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Technical Memorandum

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Limitations:

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Section 1: Introduction

The County of Maui Department of Parks and Recreation (DPR) is developing an adaptation plan to address Hoaloha Park (Park) vulnerabilities to climate change. The Park is a small urban waterfront park located along Ka'ahumanu Avenue in the town of Kahului on the island of Maui. Used for Hawaiian outrigger canoe paddling, fishing, surfing, and other beach park related activities, including general tourism, the Park's location makes it particularly susceptible to climate influenced coastal hazards such as sea-level rise, coastal wave run-up, and coastal erosion. This memorandum summarizes existing site conditions on a watershed and site-specific scale. The objective of this memorandum is to document existing conditions at the site including natural site features such as topography, drainage, soil, flora, and fauna, and other environmental features.



Figure 1.1 Hoaloha Park Entry Sign (Brown and Caldwell)

The information summarized in this document is to serve as a reference for planning adaptation strategies for the park facilities to ensure the Park remains a public asset, an accessible and usable amenity for the public. This report will evaluate and identify major vulnerabilities of the existing site to climate influenced coastal hazards. Information from this technical memorandum will support the Hoaloha Park Adaptation Plan being prepared by SSFM International, Inc. on behalf of the County of Maui, Department of Parks and Recreation. Additional modeling and analysis of climate vulnerabilities will be conducted by Integral Consulting Inc.

Section 2: Site Uses

Hoaloha Park is the primary urban waterfront park in Central Maui. Climate change adaptation and implementation planning is critical to ensure the Park remains an accessible and functional asset for public use. As such, it is important to identify and understand the users and their activities when evaluating the existing site and infrastructure and the potential vulnerabilities to climate change. Figure 2.1 shows the location of Hoaloha Park, Kahului, Hawai'i.





Figure 2.1 Location Map (Brown and Caldwell)

2.1 Site Functions

Site function is centered around recreational uses related to the park. Current site uses include gathering and launching for outrigger canoe clubs and regattas, other recreational ocean uses such as surfing, wing-foiling, paddleboarding, as well as tourist beach access and fishing.

2.2 Site Users

The site provides water access to a wide variety of users. Hawaiian Canoe Club (HCC) and Nā Kai ‘Ewalu (NKE) Canoe Club are heavy users of the park for launching and gathering, and each have a canoe hale based in the park.

Several high schools use the canoe club facilities and park for launching and training. During the winter months, the high school Maui Interscholastic League (MIL) utilizes the park for outrigger paddling regattas; additionally, Maui Paddling Hui (MPH) conducts their long-distance races for paddleboarding and single-man outrigger canoes from the park. Annually, Hawai‘i Sailing Canoe Association (HSCA) launches races from the park shoreline. During the summer months the park is used by the Maui County Hawaiian Canoe Association (MCHCA) for multiple 6-man club regattas.



In addition to outrigger paddling, several activities occur at the site. These include surfing, wing-foiling, swimming, fishing, and general beach access. Tourists travelling from the port via cruise ship dockings and from the Seaside Hotel also use the park for recreation. Figure 2.2 through Figure 2.5 reflect the various type of park users. A survey and park user profile are being conducted by other project team members to further understand the park uses and user concerns.



Figure 2.2 Maui County Hawaiian Canoe Racing Association Summer Regatta (808photo.me)



Figure 2.3 Paddle Board and Sailing Users (808photo.me)



Figure 2.4 Wing Foiling inside Harbor water (808photo.me)



Figure 2.5 Fishing (808photo.me)

Section 3: Watershed

Considerations and contextualization of the site within the watershed scale are evaluated within this section to understand the existing conditions of the site and its potential vulnerabilities to climate hazards. For the purposes of this study, the Wailuku Ahupua’a is considered the watershed in which Hoaloha Park exists.

3.1 Location

Hoaloha Park is located in Central Maui on the north shore and within the traditional Hawaiian geographical area known as the Wailuku Ahupua’a (see in Figure 3.1), which is significant in terms of natural resources, land management, and Hawaiian cultural history. Historical and cultural aspects are being looked at in another analysis by Nohopapa Hawai’i.

Under the traditional Hawaiian land division system, each island was divided into large sections from mauka to makai called moku. On the island of Maui, there are a total of 12 moku. Generally, streams and allocation of resources subdivided the moku into narrower wedges known as ahupua’a. Wailuku ahupua’a spans seven miles of coastline, from the Wailuku River to Kailua Nui Gulch at Baldwin Beach Park and includes Kahului Harbor and Hoaloha Park.



Figure 3.1 Maui Island with Ahupua’a boundaries (County of Maui)



Before European contact, much of modern Kahului was low-lying wetlands comprised of Hawaiian villages and lo'i (taro patches) irrigated by the Wailuku River. The streams, lo'i, and wetlands carried abundant freshwater into Kahului Bay, creating an estuarine ecosystem and a healthy fish nursery habitat. Figure 3.2 is a typical Wailuku Ahupua'a sign found along the roadways of the area.



Figure 3.2 Wailuku Ahupua'a Signage (County of Maui)

Kahului is a mix of urban, suburban, and rural land uses, with additional areas for open space or parks. However, the area immediately surrounding the park is predominately a business and industrial center and is intended to provide a range of goods and services for the community.

