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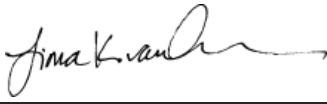
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# Technical Memorandum


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## DRAFT Technical Memorandum No. 2

Subject: Existing Infrastructure  
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### Limitations:

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## Section 1: Introduction

### 1.1 Background

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 East Ka’ahumanu Ave in the town of Kahului, 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 change influenced coastal hazards such as sea-level rise, coastal wave run-up, and coastal erosion.

This technical memorandum (TM) is the second of two technical studies to support climate change adaptation planning for the park. The first TM is a desktop evaluation of the existing site conditions such as topography, drainage, soil, and other environmental features that could affect park use and potential adaptation. The second TM is a desktop evaluation of the existing infrastructure serving the site that will affect capital projects associated with adaptation planning.

The information summarized in this document is to serve as a reference for planning adaptation of the park facilities to ensure the park remains a public asset, and an accessible and usable amenity for the public. This report will identify major vulnerabilities of existing infrastructure from climate influenced coastal hazards.

While the focus of this study is infrastructure, it does not include detailed evaluation of cultural or historical assets nor transportation. These subjects will be covered by the prime and other consultants on the project team.

## Section 2: Infrastructure at Watershed Scale

Considerations and contextualization of the site within the watershed scale are evaluated in this section to understand the vulnerabilities of existing infrastructure to climate hazards. As described in TM No. 1, Hoaloha Park is in the Wailuku Ahupua’a along the shoreline of Kahului Harbor, the central location of business and commerce for Maui County.

### 2.1 Harbor

The site is located on the shore of Kahului Harbor (Harbor). The first landing constructed in Kahului Bay was created in 1879 to serve sugar exports. The first breakwater and dredging operations commenced in the early 1900s, and the Harbor has been since modified to meet continued needs of expanding population and economic needs of Maui (NOAA 4).

Dredged from naturally formed Kahului Bay, the Harbor is Maui’s only deep draft commercial port and is a designated fisheries management area by the State of Hawai’i Division of Aquatic Resources (Department of Land and Natural Resources).

The basin was constructed to be 2,050 feet wide and 2,400 feet long (approximately 113 acres) and has a draft depth of 35 feet. The entrance channel at the northeast corner of the harbor is 660 feet wide and 40 feet deep (HIDOT 31). The Harbor has three commercial piers totaling approximately 3,019 linear feet and as described in Figure 2.1 and Table 2-1.



Table 2-1 Harbor Pier Summary		
Pier	Length (Feet)	Use
1	1,658	Commercial cruise ship terminal and overseas shipping container terminal
2	894	Liquid-bulk cargo and pipelines.
3	500	Inter-island cargo



Figure 2.1 Harbor Site Plan (HIDOT)

Dredging is typically every 10 years and is conducted by the United States Army Corps of Engineers (US Army Corps of Engineers). The most recent Harbor dredging is currently in progress as shown in Figure 2.2.



**Figure 2.2 Dredging Activity March 2024 (Brown and Caldwell)**

## 2.2 Transportation

Types of transportation facilities within the watershed that provide access to the site include passenger vehicle, pedestrian, bicycle, and public bus. Primary roadway connectivity to the park is via Ka‘ahumanu Avenue and Kahului Beach Road. Ka‘ahumanu Avenue, which is immediately south of the site, is a state highway classified as a major urban arterial and is one of the busiest roadways in Maui with 50,000 vehicles traveling daily (Maui Metropolitan Planning Organization).

The Queen Ka‘ahumanu Transit Center is currently located at the Queen Ka‘ahumanu Shopping Center, approximately one mile from the site. The Queen Ka‘ahumanu Transit Center will be relocated to the nearby Vevau Street in the near future. Commercial marine transportation is available at the Kahului Harbor as described in Section 2.1. Personal and recreational watercraft are launched from the beach areas at and adjacent to the site. Additionally, Kahului Airport is located approximately 3 miles west of the park (Figure 2.3). The airport serves commercial travel and cargo uses and is the largest commercial airport on Maui.



Figure 2.3 General Location Map (Brown and Caldwell)

## 2.3 Potable Water

The public water system is operated and maintained by Maui County Department of Water Supply and is the primary source water used for drinking, fire protection, and some irrigation. Water is sourced from wells in the Iao Aquifer under the West Maui mountains, but also includes surface water flow from the streams of Nā Wai ‘Ehā (Wailuku Stream, Wailuku River, Waiehu, and Waihe‘e Streams). Water is disinfected and transmitted by pressure piping to users throughout the watershed. Fire hydrants are found along the roadway, Ka‘ahumanu Avenue, fronting the park.

## 2.4 Sewer

The public wastewater collection, conveyance, and treatment system is owned and operated by the County of Maui Wastewater Reclamation Division. Wastewater is conveyed through a system of gravity pipes that connect to pumps stations at various low points within the system, which in turn convey wastewater through a network of force mains to the wastewater reclamation facility. Wastewater is treated at the Wailuku-Kahului Wastewater Treatment Plant (WWTP) located approximately one mile east of the site at 281 Amala Place. Treated wastewater is discharged via injection wells. Due to regulatory and capacity demands, the existing WWTP is in the process of treatment and capacity upgrades which are expected to be completed in 2030.

