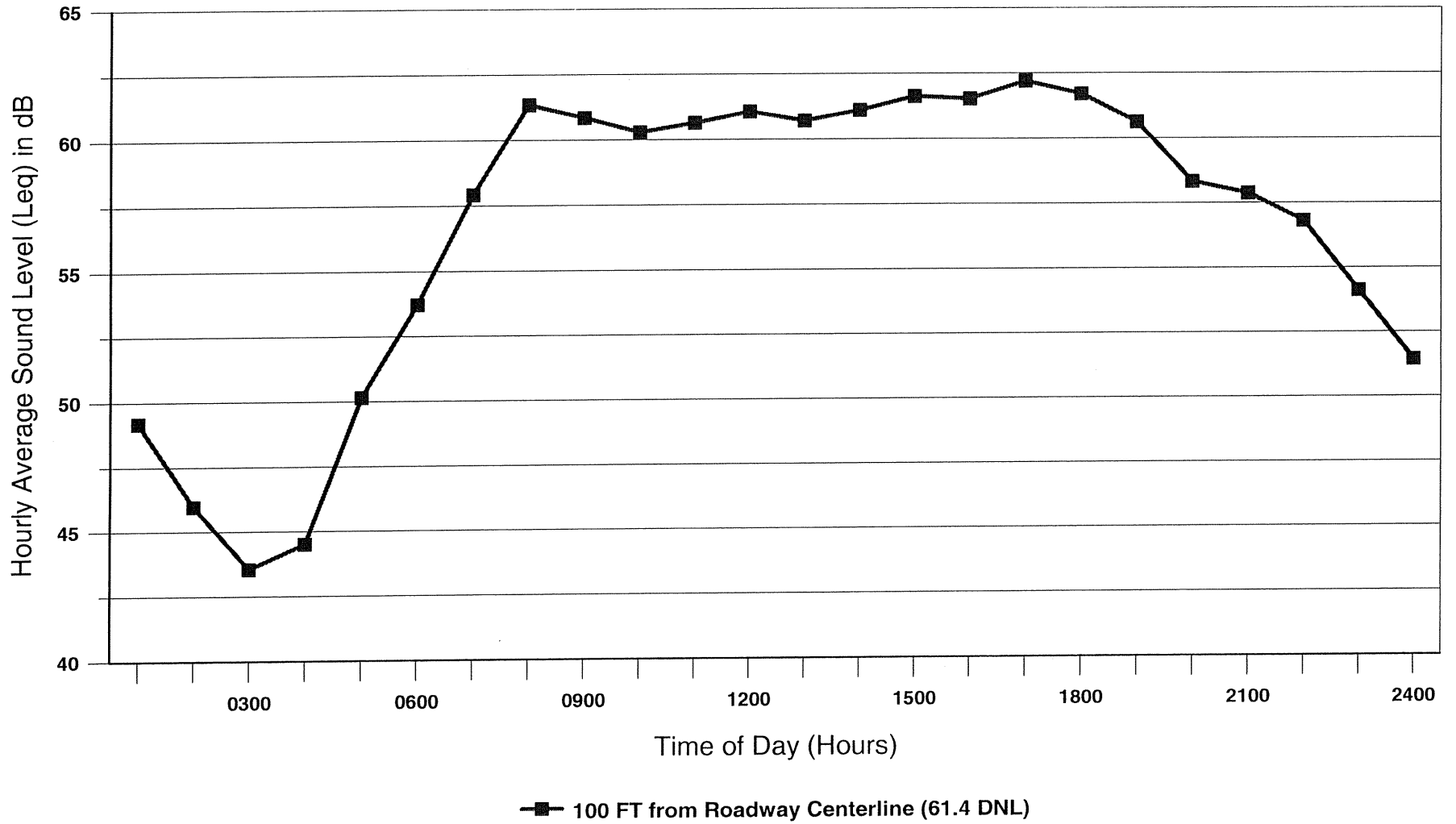
<u>LOCATION</u>	<u>Time of Day</u> <u>(HRS)</u>	<u>Ave. Speed</u> <u>(MPH)</u>	<u>Hourly Traffic Volume</u>			<u>Measured</u> <u>Leq (dB)</u>	<u>Predicted</u> <u>Leq (dB)</u>
			<u>AUTO</u>	<u>M.TRUCK</u>	<u>H.TRUCK</u>		
A1. 50 FT from the center-line of Alii Drive. (2/07/22)	0657 TO 0757	46	491	4	5	68.3	67.7
A2. 96 FT from the center-line of Alii Drive. (2/07/22)	0657 TO 0757	46	491	4	5	63.5	64.1
A1. 50 FT from the center-line of Alii Drive. (2/07/22)	1557 TO 1657	45	566	6	2	67.9	67.6
A2. 96 FT from the center-line of Alii Drive. (2/07/22)	1557 TO 1657	45	566	6	2	63.8	64.1
B. 50 FT from the center-line of Alii Drive. (2/08/22)	0833 TO 0933	36	575	16	3	62.9	62.8
C. 36 FT from the center-line of Kamehameha III Rd. (2/07/22)	0824 TO 0924	35	105	2	0	57.6	57.8

**TABLE IV-1 (CONTINUED)**

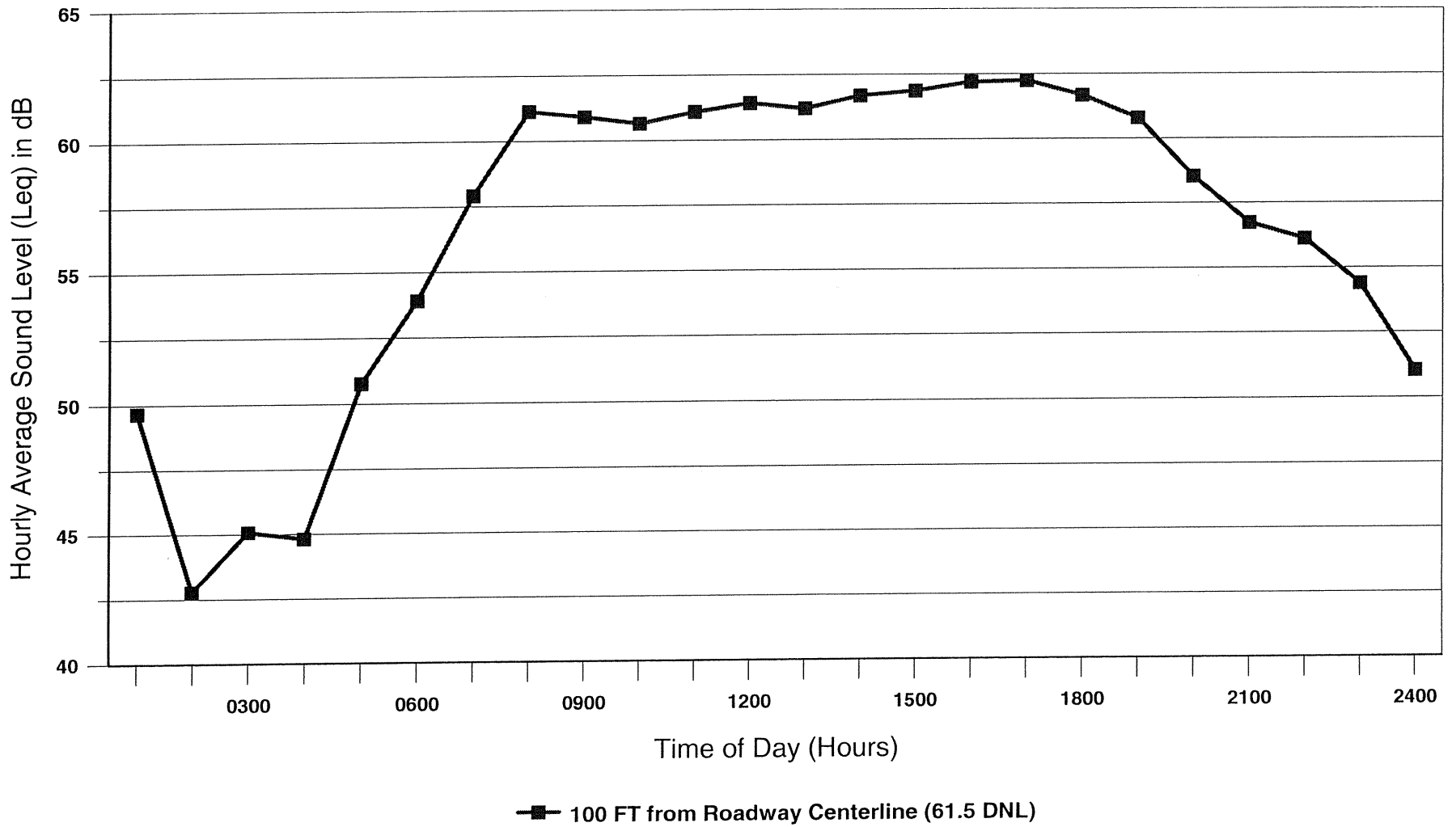
**TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS**

