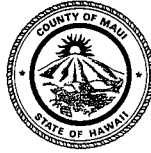


DANNY A. MATEO
County Clerk



RECEIVED

JOSIAH K. NISHITA
Deputy County Clerk

2018 NOV 15 PM 4:02
OFFICE OF THE COUNTY CLERK
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/county/clerk
**OFFICE OF THE
COUNTY COUNCIL**

November 15, 2018

Honorable Don S. Guzman, Chair
Parks, Recreation, Energy, and
Legal Affairs Committee
Council of the County of Maui
Wailuku, Hawaii 96793

Dear Chair Guzman:

Respectfully transmitted are copies of the following communications that were referred to your Committee by the Council of the County of Maui at its meeting of November 15, 2018:

COUNTY COMMUNICATIONS:

- No. 18-410 - Ka`ala Buenconsejo, Director of Parks and Recreation
- No. 18-411 - Ka`ala Buenconsejo, Director of Parks and Recreation

Respectfully,

A handwritten signature in black ink, appearing to read "Danny A. Mateo", is written over a large, stylized closing parenthesis symbol "}".

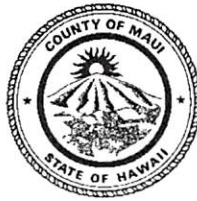
DANNY A. MATEO
County Clerk

/jym

Enclosures

cc: Director of Council Services

ALAN M. ARAKAWA
Mayor



KA'ALA BUENCONSEJO
Director

BRIANNE L. SAVAGE
Deputy Director

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

RECEIVED

2018 NOV -7 PM 1:20

(808) 270-7230
FAX (808) 270-7934

OFFICE OF THE MAYOR

November 5, 2018

Honorable Alan M. Arakawa
Mayor, County of Maui
200 South High Street
Wailuku, Hawaii 96793

For Transmittal to:

Honorable Mike White, Chair
and Members of the Maui County Council
200 South High Street
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL

Mayor Date

Dear Chair White and Members:

SUBJECT: KANAHA BEACH PARK MASTER PLAN

The Department of Parks and Recreation is requesting the opportunity to present the Kanaha Beach Park Master Plan to Council.

The plan was prepared over the last three and a half years by a consultant team working with staff from our department. The process was based on technical studies, an on-site questionnaire, public meetings, and a working group to address some critical issues.

The department would like to provide a brief description of the planning process, the results of the master plan, and a summary of costs and phasing for the park's improvements as depicted on the attachments.

Should you have any questions or concerns, please feel free to contact David Yamashita, Parks Planner at Ext. 6508.

Sincerely,


KA'ALA BUENCONSEJO
Director of Parks and Recreation

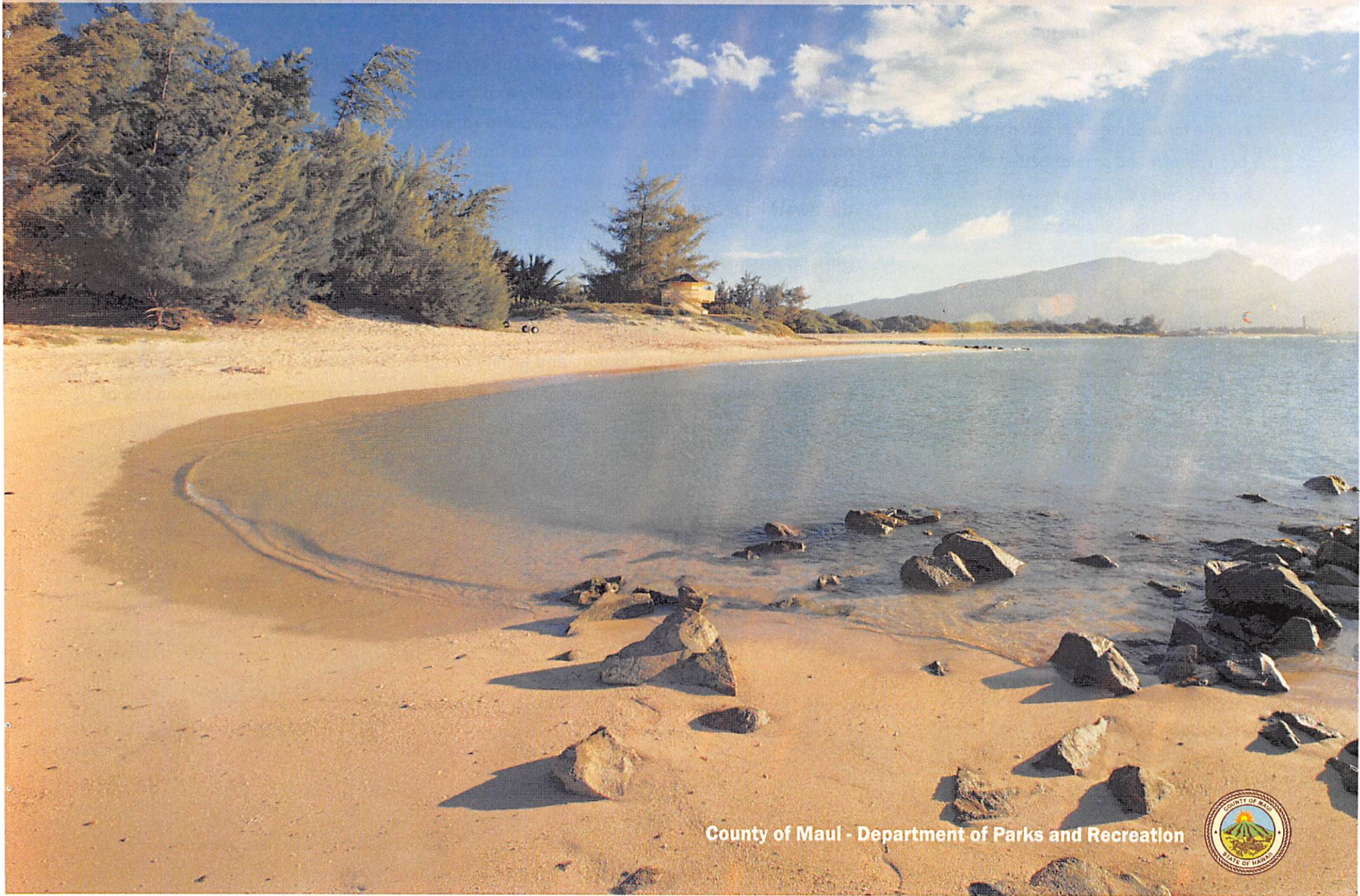
Attachments

c: Brianne Zanin, Deputy Director
BS:DY

COUNTY COMMUNICATION NO. 18-410

EXECUTIVE SUMMARY

Kanahā Beach Park Master Plan



County of Maui - Department of Parks and Recreation



The Executive Summary is a condensed version of the full master plan document. It includes the same content but in a shorter and more concise form. Some information has been reorganized or reformatted to be consistent with the purpose of an Executive Summary.

Maps and diagrams also have been simplified and condensed. In addition, strategies and key actions also have been organized and presented as one table.

The Executive Summary was prepared by the Department of Parks and Recreation and is based on the master plan document prepared by Planning Consultants Hawaii.



Project Background and Purpose

Kanahā Beach Park is a favorite retreat for Maui residents seeking to enjoy its 1.31 miles of sandy beach, spend time with family and friends, or enjoy a variety of opportunities for outdoor recreation. The park has world-renowned wind and kitesurfing and attracts many to canoe, surf, dive, and fish. Other important features of Kanahā Beach Park are its wetlands and native vegetation and wildlife. Two endangered species - the 'ohai and the dwarf naupaka - are found in the park.

With increasing population growth and subsequent user demands, careful planning is needed to ensure the park's natural and physical resources are managed and protected. The Kanahā Beach Park Master Plan addresses critical planning issues, such as public access, environmental protection, and facility needs in the context of erosion and climate-related sea level rise. The purpose of this master plan is to accommodate increased use of the park, while protecting its essential character and environment that make the park a

Location and Context

Kanahā Beach Park is located on the north shore of Maui just east of Kahului on the north side of the Kanahā Pond State Wildlife Sanctuary (KPSWS) and Kahului Airport. The site is bound by the ocean on the north. On the west end is the county's waste water reclamation facility. The park boundary is just mauka of Amala Place and Alahao Street, which run along the entire south boundary.

At the east end of the site is an undeveloped area at the west end of the airport runway. Vehicle access is via Amala Place or Ka'a Street along Alahao Street.

Across Alahao Street are vacant lands owned by the State DLNR and the State of Hawaii Department of Transportation (HDOT), as well as the KPSWS. Kanahā Beach Park enjoys a symbiotic relationship with the KPSWS. The park's shoreline, dunes, and wetlands support the larger KPSWS ecosystem, providing essential habitat for the area's wildlife.



The Planning Process

Preparing the plan consisted of five phases over three and a half years from April, 2015 to October, 2018.

Phase 1: Technical Studies

A series of technical studies were prepared on vegetation and wildlife, wetlands, coastal resources, archaeology, topography, and infrastructure.

Phase 2: Community Assessment

Meetings with agency stakeholders were held and an on-site park use survey was conducted. Over 240 responses were tabulated.

Phase 3: Community Engagement

A series of public meetings and workshops were held with the general public and agency staff. The events attracted a cross section of the park's users along with representatives from public agencies. Results of these meetings are shown in the graph below.

Phase 4: Preparation and Review of Draft Plan

A draft plan was prepared by the consultant team using information generated through the first two phases. Public meetings and open houses also were held to review the draft plan.

Phase 5: Preparation of a Final Plan

After the draft plan was revised, several meetings were held with a working group of stakeholders to discuss and resolve several outstanding issues.

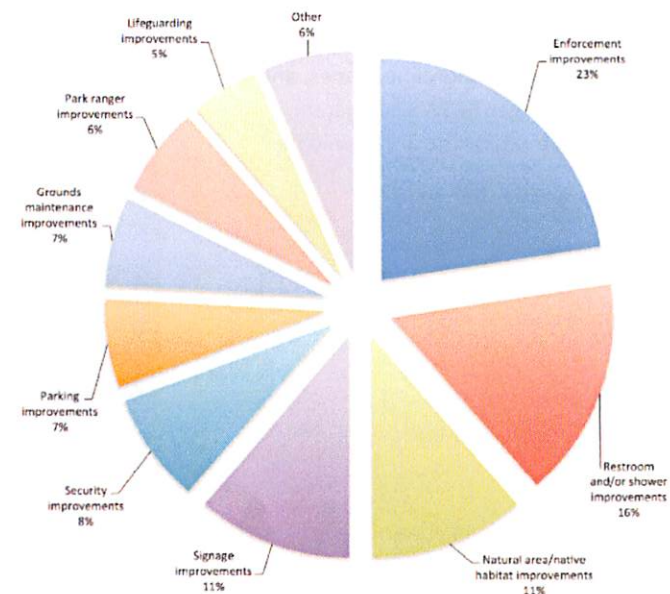
In addition to these steps, a parking study was conducted over several weekdays, weekends, and holidays in 2017. The study provided a useful measure of how the park is used throughout the week and during the day.



Public meetings and open houses were interactive and organized so participants could express their ideas and concerns in several ways.

Improvements Needed at Kanahā Beach Park

Source: Stakeholder meetings held 20-21 October 2015.



Natural and Cultural Conditions

Topography and Slope

The park's topography varies from flat zones of grassland, trees, and wetlands to rolling sand dunes along the shoreline covered in coastal trees and shrubs.

Based on an aerial topographic survey (2015), the topography of the site ranges from sea level to 16.5 feet above mean sea level (MSL) at the high point where Amala Place crosses over the existing concrete drainage channel.

Elevations along Amala Place (about 2,600 feet of street frontage) vary from 5.7 feet to 7.2 feet above MSL and along Alahao Street (approximately 4,100 feet) from 2.8 feet to 7.9 feet above MSL.

The interior of the park varies considerably with several dunes between 10 feet to 13 feet above MSL (especially on the west portion of the park) as well as low lying wetland areas which are as low as 0.1 feet above MSL.

Geology and Soils

Soils are classified as Dune Lands (DL) on the eastern half of the site, and as Jaucas Sand, Saline (JcC) in the western half of the site (Foote et al, 1972). Dune Land soils consist of loose unconsolidated particulate sands, while Jaucas Sand, Saline Soils are firmer with accumulations of alluvial material and higher salt content.

The shoreline is classified as Beach Sand. Hard-packed basaltic soil is present closer to Alahao Street and Kalialinui Stream.

Wetlands and Drainage

Nine wetlands were identified and mapped across the length of Kanahā Beach Park. Some areas are as large as 3.6 acres in size. These areas will be maintained as wetlands.

Coastal Dunes and Shoreline

The park has a near continuous beach backed intermittently by sand dunes. Behind these dunes are wetlands that capture and filter runoff, sediment, and pollution from upland and inland sources.

The beach supports habitat for many marine and terrestrial organisms including endangered native Hawaiian plants and animals.

Kanahā Beach Park area contains a remnant sand dune system behind the beach. Fore dunes face the beach and those landward of fore dunes are usually called back dunes.

In a typical development of dunes the slope behind the fore dune becomes more stable, nutrient levels increase, and sand inundation and salt spray levels decrease. This allows the area to be colonized by a range of plant species that take advantage of these more stable conditions.

At Kanahā Beach Park, these back dune areas include swales, some likely resulting from wind scouring (deflation) to an elevation near the water table where moist sand is encountered that cannot be readily transported.

Back dune areas are often heavily modified from human-induced disturbance. This is true at Kanahā Beach Park where historical military use, construction, and more recent vehicle operation have severely altered these areas. In some areas, the back-dune system is absent or has been altered.



Vegetation and Wildlife

Vegetation varies considerably within the park depending on location. A total of 138 plant species were recorded during four site visits. Of those, 32 were either endemic or indigenous species.

Most were concentrated in the less developed west end of the park, many having been planted by the Community Work Day program as a coastal native species enrichment/restoration project. Two of these plants, the 'ohai and the dwarf naupaka, are endangered species that are federally protected (USFWS, 2015).