Kahului Harbor and Airport are major land uses along the Kahului shoreline. As major ports of entry for people and goods, they serve as an important center of jobs and economic activity. Wailuku-Kahului is also the cultural center of Maui Island. Major facilities include Maui Community College, the War Memorial Center, community theaters, major sports facilities, and the central Keōpūolani Park, which are all within less than a mile of the park.

Elevations range from sea level to 2500 feet at the highest points in Iao Valley. At the most extreme, terrain slopes within the watershed exceed 20 percent. Generally, however, slopes in the area are approximately 10 percent in the mauka areas, and less than one percent in low-lying coastal areas. Figure 3.3 depicts the variety of topography around Kahului Harbor. Soils conditions within the watershed range from sandy loam to silty or gravelly silty clay but are generally considered moderate to well drained near and around Kahului Harbor. Two major streams, Wailuku River (Iao Stream) to the northwest and Kaliainui Gulch to the northeast, flow mauka to makai and discharge to the ocean outside of Kahului Harbor.

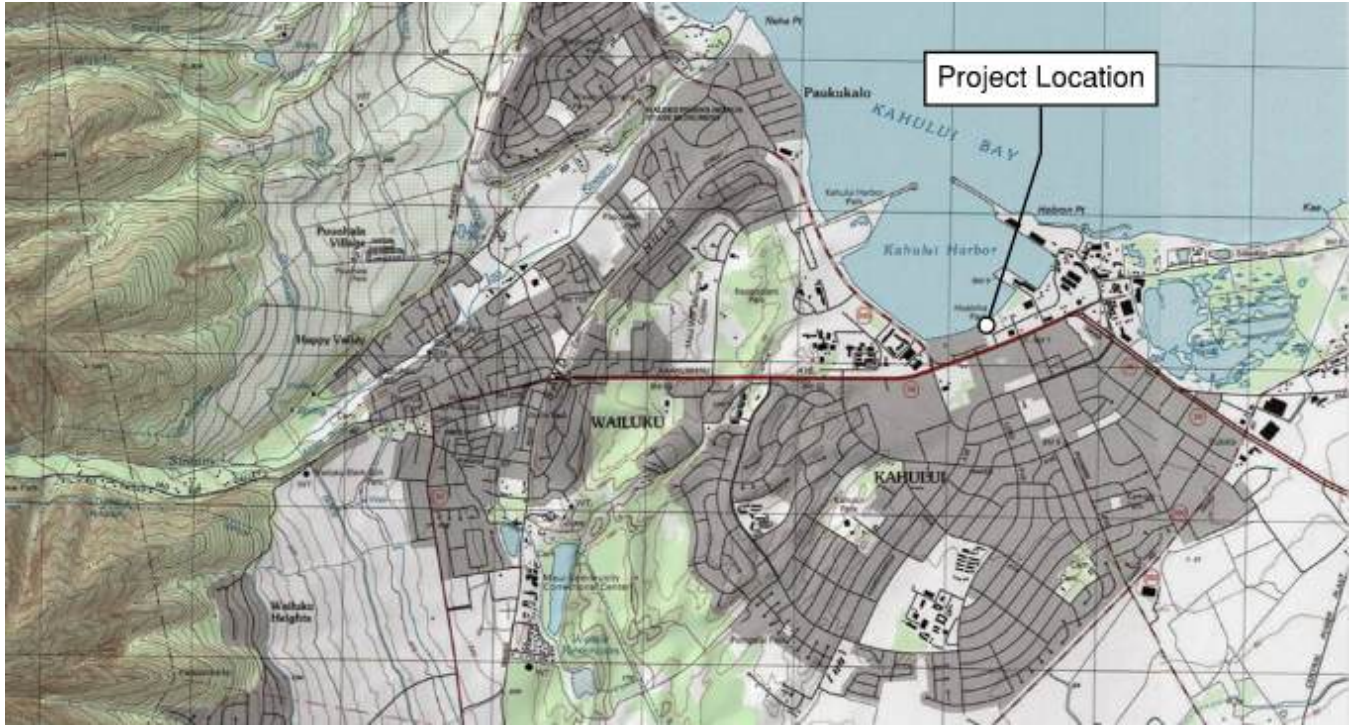


Figure 3.3 U.S. Geological Survey Wailuku (USGS)

3.2 Hazard History

Flooding

During heavy rains, certain areas of Kahului, which are adjacent or near the park, are subject to regular flooding. Due to inadequate storm drainage facilities, major flooding problems occur in Kahului along Ka’ahumanu Avenue and Pu’unene Avenue, as far south as Wakea Avenue. The flooding problems create hazardous driving conditions, which may negatively impact user and emergency access to the park. The major perennial or intermittent streams within the watershed run mauka to makai, but do not convey to or near Kahului Harbor or the park. Therefore, streams are not considered as a potential source of flooding for the park.