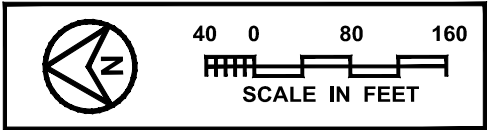
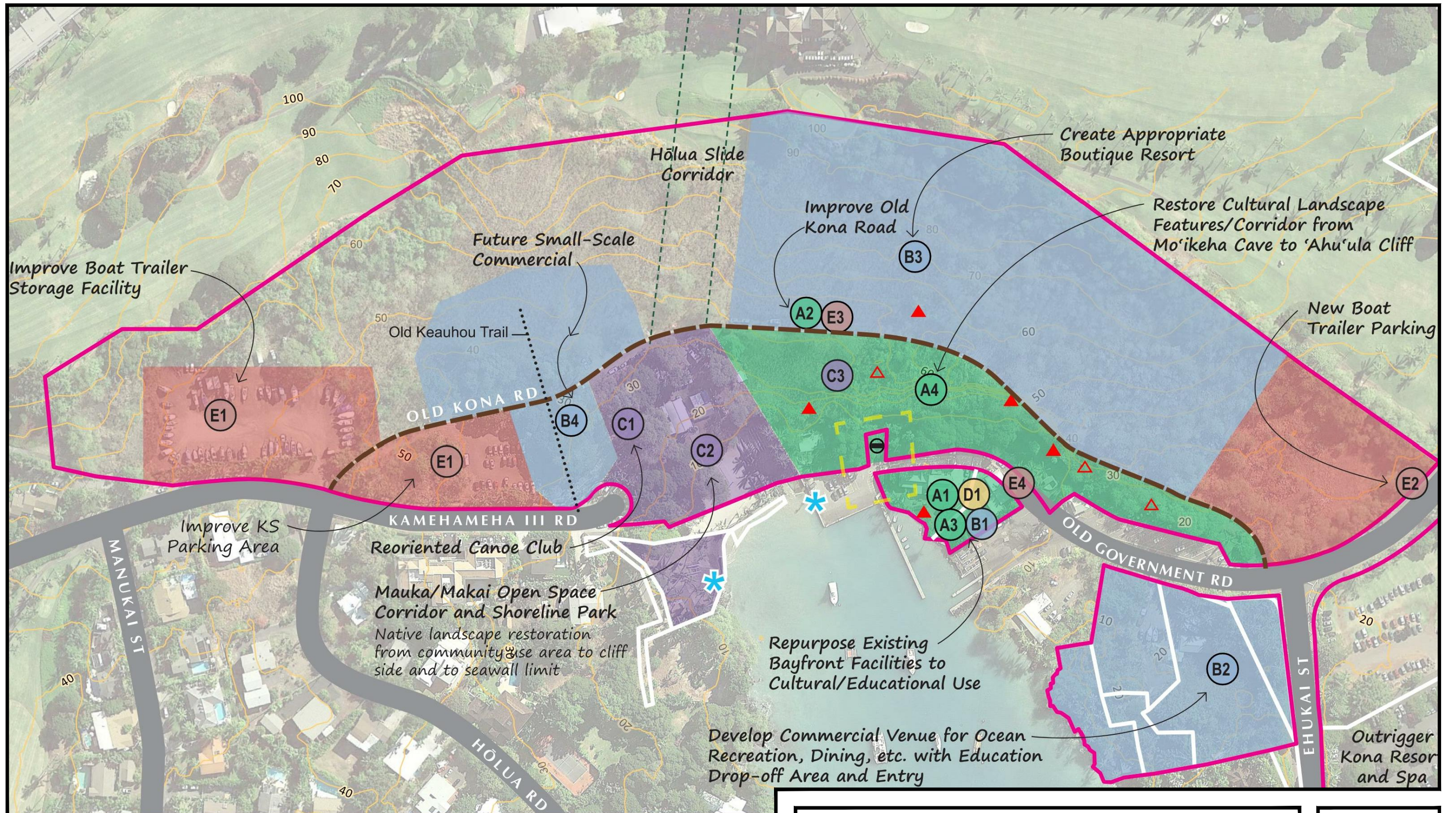
<u>LOCATION</u>	<u>Time of Day</u> <u>(HRS)</u>	<u>Ave. Speed</u> <u>(MPH)</u>	<u>Hourly Traffic Volume</u>			<u>Measured</u> <u>Leq (dB)</u>	<u>Predicted</u> <u>Leq (dB)</u>
			<u>AUTO</u>	<u>M.TRUCK</u>	<u>H.TRUCK</u>		
D. 59 FT from the center-line of Manukai Street (2/07/22)	1054 TO 1154	25	47	0	3	50.8	50.7
E. 50 FT from the center-line of Kaleiopapa Street (2/07/22)	1350 TO 1450	25	45	0	0	46.3	46.1
F. 50 FT from the center-line of Kaleiopapa Street (2/08/22)	1600 TO 1700	31	224	6	0	56.5	56.5
G. At north end of future improved Old Kona Road (2/07/22)	0932 TO 1032	N/A	N/A	N/A	N/A	44.8	N/A
H. At Makai end of foot path shoreline and 90 feet past pump station (2/07/22)	1203 TO 1303	N/A	N/A	N/A	N/A	59.4	N/A
I. 50 FT from the center-line of Kaleiopapa Street (2/08/22)	0700 TO 0800	32	125	3	1	54.5	54.5

**FIGURE IV-1**  
**HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY**  
**STA. B71018600600; ALII DRIVE BETWEEN KALUNA ST. AND KALEIOPAPA ST.; JANUARY 8, 2019**



**FIGURE IV-2**  
**HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY**  
**STA. B71018600600; ALII DRIVE BETWEEN KALUNA ST. AND KALEIOPAPA ST.; JANUARY 9, 2019**





**KEAUHOU BAY MANAGEMENT PLAN  
RECOMMENDATIONS**

**FIGURE  
IV-3**





mitigation measures were included in this study by comparing existing background noise levels with potential future background noise levels.

## CHAPTER V. EXISTING NOISE ENVIRONMENT

The existing traffic noise levels in the project environs are controlled by traffic along Alii Drive, Kamehameha III Road, and Kaleiopapa Street. Within the Keauhou Bay Management Plan lands, existing background noise levels along the mauka boundaries are controlled by distant traffic on Alii Drive, Kamehameha III Road, and Kaleiopapa Street. Along the makai boundaries of the management plan lands, surf and ocean activities, and traffic along Kaleiopapa Street and Kamehameha III Road control the background ambient noise levels.

Calculations of existing traffic noise levels during the weekday PM peak traffic hours are presented in Table V-1. The hourly Leq (or Equivalent Sound Level) contribution from each roadway section in the project environs was calculated for comparison with forecasted traffic noise levels with and without the project. The PM peak hour Leq's for a weekday were calculated using traffic data from Reference 7. The existing setback distances from the roadways' centerlines to their associated 65, 70, and 75 DNL contours were also calculated as shown in Table V-2. The contour line setback distances do not take into account noise shielding effects or the additive contributions of traffic noise from intersecting street sections. Based on the results of Table V-2, it was concluded that the existing 65 DNL traffic noise contour is located approximately 26 to 79 FT from the centerline of Alii Drive in the project area, and not more than 12 FT from the centerlines of Kamehameha III Road and Kaleiopapa Street.