## 2.5 Stormwater

Runoff in the area is collected and conveyed by a municipal separate storm sewer system (MS4). Portions are owned and maintained by the County and portions by the State. Generally, the surface conveyance



features include curb and gutters, constructed concrete-lined channels, and grass ditches. Surface flow is typically collected via a network of catch basins, curb inlets, and grated drain inlets that convey flow to subsurface conveyance piping. The conveyance piping primarily discharges the collected stormwater to regional retention/detention ponds, underground injection wells (UIC), or directly to the ocean at constructed outfall structures. There are no stormwater treatment facilities upstream of the outfalls to the park.

## 2.6 Power and Communications

The existing power service is provided by Hawaiian Electric. Electricity is generated by a mix of renewable sources (wind, solar, biofuels) and oil-fired power plants. Renewable sources account for 35.4% of the total energy supply, with a peak of 70% when available (Hawaiian Electric).

Hawaiian Telcom is the dominant local communications provider; their services include local phone, long-distance, cellular, fiber optic, and television.

## 2.7 Hazard and Vulnerability Summary

Table 2-1 summarizes the climate change related hazards that have potential impact to the watershed and could affect the use of Hoaloha Park.

Table 2-2. Hazard and Vulnerability Summary	
Hazard	Impact on Watershed
Sea Level Rise	<ul style="list-style-type: none"> <li>- Increased risk of coastal flooding, potentially affecting transportation routes such as Ka’ahumanu Avenue and Kahului Beach Road.</li> <li>- Threat to infrastructure at Kahului Harbor, including commercial piers and operations due to inundation.</li> <li>- Compounds risk and vulnerability to tsunamis, potentially expanding spatial limits of destruction of coastal infrastructure including Kahului Harbor and transportation networks.</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>- Increased strain on stormwater management systems, potentially causing overflow and flooding in low-lying areas within the watershed.</li> <li>- Compounds risk and vulnerability for tsunamis with sea-level-rise, potentially expanding spatial limits of destruction of coastal infrastructure including Kahului Harbor and transportation networks.</li> <li>- Potential disruption to transportation networks, including roads and highways, leading to accessibility issues.</li> <li>- Disruption to utilities, communication, and emergency services, hindering response and recovery efforts.</li> </ul>
Hurricanes	<ul style="list-style-type: none"> <li>- Potential for damage to critical infrastructure such as power and communication lines, affecting utilities and services within the watershed.</li> <li>- Disruption to transportation networks due to debris and structural damage, hindering access and recovery efforts.</li> </ul>
Wildfire	<ul style="list-style-type: none"> <li>- Risk of wildfire events could impact transportation routes and access to the site, potentially affecting evacuation routes.</li> <li>- Increased runoff and erosion from burned areas could exacerbate flooding and sedimentation in the watershed, resulting in reduced water quality along Hoaloha Park shoreline and nearshore waters.</li> </ul>





## Section 3: Infrastructure at Site Scale

This section evaluates existing infrastructure at the site and identifies potential climate hazard-related vulnerabilities.

### 3.1 Roadway and Access

The site is accessible by Heterodox View Avenue, which connects to Ka‘ahumanu Avenue at a four-way unsignalized intersection with a striped crosswalk. There are no other public vehicle entrances to the site, thus no through traffic. Internal circulation on the site is through a paved driveway and parking lot.

The canoe hales each have use/lease easements from the County in favor of their respective canoe clubs. TM No. 1 provides the Site Assessment and includes detail on pedestrian access and parking. Figure 3.1 shows roadways and internal circulation in the site layout.