Native wildlife comprised four species: the Hawaiian bat which was uncommon, and three insects - the Blackburn's sphinx moth, the green darner, and the globe skimmer. Nēnē (*Branta sandvicensis*) were not seen during the survey but it is possible that they visit the park.

No protected water birds were seen during the survey, but the ae'o or Hawaiian stilt (*Himantopus mexicanus knudseni*), the 'alae ke'oke'o or Hawaiian coot (*Fulica alai*) and the koloa or Hawaiian duck (*Anas wyvilliana*) could be attracted to the park's wetland features.

Hawaiian petrels (*Pterodroma phaeopygia sandwichensis*) and Newell's shearwaters (*Puffinus auricularis newellii*), may transit over the site when flying between the ocean and nesting sites in the mountains during their breeding season (March through November).

Flood Inundation Area

The park includes two flood zone designations. Most of the park is in the VE flood zone with a small portion adjacent and east of the Kalialinui Channel designated as AEF.

Flood Zone VE represents areas of coastal flood zone with velocity hazard and base flood elevations (BFE) determined. The BFE within the park range from 15 feet to 20 feet. There is a small portion of Zone AEF and X just to the east of Kalialinui Gulch.

Flood Zone AEF represents floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be accommodated without increasing the BFE.

Flood Zone X represents areas outside the 0.2% annual chance floodplain.

Entitlements and Existing Land Use

The zoning classifications of the two parcels in the project site include the following:

State land use: Conservation (Limited sub-zone);
County Wailuku-Kahului Community Plan: Park
County zoning: Airport.

The park is located within the Maui Island Plan's Urban Growth Boundary.

The use of the two parcels as a public park complies with the uses allowed within the designated governmental use zones. The parcels are also within the Special Management Area (SMA) and will require an SMA permit or request for exemption depending on the type of improvement proposed in any phase.

Views

The views from the park site are limited on the mauka side as the topography of the site is relatively flat and large trees block most of the view of Haleakalā. There are numerous significant views from the shoreline to the West Maui mountains and the Waihee coastline.

Historic and Archaeological Resources

An archaeological reconnaissance in 2015 identified eight archaeological sites, all from WWII. All eight sites are believed to have been built during the early 1940s when military build-up in the islands led to the development of the Kahului Naval Station (NASKA; later Kahului Airport).

The features include flood control, sand retention, military storage and protection, structural foundations, and temporary shelters.

Utilities and Infrastructure

Water

The park is serviced by the county water system by two-inch water meters (#96931032 & #96998330) located along Alahao Street near the intersection with Ka'a Street. This meter is connected to a six-inch waterline along Ka'a Street and toward the airport area.

The line extends east into the park and services the two existing comfort stations and the irrigation for the eastern section of the park. There are no waterlines between Ka'a Street and the KWRF.

There are no fire hydrants in the park or along Amala Place and Alahao Street. Existing structures may be under an exemption relative to fire protection. Any new structures or additions to the existing structures may be required to be non-combustible or require an exemption from fire flow requirements from the Maui County Water and Fire Departments.

Wastewater

Wastewater collected from the region is transported to the KWRF located west of the park. An existing 18" sewer line along Alahao Street conveys wastewater from the east to the Ka'a pump station, east of Kalia-linui Gulch. The line is connected to the wastewater treatment plant.

The park's two restrooms are connected to the existing 18" sewer line on Alahao St. Showers drain into the ground. The KWRF treats wastewater to R-2 levels.

Electricity

An existing electrical transmission system is located along Amala Place and Alahao Street fronting the park. The existing overhead system currently extends into the eastern section of the park to provide service to the buildings.

Lighting

There is minimal lighting at the park, mainly at the driveway entrances which are mounted on the utility poles.

Drainage

Elevations within the park vary from sea level to approximately eleven feet above mean sea level. There is no drainage infrastructure in the park.

On-site runoff sheet flows to low spots within the park where it percolates into the soils, which have a high infiltration rate. Areas immediately around the water sources such as hose bibs and showers tend to puddle and become muddy as there is no drainage or sewer to capture the water.

Parking and Access

Several driveways provide access into the park, both paved and unpaved. Several formal and informal parking lots are scattered throughout the park. A majority of the existing paved parking area are properly striped, although the condition of the pavement and striping varies with some areas experiencing extensive deterioration.

Based on a 2016 review of parking areas, the park can accommodate about 682 vehicles, divided among 181 formal spaces and 501 informal spaces. This capacity is divided as follows:

Western Planning Area	0 formal	138 informal
Central Planning Area	0 formal	157 informal
Eastern Planning Area	181 formal	206 informal



Restrooms

In the eastern section are three portable toilets and one restroom. There also are also two showers in this area. A single portable toilet and a restroom is near the canoe hale.

Two showers are located in the east-central area. In the former campground area are three additional showers. To the west, at “Keyhole”, there is one portable toilet. Further west, at Ka’a Point is a single portable toilet. “School Beach” has two portable toilets.

Picnic Facilities

Nine picnic tables and five BBQ facilities are in the eastern end. Near the canoe hale are fifteen picnic tables and eleven BBQs. In the former campground area are five picnic tables and four BBQs.

The central region of the park includes six picnic tables with three in the area around “Keyhole” and three at Ka’a Pt. In the western section of the park, “School Beach” has three picnic tables.

Water Safety

Two lifeguard stations are located overlooking one of two dedicated and marked swimming areas. One station is located just seaward of the canoe hale, while the second station is located further east and is adjacent to the marked swimming area.

Other Facilities and Improvements

A lifeguard office and three containers are in the eastern section of the park. Two information signs and one major entrance sign is in the far eastern section of the park along with one major entrance sign near the campground. Another major entrance sign is in the central part of the park.

Two water fountains are located in the eastern section of the park. One is in the far eastern section, and the other further west towards the campground.

Three volleyball courts are located adjacent to the canoe hale.

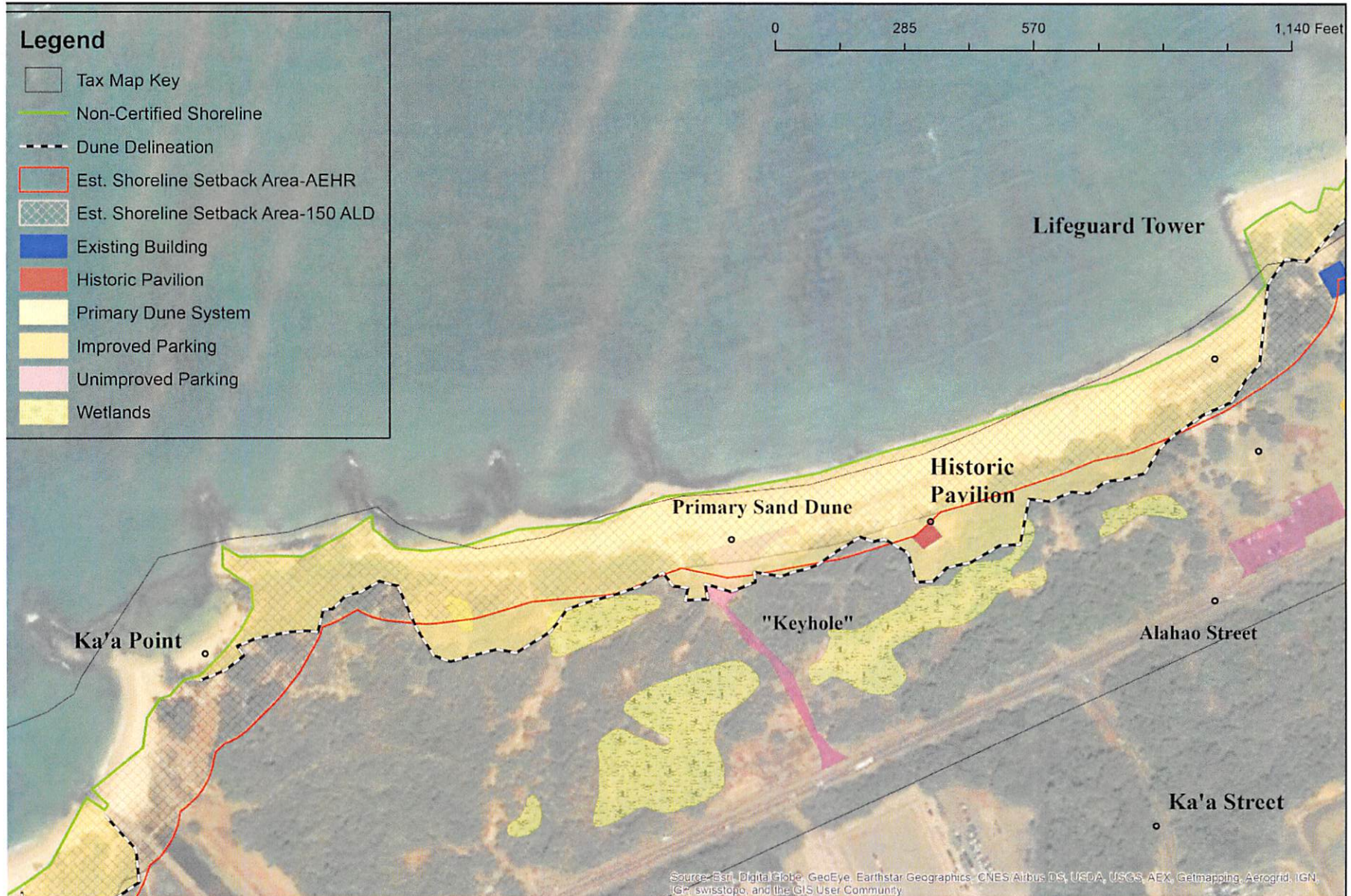
Improvements proposed for the area around Ka’a Pt. (photo at right) as a way of expanding recreational opportunities and distributing visitor use throughout the park.



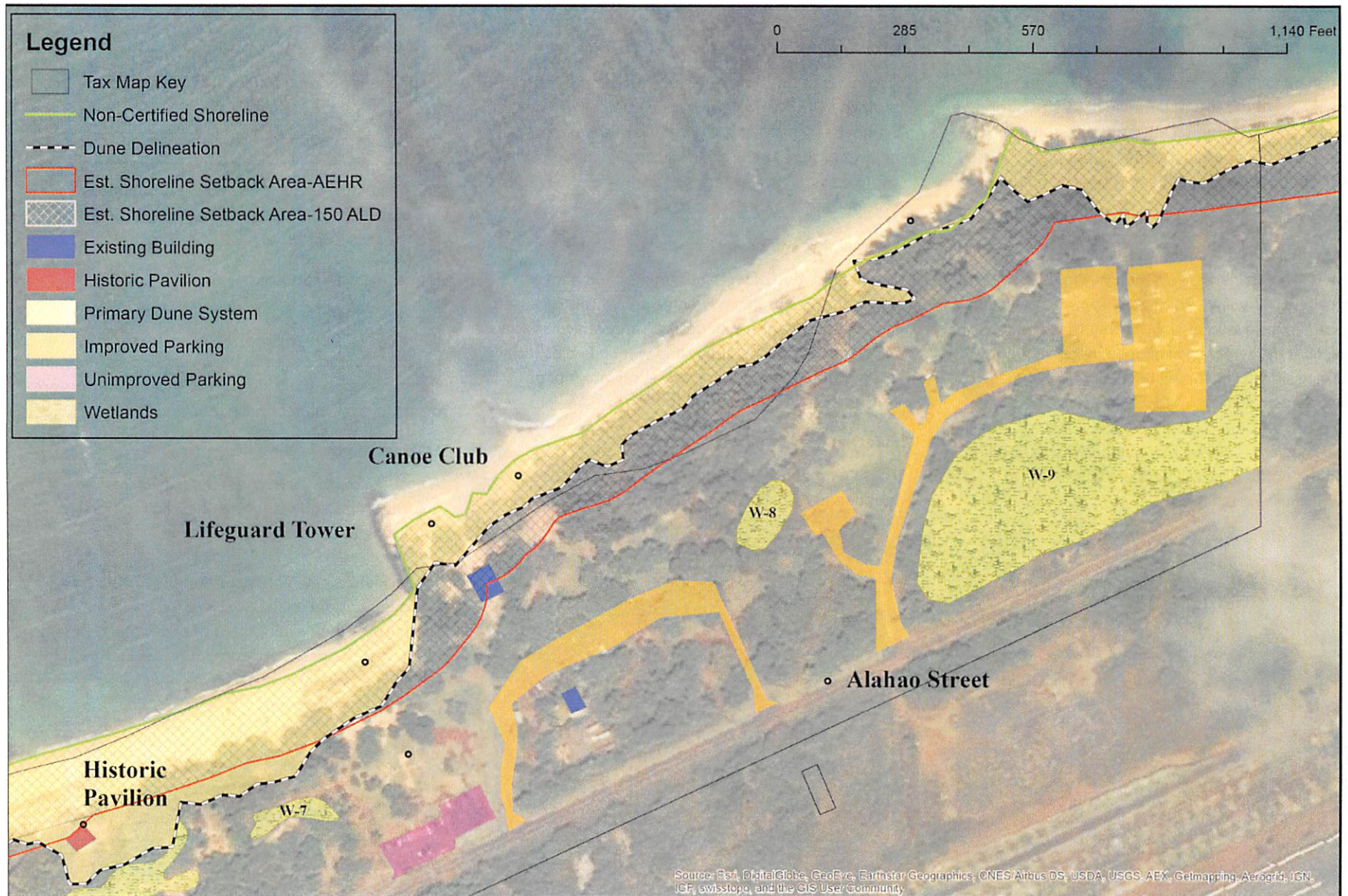
Existing Conditions: West Planning Area



Existing Conditions: Central Planning Area



Existing Conditions: East Planning Area



Issues & Challenges

Kanahā Beach Park faces an unusual number of challenges in the future because of its size, shoreline location, environmental attributes, its popularity, and the range of users it attracts. Among the most important issues facing the park are the following:

Rising sea-levels and coastal erosion

According to climate scientists, the rate of sea level rise is likely to increase dramatically in the coming decades. This will be an issue at Kanahā Beach Park because these studies suggest that the erosion episodes at the park will happen more frequently, causing significant shoreline erosion and damage to park infrastructure.