Existing noise sensitive receptors in the project environs were probably not exposed to traffic noise levels of 65 DNL or higher in CY 2021. The existing background noise levels at noise sensitive receptors were probably in the Minimal to Moderate Exposure, Unconditionally Acceptable or Acceptable categories (see Table III-1). In the large project area designated for future resort use, existing background noise levels are relatively low because of the large setback distances from Alii Drive, and the undeveloped character of the land. Along the makai boundaries of this project area, existing background noise levels probably ranged from 45 to 65 DNL due to commercial and recreational activities along the shore and due to the natural sounds associated with the surf along the shoreline.

Existing traffic noise levels along Kamehameha III Road and Kaleiopapa Street are less than 65 DNL along their Rights-of-Way, and the traffic noise contributions from Kamehameha III Road and Kaleiopapa Street are probably less than 60 DNL at noise sensitive residences closest to those two roadways. Due to a lower posted speed of 35 miles per hour along Alii Drive between Kaleiopapa Street and Kamehameha III Road, and the relatively large setbacks of at least 75 feet from the centerline of Alii Drive, traffic noise levels were probably less than 65 DNL in CY 2021 at residences located in areas mauka of the project management area.

Existing background noise levels at the project site, which is beyond 400 feet from Alii Drive, are very low (between 45 and 50 DNL) due to the large setback

TABLE V-1

EXISTING (CY 2021) TRAFFIC VOLUMES AND NOISE LEVELS  
ALONG ROADWAYS IN PROJECT AREA  
(PM PEAK HOUR)

<u>LOCATION</u>	<u>SPEED (MPH)</u>	<u>TOTAL VPH</u>	<u>***** VOLUMES (VPH) *****</u>			<u>50' Leq</u>	<u>75' Leq</u>	<u>100' Leq</u>
			<u>AUTOS</u>	<u>M TRUCKS</u>	<u>H TRUCKS</u>			
Alii Drive NW of Kamehameha III Rd.	35	679	669	7	3	62.5	60.4	58.9
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St.	36	784	772	8	4	63.9	61.5	59.9
Alii Drive South of Kaleiopapa St.	45	637	628	6	3	68.2	66.1	64.6
Kamehameha III Rd. NE of Alii Dr.	45	414	406	8	0	66.3	64.0	62.3
Kamehameha III Rd. SW of Alii Dr.	35	129	126	3	0	57.4	55.2	53.8
Kamehameha III Rd. North of Holua Rd.	35	64	63	1	0	54.0	51.9	50.5
Kamehameha III Rd. South of Holua Rd.	33	58	57	1	0	53.7	51.5	50.1
Holua Road West of Kamehameha III Rd.	25	10	10	0	0	37.4	35.4	34.0
Old Kona Road East of Kamehameha III Rd.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kaleiopapa St. West of Alii Dr.	31	242	235	6	1	56.9	54.9	53.4
Kaleiopapa St. SE of Ehukai St.	32	121	118	2	1	54.3	52.2	50.8
Kaleiopapa St. N of Ehukai St.	25	100	100	0	0	49.4	47.3	45.9
Ehukai St. West of Kaleiopapa St.	25	29	28	1	0	45.4	43.4	41.9
Old Kona Road East of Kaleiopapa St.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**TABLE V-2**

**EXISTING AND CY 2035 DISTANCES TO 65, 70,  
AND 75 DNL CONTOURS**

<u>STREET SECTION</u>	<u>65 DNL SETBACK (FT)</u>		<u>70 DNL SETBACK (FT)</u>		<u>75 DNL SETBACK (FT)</u>	
	<u>EXISTING</u>	<u>CY 2035</u>	<u>EXISTING</u>	<u>CY 2035</u>	<u>EXISTING</u>	<u>CY 2035</u>
Alii Drive NW of Kamehameha III Rd.	26	35	10	13	4	5
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St.	36	44	16	19	7	8
Alii Drive South of Kaleiopapa St.	79	98	30	37	12	14
Kamehameha III Rd. NE of Alii Dr.	55	67	23	28	9	12
Kamehameha III Rd. SW of Alii Dr.	8	22	4	9	2	4
Kamehameha III Rd. North of Holua Rd.	4	17	2	6	1	2
Kamehameha III Rd. South of Holua Rd.	4	4	2	1	1	1
Holua Road West of Kamehameha III Rd.	0	1	0	0	0	0
Old Kona Road East of Kamehameha III Rd.	N/A	20	N/A	11	N/A	6
Kaleiopapa St. West of Alii Dr.	9	13	3	5	1	2
Kaleiopapa St. SE of Ehukai St.	5	10	2	4	1	1
Kaleiopapa St. N of Ehukai St.	2	1	1	0	0	0
Ehukai St. West of Kaleiopapa St.	1	3	0	1	0	0
Old Kona Road East of Kaleiopapa St.	N/A	8	N/A	3	N/A	1

**Notes:**

- (1) All setback distances are from the roadways' centerlines.
- (2) See Tables V-1 and VI-1 for traffic volume, speed, and mix assumptions.
- (3) Setback distances are for ground level receptors.
- (4) "Hard Soil" conditions assumed along all roadways.

distances from Alii Drive and the currently undeveloped nature of the large mauka parcel. At these planned resort designated lands on the project site, distant traffic, helicopter noise, and the natural sounds of birds, and winds in foliage are the dominant noise sources. Between traffic, helicopter, bird, or wind noise events, background ambient noise levels drop to a range of 40 to 45 dBA. During calm wind periods, background ambient noise levels decrease to levels less than 40 dBA at the interior locations removed from Alii Drive, Kaleiopapa Street, and Kamehameha III Drive, and the shoreline. The minimum background ambient noise levels at these interior locations are controlled by distant traffic, birds, and wind noise.

At locations near the unsheltered shorelines of Keauhou Bay and Heeia Bay, the natural sounds of surf controls the background noise. Even during low surf conditions during measurements at Location H on February 7, 2022, background noise levels were typically greater than 50 dBA, and exceeded 65 dBA during the louder surf events. Surf noise can interfere with unaided speech communications outdoors. In the more sheltered waters along the east end of Keauhou Bay, surf noise is not comparable to the other sounds produced by local street traffic, tour boats, and human recreational activities.

## CHAPTER VI. FUTURE NOISE ENVIRONMENT

Figure IV-3 depicts the proposed Conceptual Improvement Plan, which includes the improvement of the Old Kona Road connecting Kaleiopapa Street with Kamehameha III Road. The future traffic noise levels and potential traffic noise impacts associated with the proposed plan were examined by calculating future traffic noise levels in CY 2035 along Alii Drive, Kaleiopapa Street, Kamehameha III Road, Old Kona Road, Holua Road, and Ehukai Street with the proposed plan. In addition, future traffic noise levels in CY 2035 along the existing roads (excluding Old Kona Road) were calculated for the Do Nothing Alternative. Future traffic noise levels under the Proposed Action and Do Nothing Alternatives were compared with each other as well as with the existing traffic noise levels described in the previous chapter.

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 7 for CY 2035 with and without the Proposed Action. The future assignments of project plus non-project traffic on the roadway sections which would service the project are shown in Table VI-1 for the weekday PM peak hour of traffic. Table VI-2 provides the predicted changes in future traffic noise levels along these roadways which are attributable to non-project and project traffic. As indicated in Table VI-2, by CY 2035 and following completion of the Proposed Action, traffic noise levels along Alii Drive in the project environs are predicted to increase by 1.2 to 1.4 DNL. Along Kaleiopapa Street and Kamehameha III Road, predicted increases of 1.2 to 6.1 DNL are anticipated in CY 2035 following completion of the plan. Decreases in future traffic noise levels of 1.2 to 3.6 DNL are predicted along the makai ends of Kamehameha III Road and Kaleiopapa Street following the improvements to Old Kona Road and the additional parking facilities planned at both ends of the Old Kona Road.

The traffic noise increases due to project traffic range from 0.0 to 4.0 DNL along existing roadways, with increases due to non-project traffic ranging from 0.5 to 6.0 DNL. Along the improved Old Kona Road, future traffic noise levels are predicted to increase existing background noise levels by 11 to 13 DNL at 50 Ft setback distance. These increases in traffic noise levels are considered to be moderate to high, and reflect the anticipated growth in future project and non-project traffic from low volumes in the project environs from CY 2021 to CY 2035. The largest increases in future traffic noise levels are anticipated to occur where both existing and future traffic noise levels should not exceed 65 DNL at existing noise sensitive receptors.