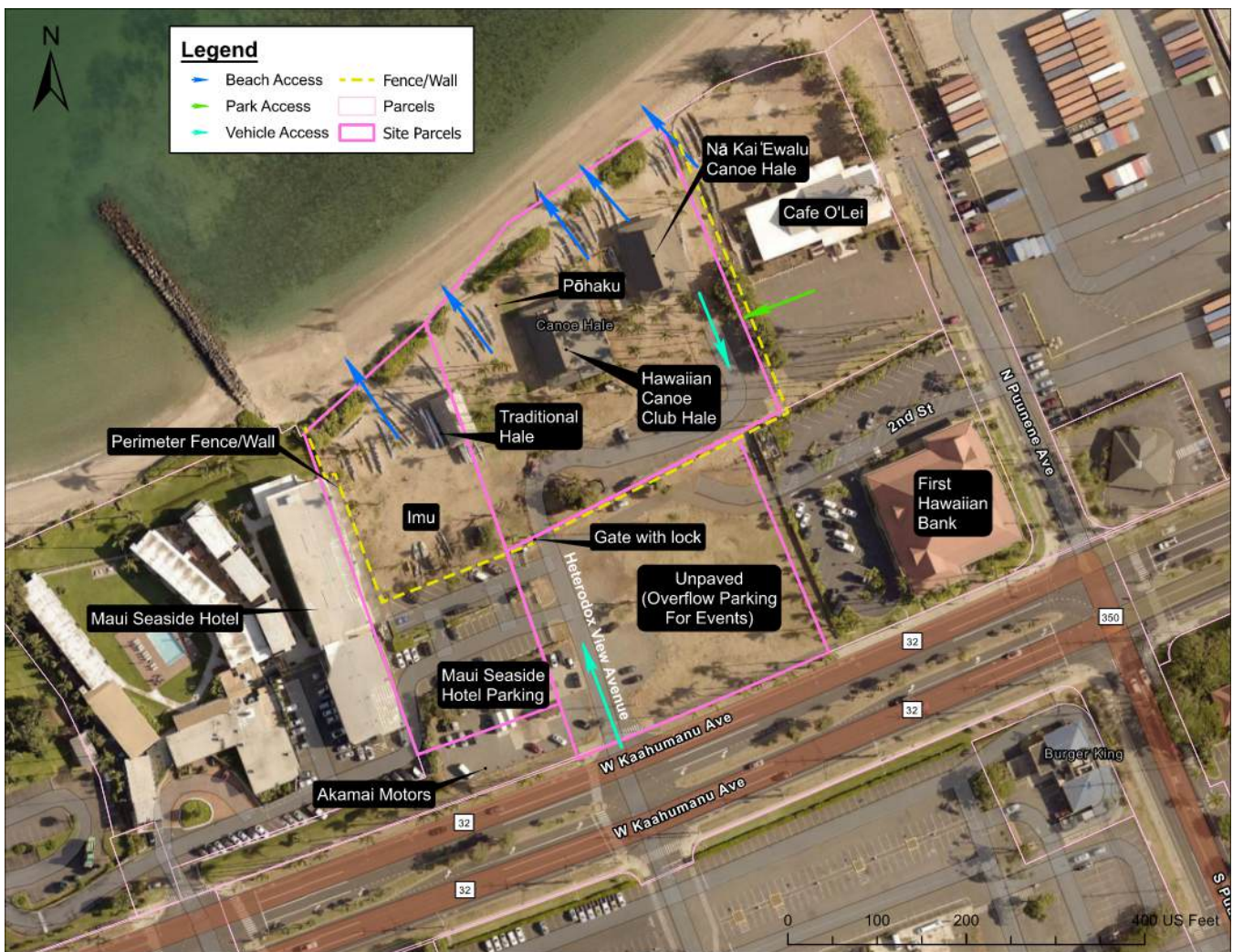


Figure 3.1 Site Layout (County of Maui)



### 3.2 Potable Water and Fire Protection

As shown in Figure 3.2, all major utilities are present at and or around the site. There is an 8-inch diameter water line located in Heterodox View Avenue that connects to the 12-inch diameter main in Ka’ahumanu Avenue. From the 8-inch waterline, several water service connections are present to service the site. Water lines are not shown in Figure 3.2 for security purposes by the County of Maui Department of Water Supply:

- 5/8-inch water meter and reduced pressure backflow preventer servicing the park (TMK 3-7-003:002) and located near Ka’ahumanu Avenue and Heterodox View Avenue.
- 4-inch fire line with a Double Check Detector Assembly (DCDA) was constructed to service the traditional canoe hale sprinkler system (TMK 3-7-003:002).
- Fire Hydrant No. 13 is located near the site gate.
- 1-inch water meter and reduced pressure backflow preventor servicing the park, including irrigation (TMK 3-7-003:017) are near the southern boundary of parking lot.
- Fire sprinklers on the traditional hale. Connection through fire line, see Figure 3.3.



Figure 3.2 Utility Infrastructure Layout (County of Maui)