Low lying areas will be more vulnerable to flooding, and the entire park will be more vulnerable to hurricanes and tsunamis.



Flooding of the unimproved road that leads to the area known as "Keyhole".

According to the shoreline study prepared for the project, "The parking areas at Key Hole, Ka'a Point, School Beach, and at the west end of the park adjacent to the KWRP are all located along retreating shorelines that are experiencing some of the highest erosion rates on the Island of Maui."

Maintaining and protecting coastal habitat.

The degradation of wetlands, dunes, and native vegetation is a problem in some areas. This is caused in part by unmanaged pedestrian and vehicular access. Protecting the park's dunes and wetlands is especially important to maintain the ecological integrity of sensitive environmental areas.

Safety and security

These two issues were among the top concerns mentioned by park users and stakeholders. Car break-ins were frequently cited as were problems connected to homeless encampments.

Insufficient parking, toilets, and lifeguards

According to the Kanahā Beach Park Master Plan user survey, the top four park improvements that are needed include more showers, restrooms, parking, and lifeguards. This was especially pronounced at the east end of the park, where most of the existing facilities are located.

Managing user conflicts

Because Kanahā Beach Park is heavily used for a variety of recreational activities, user conflicts occur periodically. Most tend to be on windy days along the shoreline when many kitesurfers and windsurfers are preparing to launch or have returned.

Fragmented Management

A host of county, state and federal agencies have different roles and responsibilities, and at times conflicting imperatives.

The lack of a single entity responsible for the management of Kanahā Beach Park as a whole complicates the development of policy and programs to address the desires of competing user groups, and impedes timely response to challenges like sea level rise and coastal erosion.

Key Recommendations for the Park

STRATEGIES	Key Actions
EXPAND RECREATIONAL OPPORTUNITIES	<ul style="list-style-type: none"> Establish a centrally located park headquarters and information center. Create a park space in the area mauka of Ka'a Point. Restore and reuse the historic pavilion.
IMPROVE PEDESTRIAN , BICYCLE, AND VEHICULAR CIRCULATION AND PARKING.	<ul style="list-style-type: none"> Create a network of walkways and trails throughout the park. Resurface the existing driveway pavement throughout the park. Develop new parking lots in areas that are underserved or where existing capacity is insufficient.
CREATE A SAFER AND MORE SECURE ENVIRONMENT.	<ul style="list-style-type: none"> Develop a park headquarters which also includes a ranger station with appropriate staffing. Provide a new lifeguard station at Ka'a Point. Manage evening access to the park with a gate at the Ka'a St./Alahao intersection. Create a plan to coordinate management efforts across agencies.
UPGRADE INFRASTRUCTURE AND FACILITIES.	<ul style="list-style-type: none"> Expand the restrooms in the eastern area and by the park headquarters. Expand the network of potable water lines. Improve drainage throughout the park.
RESTORE THE PARK'S COASTAL ECOLOGY AND SUPPORT COASTAL RESILIENCE	<ul style="list-style-type: none"> Partner with a non-profit organization to restore and maintain the park's coastal ecology. Commission a dune management study. Provide signage to promote stewardship of the park's wetlands, dunes, marine ecology, and other environmental resources.
ENHANCE LANDSCAPE PLANTING AND GROUNDS AND FACILITY MAINTENANCE.	<ul style="list-style-type: none"> Restore native habitat in selected areas throughout the park. Remove or thin ironwood trees and replant with native species.

Western Planning Area

MAJOR PLANNING CHALLENGES

- Sea level rise and coastal erosion
- Maintaining and protecting coastal habitat
- Protecting park user's health and safety
- Managing user conflicts

APPROACH

This part of the park is the least developed and is an ecologically sensitive area. The eastern end of this area includes an unimproved parking lot and receives a fair amount of use from wind and kite surfers, fishermen, divers, and commercial operations.

The dune fronting the area next to the drainage canal represents the most intact dune segment within the park, and one of the best examples of natural dunes on Maui.

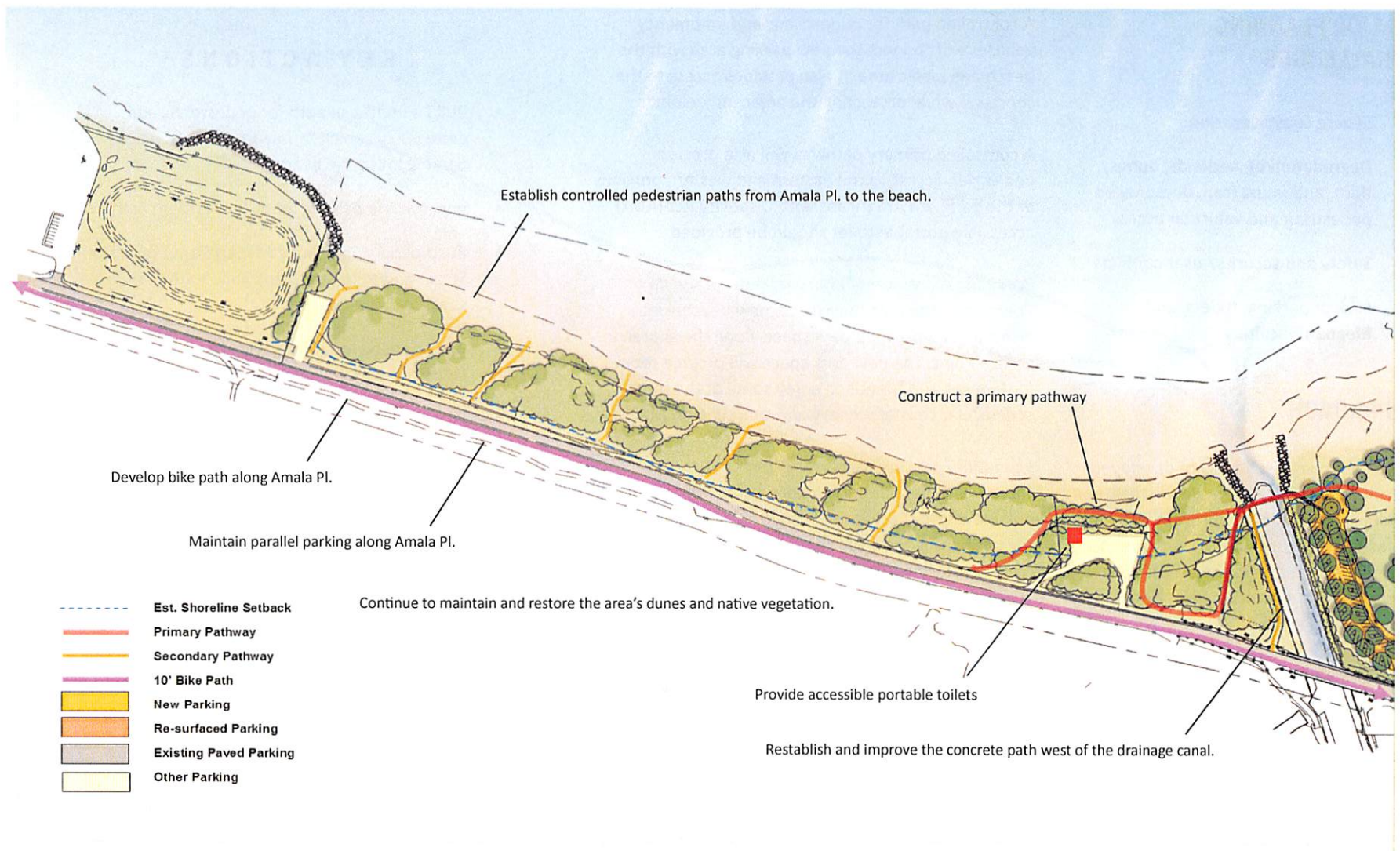
A focus for this area is to *keep this area undeveloped and in as near a natural state as possible*. No expansion of parking areas, paved or unpaved, or installations of park amenities should be allowed in the area.

The *restoration of the area's dunes and native plants should continue*, and include installing sand fencing in appropriate locations, using vehicle barriers, removing non-native plants such as Kiawe and ironwoods, planting native plant

KEY ACTIONS *

- Continue to maintain and restore the area's dunes and native vegetation.
- Establish controlled pedestrian paths from Amala Place to the beach.
- Reestablish and improve the concrete path west of the drainage canal.
- Maintain parallel parking along Amala Place.
- Provide ADA accessible portable toilet(s).
- Construct an approximately 10-foot-wide primary pathway.
- Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.
- Retain parallel parking along Amala Place in the Western Planning Area.

* A complete list of actions is included in the full master plan report.



Central Planning Area

MAJOR PLANNING CHALLENGES

- Severe coastal erosion
- Degredation of wetlands, dunes, flora, and fauna from unmanaged pedestrian and vehicular access
- Safety and security/ user conflicts
- Lack of parking, toilets, and lifeguard facilities

APPROACH

This area comprises a mix of developed facilities, several large wetland areas, and a large amount of unimproved land. As a result, key actions aim to improve the overall recreation experience for park visitors while enhancing habitat values for the wetland areas.

Improvements focus on four major strategies:

Improving coastal resilience while addressing recreation and emergency access needs at the “Keyhole” site. The parking at “Keyhole” will be relocated mauka of the shoreline setback area to allow the dunes to rebuild a reservoir of sand to resupply the beach during periods of erosion.

A controlled path for pedestrians and emergency vehicles will connect the new parking area with the beach and picnic area. It also provides access to the shoreline while protecting the adjacent wetlands.

A controlled primary pathway will also provide pedestrian access to the eastern and western portions of the park. An Americans with Disability Act (ADA) accessible portable toilet should be provided.

Providing recreational improvements in the Ka’a Point area. The plan envisions a new beachfront picnic and landscaped park space along the shoreline at Ka’a Point. The new park space will provide room for families and friends to enjoy some of the most spectacular coastal scenery and shoreline on Maui.

Expanding parking to improve access to the shoreline. A new, improved parking lot will be created outside of the shoreline setback area just mauka of the pathway leading to the pedestrian bridge that crosses Kalialinui Gulch.

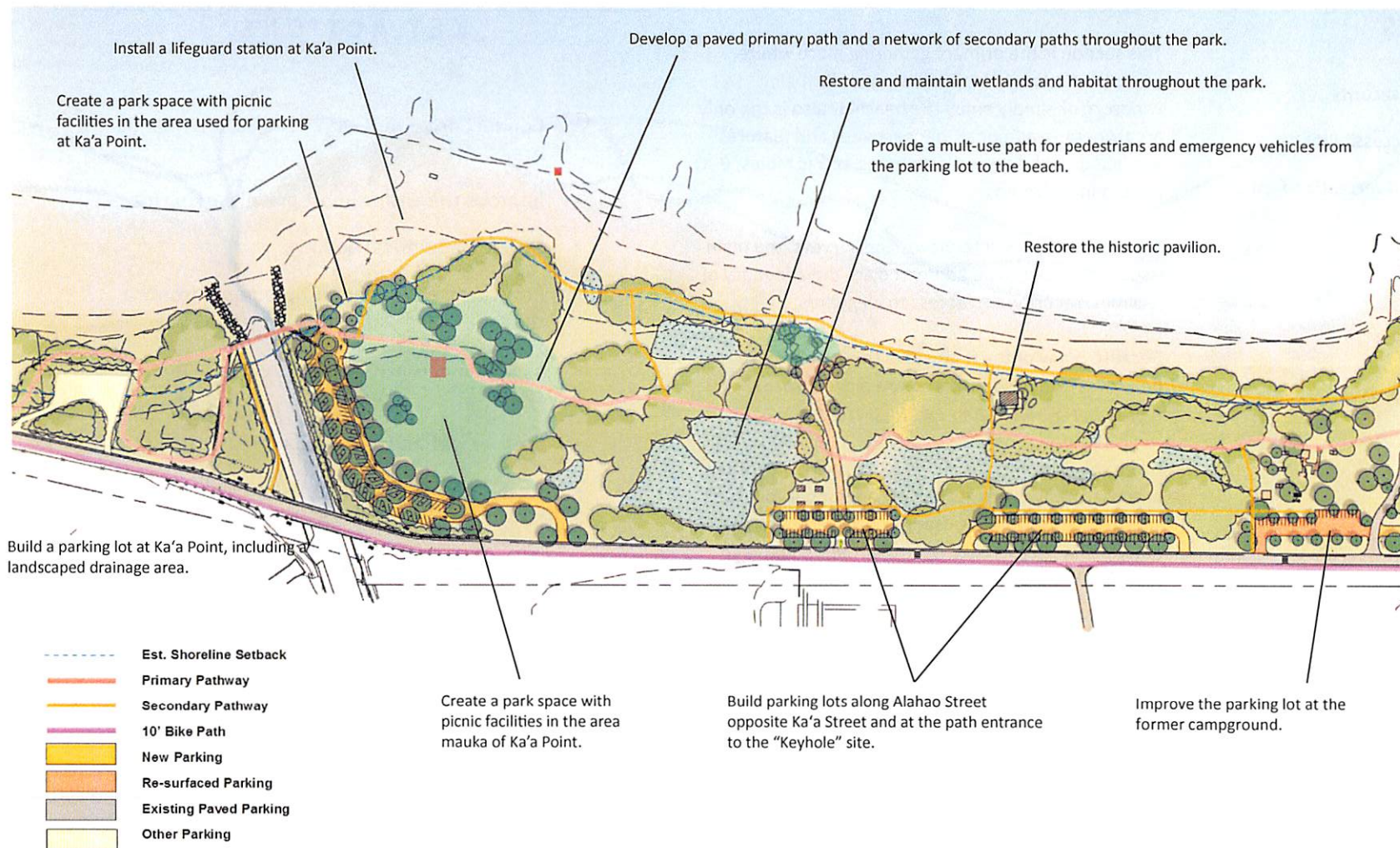
The area to the west of the parking area will be landscaped and will function as an open space drainage retention area. An ADA accessible portable toilet will be provided

Continue restoration activities by removing invasive plants and replacing them with indigenous or Polynesian-introduced species. Wetland areas should also be protected from human intrusion by locating paths outside of these sites. Interpretive signage and other information should also be provided in appropriate locations.