Table V-2 summarizes the predicted increases in the future setback distances to the 65, 70, and 75 DNL traffic noise contour lines along the roadways in the project environs and attributable to both project plus non-project traffic in CY 2035 under the Proposed Action. The setback distances in Table V-2 do not include the beneficial effects of noise shielding from terrain features and buildings, or the detrimental effects of additive contributions of noise from intersecting streets. As indicated in Table V-2, the setback distances to the 65 DNL contour are predicted to range from 8 to 19 FT from the centerline of Alii Drive following project completion in CY 2035 under the

TABLE VI-1

FUTURE (CY 2035) TRAFFIC VOLUMES AND NOISE LEVELS  
ALONG ROADWAYS NEAR INTERSECTIONS IN PROJECT AREA  
(PM PEAK HOUR, BUILD )

<u>LOCATION</u>	<u>SPEED (MPH)</u>	<u>TOTAL VPH</u>	<u>***** VOLUMES (VPH) *****</u>			<u>50' Leg</u>	<u>75' Leg</u>	<u>100' Leg</u>
			<u>AUTOS</u>	<u>M TRUCKS</u>	<u>H TRUCKS</u>			
Alii Drive NW of Kamehameha III Rd.	35	940	926	9	5	63.9	61.8	60.4
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St.	36	1,001	986	10	5	65.0	62.6	60.9
Alii Drive South of Kaleiopapa St.	45	817	805	8	4	69.3	67.2	65.7
Kamehameha III Rd. NE of Alii Dr.	45	543	532	11	0	67.5	65.2	63.5
Kamehameha III Rd. SW of Alii Dr.	35	330	323	7	0	61.4	59.2	57.8
Kamehameha III Rd. North of Holua Rd.	35	250	245	5	0	60.1	58.0	56.6
Kamehameha III Rd. South of Holua Rd.	33	43	42	1	0	52.5	50.4	49.0
Holua Road West of Kamehameha III Rd.	25	40	40	0	0	43.4	41.4	40.0
Old Kona Road East of Kamehameha III Rd.	30	207	201	5	1	58.1	54.7	50.9
Kaleiopapa St. West of Alii Dr.	31	390	378	10	2	59.1	57.1	55.6
Kaleiopapa St. SE of Ehukai St.	32	240	233	5	2	57.5	55.4	53.9
Kaleiopapa St. N of Ehukai St.	25	43	43	0	0	45.8	43.7	42.2
Ehukai St. West of Kaleiopapa St.	25	109	106	2	1	51.6	49.5	48.1
Old Kona Road East of Kaleiopapa St.	30	128	124	3	1	56.0	53.9	52.4

VI-2

**TABLE VI-2**

**CALCULATIONS OF PROJECT AND NON-PROJECT  
TRAFFIC NOISE CONTRIBUTIONS ( CY 2035 )  
(PM PEAK HOUR LEQ OR DNL )**

<u>STREET SECTION</u>	<u>NOISE LEVEL INCREASE DUE TO: NON-PROJECT TRAFFIC</u>	<u>PROJECT TRAFFIC</u>
Alii Drive NW of Kamehameha III Rd.	0.5	0.9
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St.	0.8	0.3
Alii Drive South of Kaleiopapa St.	0.8	0.3
Kamehameha III Rd. NE of Alii Dr.	1.0	0.2
Kamehameha III Rd. SW of Alii Dr.	1.3	2.7
Kamehameha III Rd. North of Holua Rd.	2.1	4.0
Kamehameha III Rd. South of Holua Rd.	1.7	-2.9
Holua Road West of Kamehameha III Rd.	6.0	0.0
Old Kona Road East of Kamehameha III Rd.	N/A	13.1
Kaleiopapa St. West of Alii Dr.	1.3	0.9
Kaleiopapa St. SE of Ehukai St.	1.6	1.6
Kaleiopapa St. N of Ehukai St.	1.5	-5.1
Ehukai St. West of Kaleiopapa St.	2.5	3.7
Old Kona Road East of Kaleiopapa St.	N/A	11.0

Note:

Future noise levels at 50 FT from the centerline of Old Kona Road are predicted to be 11 to 13 DNL higher than existing background noise levels.



Proposed Action. The increases in setback distances to the 65 DNL contour along Kamehameha III Road are predicted to increase by a range of 0 to 14 FT following plan completion by CY 2035. The setback distances to the 65 DNL contour along Kaleiopapa Street are predicted to increase by a range of 0 to 5 FT following plan completion by CY 2035.

Based on the results shown in Tables V-2 and VI-1, future traffic noise levels are not expected to exceed 65 DNL at noise sensitive receptors or residences within the project environs shown in Figure I-1. This is due to the relatively low posted speed limits of 20 to 35 miles per hour (mph). The anticipated posted speed limit along the improved Old Kona Road is 20 mph. The average speeds shown in Tables IV-1 and V-1 may be higher than posted speed limits, but were used in the TNM noise modeling of existing and future traffic noise levels in order to achieve the best agreement between the measured and modeled traffic noise levels as shown in Table IV-4.

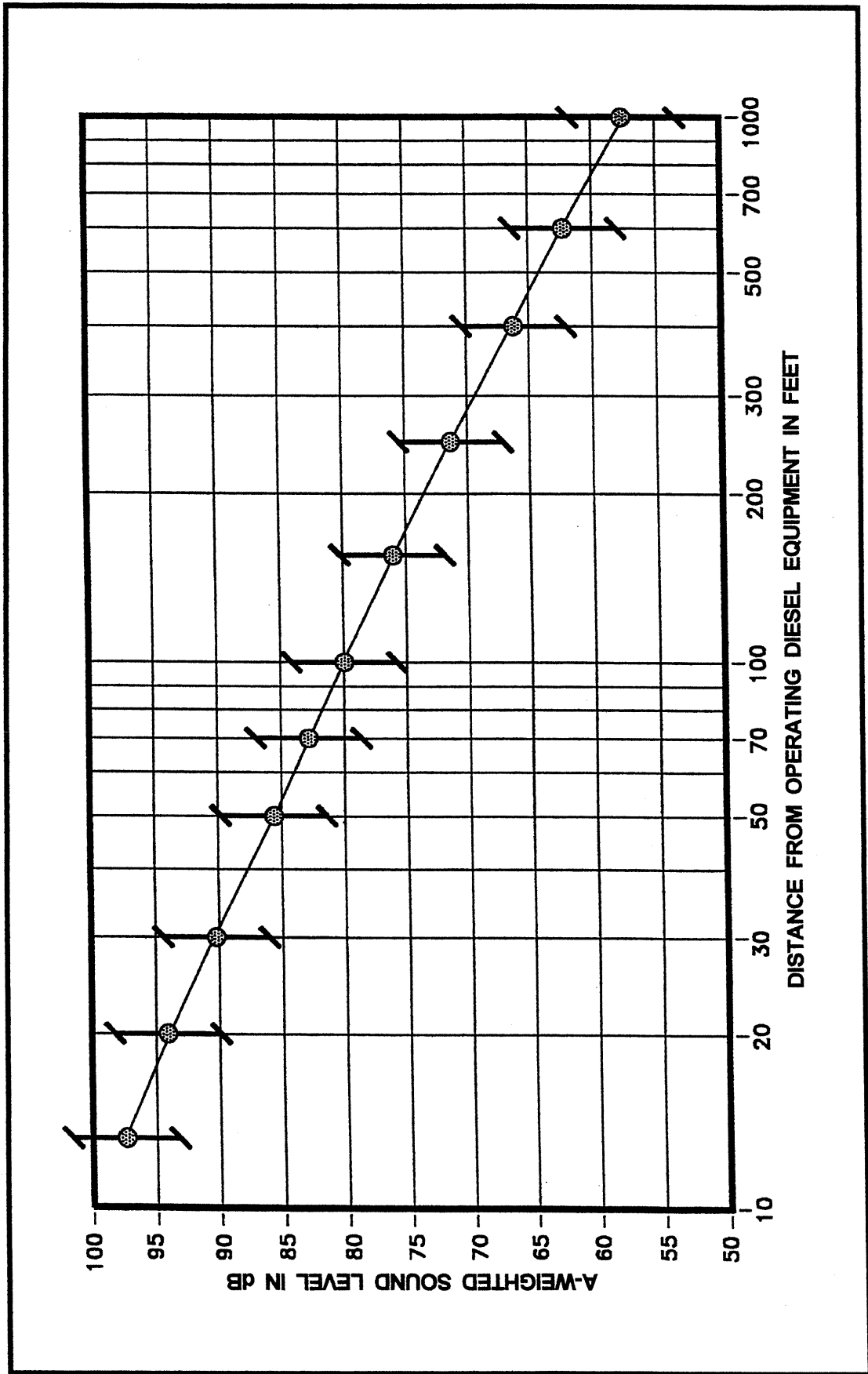
## CHAPTER VII. CONSTRUCTION NOISE IMPACTS