Tsunamis (seismic threat included based on local relevance)

Tsunamis are a seismic threat to the Hawaiian Islands and tsunamis can be exacerbated by climate change-related threats. The Hawaiian Islands have experienced the effects of tsunamis at least 85 times since the early 1800s. The largest of these occurred on April 1, 1946, affected all of the Hawaiian Islands. The most recent tsunami produced by the Tōhoku earthquake in Japan on March 11, 2011, inundated portions of Kahului as far inland as Wakea Ave. Tsunami waves reached Maui approximately 8 hours after the earthquake event and were up to 9 feet high in sections of the Maui coast. The Kahului airport was closed for approximately 10 hours, and several roads were closed temporarily. Damage was limited to localized flooding and to boats moored in the Harbor (Blum).

Hurricanes

Landfalls from hurricanes are rare in Maui due to its geographical location and to ocean currents during seasons that typically produce tropical cyclones. However, there is evidence that climate change, which is increasing ocean temperatures that influence the occurrence of hurricanes, is increasing the likelihood of

hurricanes within the Hawaiian Islands. Since 1950 approximately 30 hurricanes have passed near the islands, none of which have made direct landfall. However, tropical storm systems are common and can lead to heavy precipitation and high winds that may result in damage to buildings, infrastructure, and land.

Fire

While historically considered uncommon in Hawai‘i, wildfires have become increasingly common on Maui particularly during events with significant wind speeds caused by dry hurricanes. On August 8, 2023, Maui County experienced wildfires in both the upcountry region and the historic coastal town of Lahaina. Within Lahaina alone, over 2000 acres of residential and commercial areas burned resulting in the loss of 2000 structures and 101 lives lost. Maui has also experienced a 500% increase in the number of acres burned by wildfires from 2018-2019. Climate change increases the fire risk by driving up temperatures, causing drought and reducing moisture in the land and vegetation, which in combination with strong winds due to hurricanes increases vulnerabilities to wildfires. Separate from climate related wildfires, in 1996, the NKE hale burned down due to arson, and in 2012 the HCC hale was damaged due to arson (Hawaii News Now).

Section 4: Site

The following section summarizes the existing site conditions.

4.1 Location

Hoaloha Park is located on the shoreline of Kahului Harbor, Kahului, Hawai‘i. It is bounded by Kahului Harbor to the north, Maui Seaside Hotel to the west, Café O’Lei and First Hawaiian Bank to the east, and W Ka’ahumanu Ave. to the south. Akamai Motors, a used car dealership, is also located adjacent to the park at the Ka’ahumanu frontage. Figure 4.1 details the three parcels that form the park site.

4.2 The Site

The site consists of three parcels owned by Maui County. The primary parcel, Tax Map Key (TMK) 3-7-008:017 of approximately 2.11 acres, is in the makai portion of the site bordered by the shoreline of Kahului Harbor to the north and Café O’Lei to the east. In 2022, the County acquired from A&B Properties, two additional parcels: a west parcel, TMK 3-7-003:002 of approximately 1.42 acres, that is bordered by Kahului Harbor shoreline to the north, Maui Seaside Hotel to the west, and Akamai Motors to the south; and a mauka parcel, TMK 3-7-008:008 of approximately 1.48 acres that is bordered by Ka’ahumanu Avenue to the south. The west parcel has existing easements at the southern portion of the parcel at the Maui Seaside Hotel Parking which are excluded from the total park project area, the approximate area of the project area is 0.82 acres. The three parcels collectively define a 4.41-acre area and are referred to as the site in this document. See Table 4-1 for the parcel summary and Figure 4.1 for the site parcel plan. Figure 4.2 is a site survey of parcel 017 conducted by CDF Engineering in 2013.

TMK	Owner	Acres	Notes
3-7-008:017	County of Maui	2.11	Original Hoaloha Park limits
3-7-003:002	County of Maui	0.82	Formerly owned by A&B Hawai‘i, Inc. Dedicated to County in 2022.
3-7-008:008	County of Maui	1.48	Formerly owned by A&B Hawai‘i, Inc. Dedicated to County in 2022.





Figure 4.1 Site Parcel Plan (County of Maui)



Figure 4.2 Site Survey TMK 3-7-008:017, circa 2013 (CDF Engineering)

4.3 Climate

Hoaloha Park is exposed to regular trade winds, which regularly blow in the northeasterly direction between 10 to 20 miles per hour (mph). Kahului town is one the windiest places in the U.S., averaging 13.7 mph per year. Temperature ranges from 70 to 80 degrees Fahrenheit, but the summer months include an average of more than 20 days above 90 degrees. Annual rainfall, mostly occurring between November to February winter months, is approximately 17 inches giving the park a hot semi-arid climate with a dry summer season.

4.4 Topography

The site elevation ranges from 3 feet to 10 feet above mean sea level, where the primary elevation gain occurs along the shoreline boundary at the existing coastal sand dune system. The site elevation peaks on the shoreline boundary at 9 to 10 feet, and then slopes in the southerly direction towards Ka’ahumanu Avenue. Within the site, there are various low spots where ponding may occur such as north of Ka’ahumanu Avenue and north of the Maui Seaside Hotel parking lot. Except for the sand dunes at the shoreline, the site slopes are mild, ranging from 0 to 5 percent. Figure 4.3 represents the site topography.



Figure 4.3 Topographic Map (County of Maui)



4.5 Site Access and Parking

Vehicular access to the park is via Ka’ahumanu Ave at Heterodox View Avenue. Direct vehicle access is limited to Heterodox View Avenue, although vehicle parking is available along Pu’unene Avenue which is immediately east of the neighboring Café O’Lei parcel.