KEY ACTIONS *

- Build a multi-use path for pedestrians and emergency vehicles, only from the “Keyhole” parking lot to the beach.
- Improve the parking lot at the former campground.
- Build parking lots along Alahao Street opposite Ka’a Street and at the path entrance to the “Keyhole” site.
- Build parking lot at Ka’a Point, including a landscaped drainage area.
- Provide vendor parking near the park headquarters and visitor information.
- Restore the historic pavilion.
- Create a park space with picnic facilities in the area used for parking at Ka’a Point.
- Create a park space with picnic facilities in the area mauka of Ka’a Point.
- Provide ADA accessible portable toilets.
- Install a lifeguard station at Ka’a Point.

* A complete list of actions is included in the full master plan report.



Eastern Planning Area

MAJOR PLANNING CHALLENGES

- Safety and security
- Lifeguard accessibility
- Adequacy of recreation facilities

APPROACH

This section is the primary gathering place where group picnics are held, people play volleyball, windsurf, or simply enjoy the beach. It also is the only area where “traditional” park activities and features are found, such as open lawn areas, picnic tables, BBQ grills, and restrooms.

Through meetings, interviews, and surveys, the main issues that need to be addressed are the adequacy of facilities, security, and access to lifeguards.

Because many of the features in this area receive heavy use and in some cases, are old, *the focus is on improving or expanding existing facilities.*

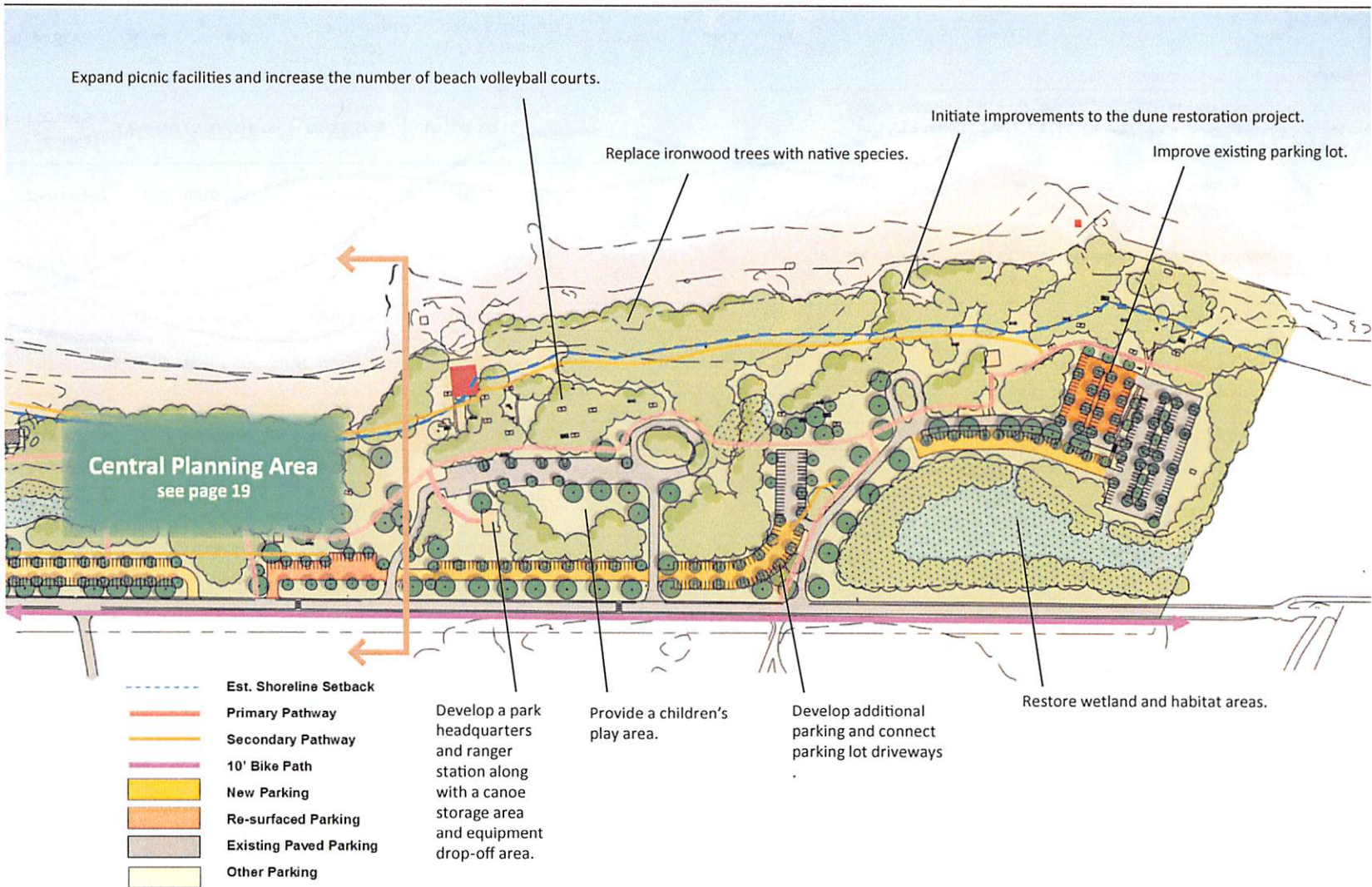
Given the likely increase in park use over time, other proposed improvements include additional volleyball courts adjacent to the existing courts, a children’s natural play area located near the roundabout, and more BBQ and picnic areas near the roundabout.

When east-end park users were asked what improvements are needed in this area, *the top comments were better maintenance of bathrooms and showers, more bathrooms, more showers, and access to a lifeguard.* Other comments in public meetings focused on improved landscaping and ground maintenance.

KEY ACTIONS *

- Connect driveways within the Eastern Planning Area.
- Improve the easternmost gravel parking lot.
- Develop additional parking.
- Provide an equipment drop-off area fronting the area called “Lowers.”
- Update and replace the existing irrigation system.
- Restore wetland and habitat areas.
- Develop a park headquarters to include a ranger station with adequate staffing.
- Develop a canoe club storage area.
- Expand picnic facilities and increase the number of beach volleyball courts.
- Provide a children’s natural play area.

* A complete list of actions is included in the full master plan report.



Implementing Actions & Cost Estimate

ACTION	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	COST	PHASE	ASSUMPTIONS
Restore Coastal Ecology and Support Coastal Resilience								
Partner with a non-profit organization to restore and maintain the park's coastal ecology as set forth in the following plan subactions:1.1, 1.2, 1.5, 1.6, 1.7, 1.10,1.11,1.12, 1.13, 1.14, 1.15, 1.16, 1.18, 1.21, 1.22				\$1,500,000.00	\$375,000.00	\$1,875,000.00	Ongoing 6/	\$75,000.00 annual allowance
1.3 Create a brochure that illustrates the important functions of dunes, and explains why staging, walking or sitting on sand dunes should be avoided.	1			\$5,000.00	\$1,250.00	\$6,250.00	1	Tri-fold color
1.4 Provide signage to promote proper stewardship of the park's wetlands, dunes, marine ecology, and other environmental resources.				See Facility/Signage Costs			1	
1.9 Commission a dune management study.	1			\$50,000.00	\$12,500.00	\$62,500.00	1	
Improve Pedestrian, Bicycle and Vehicular Circulation as well as Parking								
2.1 Construct an approximately 10-foot-wide primary pathway.	50,000	sf	\$10.00	\$500,000.00	\$125,000.00	\$625,000.00	2	Crushed cinder
2.2 Create a network of walkways and trails throughout the park.	60,000	sf	\$10.00	\$600,000.00	\$150,000.00	\$750,000.00	2	Sand and cinder
2.3 Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.	64,000	sf	\$10.00	\$640,000.00	\$160,000.00	\$800,000.00	2	6,400' long x 10' wide
2.4 Connect driveways within the Eastern Planning Area.				See Subaction 2.13			1	Cost included in Subaction 2.13
2.5 Improve (pave) the easternmost gravel parking lot.	20,900	sf	\$10.00	\$209,000.00	\$52,250.00	\$261,250.00	1	
2.7 Improve (pave) the parking lot at the former campground.	13,500	sf	\$10.00	\$135,000.00	\$33,750.00	\$168,750.00	1	
2.8 Build parking lots E-1, E-2, and E-3 in the Eastern Planning Area.								
E-1 (45 stalls)	18,875	sf	\$10.00	\$188,750.00	\$47,187.50	\$235,937.50	3	
E-2 (82 stalls)	31,100	sf	\$10.00	\$311,000.00	\$77,750.00	\$388,750.00	3	
E-3 (51 stalls)	21,000	sf	\$10.00	\$210,000.00	\$52,500.00	\$262,500.00	3	
2.9 Build parking lot C-1 (92 stalls) along Alahao Street opposite Ka'a Street.	27,800	sf	\$10.00	\$278,000.00	\$69,500.00	\$347,500.00	4	
2.10 Build parking lot C-2 (49 stalls) at "Keyhole."	15,650	sf	\$10.00	\$156,500.00	\$39,125.00	\$195,625.00	2	
2.11 Build an approximately 12-foot-wide pathway, for pedestrians and emergency vehicles only, from the "Keyhole" parking lot to the beach.	6,000	sf	\$20.00	\$120,000.00	\$30,000.00	\$150,000.00	2	
2.12 Build parking lot C-3 (76 stalls) at Ka'a Point.	52,900	sf	\$10.00	\$529,000.00	\$132,250.00	\$661,250.00	3	
2.13 Resurface the existing driveway pavement throughout the park.	80,000	sf	\$10.00	\$800,000.00	\$200,000.00	\$1,000,000.00	1	

ACTION	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	COST	PHASE	ASSUMPTIONS
Safety and Security								
3.1 Develop a park headquarters to include a ranger station.	1,450	sf	\$350.00	\$507,500.00	\$126,875.00	\$634,375.00	2	
3.2 Provide a new, staffed lifeguard station at Ka'a Point.				See Facility/Signage Costs Estimates			1	
3.3 Extend the hours of the lifeguard at the existing station near the canoe hale to sunset.				Program Cost			1	
3.5 Provide appropriate lighting near the restrooms.	4 poles and line ext.	Pole	\$20,000.00	\$80,000.00	\$20,000.00	\$100,000.00	1	(Estimate is for lighting near the two restrooms)
3.6 Provide additional signage with park hours and emergency phone numbers.				See Facility/Signage Costs Estimates			1	
Infrastructure (water, wastewater, irrigation, drainage, electrical)								
4.1 Install a potable water lateral.	1			\$20,000.00	\$5,000.00	\$25,000.00	2	
4.2 Install a new water meter for potable water (potable water meter fee (1-1/2")).	1			\$72,000.00	\$18,000.00	\$90,000.00	1	
4.3 Install potable water distribution lines.	2,850	lf	\$70.00	\$199,500.00	\$49,875.00	\$249,375.00	2	
4.4 Install a double check detector assembly (DCDA).	1			\$20,000.00	\$5,000.00	\$25,000.00	2	
4.5 Install a fire line and hydrants for the park headquarters.	1,000 lf 6" WL; 3	Lf; hydrant	\$150.00; \$10,000.00	\$180,000.00	\$45,000.00	\$225,000.00	2	
4.6 Miscellaneous drainage improvements throughout the park (to include improvements in the Eastern Planning Area near proposed parking lot E-1 and elsewhere as needed)	10,000	sf	\$6.00	\$60,000.00	\$15,000.00	\$75,000.00	Ongoing 6/	
4.7 Create a landscaped drainage retention area along the western boundary of the Ka'a Point parking lot.	11,500	sf	\$6.00	\$69,000.00	\$17,250.00	\$86,250.00	3	
4.8 Expand the restroom in the eastern part of the park.	600	sf	\$850.00	\$510,000.00	\$127,500.00	\$637,500.00	1	
4.9 Expand the restroom in the park headquarters area.	600	sf	\$850.00	\$510,000.00	\$127,500.00	\$637,500.00	1	
9.4 Provide ADA accessible portable toilet(s) - "Keyhole."				See Facility/Signage Costs Estimates				
10.4 Provide ADA accessible portable toilet(s) - Ka'a Point.				See Facility/Signage Costs Estimates				