Short-term noise impacts associated with construction activities anticipated in the project planning areas shown in Figures IV-3, IV-4, and IV-5 may occur on both the mauka and makai sides of the corridor centered along the Old Kona Road. The greatest impacts are expected during the earthwork and excavation phases, when site preparation work and/or roadway construction occur. Anticipated noise levels during construction activities of these types are shown in Figure VII-1. Noise levels of diesel powered construction equipment typically range from 80 to 90 dBA at 50 FT distance. The maximum impulsive noise levels of rock breaking equipment (such as hoe rams) can be 5 to 8 dBA greater than those shown in Figure VII-1. The total duration of the construction period for the proposed project is not known, but noise exposure from construction activities at any one receptor location is not expected to be continuous during the total construction period.

Construction noise levels at the closest existing residences along Kaleiopapa Street can intermittently exceed 70 dBA when work is being performed at the south end of Old Kona Road or at the Kaleiopapa Street entrance to the planned retail and restaurant complex. These noise levels are not unusually high and are similar to an automobile at 50 feet. Existing residences along Kamehameha III Road near the Holua Road intersection will probably experience higher noise levels of 79 to 81 dBA during construction of the north end of the Old Kona Road. The State Department of Health currently regulates noise from construction activities under a permit system (Reference 5). Under current permit procedures (see Figure VII-2), noisy construction activities are restricted to hours between 7:00 AM and 6:00 PM, from Monday through Friday, and exclude certain holidays. Noisy construction activities are normally restricted to the hours of 9:00 AM to 6:00 PM on Saturdays, with construction not permitted on Sundays. These restrictions minimize construction noise impacts on noise sensitive receptors (such as residences) along the roadway project corridor, and have generally been successfully applied. In this way, construction noise impacts on noise sensitive receptors can be minimized.

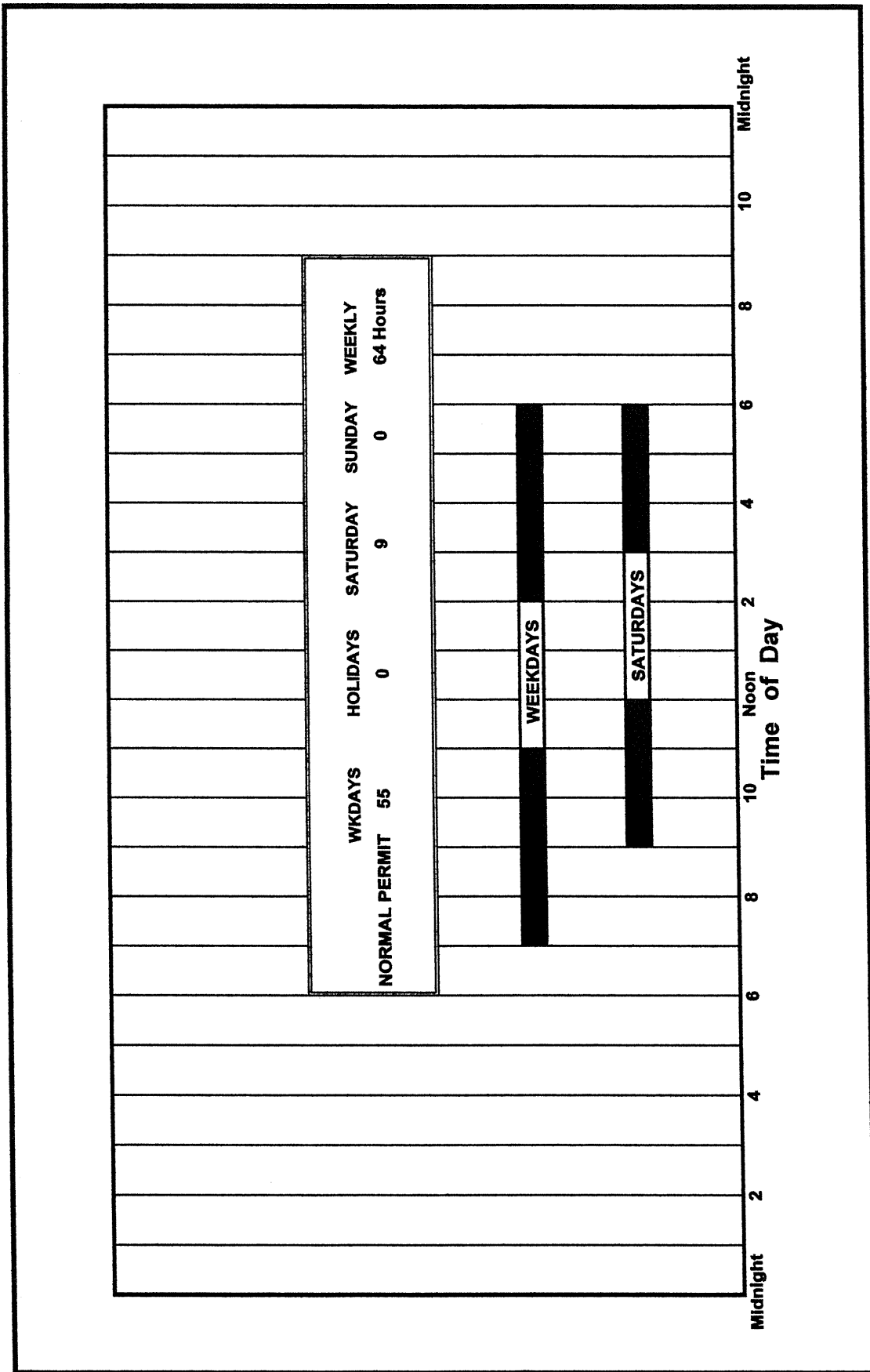
Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work and due to the administrative controls available for its regulation. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project work areas.

In addition to the anticipated application of State DOH noise permit requirements and procedures during noisy construction activities, the use of quieted portable engine generators and diesel equipment should be specified for use within 500 FT of noise sensitive properties. Heavy truck and equipment staging areas should also be located at areas which are at least 500 FT from noise sensitive properties whenever possible. Truck routes which avoid residential communities should be identified wherever possible.



**ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE**

**FIGURE VII-1**



**FIGURE VII-2**

**AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE**

## APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.

(2) American National Standard, "Sound Level Descriptors for Determination of Compatible Land Use," ANSI S12.9-1998/ Part 5; Acoustical Society of America.

(3) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.

(4) "Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety;" U.S. Environmental Protection Agency; EPA 550/9-74-004; March 1974.

(5) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.

(6) "FHWA Highway Traffic Noise Model User's Guide;" FHWA-PD-96-009, Federal Highway Administration; Washington, D.C.; January 1998 and Version 2.5 Upgrade (April 14, 2004).

(7) Keauhou Bay Management Plan: Mobility Analysis Report (Draft); Fehr & Peers; January 4, 2022.

(8) 24-Hour Traffic Counts, Station B71018600600, Alii Drive Between Kaluna Street and Kaleiopapa Street; State Department of Transportation; January 8-9, 2019.