Paved parking with approximately 54 parking stalls, including accessible parking, is provided. Additional overflow parking for events is available in unpaved grassy areas mauka and west of the paved parking. A portion of the west parcel is reserved for Maui Seaside Hotel parking via an easement.

Pedestrian access is feasible by shoreline which is connected to adjacent properties without impediment. From the shoreline, there is approximately one-half mile of connected sandy shoreline on the southeast portion of Kahului Harbor between Pier 2 and the armored shoreline of Kahului Beach Road. Additionally, pedestrian access to the park exists between Café O’Lei and the park near NKE canoe hale. A site layout plan is shown in Figure 4.4 and in Figure 4.5 is a photo of users accessing the beach.

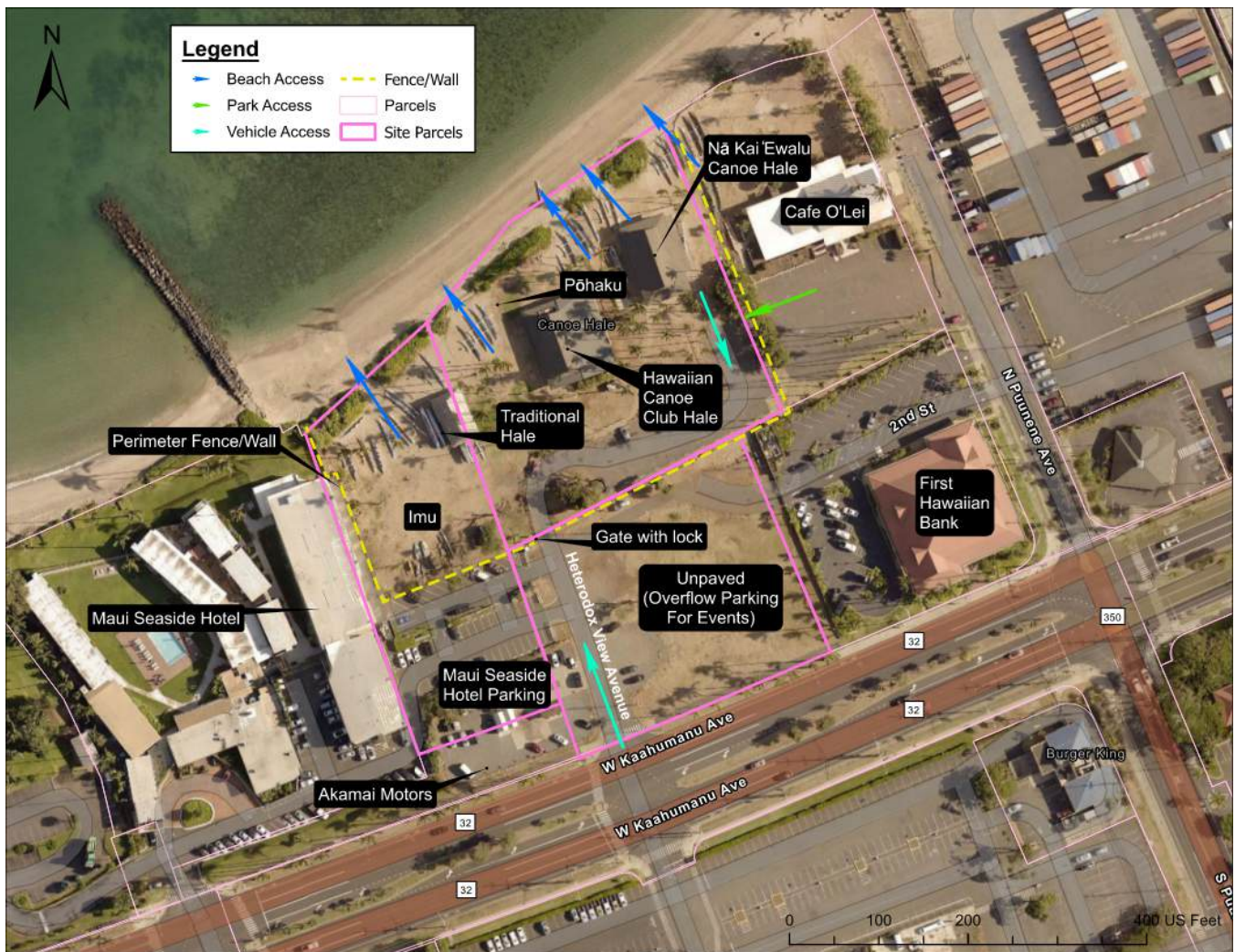


Figure 4.4 Hoaloha Park Site Layout (County of Maui)



Figure 4.5 Users Access to the MIL Regatta at the NKE Hale (Brown and Caldwell)

4.6 Land Use and Regulatory Compliance

Land Use Designation

The County land use zoning for the site is PK for Park or Park District. Areas designated park district are intended to preserve and manage lands for passive and active recreational activities. This district is intending to provide maximum flexibility for the planning and development of park facilities to meet the growing and diverse needs of the community. Generally, these areas are delineated to implement the general plan and community plans of the County and the land use laws of the State. Maui County Code, Chapter 19.27A – Park Districts, specifies the permitted uses and development standards for Park Districts. The land use zoning adjacent to the park include OS for Open Space, H for Hotel, and B for Business/Commercial.