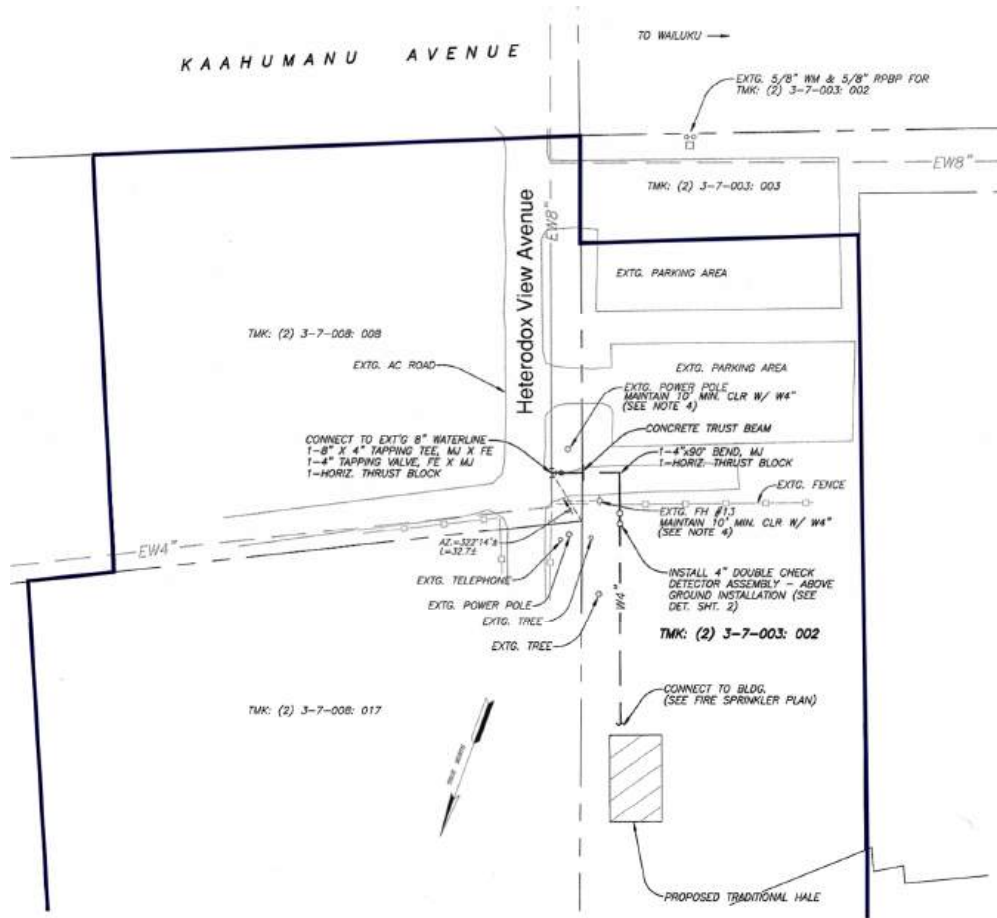


Figure 3.3 Fireline Record Drawing, 2009 (OTOMO Engineering, Inc.)

### 3.3 Sewer

The site is served by an 8-inch diameter sewer main located in an easement along Heterodox View Avenue, originating from Ka’ahumanu Ave. A sewer manhole, KA01000640 with an approximate invert of 2.22 feet, is located on the site gate, closest to Hawaiian Canoe Club (HCC) hale. A second sewer manhole, KA01000541 with approximate invert of 3.04 feet, is located near the Nā Kai ‘Ewalu NKE hale with a 6-inch diameter conveyance towards Pu’unene Avenue. Wastewater flows downstream to a collector line in the Kahului Shopping center, then to the Kahului Wastewater Pump Station, where it is conveyed by force main to the Wailuku/Kahului Wastewater Reclamation Facility, which is located approximately 1 mile east of the Site.

Additional infrastructure at the site includes an abandoned 6-inch gravity main extending east and west between the two existing manholes described above, and a 24-inch force main that runs north along the east edge of Heterodox View Avenue and turns east and runs to Pu’unene Avenue. A separate 21-inch force main runs along Ka’ahumanu Ave in the direction of Pu’unene Avenue.





Figure 3.4 Sewer System (County of Maui)

### 3.4 Stormwater

There is no existing on-site storm drain infrastructure. Flooding on-site is not known to be a reoccurring problem, which is likely due to the high permeability of the sandy soils.

Drainage adjacent to the site, specifically along Pu‘unene and Ka‘ahumanu Avenue, is problematic and has a known history of localized flooding during heavy precipitation events. This likely due to the amount of impervious area, lack of drainage infrastructure in the right-of-way, and the localized terrain that includes low spots around Kahului Shopping Center, Maui Mall, Ka‘ahumanu Shopping Center, and Wakea Avenue. The County of Maui Department of Public Works adopted the Kahului Drainage Master Plan in May 1992 that describes the local drainage system and flooding issues in detail and provides recommendations for flood mitigation. Several of those improvements were implemented, including additional outfalls to Kahului Harbor.



While there is no on-site infrastructure, there are three distinct storm drain infrastructure systems immediately adjacent to the site. This includes Ka‘ahumanu Avenue, which collects runoff fronting the site and adjacent properties through a series of catch basins. Flow conveys in a westerly direction towards Kahului Beach Road, through a 24-inch diameter reinforced concrete pipe in the center of the road. The storm drain system, which also receives flow from upstream areas west of Kahului Beach Road, ultimately discharges flow through a 72-inch submerged outfall in the southwest corner of the Harbor. Records show that this system is owned and maintained by the State of Hawai‘i, Department of Transportation, Highways.

The second system collects runoff along Kane Street and Ka‘ahumanu Center and outfalls parallel to the first system through two 48-inch dual pipes constructed by the County; the outfalls to the Harbor are submerged with boulder rip-rap protection.

The third system is located east of the site along Ka‘ahumanu Avenue and between Pu‘unene Avenue and Wharf Street. This system collects runoff through a series of catch basins and grated inlets along the roadways and from commercial sites, such as Kahului Shopping Center and Maui Mall. The system conveys flow along Wharf Street in the direction of Kahului Harbor, through a concrete ditch approximately 6-feet wide by 6-feet deep, and outfalls to the shoreline next to Pier 2 in an earthen channel. The location of discharge point is not visible from the shoreline, however, standing water and a depression are visible indicating that the channel does exist. This outfall is owned and maintained by the County. Figure 3.5 illustrates the systems and their outfalls.