## APPENDIX B

### EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

#### Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

#### Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

#### Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

## APPENDIX B (CONTINUED)

TABLE I  
A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

<u>TERM</u>	<u>SYMBOL</u>
1. A-Weighted Sound Level	$L_A$
2. A-Weighted Sound Power Level	$L_{WA}$
3. Maximum A-Weighted Sound Level	$L_{max}$
4. Peak A-Weighted Sound Level	$L_{Apk}$
5. Level Exceeded x% of the Time	$L_x$
6. Equivalent Sound Level	$L_{eq}$
7. Equivalent Sound Level Over Time (T) <sup>(1)</sup>	$L_{eq(T)}$
8. Day Sound Level	$L_d$
9. Night Sound Level	$L_n$
10. Day-Night Sound Level	$L_{dn}$
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$
12. Sound Exposure Level	$L_{SE}$

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is  $L_{eq(1)}$ ). Time may be specified in non-quantitative terms (e.g., could be specified as  $L_{eq(WASH)}$  to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACCOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

## APPENDIX B (CONTINUED)

### TABLE II RECOMMENDED DESCRIPTOR LIST

<u>TERM</u>	<u>A-WEIGHTING</u>	<u>ALTERNATIVE<sup>(1)</sup> A-WEIGHTING</u>	<u>OTHER<sup>(2)</sup> WEIGHTING</u>	<u>UNWEIGHTED</u>
1. Sound (Pressure) <sup>(3)</sup> Level	$L_A$	$L_{pA}$	$L_B, L_{pB}$	$L_p$
2. Sound Power Level	$L_{WA}$		$L_{WB}$	$L_W$
3. Max. Sound Level	$L_{max}$	$L_{Amax}$	$L_{Bmax}$	$L_{pmax}$
4. Peak Sound (Pressure) Level	$L_{Apk}$		$L_{Bpk}$	$L_{pk}$
5. Level Exceeded x% of the Time	$L_x$	$L_{Ax}$	$L_{Bx}$	$L_{px}$
6. Equivalent Sound Level	$L_{eq}$	$L_{Aeq}$	$L_{Beq}$	$L_{peq}$
7. Equivalent Sound Level <sup>(4)</sup> Over Time(T)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8. Day Sound Level	$L_d$	$L_{Ad}$	$L_{Bd}$	$L_{pd}$
9. Night Sound Level	$L_n$	$L_{An}$	$L_{Bn}$	$L_{pn}$
10. Day-Night Sound Level	$L_{dn}$	$L_{Adn}$	$L_{Bdn}$	$L_{pdn}$
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12. Sound Exposure Level	$L_S$	$L_{SA}$	$L_{SB}$	$L_{Sp}$
13. Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15. Average $L_x$ Value	$L_x$	$L_{Ax}$	$L_{Bx}$	$L_{px}$

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is  $L_{eq(1)}$ ). Time may be specified in non-quantitative terms (e.g., could be specified as  $L_{eq(WASH)}$  to mean the washing cycle noise for a washing machine.



**APPENDIX C**

**SUMMARY OF BASE YEAR AND YEAR 2035 TRAFFIC VOLUMES  
DURING WEEKDAY AM AND PM PEAK HOURS**

ROADWAY LANES	**** CY 2021 ****		CY 2035 (NO BUILD)		CY 2035 (BUILD)	
	AM	PM	AM	PM	AM	PM
Alii Drive NW of Kamehameha III Rd. (NB)	356	260	430	310	465	384
Alii Drive NW of Kamehameha III Rd. (SB)	213	419	260	490	320	556
Two-Way	569	679	690	800	785	940
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St. (NB)	397	304	465	365	487	401
Alii Drive Between Kamehameha III Rd. & Kaleiopapa St. (SB)	293	480	350	565	376	600
Two-Way	690	784	815	930	863	1,001
Alii Drive South of Kaleiopapa St. (NB)	383	240	450	290	475	317
Alii Drive South of Kaleiopapa St. (SB)	226	397	270	470	284	500
Two-Way	609	637	720	760	759	817
Kamehameha III Rd. NE of Alii Dr. (NB)	165	189	200	230	208	247
Kamehameha III Rd. NE of Alii Dr. (SB)	225	225	270	280	283	296
Two-Way	390	414	470	510	491	543
Kamehameha III Rd. SW of Alii Dr. (NB)	46	62	70	80	107	159
Kamehameha III Rd. SW of Alii Dr. (SB)	66	67	90	100	153	171
Two-Way	112	129	160	180	260	330
Kamehameha III Rd. North of Holua Rd. (NB)	23	31	40	50	77	129
Kamehameha III Rd. North of Holua Rd. (SB)	33	33	50	50	113	121
Two-Way	56	64	90	100	190	250
Kamehameha III Rd. South of Holua Rd. (NB)	21	28	40	50	22	24
Kamehameha III Rd. South of Holua Rd. (SB)	30	30	50	50	18	19
Two-Way	51	58	90	100	40	43
Holua Road West of Kamehameha III Rd. (EB)	4	5	20	20	20	20
Holua Road West of Kamehameha III Rd. (WB)	5	5	20	20	20	20
Two-Way	9	10	40	40	40	40
Old Kona Road East of Kamehameha III Rd. (EB)	N/A	N/A	N/A	N/A	95	102
Old Kona Road East of Kamehameha III Rd. (WB)	N/A	N/A	N/A	N/A	55	105
Two-Way	N/A	N/A	N/A	N/A	150	207
Kaleiopapa St. West of Alii Dr. (EB)	49	118	60	150	80	192
Kaleiopapa St. West of Alii Dr. (WB)	102	124	130	160	165	198
Two-Way	151	242	190	310	245	390
Kaleiopapa St. SE of Ehukai St. (NB)	51	62	70	80	105	118
Kaleiopapa St. SE of Ehukai St. (SB)	24	59	40	80	60	122
Two-Way	75	121	110	160	165	240

**APPENDIX C (CONTINUED)**

**SUMMARY OF BASE YEAR AND YEAR 2035 TRAFFIC VOLUMES  
DURING WEEKDAY AM AND PM PEAK HOURS**

ROADWAY LANES	**** CY 2021 ****		CY 2035 (NO BUILD)		CY 2035 (BUILD)	
	AM	PM	AM	PM	AM	PM
Kaleiopapa St. N of Ehukai St. (NB)	42	51	60	70	18	19
Kaleiopapa St. N of Ehukai St. (SB)	21	49	40	70	22	24
Two-Way	63	100	100	140	40	43
Ehukai St. West of Kaleiopapa St. (EB)	7	14	20	30	28	48
Ehukai St. West of Kaleiopapa St. (WB)	13	15	30	30	55	61
Two-Way	20	29	50	60	83	109
Old Kona Road East of Kaleiopapa St. (EB)	N/A	N/A	N/A	N/A	52	58
Old Kona Road East of Kaleiopapa St. (WB)	N/A	N/A	N/A	N/A	30	70
Two-Way	N/A	N/A	N/A	N/A	82	128

Appendix K

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# **Economic Impact Report**



**FINAL**  
**Economic Impact Report for the Keauhou Bay Management Plan**  
**May 2022**

**Prepared for:**  
Kamehameha Schools

**Prepared by:**  
Environment & Economics LLC

## EXECUTIVE SUMMARY

This Economic Impact Report was conducted to assess the economic impacts that the proposed Keauhou Bay Management Plan would have on the economy of the County of Hawai'i and the fiscal revenue of the State of Hawai'i and County of Hawai'i governments. Potential economic and fiscal impacts are assessed for the construction phase and operations phase of the project.

Table ES-1 shows that over the course of the construction phase of the project, a total of 1,484 jobs would be generated or sustained. Approximately \$83.5 million in labor income would be generated through that employment, and total economic output over the construction phase would be approximately \$192 million.

**Table ES-1. Economic Impacts, Short-term (Construction), 2022 \$s**

Impact Type	Total Jobs	Labor Income	Economic Output
Direct	1,061	\$65,211,141	\$126,648,581
Indirect and Induced	423	\$18,302,693	\$65,833,043
<b>Totals</b>	<b>1,484</b>	<b>\$83,513,834</b>	<b>\$192,481,624</b>

Table ES-2 shows that, on an annual basis, for the life of the project, a total of 159 jobs would be generated or sustained. Approximately \$8.0 million in labor income would be generated through that employment and total economic output, on an annual basis, would be approximately \$24.5 million.

**Table ES-2. Economic Impacts, Long-term (Annual Operations), 2022 \$s**

Impact Type	Total Jobs	Labor Income	Economic Output
Direct	113	\$5,982,529	\$17,851,607
Indirect and Induced	46	\$1,993,282	\$6,648,586
<b>Totals</b>	<b>159</b>	<b>\$7,975,811</b>	<b>\$24,500,193</b>

Table ES-3 shows estimated fiscal impacts, for both phases of the project, in terms of revenue to the State of Hawai'i and County of Hawai'i governments. The State of Hawai'i would accrue approximately \$7.4 million in revenue due to project construction while the County of Hawai'i would accrue about \$2.4 million. On an annual basis, from project operations, the State of Hawai'i would accrue approximately \$2.5 million per year, while the County of Hawai'i would accrue approximately \$2.7 million per year.