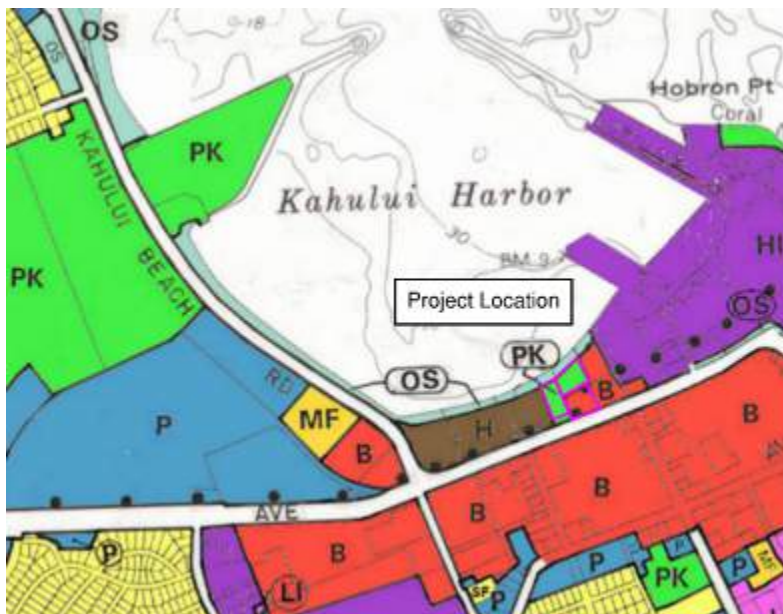


Figure 4.6 Land Use Map (County of Maui)



Special Management Area (SMA)

Review of the County’s SMA maps indicates that the site is situated within the Special Management Area. Management of lands located within the SMA is regulated through the Special Management Area Rules for the Maui Planning Commission. According to the rules, all proposed actions within the SMA are subject to an assessment and determination by the Planning Director. Therefore, consultation with the County Planning Department should be conducted to confirm SMA permitting requirements.

Shoreline Setback Area (SSA)

The site abuts the shoreline and therefore is subject to shoreline setback rules. The SSA is currently proposing revisions to include SLR-influenced erosion rates. Consultation with the County Planning Department should be conducted to confirm requirements and updates.

Jurisdictional Waters of the U.S.

Kahului Harbor is a navigable waterway and is tidally influenced. Adaptation measures applied to the shoreline or in-water would be subject to jurisdiction of the U.S. Army Corps of Engineers (USACE) and permitting requirements.

HRS Chapter 343

The site is owned by the County of Maui. The use of County or State funds and lands requires compliance with the requirements prescribed by Chapter 343, Hawai’i Revised Statutes (HRS). According to the Exemption List of the County of Maui, proposed adaptation measures may fall under an exemption as a general replacement or reconstruction of existing structures and infrastructure if they do not increase nor expand capacity. However, the project may not qualify for HRS 343 exemption if it is located entirely within the SMA. Projects can only be exempt if they are determined to have negligible impact on the environment.

Historic Property Eligibility

Structures over 50 years old are eligible for the National and State Registers of Historic Places. Consultation with the County of Maui Planning Department, and State Historic Preservation Division is recommended for any adaptation project. Additionally, at least one cultural site exists behind the Hawaiian Canoe Club Hale, as shown in Figure 4.7. Historical and cultural aspects are being looked at in another analysis by Nohopapa Hawai’i.



Figure 4.7 Cultural Site 50-50-04-5773 located behind HCC Canoe Hale (Brown and Caldwell)

4.7 Soil Types

Soils on the site are classified as Fd or “fill land” in the United States Department of Agriculture, Natural Resources Conservation District’s National Cooperative Soil Survey (Figure 4.8). The surface soil is identified as cobbly sandy loam and exists to a depth of 30 inches. The soil is sand from 30-60 inches below ground surface, and bedrock at approximately 60-64 inches. Slopes are generally 0 to 3 percent and considered flat. The soils are considered hydrologic soil group B, known to have moderate to high infiltration rate when thoroughly wet. These soils are known to be moderately fine to moderately coarse texture. The shrink-swell potential is low, and the soil is occasionally flooded, but not ponded.



Figure 4.8 Soil Survey Map (USDA)

4.8 Flora and Fauna

The site is not known to inhabit any threatened or endangered species; however, various types of vegetation exist within the site.

Along the shoreline of the site, specifically along the coastal dunes, naupaka is used as an informal hedge between the canoe hales and the beach. Naupaka, one of the most widely used of all native plants at beach parks, requires low maintenance and minimal irrigation. When allowed to grow, naupaka can contribute to prevent erosion and minimize shoreline hardening. Plants can be used as an informal hedge, or as a windbreak against prevailing sea breeze. Figure 4.9 is a photo of the existing naupaka along the coastal dunes that buffer the site from the shoreline. Gaps in hedge reflect access points from the park to the beach.