ACTION	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	COST	PHASE	ASSUMPTIONS
Landscape Planting and Grounds and Facility Maintenance								
5.1 Update and replace the existing irrigation system.	12	ac	\$100,000.00	\$1,200,000.00	\$300,000.00	\$1,500,000.00	1	
5.2 Renovate the existing landscape (those areas used for active recreation in the Eastern Planning Area)	12	ac	\$80,000.00	\$960,000.00	\$240,000.00	\$1,200,000.00	Ongoing 6/	
5.3.1 Thin ironwood trees.	100	trees	\$5,000.00	\$500,000.00	\$125,000.00	\$625,000.00	2	Allowance
5.3.2 Plant native shrubs and trees.	10,000	sf	\$5.00	\$50,000.00	\$12,500.00	\$62,500.00	2	Allowance
Expand Recreational Opportunities and Park Space								
7.1 Provide additional landscaped park space.	sf	75,000.00	\$4.00	\$300,000.00	\$75,000.00	\$375,000.00	3	
7.2 Construct a children's play area.				\$60,000.00	\$15,000.00	\$75,000.00	2	Allowance
7.3 Add more beach volleyball courts.				\$25,000.00	\$6,250.00	\$31,250.00	1	Allowance
6.2 Develop a canoe club storage area.	2,000	sf	\$200.00	\$400,000.00	\$100,000.00	\$500,000.00	2	
"Keyhole" Area								
9.1 Provide picnic facilities.				\$15,000.00	\$3,750.00	\$18,750.00	2	Allowance
Ka'a Point Area								
10.2 Create park space with picnic facilities.	3	ac	\$175,000.00	\$525,000.00	\$131,250.00	\$656,250.00	4	
Key Action 8: Restore and Reuse the Historic Pavilion				\$500,000.00	\$125,000.00	\$625,000.00	1	
Miscellaneous Facility / Signage Cost Estimates								
Lifeguard station - 1 Unit <u>3/</u>	1	station	\$36,300.00	\$36,300.00	\$9,075.00	\$45,375.00	1	
Picnic tables - 12 Units <u>3/</u>	12	table	\$908.00	\$10,896.00	\$2,724.00	\$13,620.00	2	
BBQ - 12 Units <u>3</u>	12	BBQ	\$333.00	\$3,996.00	\$999.00	\$4,995.00	2	
Recycle trash cans - 7 Units <u>3/</u>	7	Recycle Trash Can	\$1,586.00	\$11,102.00	\$2,775.50	\$13,877.50	2	
Bike racks - 5 Units <u>3/</u>	5	Rack	\$500.00	\$2,500.00	\$625.00	\$3,125.00	2	
ADA portable toilet - 3 Units <u>3/</u>	3	Toilet	\$3,400.00	\$10,200.00	\$2,550.00	\$12,750.00	1	
Hazard signage - 35 Units <u>3/</u> , <u>4/</u>	35	Sign	\$60.00	\$2,100.00	\$525.00	\$2,625.00	1	
Habitat signage (wetlands, dunes, flora, fauna) - 70 Units <u>3/</u> , <u>4/</u>	70	Sign	\$57.00	\$3,990.00	\$997.50	\$4,987.50	1	
Park rules signage - 20 Units <u>3/</u> , <u>4/</u>	20	Sign	\$60.00	\$1,200.00	\$300.00	\$1,500.00	1	
Major park entrance signs - 2 Units <u>3/</u> , <u>4/</u> , <u>5/</u>	2	Major Sign	\$1,750.00	\$3,500.00	\$875.00	\$4,375.00	1	

ACTION	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,\2	CONTINGENCY (25%)	COST	PHASE	ASSUMPTIONS
Fees and Permitting								
Civil engineering design fees				\$100,000.00	\$25,000.00	\$125,000.00	1	
Landscape architecture design fees				\$125,000.00	\$31,250.00	\$156,250.00	1	
Hawaii Revised Statutes (HRS) Chapter 343 and Chapter 205A Compliance				\$600,000.00	\$150,000.00	\$750,000.00	1	Includes required technical studies
TOTAL				\$13,906,034.00	\$3,476,508.50	\$17,382,542.50		

1/ All costs are in 2018 dollars

2/ The estimated budget doesn't include operating or programmatic costs

3/ Material costs only (Doesn't include installation)

4/ 12 x 18" custom high strength aluminum sign mounted on a high strength, corrosion resistant, 8' tall steel post

5/ Carved, sandblasted or engraved 2.5-cedar, redwood or mahogany wood single-face signs, 48" x up to 96" wide, stained and/or painted with up to three colors

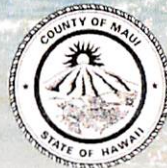
6/ Ongoing costs represent the total estimated cost of annual expenditures on an action over the planning period.



KANAHĀ BEACH PARK MASTER PLAN

August 2018

County of Maui
Department of Parks and Recreation



E Mālama 'oe I ka 'Āina, e Mālama ka 'Āina ia 'oe
(Take care of the land and the land will take care of you)
-Hawaiian Proverb

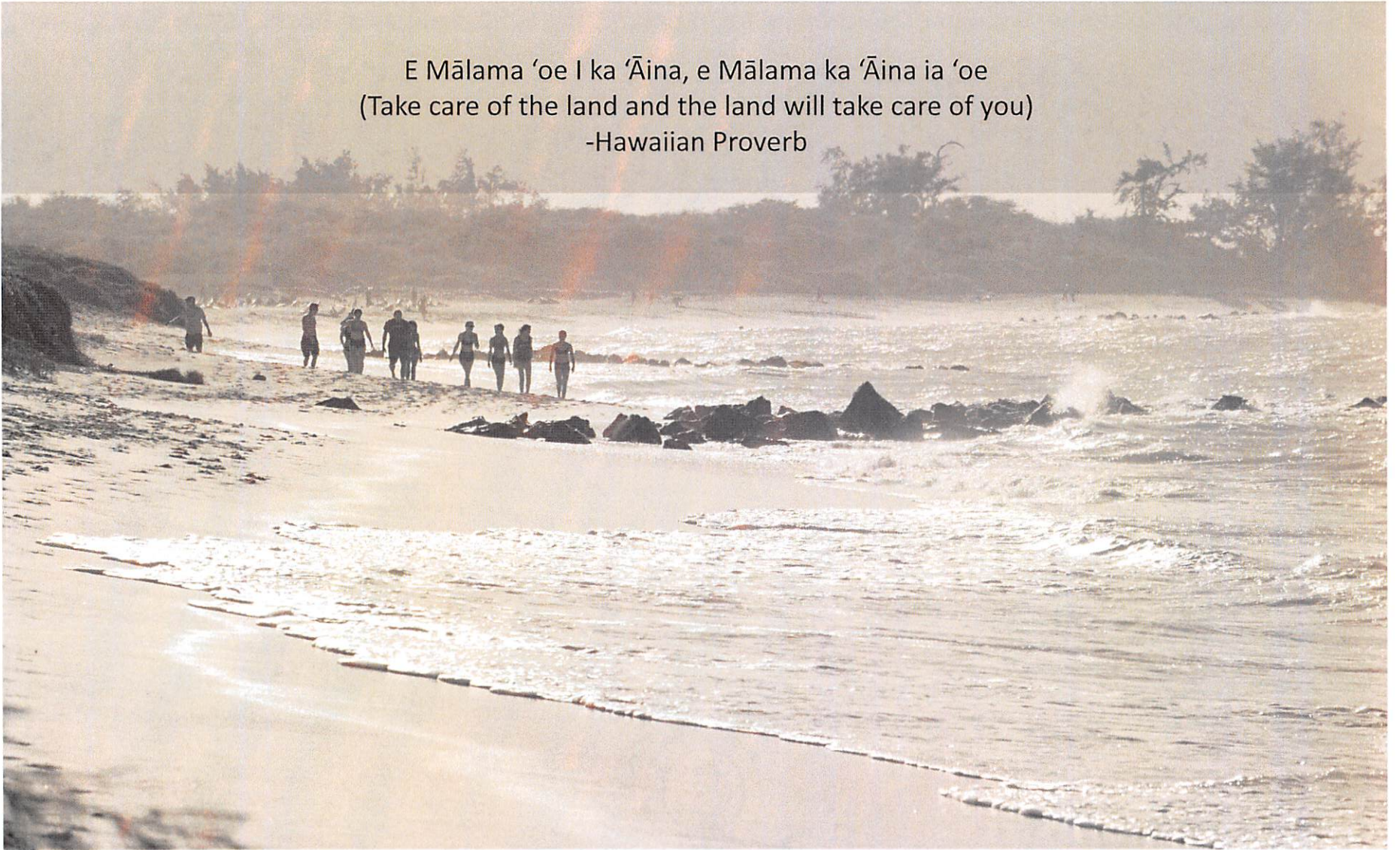


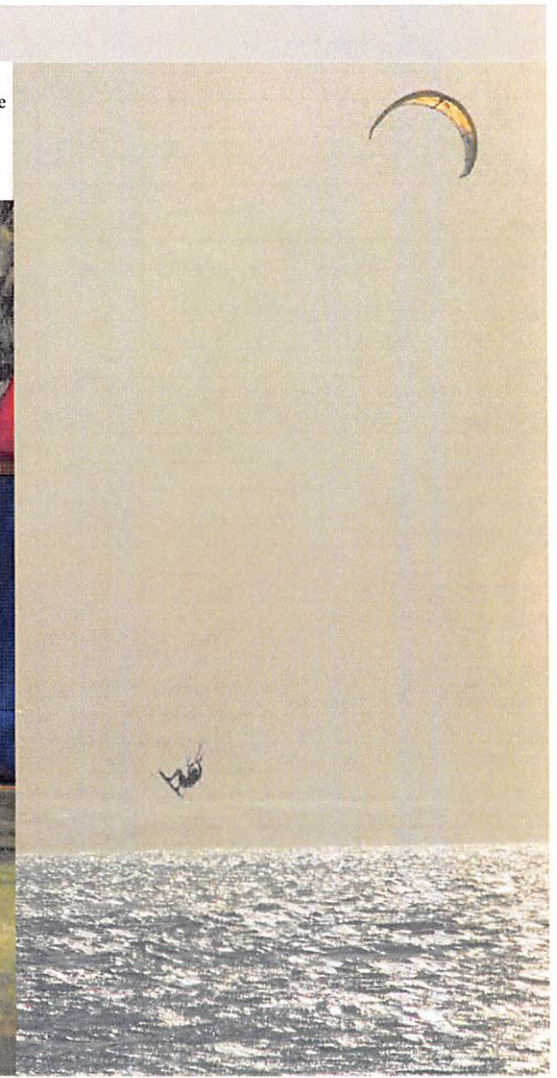
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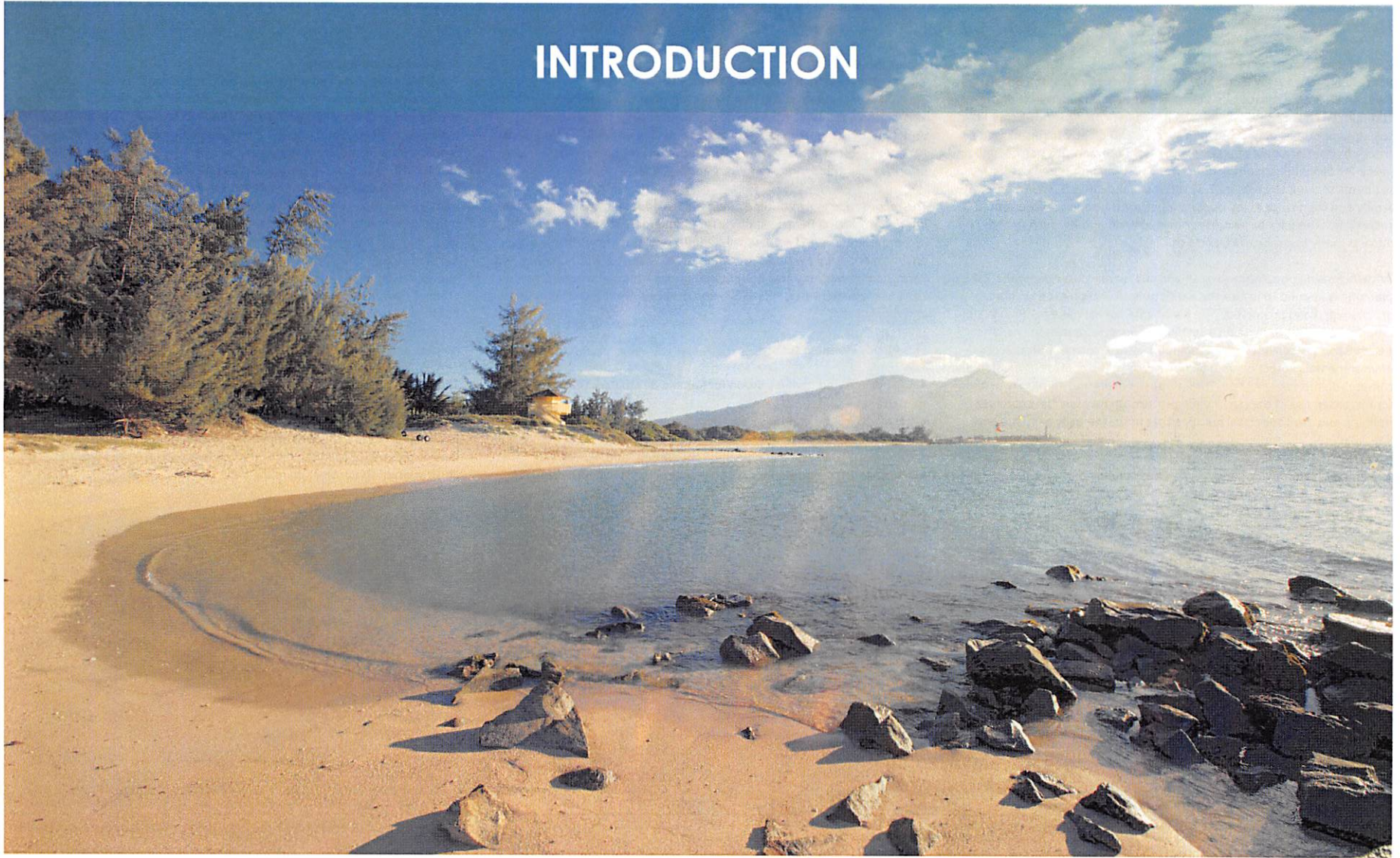


Executive Summary

The executive summary is a separate, standalone document that is a condensed version of this full master plan. It includes the same content, but in a shorter and more concise form. Some information has been reorganized or reformatted to be consistent with the purpose of an executive summary. Maps and diagrams also have been simplified and condensed. In addition, strategies and key actions also have been organized and presented as one table. The executive summary was prepared by the Department of Parks and Recreation and is based on this master plan document prepared by Planning Consultants Hawaii, LLC.



INTRODUCTION



Introduction

Project Background and Purpose

Peacefully tucked away along Maui's North Shore lies Kanahā Beach Park, an 88.5-acre coastal oasis located just over one mile east of the commercial core of Kahului. Kanahā Beach Park's long sandy beaches, rolling sand dunes, intact coastal wetlands, and quietly majestic shade trees offer opportunities for people to relax, interact with nature, and find space for peaceful contemplation. The park is a favorite retreat for Maui residents seeking to enjoy its 1.31 miles of sandy beach, spend time with family and friends, or enjoy opportunities for outdoor ocean-oriented recreation. The park has world-renowned wind and kitesurfing and attracts many to canoe, surf, and fish.