**Table ES-3. Fiscal Impacts, 2022 \$s**

Project Phase	State of Hawai'i Government Revenue	County of Hawai'i Government Revenue
Short-term (construction)	\$7,420,953	\$2,442,377
Long-term (annual operations)	\$2,520,082	\$2,667,022

# Economic Impact Report for the Keauhou Bay Management Plan

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## Abbreviations and Acronyms

<b>Acronym</b>	<b>Definition</b>
%	percent
\$s	dollars
EIR	Economic Impact Report
GET	General Excise Tax
IMPLAN	Impact Analysis for Planning
KBMP	Keauhou Bay Management Plan
KS	Kamehameha Schools
RevPar	Revenue Per Available Room
ROI	Region of Influence

# 1 Introduction

Keauhou Bay is a small bay along the Kona Coast, traditionally known as a place of ali‘i residence and of pastimes such as hōlua sledding and surfing. Keauhou Bay is perhaps most well known as the birth site and resuscitation site of Kauikeaouli Kaleiopapa Kuakamanolani Mahinalani Kalaninuiwaiakua Keaweawe‘ulaokalani, also known as Kamehameha III, who was the son of Kamehameha ‘Ekahi and Keōpūolani. Today, kama‘āina and visitors alike recognize the historical significance of Keauhou Bay relative to the birth of this significant Hawaiian leader while also enjoying the area as a popular ocean recreation and resort destination.

The bay is highly used by residents, visitors, and community groups, which creates congestion and competing interests. Kamehameha Schools (KS), as a major landowner of approximately 54 acres at Keauhou Bay, started developing a management strategy in 2018 to address some of the challenges that have resulted from these multiple uses that sometimes conflict with one another in a relatively confined geographical space.

This Economic Impact Report (EIR) was conducted to assess and report on the impacts that the proposed Keauhou Bay Management Plan (KBMP) would have on the County of Hawai‘i economy where the project would be developed. Additionally, fiscal benefits to both the County of Hawai‘i and State of Hawai‘i governments are presented.

Estimated impacts are provided for the two major phases of the project: 1) construction, and 2) operations. Construction estimates assess impacts related to the construction of parking and boat storage, vendor kiosks, a canoe club, improvements to Old Kona Road, a new boutique resort hotel, the renovation of existing facilities that would be used for cultural education, as well as retail and restaurant space. Operations estimates assess impacts related to the boutique hotel, cultural education activities, and retail and restaurant operations.

Impacts are presented in terms of jobs, labor income, economic output, State of Hawai‘i government revenue, and County of Hawai‘i government revenue. Results are presented on a year 2022 constant dollar basis. Primary input data for the analysis were provided by KS, in the form of various planning documents, and estimated impacts were calculated using the Impact Analysis for Planning (IMPLAN) economic model.

## 2 Approach to Analysis

### 2.1 Region of Influence

The Region of Influence (ROI) considered in this EIR is the County of Hawai‘i, which is the location of the proposed project. All fiscal impacts that would accrue to the State of Hawai‘i government are those that would be generated by economic activity that would take place within the County of Hawai‘i. Some economic benefits may spill over into locations outside of the ROI, as workers are likely to spend portions of their income elsewhere, such as Maui, Honolulu, and Kauai Counties but these potential spill-over effects would likely be minimal and are not captured in this report.

### 2.2 Input Data and Modeling Procedures

The IMPLAN model is an input-output modeling application, which develops detailed data sets at various levels of geography on an annual basis (IMPLAN, 2022); it is the current industry standard for economic modeling. The data that were input into the IMPLAN model are presented below in Section 2.2.1 and Section 2.2.2 and generally include: construction expenditures, direct employment at retail, restaurant, and educational facilities, and projected hotel revenue.

Primary data on construction expenditures were derived from a 2021 construction cost estimate, which listed expenditures at an individual project level of detail and the associated types of construction activity (Juno & Associates, 2021).

The Juno & Associates estimate also provided information on commercial square footage, which was used in conjunction with information from the U.S. Energy Information Agency to develop estimates of direct employment at retail, restaurant, and educational facilities. Projected hotel revenue was estimated using information from the Hawai‘i Department of Business Economic Development and Tourism (DBEDT) and a feasibility study for the hotel (CBRE Inc., 2017).

#### 2.2.1 Construction Inputs

Table 2-1 shows how estimated KBMP construction expenditures were applied to the IMPLAN model, as industry output, to calculate economic impacts for the construction phase. Project expenditures input under IMPLAN code 55 include, among other projects, construction of the boutique hotel and retail and restaurant space. Expenditures related to improvements to Old Kona Road were input under IMPLAN code 62. Expenditures related to development of open space were input under IMPLAN code 477, and expenditures related to renovation of space for cultural educational activities were input under IMPLAN code 60.

**Table 2-1. Construction Inputs, 2021 \$s**

IMPLAN Sector Description	IMPLAN Code	Estimated Expenditure <sup>1</sup>
Construction of new commercial structures	55	\$108,237,000
Maintenance and repair of Highways, streets, and related work	62	\$9,299,000
Landscaping and Horticultural services	477	\$6,208,000
Maintenance and repair construction of nonresidential structures	60	\$481,000
<b>Total</b>		<b>\$124,225,000</b>

Source<sup>1</sup>: Juno & Associates, 2021

### 2.2.2 Operations Inputs

Operational inputs for retail, restaurant, and cultural education activities include estimates of direct employment, which were calculated based on the planned square footage for those facilities (Juno & Associates, 2021) in conjunction with square footage per worker data from the U.S. Energy Information Administration (2021).

Table 2-2 shows the type of facility, planned square footage for each type, the U.S. Energy Information Administration estimate of square footage per worker, the estimated number of direct employees at each facility (as calculated based on facility square footage and the square footage per worker factor), and the IMPLAN code and description that each of the categories of direct workers were input into.

**Table 2-2. Operations Inputs, Estimated Direct Employment**

Facility Type	Square Footage <sup>1</sup>	Square Footage per Worker Factor <sup>2</sup>	Direct Employment (calculated)	IMPLAN Code	IMPLAN Sector Description
Retail	7,200	922	8	412	Miscellaneous store retailers
Restaurant	1,950	500	4	509	Full-service restaurants
Cultural Education	4,600	1,064	4	482	Other Educational Services

Source<sup>1</sup>: Juno & Associates, 2021

Source<sup>2</sup>: U.S. Energy Information Administration, 2021

Table 2-3 shows data used to calculate projected hotel revenue along with the IMPLAN code and description that the revenue figure was input into. Inputs for hotel operations were developed by estimating annual operational revenue based on the number of planned rooms (150) and projected revenue per available room (RevPar). RevPar (\$300 per room, per day) was estimated based on 2021 RevPar data from DBEDT (2021) in conjunction with data from the CBRE Inc. (2017) feasibility study.

**Table 2-3. Operations Inputs, Estimated Hotel Revenue, 2021 \$\$**

Variable	Data Point	IMPLAN Code	IMPLAN Description
RevPar <sup>1</sup>	\$300		
Rooms <sup>2</sup>	150		
Days	365		
Annual Revenue (Calculated)	\$16,425,000	507	Hotels and motels, including casino hotels

Sources<sup>1</sup>: DBEDT, 2021 and CBRE Inc., 2017.

Source<sup>2</sup>: Juno & Associates 2021.

### 2.3 Economic Result Variables

Economic variables that are presented as results include jobs, labor income, and economic output. Each of these variables consists of a direct, indirect, and induced element. Estimated results for the variables were calculated by the IMPLAN model using the input data described above in Section 2.2. Increases in the result variables are generally considered beneficial as they tend to be associated with higher living standards.

Direct impacts are associated with the proposed project itself and include workers directly associated with initial project-related expenditures, the incomes earned by those workers, and the economic output generated by these initial project-related expenditures.

Indirect impacts are generated by the businesses that would supply goods and services that would facilitate various aspects of the project. Indirect jobs include jobs at companies that supply goods and services that support direct activities. Indirect jobs extend to include jobs related to the manufacture of products, to the extent that activity may occur in the County of Hawai'i. Indirect labor income includes the income earned by people working indirect jobs. Indirect economic output includes the total sales volume related to the supply of goods and services net intermediate purchases.