Figure 4.9 Naupaka hedge at coastal dune (Brown and Caldwell)

Immediately mauka of the naupaka hedges, and in some locations of the coastal dune system, is a combination of Bermuda and ‘Aki‘aki (sea rush) grass. Bermuda and ‘Aki‘aki are known to thrive in coastal areas, but ‘Aki‘aki is an indigenous ground cover that thrives in salty-sunny environments. The grasses are found throughout the site. Figure 4.10 depicts the variety of grass through the site. In addition, the photo on the right shows a traditional Hawaiian pōhaku along the shoreline.



Figure 4.10 Grass variety at the site includes Bermuda, Crab and ‘Aki‘aki (CDF Engineering and Brown and Caldwell)

Other vegetation on the site includes various coconut palm, kukui, milo, monkeypod, and banana trees. The banana trees are likely utilized for traditional Hawaiian cultural practices, including the on-site imu that is used as an underground oven for food preparation.

4.9 Drainage

The site is bordered to the north by Kahului Harbor. There are no other water bodies on the site, nor do any streams, gulches, or drainage channels run through the park. Precipitation falls either directly to pervious areas such as sand, soil, and grass, or drains from impervious areas to pervious areas where it infiltrates to the ground. Soils on the site are considered highly infiltrative. There are no noted drainage collection or conveyance structures on the site; however, during large rain events it is likely that runoff temporarily ponds on site, such as north of Ka’ahumanu Avenue and north of the Maui Seaside Hotel parking lot, or sheet flows in the direction of Ka’ahumanu Avenue where it is collected by the roadway storm drain system.

The site is mapped as a Special Flood Hazard Area (SFHA) by the Federal Emergency Management Agency (FEMA). Flood Insurance Rate Maps (FIRMs) identify the SFHA, which are defined as areas that will be inundated by a flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. Hoaloha Park is in zone VE, which is considered a high-risk coastal zone, where wave action greater than 3 feet in height and fast-moving water can cause extensive damage during a base flood event. Figure 4.11 shows that the site is within the VE coastal hazard zone.



Figure 4.11 FEMA FIRM Map (FEMA)



4.10 Water Quality

Polluted runoff, or nonpoint source pollution, results when stormwater or irrigation water washes pollutants from the land into streams and coastal waters. When it rains, stormwater runoff collects pollutants such as sediment, nutrients from fertilizers, bacteria from animal waste, toxic chemicals, oil, and trash. Since municipal treatment of stormwater is not provided, the polluted runoff either sheet flows to the low-lying coastal areas or is collected and conveyed through a series of pipelines, eventually discharging at shoreline outfalls. Polluted runoff can destroy aquatic habitats and marine life, pose public health risks, and negatively impact Hawai'i's economy and way of life, which rely heavily on water quality.

Brown water advisories are commonly issued for Kahului Harbor after high rain and high surf events. According to the EPA 303(d) list, Kahului Harbor water is considered impaired for Nitrogen, Turbidity and Chlorophyll.

Historically, algae blooms have been a problem in the Kahului Harbor, but water quality improvements reducing pollution to the harbor from non-point and point sources have been made through Department of Health, 1973 National Pollution Elimination System Permitting and Polluted Runoff Control Program. This includes management and enforcement of regulated discharges such as industrial and commercial sites and County and State Municipal separate storm sewer systems (MS4s).

Section 5: Climate Considerations

In this section, the site is reviewed against impacts resulting from climate-related hazards including sea level rise (SLR), flooding, and wildfire. It is anticipated that all these hazards may become more intense and or more frequent with climate change.

5.1 Hazards and Vulnerabilities

Although the purpose of this TM is not to complete a detailed vulnerability assessment, the goal of the TM is to identify potential climate change-related hazard characteristics and impacts on the existing site. TM No. 2 will evaluate the climate hazards further and provide considerations for adaptation.

5.1.1 Fire Hazard

Wildfire data for this risk was made available through the State of Hawai'i, Division of Forestry and Wildlife, which identified at-risk wildland-urban interface communities and provided a risk rating. Wildfire is included as a hazard within this study due to the increasing prominence of wildfire events. These types of hazards are relevant for the operations and maintenance of the park's infrastructure and for potential adaptation considerations. Fire on or adjacent to the site can lead to increased runoff and erosion that may impact flooding around the site. This can also affect water quality at the shoreline and would impact park users by impairing water use due to poor water quality.



Figure 5.1 High Fire Risk (County of Maui)

5.1.2 Flooding Hazards

Sea-level Rise

There are several climate related hazards that may lead to flooding at or adjacent to the site. Two sea-level-rise (SLR) related hazards considered are passive flooding and high wave flooding. Figure 5.2 shows that SLR exposure of 3.2 feet, anticipated at end of the century, will significantly inundate the site. Inundation is likely to extend beyond the existing canoe hale structures and storage, but not as far as the paved parking lot.

Passive flooding includes both marine inundation, flooding of low-lying areas hydrologically connected to the ocean, as well as groundwater inundation. In Hawai'i, groundwater is hydrologically connected to the ocean; as sea level rises groundwater elevations are also expected to rise and inundate or flood locations with low elevation within the site beyond the exposure limits. Figure 5.3 conceptualizes groundwater elevations in relations to sea level.