With increasing population growth and subsequent user demands, careful planning is needed to insure the park's natural and physical resources are managed and protected. The Kanahā Beach Park Master Plan is an interagency effort to develop a sustainable long term plan for Kanahā Beach Park. It addresses critical planning issues, such as public access, environmental protection, and facility needs in the context of erosion and climate-related sea level rise. The purpose of this master plan is to allow for increased use of the park, while protecting the essential character-defining and environmental features that make the park a unique and special place.

The master plan provides an analysis of existing land uses and conditions at the park, a strategy and conceptual illustration of future park improvements, and a program to implement the plan.



About this Plan

What is the Kanahā Beach Park Master Plan?

This is a non-regulatory conceptual master plan, which reflects a robust and inclusive public outreach process. It presents a framework for understanding the wide range of issues and challenges at Kanahā Beach Park, and it offers a series of recommendations for balancing the many priorities identified by stakeholders and agencies.

The recommendations outline an ambitious approach to managing and improving Kanahā Beach Park to 2040. Implementation of some of the recommendations in this plan will require public agencies to conduct environmental review under Hawaii Revised Statutes (HRS) Chapter 343. Permit approvals may also be required pursuant to the Hawaii Coastal Zone Management Act, HRS 205A, and other relevant governmental rules and regulations.

This Plan is intended to:

- Articulate a compelling vision for Kanahā Beach Park that inspires future action;
- Provide sound guidance for decision-making by public officials and agencies;
- Provide a road map for plan implementation; and
- Provide a foundation for on-going environmental stewardship.



Scope and Planning Area

The Master Plan uses an integrative, holistic approach to the planning and analysis of the complex issues that confront the future use and management of Kanahā Beach Park. The plan considers the evolving nature of the shoreline, and the interrelationship of the park's flora, fauna, wetlands, dune systems, and near shore waters. The plan looks at the existing use of the park, as well as future user needs and desires. The plan looks at how existing and future infrastructure needs can be met in a way that is resilient to the impacts of climate change and natural disasters, while supporting the park's sense-of-place. The plan takes a long view, yet it works backward to identify short- and long-term actions for the lands that encompass Kanahā Beach Park. The Master Plan is not intended to manage ocean recreation uses that are the purview of the State of Hawaii Department of Land and Natural Resources (State DLNR), but it does respond to how ocean recreation uses interact with the park's infrastructure and facilities, the natural environment, and governmental policies and regulations.

The planning area encompasses the beach and the adjacent lands from the high water mark to the property line just mauka of Amala Place and Alahao Street. On the west end is the Kahului Wastewater Reclamation Facility (KWRF). At the east end of the planning area is undeveloped land at the end of the Kahului Airport runway. Please see Figure 1 for an illustration of the project planning area.



Introduction

Figure 1
Scope and Planning Area

The planning area encompasses the beach and the adjacent lands from the high water mark to the property line at the makai edge of Amala Place and Alahao Street. On the west end is the county's Kahului Wastewater Reclamation Facility (KWRF). At the east end of the planning area is undeveloped land at the western end of the Kahului Airport runway.

Legend

 Approximate Study Area Boundary



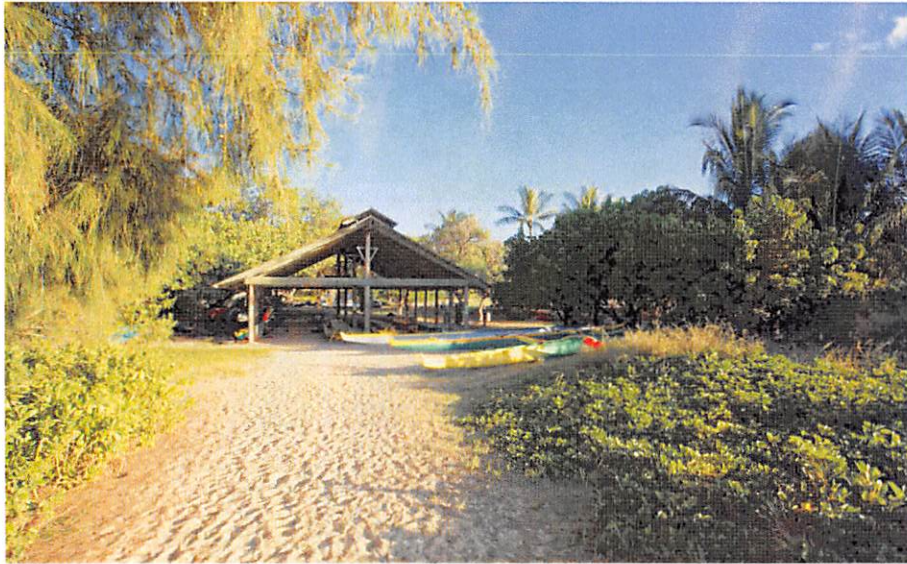
Introduction

About Kanahā Beach Park

Location and Surrounding Uses

Kanahā Beach Park is located on the north shore of Maui just east of downtown Kahului on the north side of the Kanahā Pond State Wildlife Sanctuary (KPSWS) and Kahului Airport. The park is situated on a parcel designated on the real property tax maps as T.M.K.: 3-8-01: 119. The site is bound by the ocean on the north. On the west end is the county's KWRF. The park boundary is just mauka of Amala Place and Alahao Street, which run along the entire south boundary. At the east end of the site is an undeveloped area at the west end of the airport runway. Vehicle access is via Amala Place or Ka'a Street along Alahao Street. Amala Place becomes Alahao Street at Kalia Gulch. Drivers must drive through the airport to access the park from Ka'a Street (Figure 2).

Inland of the park and across Alahao Street are vacant lands owned by the State DLNR and the State of Hawaii Department of Transportation (HDOT), as well as the KPSWS. Kanahā Beach Park enjoys a symbiotic relationship with the KPSWS. The park's shoreline, dunes, and wetlands support the larger KPSWS ecosystem, providing essential habitat for the area's native flora and fauna.



Kanahā Beach Park and the KPSWS anchor the western end of the North shore Preservation Corridor. The North shore Preservation Corridor is a Planned Protected Area in the Maui Island Plan. It is intended to be a "protected area that encompasses a string of shoreline lands with high scenic and preservation value. The coastal preservation corridor begins at the eastern boundaries of KPSWS and extends to Pauwela Point." When fully implemented the preservation area will link many of Maui's spectacular north shore coastal resources, forming an eight mile chain of coastal parks, preserves, and open space vistas. Kanahā Beach Park also lies along the North Shore Greenway, a paved bike and pedestrian path that runs seven miles from Pā'ia Town to Kahului Harbor. The North Shore Greenway offers Kanahā Beach Park users a unique opportunity to enjoy the park as part of a larger cycling or pedestrian experience.

Entitlements and Existing Land Use

The zoning classifications of the two parcels in the project site include the following: 1. State land use designation of conservation (Limited sub-zone); 2. Wailuku-Kahului Community Plan designation of park; and 3. county zoning of airport. The park is located within the Maui Island Plan's urban growth boundary.

The use of the two parcels as a public park is in compliance with the uses allowed within the designated governmental use zones. The parcels are also within the Special Management Area (SMA) and will require an SMA permit or request for exemption depending on the type of improvement proposed in any phase.





Introduction

Figure 2

Regional Location Map

The project site encompasses the beach and the adjacent lands from the high water mark to the property line at the makai edge of Amala Place and Alahao Street. On the west end is the county's Kahului Wastewater Reclamation Facility (KWRF). Beyond KWRF lies Kahului Harbor and Kahului. Further east of the project site is the neighborhood of Spreckelsville. Mauka and to the east of the project site is Kahului Airport.

Legend

-  Approximate Study Area Boundary
-  Kanahā Pond State Wildlife Sanctuary Boundary



Introduction

The environmental, cultural, and hazard concerns and associated governmental regulations include shoreline setback rules of the Maui Planning Commission, which address beach erosion and sand dune preservation issues; flood inundation areas as noted in the Flood Insurance Rate Maps (FIRM) issued by the Federal Emergency Management Administration; sea level rise projections; wetland designations regulated by the federal government through the Army Corps of Engineers; natural fauna and flora (native and endangered) overseen by the U.S. Fish and Wildlife Service; and archaeologically significant sites (such as burials and cultural deposits) that are regulated by the State DLNR.

Large areas of the park are undeveloped and seldom used. However, much of the seaward and eastern portions of the park are developed. As part of the Kanahā Beach Park master planning process, the Maui County Department of Parks and Recreation (DPR) through its consultant team conducted a public user survey at the park. The purpose of the survey was to gather valuable information about park use, user satisfaction, perception of the park, and user preferences for future park improvements. Figure 3 illustrates the diverse use of Kanahā Beach Park as captured in the user survey.

The prevailing uses tend to focus on the beach and ocean recreation. Recreation includes swimming, windsurfing, kitesurfing, stand-up paddling, prone surfing, canoeing and kayaking, and both pole and spear fishing. In developed portions of the park, family outings, gatherings, picnicking, and barbecuing are particularly popular on weekends. Individual enrichment from beach walking, pet strolling, bicycling and jogging occur within or adjacent to the park as it is linked by the North Shore Greenway. Until September 1, 2016, authorized camping had been permitted within a designated area of the park and unauthorized camping was common both within and outside of the designated camping area. There are two permanent restroom facilities in the park and both are located in the eastern, more developed portions of the park near paved parking areas.

The DPR conducted a survey of vehicular parking usage at Kanahā Beach Park. The scope of the study was to determine how the usage of the park's parking lots, informal parking areas, streets, and other areas occurs during the morning, mid-day, and late afternoon on days of peak park usage. The parking study determined that the parking supply at Kanahā Beach Park is limited within the easternmost and east-central areas of the park during the peak use period, which is during weekends and holidays when both wind and kitesurfing is occurring alongside family gatherings. During non-peak periods (weekdays, mornings, evenings) abundant unused parking is available. Please refer to Appendix A.3 of this report for a summary of the survey findings.

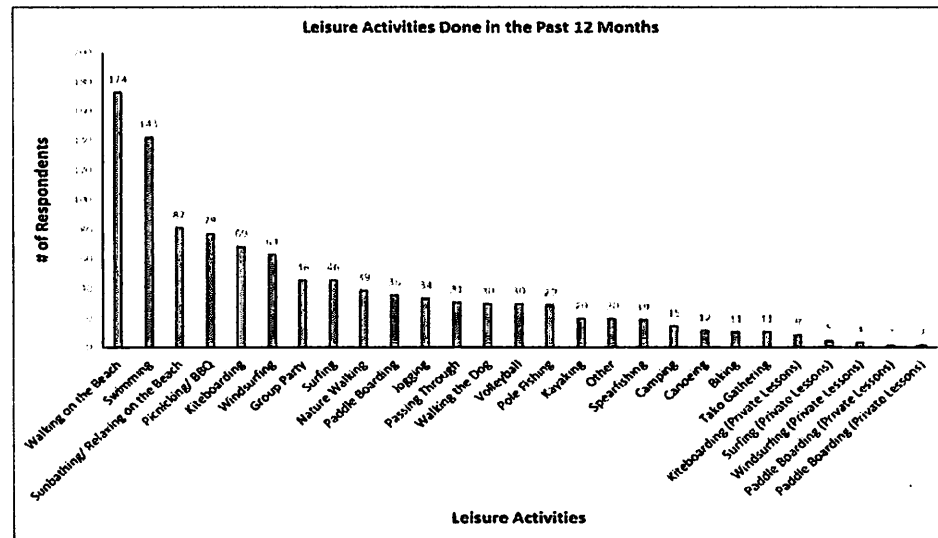


Figure 3

Kanahā Beach Park

Ownership: State of Hawai'i Executive Order to County of Maui

Land Area: 88.5 Acres

Entitlements:

State Land Use: Conservation, Limited Subzone

Maui Island Plan: Urban Growth Boundary

Community Plan: Park

Zoning: Airport

Introduction

Planning Areas

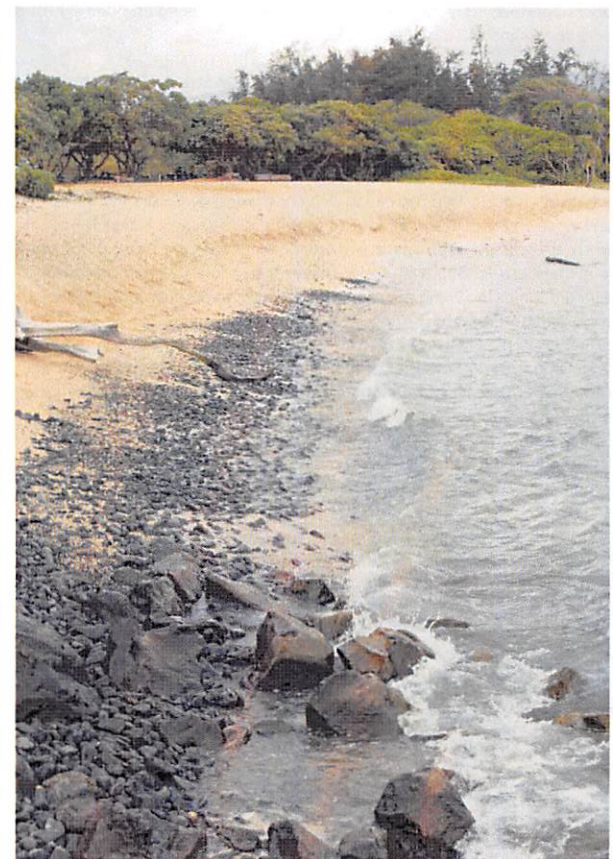
For planning purposes, the park was analyzed as both a whole, integrated site, and as a series of three component planning areas (eastern, central and western) defined by topography, land use, and level of development (Figure 1).



Eastern Planning Area



Central Planning Area



Western Planning Area

Introduction

Eastern Planning Area

The Eastern Planning Area is bound on its western side by the former camping area and the existing lifeguard station, and on the eastern side by the eastern edge of wetland W-9 (Figure 4). The Eastern Planning Area comprises approximately 26 acres and is the most developed and heavily used portion of Kanahā Beach Park.