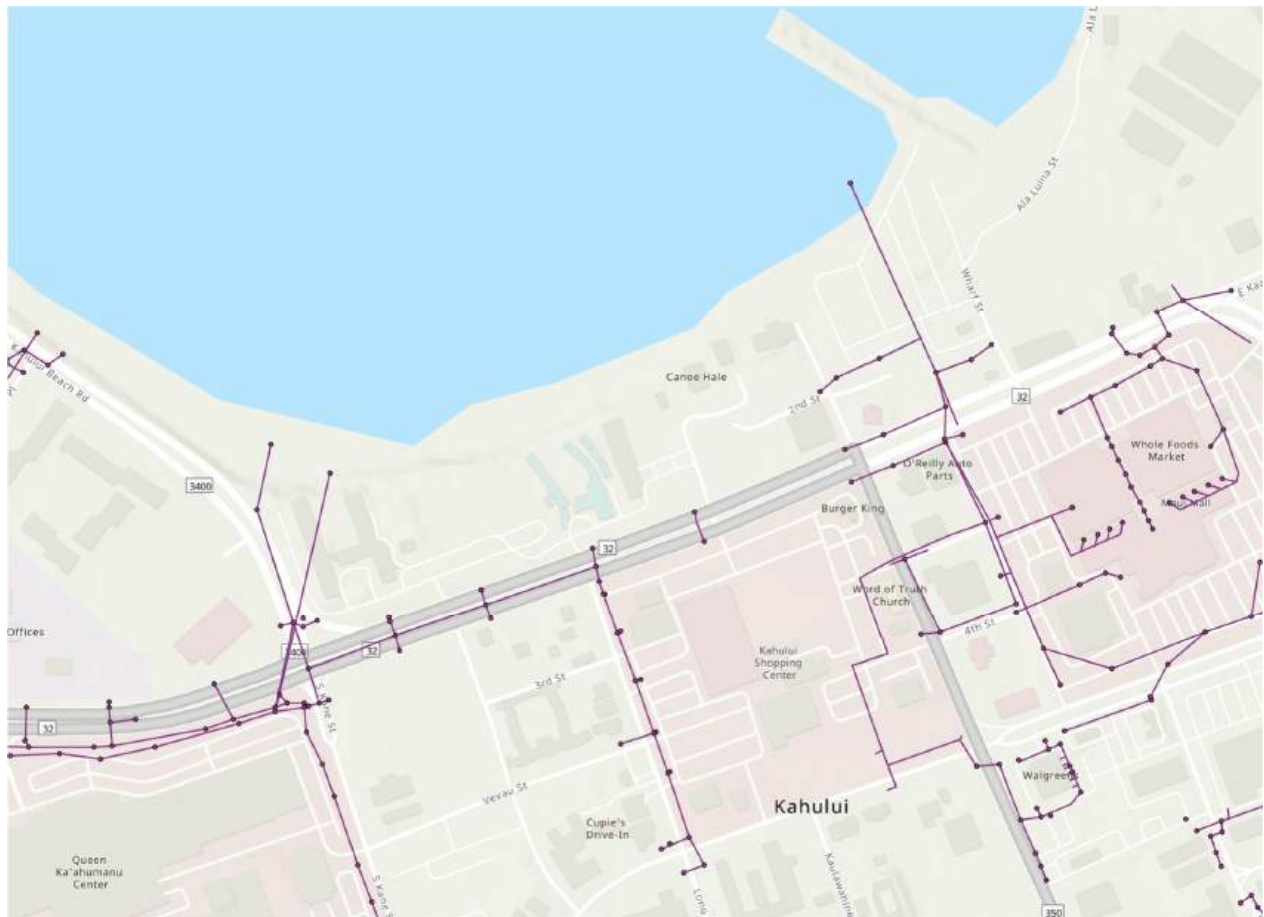


Figure 3.5 Drainage System and Outfalls (County of Maui)



It is noted that immediately adjacent to the open channel discharge, a submerged outfall exists along the Pier 2 wall and beach. Neither this system nor a connection could be verified from available County or State data, but it is likely a State of Hawai'i, Department of Transportation, Harbors asset. Figure 3.6 is a photo of the outfall at Pier 2.



Figure 3.6 Submerged Outfall at Pier 2 (Brown and Caldwell)

### 3.5 Power and Communications

Electricity and communications are delivered to the site via overhead cables suspended from wood utility poles. A primary overhead electrical and communications transmission corridor runs along Ka'ahumanu Avenue and then into the site through Heterodox View Avenue. The overhead electrical continues through the site on wood utility poles, running both north to south and east to west, as shown in Figure 3.7. Service connections and meters are found on the southside of HCC Canoe Hale.