Figure 5.2 SLR Exposure 3.2 Ft (County of Maui)

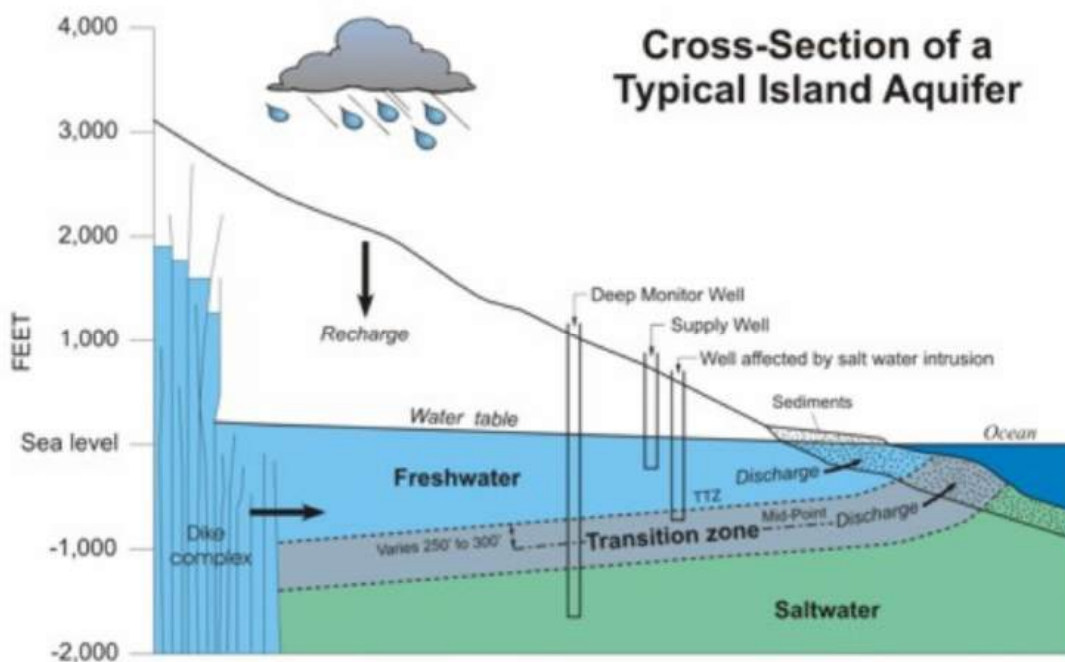


Figure 5.3 Conceptual groundwater elevation in Island environment (State of Hawai'i)



High wave flooding, also known as annual high wave flooding, is the maximum annual significant wave, which can be measured and modeled using peak wave period and direction, and significant wave height. At a SLR exposure of 3.2 feet, figure 5.4 shows that while the park is not expected to be impacted by high wave flooding, Kahului Beach Road is likely to be impacted and may limit accessibility to the park.

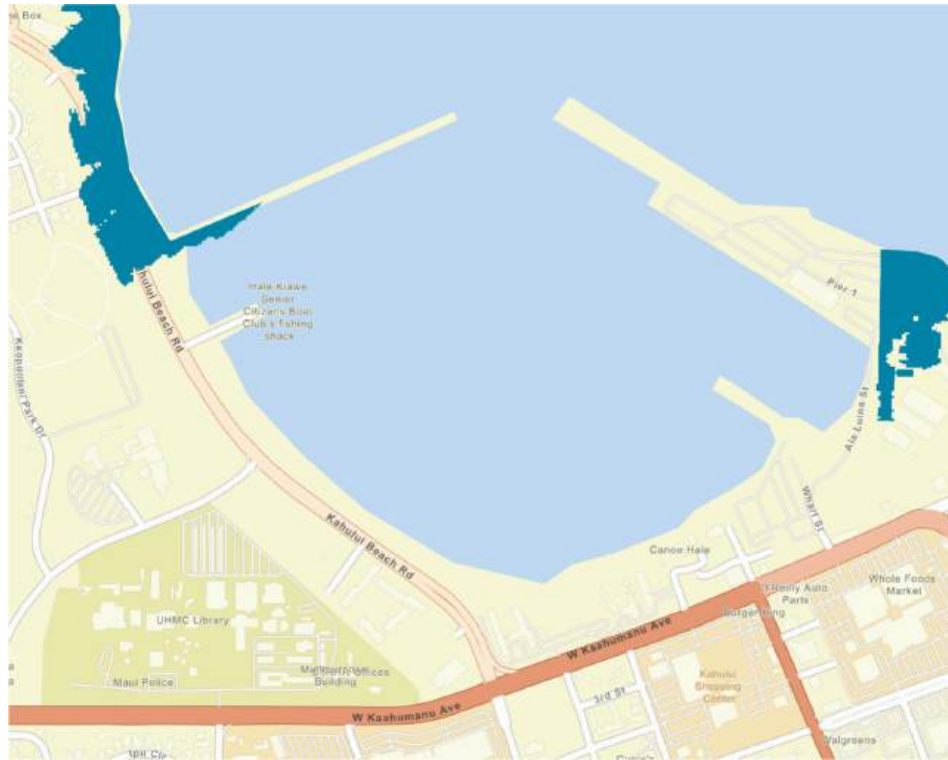


Figure 5.4 SLR Annual High Wave Flooding 3.2 Ft. Scenario (State of Hawai'i)

Special Flood Hazard Area, Tsunami Zone, and Hurricanes

As described early in the drainage evaluation, the site is in the Special Flood Hazard Area (High-Risk Coastal). This mapped area includes areas subject to inundation as a consequence of the one percent annual chance flood (also known as the 100-year flood, that has a 1 in 100 probability of being equaled to or exceeded in any given year). The Special Flood Hazard Area is based on modeling of past flood events and does not account for future SLR or storm events due to climate change, therefore the actual flood risk may be underestimated.