Induced impacts are the result of spending of the wages and salaries of the direct and indirect workers on items such as food, housing, transportation, and medical services. This spending creates induced employment, labor income, and economic output in nearly all sectors of the economy, especially service sectors.

### **2.3.1 Jobs**

Job impacts represent the number of jobs that would be created or sustained within the ROI as a result of the proposed project. The IMPLAN model generates job numbers that include both full-time and part-time jobs including jobs that may be short-term. Short-term jobs may include, for example, construction trades specialists such as carpenters that may only conduct part of the construction work.

### **2.3.2 Labor Income**

Labor income impacts represent the income generated through the jobs that would be created or sustained as a result of the construction, operations, and other related economic activity in the ROI.

### **2.3.3 Economic Output**

Economic output equals the value of production by various industries in the ROI in a calendar year. It can also be described as annual revenue plus net inventory change.

## **2.4 Fiscal Result Variables**

Fiscal variables include State of Hawai'i government revenue and County of Hawai'i government revenue. Each of these consist of multiple sources of revenue as described below in Section 2.4.1 and Section 2.4.2. Increases in government revenue are generally considered beneficial as revenue can be used by governments to fund public services and capital expenditures. Also, when governments spend the revenue that they receive from the project, additional jobs, labor income, and economic output would be generated; however, potential effects of government expenditures are not captured in this EIR.

### **2.4.1 State of Hawai'i Government Revenue**

Revenue that would be accrued by the State of Hawai'i government as a result of construction and operations are presented in four categories: 1) General Excise Tax (GET) and Use Tax, 2) Corporate Profits Tax, 3) Personal Income Tax, and 4) Other. Estimates were calculated by the IMPLAN model based on incomes, spending of incomes, and industry expenditures.

### 2.4.2 County of Hawai'i Revenue

Revenue that would be accrued by the County of Hawai'i government as a result of construction and operations of the project are presented in two categories: 1) Property Tax, and 2) Other. Estimated property tax was calculated by the IMPLAN model based on additional property tax revenue associated with income from project-related jobs and additional economic activity. Other revenue to the County of Hawai'i calculated by the IMPLAN model include, but are not limited to, sales tax revenue and revenue from licenses and fees.

Property tax revenue associated with the KBMP site was estimated using data from the County of Hawai'i (2022) on property tax rates and historic property value at the site, in conjunction with data on KBMP construction expenditures. Historic property value for the site (approximately \$15.5 million) was added to the value of new construction (approximately \$124 million) and the sum was multiplied by a weighted (commercial and hotel) property tax rate of 1.14%.

### 3 Economic Results

#### 3.1 Construction

##### 3.1.1 Jobs

Table 3-1 shows that over the construction period there would be an estimated total of 1,484 jobs generated or sustained from project construction – 1,061 of the jobs would be direct, 135 indirect, and 288 induced.

**Table 3-1. Jobs, Total**

	Overall Total
Direct	1,061
Indirect	135
Induced	288
<b>Total</b>	<b>1,484</b>

##### 3.1.2 Labor Income

Table 3-2 shows that over the construction period there would be an estimated total of \$83.5 million in labor income generated or sustained from project construction – \$65.2 million would be direct, \$6.2 million indirect, and \$12.1 million induced.

**Table 3-2. Labor Income, Total (2022 \$s)**

	Overall Total
Direct	\$65,211,141
Indirect	\$6,216,235
Induced	\$12,086,458
<b>Total</b>	<b>\$83,513,834</b>

##### 3.1.3 Economic Output

Table 3-3 shows that over the construction period, there would be an estimated total of \$192.5 million in economic output generated or sustained from project construction – \$126.6 million would be direct, \$23.5 million indirect, and \$42.4 million induced.

**Table 3-3. Economic Output, Total (2022 \$s)**

	Overall Total
Direct	\$126,648,581
Indirect	\$23,481,810
Induced	\$42,351,233
<b>Total</b>	<b>\$192,481,624</b>

## 3.2 Operations

### 3.2.1 Jobs

Table 3-4 shows that there would be an estimated total of 159 jobs generated or sustained from project operations annually – 113 of the jobs would be direct, 19 indirect, and 27 induced. These jobs would primarily be in service industries such as the hotel industry (e.g., building maintenance and clerks), retail industry (e.g., retail sales), and restaurant industry (e.g., food and beverage service and cooks).

**Table 3-4. Jobs, Annual**

	Annual Total
Direct	113
Indirect	19
Induced	27
<b>Total<sup>2</sup></b>	<b>159</b>

### 3.2.2 Labor Income

Table 3-5 shows that there would be a total increase of \$8.0 million in labor income generated or sustained from project operations annually – \$6.0 million of the labor income would be direct, \$0.8 million indirect, and another \$1.2 million induced.

**Table 3-5. Labor Income, Annual (2022 \$s)**

	Annual Total
Direct	\$5,982,529
Indirect	\$844,348
Induced	\$1,148,934
<b>Total</b>	<b>\$7,975,811</b>

### 3.2.3 Economic Output

Table 3-6 shows that there would be a total increase of \$24.5 million in economic output generated or sustained from project operations annually – \$17.9 million of the economic output would be direct, \$2.6 million indirect, and another \$4.0 million induced.

**Table 3-6. Economic Output, Annual (2022 \$s)**

	Annual Total
Direct	\$17,851,607
Indirect	\$2,623,072
Induced	\$4,025,515
<b>Total</b>	<b>\$24,500,193</b>



## 4 Fiscal Results

### 4.1 Construction

Table 4-1 shows that over the construction period there would be a total of approximately \$7.4 million in State of Hawai'i government revenue generated or sustained from project construction. The majority of this revenue (\$4.9 million) would be generated through GET & Use taxes.

**Table 4-1. State of Hawai'i Government Revenue, Total (2022 \$s)**

Tax Category	Total
GET & Use	\$4,902,115
Corporate Profit	\$91,850
Personal Income	\$2,141,382
Other	\$285,606
<b>Total</b>	<b>\$7,420,953</b>

Table 4-2 shows that over the construction period there would be a total of approximately \$2.4 million in County of Hawai'i government revenue generated or sustained from project construction. The majority of this revenue (\$2.1 million) would be generated through property taxes.

**Table 4-2. County of Hawai'i Government Revenue, Total (2022 \$s)**

Tax Category	Total
Property	\$2,078,939
Other	\$363,438
<b>Total</b>	<b>\$2,442,377</b>

## 4.2 Operations

Table 4-3 shows that there would be a total of approximately \$2.5 million in State of Hawai‘i government revenue generated or sustained from project operations, annually. The majority of this revenue (\$2.2 million) would be generated through GET and Use taxes.

**Table 4-3. State of Hawai‘i Government Revenue, Annual (2022 \$s)**

Tax Category	Annual Total
GET & Use	\$2,176,415
Corporate Profit	\$36,682
Personal Income	\$207,996
Other	\$98,989
<b>Total</b>	<b>\$2,520,082</b>

Table 4-4 shows that there would be a total of approximately \$2.7 million in County of Hawai‘i government revenue generated or sustained project operations, annually. The majority of this revenue (\$2.5 million) would be generated through property taxes, including annual payments of an estimated \$1.6 million for the KBMP site itself.

**Table 4-4. County of Hawai‘i Government Revenue, Annual (2022 \$s)**

Tax Category	Annual Total
Property <sup>1</sup>	\$2,522,997
Other	\$144,025
<b>Total</b>	<b>\$2,667,022</b>

Note<sup>1</sup>: Includes estimated annual on-site property tax revenue of \$1,600,000.

## 5 Summary

The proposed KBMP would generate economic benefits for residents of the County of Hawai‘i and improve the fiscal position of the County and the State of Hawai‘i, both in the short-term and long-term. In the short-term, construction activity would generate employment and income in construction and related industries, while providing an overall boost to the local economy in terms of economic output. Also, in the short-term, State and County revenue would increase by millions of dollars due to the proposed project, allowing for those governments to fund infrastructure and other improvements that could benefit the community for years to come. Long-term economic benefits would also include increases in employment and income, in service sectors, and provide an expanded base for tourism and cultural education in the County. Annual fiscal revenue derived from KBMP operations would allow the State and County to maintain or improve vital public services (e.g., police and fire protection services) for the benefit of the community.

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