Figure 3.7 Overhead Electrical and Telecom (Brown and Caldwell)



### 3.6 Structures

There are three primary structures on the site located within designated easements. They are categorized as either modern canoe hale, of which there are two, or traditional hale. Hawaiian Canoe Club (HCC) is the owner of the traditional hale, which is located on the most western boundary of the site, not shown in Figure 3.8. Additionally, they own a modern canoe hale located in the middle of the site, shown on the left in Figure 3.8. Both are used for storing canoes and places of gathering for club practices and events. Nā Kai 'Ewalu (NKE) is the owner of the other modern hale, found more east on the site, shown on the right in Figure 3.8.

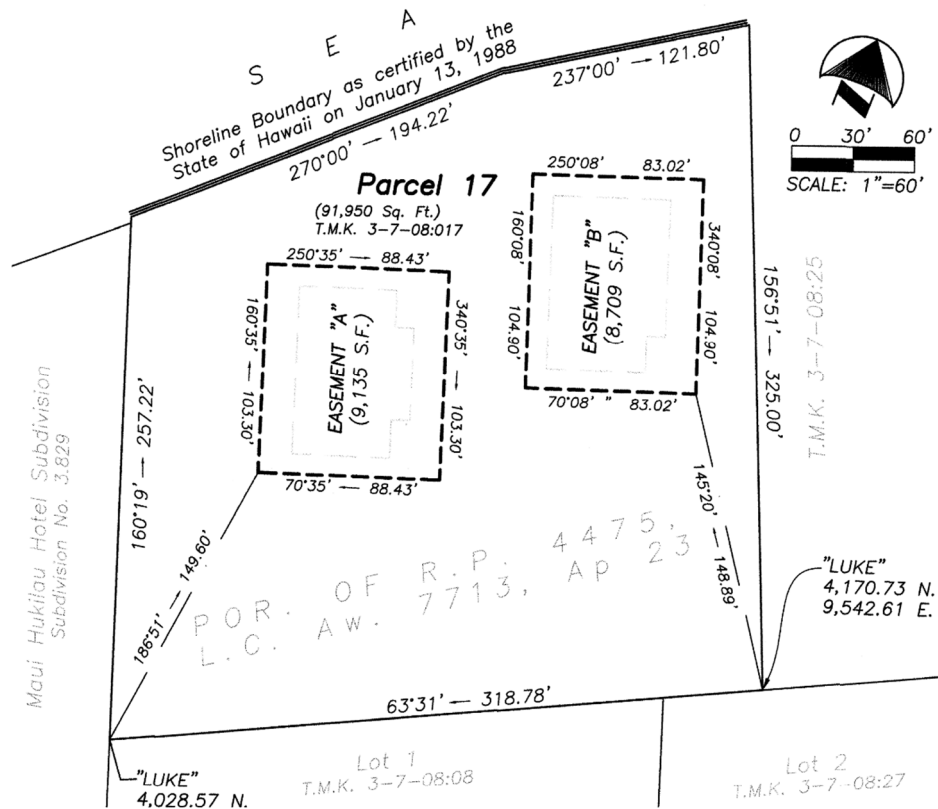


Figure 3.8 Canoe Hale Easement Map (CDF Engineering)





Figure 3.9 Site Survey TMK 3-7-008:017, circa 2013 (CDF Engineering)

### Modern Canoe Hale

Per the record drawings, it appears that the two canoe hales were constructed circa 1996. The roof was built primarily of wood framing (post and beam construction). The column supports of the canoe hales included wood posts and PVC concrete columns. The main structure is slab on grade with footings located beneath every column and structural piles arranged below six of the columns. Figure 3.10 is the makai elevation view of HCC modern canoe hale, and Figure 3.11 is the makai elevation view of NKE modern canoe hale. Both facilities include plumbing for toilets, sinks and outdoor showers. In addition, the HCC canoe hale includes a kitchen, which is connected to a grease trap interceptor prior to discharge to the sewer system. In 1996, the NKE hale burned down due to arson, and in 2012 the HCC hale was damaged due to arson (Hawaii News Now).







Figure 3.10 HCC Modern Canoe Hale (Brown and Caldwell)



Figure 3.11 NKE Modern Canoe Hale (Brown and Caldwell)

### Traditional Hale

Based off visual inspection, the roof of the traditional hale appears to be built of log beams and log columns. The structure is slab on grade. Figure 3.12 is a the mauka elevation view of the traditional hale.



Figure 3.12 HCC Traditional Hale (Brown and Caldwell)

### 3.7 Canoe Storage

Outrigger 6-man canoes are watercraft used in traditional Hawaiian culture for transport between islands, and typically are manned by six paddlers. Traditionally made from wood, these canoes now predominantly feature lightweight materials like fiberglass or carbon fiber and include an outrigger float known as an ama. OC6 canoes are approximately 40-feet long and weight between 300 and 500 pounds depending on its construction. Due to their size and design, proper storage is essential to maintain their condition and prolong their lifespan. Storage facilities often include covered shelters or canoe hales located near water access points. These shelters protect the canoes from environmental elements like sunlight, rain, and wind; proper storage practices ensure that outrigger 6-man canoes remain in optimal condition.