The Eastern Planning Area is accessed from Alahao Street. The easternmost driveway leads to two paved parking lots and a gravel parking area. Just to the west is a second driveway that provides access to paved parking areas just mauka of the lifeguard station, volleyball courts, and a canoe club. Potable water is supplied to the eastern portion of the park supporting comparatively more active recreation activity than what occurs in the central and western areas of the park. The use of potable water makes it possible to create grassed open space with shade trees that are popular for family gatherings. Potable water also makes it possible to establish more leisure amenities including restrooms, barbecue stands, picnic tables, shower pads, and hose bibs for rinsing.

Popular group sport facilities include sand volleyball courts and an outrigger canoe hale. One lifeguard station is strategically located overlooking one of two dedicated and marked swimming areas. A second lifeguard station is located to offer sweeping views of areas popular for surfing, windsurfing, and kiteboarding. The park's campground was closed on September 1, 2016. Just east of the former campground is a small office and several cargo containers used for storage. There are two permanent restroom facilities

in the park, and both are located in the Eastern Planning Area and within proximity of paved parking areas.

The eastern extent of the "Uppers" (Airport Beach) dune segment terminates at a groin fronting the HDOT airport property. This area is more naturalized and undeveloped. Mauka of this dune is a large undeveloped area and wetland that lies between coastal dunes, the North Shore Greenway, and Kahului Airport.

Three seaward groins are located along the beach within the Eastern Planning Area and a fourth groin is located just beyond the park's eastern boundary. Although outside the boundary of the park, two additional coastal groins fronting the undeveloped HDOT airport property have a significant effect on the beaches at Kahanā Beach Park.

Today, the lifeguard station, canoe hale, and volleyball courts sit on accreted land created by the groins capturing and retaining up-drift sand. Although the beach between the three groins has formed by accretion, the width of the beach has narrowed because the invasive ironwood trees behind the beach hold sand too tightly within their root systems leading to the formation of steep sandy embankments rather than a wide, gently sloped beach.

At the eastern edge of the ironwood grove, the terrain levels out into the surrounding area which has been developed with irrigated lawns, a shower pad, several hose bibs, and paths that lead to the public restroom building. Beach access next to the embankment consists of a wide swale that is split offshore by a groin. The groin provides a protected swimming area to the

east, and a sheltered windsurf launching area to the west.

The area is heavily used by families with children because its shallow waters are protected from strong waves and currents. The beach at the swimming area is retreating inland as evidenced by low two-to-four feet high scarps in the sandy embankment.

Directly seaward of the campground, there are a number of breaks in the shade canopy allowing for unconstrained access to the wide beach. The beach has minimal vegetation and a sparse stand of aki'aki grass is present to the east, just above and inland of the beach crest where it levels out.

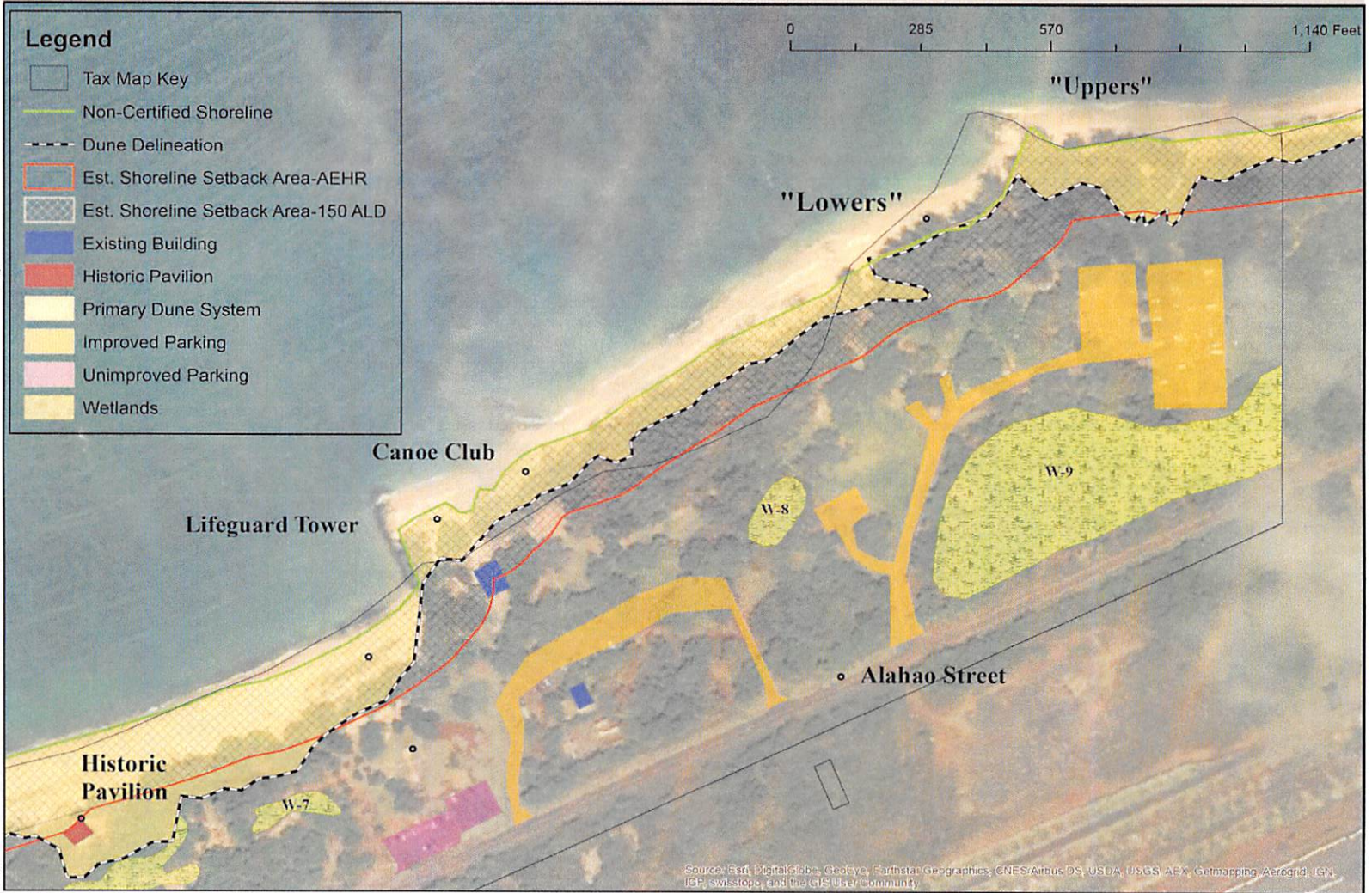


Introduction

Figure 4
Eastern Planning

Area (Eastern Park Boundary to the Western Boundary of the Former Campground and Lifeguard Tower)

Much of Kanahā Beach Park from the easternmost parking lot to the former campground has been graded for park use. The Eastern Planning Area is the most developed and heavily used portion of Kanahā Beach Park. Future park improvements should be located outside of the shoreline setback and avoid the park's dunes and wetlands.



Introduction

Central Planning Area

The Central Planning Area is bound to the east by the former campground and its associated parking lot. It is bound to the west by the Kalialinui Gulch drainage canal and Ka'a Point. To the south the Central Planning Area is bound by Alahao Street (see Figure 5). The beach from the western side of the lifeguard station to Ka'a Point is popular with kitesurfers and fishers. Large areas of the Central Planning Area are undeveloped. There is no potable water in the Central Planning Area.

There are five coastal groins present at Ka'a Point located east of the drainage canal. Two additional groins are located near the lifeguard station just east of the Central Planning Area. The beach down-drift of the groin at the lifeguard station extends west to Ka'a Point. This section of beach has experienced severe erosion at an average rate of 2.1 feet per year, while the average width of the beach has increased 33% and the shoreline has retreated inland. Comparing the coastline from Ka'a Point through the central portion of the park makes clear the effect of groins on sandy beaches. The five groins clustered together at Ka'a Point have captured sand moving alongshore, pushed by the prevailing northeasterly winds. However, the beach and shoreline have retreated inland.

The Central Planning Area's dune system is one of the longest, nearly intact sand dune systems within the park. Dunes behind the beach act as sand reservoirs to replenish sand scoured from the shoreline during large surf or swell events. The Central Planning Area contains several wetlands that are located inland and below the dune. These wetlands

capture upland sources of rain and stormwater runoff, retain it, and buffer groundwater discharge into the coastal zone.

A long foot path extends laterally from the former campground through wetlands six and seven to the "Keyhole" where kitesurfers access the beach from a dirt road (Figure 5). The dirt road splits wetlands five and six and frequently floods in low-lying spots during rain events. A second foot path extends from the "Keyhole" parking lot to the west through wetland three. A number of foot paths from Amala Place and Alahao Street to the beach cross through the wetlands. This foot traffic compacts the wetland's soil, crushes the roots of wetland plants, and degrades the wetland's ecological function and capacity to naturally retain, stabilize, and filter sediment and contaminants.

There are several historic structures within the Central Planning Area. Notably, just east of "Keyhole" an open air pavilion (the remnants of a World War II Officer's clubhouse) rests atop a sand dune, just inland of the beach. At the entry to "Keyhole" sit four small concrete block structures formerly used for military storage.

Ka'a Point is adjacent to Kalialinui Gulch and is just east of "School Beach." Ka'a Point is accessed by an unimproved driveway from Alahao Place. The clay driveway extends to an unimproved parking lot located in the shoreline setback area. A foot path traverses the top of an elevated berm and extends east from Ka'a Point to the middle of the forest canopy just west of "Keyhole."

Ka'a Point is popular with fishers, swimmers, picnickers, and kites. From a functional standpoint, the dune no longer exists at Ka'a Point because it has been heavily impacted by vehicle traffic and parking, and the presence of five groins that extend offshore. The general vicinity is susceptible to flooding and inundation; the beach shows evidence of erosion and scour, and diminished nearshore water quality could be a long-term result.



Introduction

Figure 5
Central Planning Area
(Eastern Park Boundary to
Kaliialinui Gulch Drainage Canal)

Much of Kanahā Beach Park from the westernmost boundary of the Eastern Planning Area to Ka'a Point is undeveloped and rich in dune and wetland resources. Future park improvements should be located outside of the shoreline setback and avoid the park's dunes and wetlands.



Introduction

Western Planning Area

With its long white sandy beach, azure waters, unique coastal ecology, views of the ocean and Haleakalā, and sustained trade winds, the Western Planning Area offers Maui residents and visitors a unique recreational experience. "School Beach" is a world renowned kitesurfing destination that is popular with both locals and visitors. It is also a popular fishing destination for local residents.

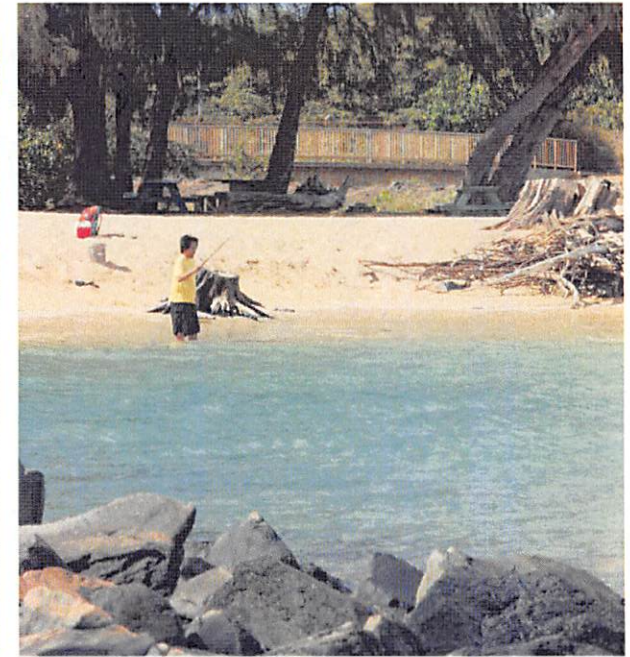
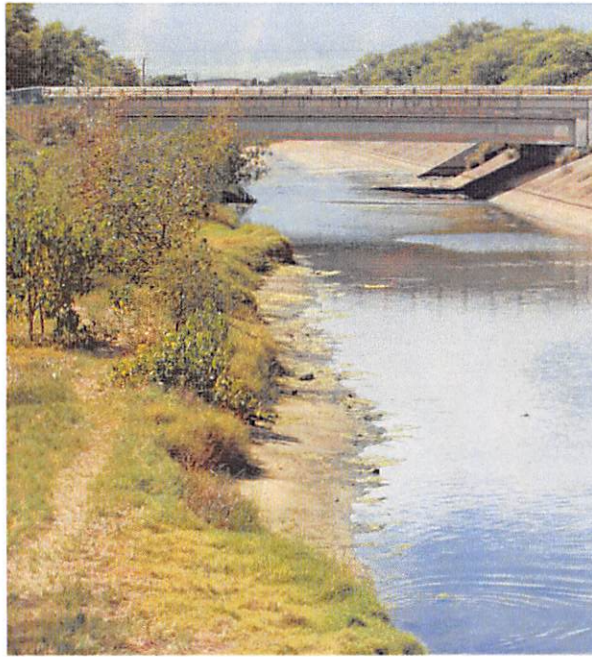
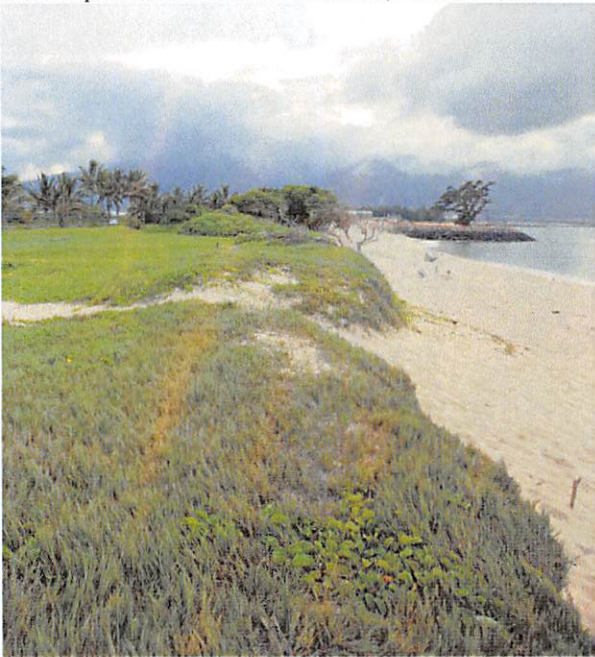
The Western Planning Area is transected by a large box culvert and concrete lined drainage canal adjacent to Ka'a Point. The narrowest portion of the park extends from the unimproved parking area to the KWRF, and is comprised almost entirely of intact sand dunes and native vegetation. Along Amala Place there are various openings in the vehicle barrier for pedestrian access to the beach. Owing to its lack of potable

water for development, this western-most portion of the park represents the most pristine, natural coastal area within Kanahā Beach Park (Figure 6).