Note, if a 100-year flood event does not occur in a given year, it does not mean that there is a greater or lesser chance of that flood occurring in the next year. These risks are relevant given the anticipated impacts of flood events on the site and its infrastructure, as well as the surrounding areas. Flood events are estimated to increase in potential intensity and frequency with climate change, which may impact access and use of the site. These events can also mobilize more contaminants in runoff, which can be more highly concentrated after a period of drought or wildfire.

As shown in figure 5.5, the site is also located in the tsunami zone, with the extreme tsunami zone extending further inland from the site. Although tsunamis are generally considered a seismic-related hazard, warming ocean temperatures leading to thermal expansion and increasing sea levels can increase tsunami damage potential. In this case, with SLR, tsunamis could reach farther inland with potentially greater destructive force.





Figure 5.5 Tsunami Zone (County of Maui)

Section 6: Conclusion

Hoaloha Park is an important recreational asset that serves as a hub for various recreational activities including outrigger canoe paddling, surfing, fishing, and general tourism. The park faces significant hazards and vulnerabilities, including sea level rise, flooding, and fire (including wildfire). These hazards, exacerbated by climate change, pose threats to the site's infrastructure, operations, and surrounding communities as summarized in Table 6-1. Evaluation of climate hazards and vulnerabilities to the site infrastructure, as well as adaptation strategies, is presented in TM No.2.

Table 6-1. Hazard and Vulnerability Summary	
Hazard	Impact on Site
Fire	<ul style="list-style-type: none"> Increased runoff and erosion leading to potential flooding around the site. Impaired water quality at the shoreline affecting aquatic ecosystem and park users.
Sea-Level Rise and Flooding	<ul style="list-style-type: none"> Inundation of the site with SLR exposure of 3.2 feet, extending beyond existing structures. Passive flooding and groundwater inundation around and in site due to rising sea levels. High wave flooding impact on park accessibility, especially Kahului Beach Road. Subject to inundation from 100-year flood events, leading to potential infrastructure damage and accessibility issues. Increased potential for tsunamis reaching farther inland with SLR, posing greater destructive force.



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Attachment A: Site Visit Photo Log



Hoaloha Park Adaptation Plan - Photo Log

1 E Kaahumanu Ave, Kahului, HI 96732

TMK: (2) 3-7-008:017, (2) 3-7-003:002, (2) 3-7-008:008



Photo 1: Start of Heterodox View Ave off of W Kaahumanu Ave. Unpaved Field/Overflow Parking shown on the right, Heterodox View Ave shown on the left.



Photo 2: Hoaloha Park Sign. Sign on Heterodox View Ave past the unpaved field.



Photo 3: Imu. Located adjacent to 2nd Street and Heterodox View Ave, near the Traditional Hale.



Photo 4: Traditional Hale. Canoe and beach access from the Traditional Hale. Adjacent to the Hawaiian Canoe Club Hale.



Photo 5: Hawaiian Canoe Club Hale. Facing W Kaahumanu Ave. Traditional Hale shown on the right, and Hoaloa Park parking shown on the left.



Photo 6: Na Kai Evalu Canoe Hale. Facing Kaahumanu Ave. Hawaiian Canoe Club Hale and Traditional Hale on the right.



Photo 7: Café O'Lei. Facing W Kaahumanu Ave. Adjacent to the Na Kai Evalu Canoe Hale.



Photo 8: Pohaku. Located between the Hawaiian Canoe Club Hale and the Na Kai Evalu Canoe Hale. Na Kai Evalu Canoe Hale and Café O'Lei on the right. Kahului Harbor, ocean and Pier 2 on the left.



Photo 9: Beach access and Kahului Harbor. Pier 2 in the background.



Photo 10: Naupaka hedge at coastal dune between the canoe haies and the beach. Traditional Hale shown on the right, Hawaii Canoe Club in the center, and Na Kai Evalu on the left.



Photo 11: Park Access Walkway. Facing towards the Hoaloha Park Parking and W Kaahumanu Ave. Walkway located between Na Kai Evalu Canoe Hale and Café O’Lei.



Photo 12: Cultural Site 50-50-04-5773 and -6110. Located adjacent to the Hawaiian Canoe Club Hale.



Photo 13: 2nd Street off of Heterodox View Ave. Overhead electrical and First Hawaiian Bank shown on the right, Hoaloha Park parking on the left.



#7

#8

#6

#5

#9

Canoe Hale #11

#10

#12

2nd St

N Puuhene Ave

#4

#13

#3

#2

32

350

#1

W Kaahumanu Ave

W Kaahumanu Ave

32

Burger King