OC1 canoes, also known as one-person outrigger canoes, are designed for solo paddling. OC1 canoes vary in length, typically ranging from 18 to 21 feet, and are constructed from lightweight yet durable materials such as fiberglass, carbon fiber, or Kevlar. When not in use, OC1 canoes require proper storage to maintain their integrity and prolong their lifespan. Ideally, they should be stored in a sheltered area away from direct sunlight and harsh weather conditions.

As much as 20 percent of Hoaloha Park is utilized for both OC6 and OC1 storage. Typically, the OC6 canoes, except for the racing Koa Canoes that are stored inside the canoe hales, are stored in an exposed area adjacent to the shoreline on the grass side of the coastal dune system. OC1 storage is provided in stacked rack formation in the canoe hales.

### 3.8 Fencing and Security

Wood guard rails along concrete columns are found around the site, except along the shoreline. One metal lockable gate is located at Heterodox View Avenue at the entrance to the paved parking. Security and management of the gate lock is provided by HCC. Typically, the park is open from 7am to 8 pm; however, access to the gate is provided to the canoe clubs who can lock and unlock the gate as needed.

### 3.9 Hazard and Vulnerability Summary

Table 3-1 below summarizes the climate related hazards and vulnerabilities and potential impacts to the site infrastructure and park users.

Table 3-1. Infrastructure and User Vulnerability Summary		
Hazard	Impact on Site Infrastructure	Impact on Park Users
Sea Level Rise	<ul style="list-style-type: none"> <li>Potential inundation of infrastructure located near the shoreline, including canoe hales and parking lots.</li> <li>Threat to underground utilities such as water and sewer lines due to rising water levels. Subsurface utilities such as water and sewer lines may be affected by higher water levels and groundwater elevations, leading to potential damage and reduced functionality.</li> <li>Increased damage potential of tsunami threats, including expanding the spatial extent inundation and enhancing the potential destructive force.</li> <li>Higher water heights and more severe wave action during storms, increasing the risk of damage to shoreline infrastructure.</li> <li>Altered soil conditions due to increased groundwater levels may necessitate modifications to the design and construction of site infrastructure.</li> <li>Increased water depths and changes in shoreline characteristics may limit access to the park for both vehicles and pedestrians.</li> </ul>	<ul style="list-style-type: none"> <li>Disruption to recreational activities such as canoe paddling, surfing, and fishing due to flooded areas and restricted access.</li> <li>Decreased water quality along the shoreline due to contamination from flooded areas and potential sewage overflow.</li> <li>Greater danger for swimmers, surfers, and other beachgoers due to stronger currents and larger waves.</li> <li>Disruption to beach activities and events during stormy weather.</li> <li>Potential interruption of water and sewage services, impacting park visitors' comfort and safety.</li> <li>Possible closures or restrictions on park access due to ongoing construction or maintenance activities.</li> <li>Safety concerns for park users navigating unfamiliar or hazardous conditions.</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>Risk of damage to roadway and access infrastructure, particularly along Heterodox View Avenue and internal circulation routes.</li> <li>Potential disruption to potable water and fire protection systems, affecting availability for park use and fire safety measures.</li> </ul>	<ul style="list-style-type: none"> <li>Limitation of access to the park for users impacting planned events and recreational activities.</li> <li>Evacuation and safety concerns for park users and mobile assets within park.</li> </ul>
Hurricanes	<ul style="list-style-type: none"> <li>Structural damage to buildings and facilities, including modern and traditional canoe hales, from high winds and storm surge.</li> <li>Disruption to utilities such as power and communication lines, hindering accessibility and emergency response.</li> </ul>	<ul style="list-style-type: none"> <li>Suspension of park activities and events during hurricane warnings, affecting enjoyment and participation of park users and causing threat to life and property for users remaining on site during a warning or event.</li> </ul>
Wildfire	<ul style="list-style-type: none"> <li>Potential damage to facilities and structures such as canoe hales and storage areas due to fire spread.</li> <li>Risk of erosion and sedimentation impacting infrastructure following firefighting efforts.</li> </ul>	<ul style="list-style-type: none"> <li>Safety concerns for park users due to smoke, ash, and potential evacuation orders during wildfire events.</li> <li>Degradation of water quality in nearby streams and coastal areas due to runoff carrying ash, sediment, and contaminants.</li> </ul>



## Section 4: Climate Adaptation Considerations

TM No. 1, Existing Site Conditions, evaluates the potential climate related hazards that may impact the physical conditions of the site and the site use. These hazards, as identified in TM No. 1, are projected to also impact the site related infrastructure. The following section summarizes climate related vulnerabilities and provides considerations for adaptation, to be more fully developed by SSFM and Integral.

### 4.1 Vulnerability Considerations

Climate change hazards and understanding vulnerability to these hazards in coastal environments is of critical concern due to the potential to exacerbate existing risks and threaten both natural ecosystems and human infrastructure. Rising sea levels, intensified storm surges, and increased frequency of extreme weather events pose significant challenges to coastal communities, including erosion, flooding, and loss of habitat. The major vulnerabilities identified for Hoaloha Park are:

- Flooding of roadway and access infrastructure during severe weather events,
- Hurricanes increasing causing structural damage and utility disruption,
- Impacts on subsurface utilities due to rising water levels influenced by SLR,
- Site access limitations due to water depths and shoreline changes due to SLR,
- Increasing wildfire risk impacting structures, water quality, park access, and causing erosion.

### 4.2 Adaptation Considerations

This section describes adaptation options for the site and infrastructure. Table 4-1 includes general adaptation options strategies that could provide multiple benefits by addressing flooding and erosion caused by sea-level rise, as well as impacts from hurricanes and wildfires.

Table 4-1. Adaptation Strategies	
Asset Type	Strategies
Canoe Hales	<ul style="list-style-type: none"> <li>• Elevate and retrofit structures to improve asset resilience</li> <li>• Implement shoreline protection measures</li> <li>• Relocate facilities away from vulnerable areas</li> <li>• Use fire-resistant materials</li> </ul>
Canoe Storage	<ul style="list-style-type: none"> <li>• Relocate facilities away from vulnerable areas</li> <li>• Elevate storage and access to storage</li> </ul>
Subsurface Utilities (water, sewer, storm)	<ul style="list-style-type: none"> <li>• Raise utility lines above projected flood levels</li> <li>• Use corrosion resistant materials</li> <li>• Implement drainage systems on-site and upgrades off-site</li> <li>• Harden/reinforce pipelines and manholes with concrete jacket</li> </ul>
Above Ground Utilities (power, telecom)	<ul style="list-style-type: none"> <li>• Relocation horizontal</li> <li>• Harden/reinforce and bury systems</li> </ul>
Roadway and Access	<ul style="list-style-type: none"> <li>• Raise the building, entryways, and regrade the site</li> <li>• Relocate facilities out of areas subject to constant flooding or erosion</li> <li>• Modify and coordinate access points and circulation with adjacent property owners</li> </ul>



Table 4-1. Adaptation Strategies	
Asset Type	Strategies
Beach access	<ul style="list-style-type: none"> <li>• Modify coastline</li> <li>• Protect coastline with wall/barrier</li> <li>• Restore coastline with beach nourishment</li> <li>• Expand coastline inland through managed retreat</li> <li>• Modify and consolidate access points with planned retreat</li> <li>• Dune restoration</li> </ul>

## Section 5: Conclusion

Climate change has the potential to significantly impact Hoaloha Park. It is imperative for the function and use of the park that adaptation measures be implemented to ensure the resilience of the site. The suite of adaptation options should be evaluated in coordination with park users, the parks department and other utilities and planning efforts.

This evaluation should consider how adaptation measures support equitable access to park facilities, including consideration for the needs of disabled persons. In addition, potential canoe hale relocation or retreat due to coastal hazards should be planned with renewal of canoe hale leases. Implementation of asset renewal or relocation should be coordinated to ensure adherence to updated building codes and regulations to ensure the safety and resilience of park infrastructure.

In addition to adaptation options described in this section, monitoring plans should be considered and implemented to track the progression of future impacts. Specific triggers should be established to track points at which changing conditions support development and initiation of capital improvement projects, including benchmarks for project funding, planning, design, and construction.



## Section 6: Limitations

This document was prepared solely for the County of Maui Department of Parks and Recreation, in accordance with professional standards at the time the services were performed. This document is governed by the specific scope of work authorized by the County and SSFM International, Inc.; it is not intended to be relied upon by any other party. We have relied on information or instructions provided by the County and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

This document sets forth the results of certain services performed by Brown and Caldwell with respect to the property or facilities described therein (the Site). The County recognizes and acknowledges that these services were designed and performed within various limitations, including budget and time constraints. These services were not designed or intended to determine the existence and nature of all possible environmental risks (which term shall include the presence or suspected or potential presence of any hazardous waste or hazardous substance, as defined under any applicable law or regulation, or any other actual or potential environmental problems or liabilities) affecting the Property. The nature of environmental risks is such that no amount of additional inspection and testing could determine as a matter of certainty that all environmental risks affecting the Property had been identified. Accordingly, **THIS DOCUMENT DOES NOT PURPORT TO DESCRIBE ALL ENVIRONMENTAL RISKS AFFECTING THE SITE, NOR WILL ANY ADDITIONAL TESTING OR INSPECTION RECOMMENDED OR OTHERWISE REFERRED TO IN THIS DOCUMENT NECESSARILY IDENTIFY ALL ENVIRONMENTAL RISKS AFFECTING THE PROPERTY.**

Further, Brown and Caldwell make no warranties, express or implied, with respect to this document, except for those, if any, contained in the agreement pursuant to which the document was prepared. All data, drawings, documents, or information contained this report have been prepared exclusively for the person or entity to whom it was addressed and may not be relied upon by any other person or entity without the prior written consent of Brown and Caldwell unless otherwise provided by the Agreement pursuant to which these services were provided.



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