The dune acts as a natural buffer between the KPSWS and "School Beach" and is ecologically functional. The "School Beach" dune segment, from the KWRF to the "School Beach" parking lot, extends from the back of the beach inland to Amala Place and is covered in native vegetation.

Over the years, "School Beach" has experienced extremely high erosion with annual average erosion rates of three-to-four feet per year. The beach is rapidly retreating inland between the wastewater facility and Ka'a Point. The narrowed beach is often strewn with kitesurfing lines, making the beach unappealing and hazardous for non-kiteboard users.

There is an unimproved parking area fronting the beach. The surface of the parking area consists of clay sediment interspersed with rock fragments. The parking area extends seaward nearly to the beach crest, where a row of beach heliotrope provides shade for a line of picnic tables used by park visitors. Clay soils from the parking area are tracked by foot and equipment to the beach. The soils have mingled with the whiter beach sand, creating a dirtier, less pristine beach. This parking area is also threatened by coastal erosion.



Introduction

Figure 6
Western Planning

Area [Kahului Wastewater Reclamation Facility (KWRF) to Kaliainui Gulch]

Kanahā Beach Park is a linear coastal park comprising a roughly 1.31 mile broad sandy beach. The western portion of the park from the "School Beach" parking lot to the KWRF comprises almost entirely intact sand dunes and native vegetation. Physical improvements should be located out of the shoreline setback area and away from the park's dunes, wetlands, and other sensitive resources.



MASTER PLANNING PROCESS



Master Planning Process

MASTER PLAN PROCESS

The DPR was able to gather a wider variety of input from the community and stakeholders by using multiple outreach techniques to capture public input, including a public user survey, community workshops, and stakeholder focus group meetings. The DPR compared, analyzed, and synthesized the data collected from each outreach technique. The DPR cross-verified the data from each source (triangulation) to assess the validity of the results.

The DPR built the master planning process on a long history of previous park planning efforts for Kanahā Beach Park, including a study and planning process completed between 2002 and 2004, as well as community meetings and a public comment period regarding proposed infrastructure improvements conducted during the summer of 2013.

The purpose of this planning process was to build a shared vision for the future use and improvement of Kanahā Beach Park. The objectives associated with this purpose were to 1. Ensure the Master Plan's recommendations were founded on robust technical data and sound planning principles; 2. Provide an opportunity for key user groups to outline their beliefs, concerns and needs regarding the park, including their preferences for future park improvements; 3. Solicit broader community ideas and suggestions regarding the park's future and build a shared vision for its proposed improvement; and 4. Provide an iterative process whereby the community had an opportunity to provide comments.



Master Planning Process

The master plan process comprised five distinct phases:

1. Phase 1 (April through August 2015): a data development phase wherein the DPR's consultant team prepared technical studies to document the park's flora and fauna, wetlands, coastal resources, archaeology, topography, and infrastructure. As part of this phase, the consultant team identified the various governmental regulations, environmental constraints, natural hazard risks, infrastructure constraints, and other parameters that would restrict the developable areas of the park. The consultant team prepared maps depicting those constraints. The DPR used these constraint maps throughout the planning process.
2. Phase 2 (June through September 2015): a community assessment and meeting design phase during which the DPR and its consultant team conducted an on-site park use survey, hosted preliminary meetings and site visits with agency stakeholders, and completed the design of stakeholder and community outreach meetings.
3. Phase 3 (October to January 2016): a public and agency outreach phase during which the DPR conducted a series of stakeholder meetings, a community vision workshop, and an agency workshop. The smaller stakeholder meetings were followed by a larger community vision workshop, where the DPR invited representatives from across priority stakeholder groups to attend and participate in a visioning process for the future of the park's uses and management. In this regard, the public engagement process included both small focus groups and larger community meetings. The findings from the community workshop, stakeholder meetings, and user survey were analyzed, synthesized and cross-verified (triangulated) to help validate the results (Figure 6a).
4. Phase 4 (Summer 2016): a draft plan review phase during which the DPR invited stakeholders and the public to an open house to review and comment on conceptual renderings of the Draft Master Plan concept in order to revise, strengthen, and finalize it.
5. Phase 5 (Summer 2017): A facilitated series of meetings with a working group of stakeholders to discuss several outstanding issues. Members of the working group were chosen by the county for their capacity to represent various stakeholder perspectives; their diverse types of knowledge, experience, and expertise; and their commitment to work collaboratively with others.

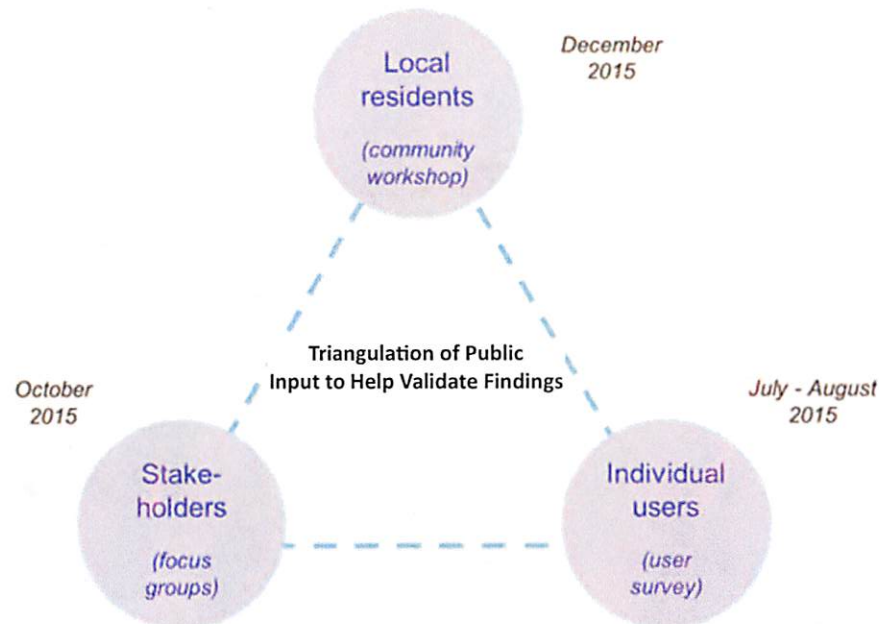
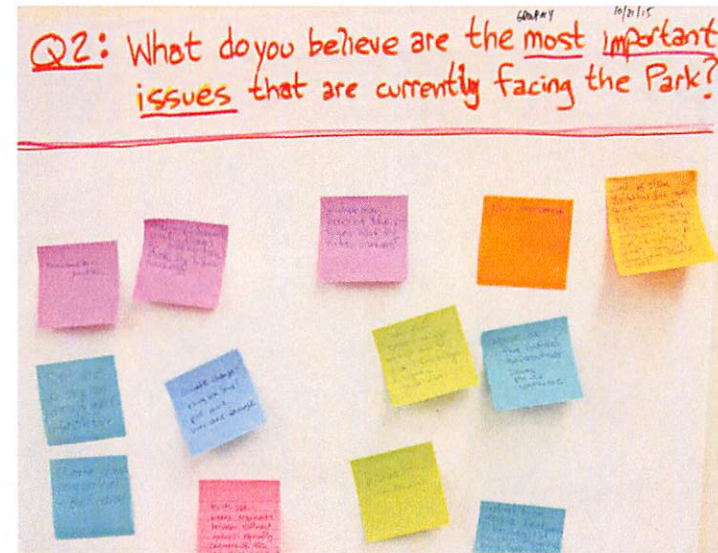


Figure 6a



Master Planning Process

Public Outreach Highlights

The consultant team conducted a public user survey at the park in July and August 2015. A total of 244 user surveys were completed over multiple days. Surveys were administered in the eastern, central and western areas of the park. Although not a scientific survey, it provided valuable information about park use, user characteristics, user satisfaction, and user preferences for future park improvements. To obtain meaningful responses from the subjects, the survey contained a combination of open and closed questions. The open-ended questions prompted respondents to answer in their own words. These questions allowed for a more in-depth look into the personal opinion of each respondent. Closed questions, on the other hand, had respondents choose from a set of responses. The responses to closed questions could then be graphed and compared. Including open and closed questions allowed for the collection of both qualitative and quantitative data, which made for a well-rounded survey. Demographic questions were added to the end of the survey to understand each subject's personal background and relation to Kanahā Beach Park.

Survey respondents were asked to rate their satisfaction with the park on a scale of 1 (Very Unsatisfied) to 10 (Very Satisfied). Overall, survey respondents were quite satisfied with their park experience, as reflected in the 70% of survey respondents who rated the park between 7 and 10 (Figure 7). The DPR also analyzed user satisfaction in the eastern, central and western sections of the park (Figure 8). Users in the eastern portion of the park had a higher level of satisfaction than users in the central and western sections of the park, which likely reflects the greater investment in restrooms, paved parking, picnic tables, and other amenities in that portion of the park.

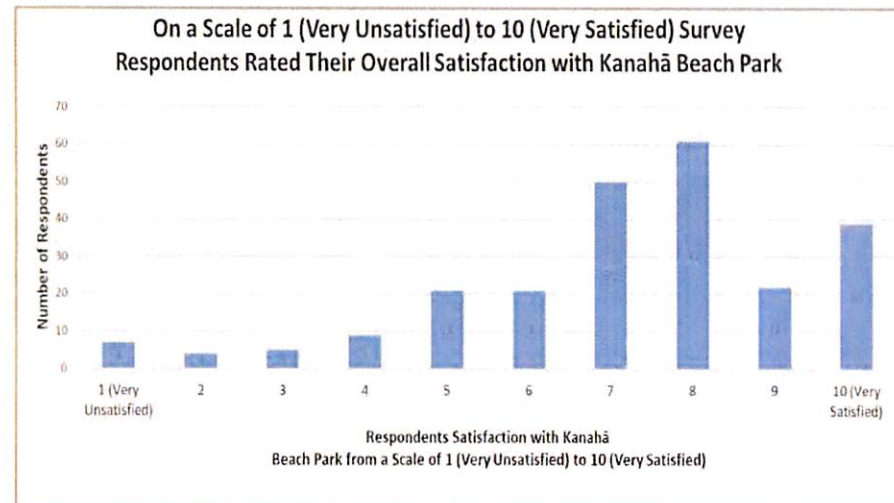


Figure 7

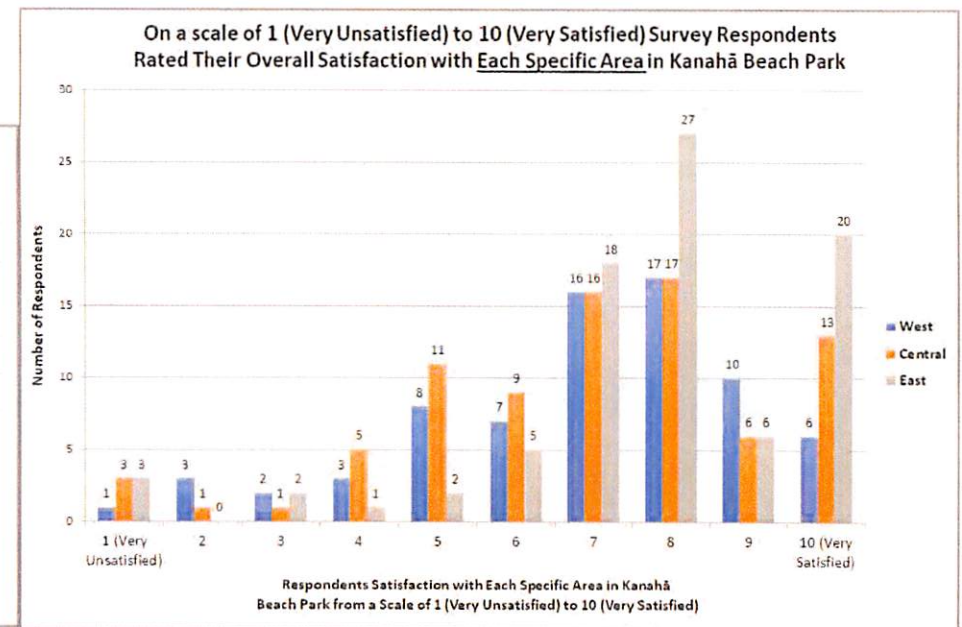


Figure 8

Master Planning Process

To gain a better understanding of what Kānaha Beach Park users value most about the park, and to highlight the park's strengths, the DPR asked users what they enjoy most about the park. Users overwhelmingly mentioned the park's natural beauty as their favorite park feature. One survey respondent wrote, "The wild north shore's natural solitude makes this beach superior to south shore beaches with their tourist crowds." In the written responses, words such as "peaceful," "serenity," and "rustic" were used to describe the atmosphere of Kānaha Beach Park. Other favorite park features included windsurfing, kitesurfing, and spending time with family and friends (Figure 9).

The DPR asked Kanahā Beach Park users what they disliked most about the park to gain a better understanding of the issues that the park's users want addressed. According to users, the most obvious issue that exists is the conflict among park users. Park users also disliked the homeless situation in the park, as well as the inadequacy of park facilities such as toilets and showers (Figure 10).

The dislikes expressed through the user survey were corroborated during the DPR meetings with Kanahā Beach Park's stakeholders. The DPR asked stakeholders what they believed were the most important issues facing the park. Stakeholders offered 87 individual responses to this question. Nearly half (49%; n=43) of all individual responses offered relate to three issues: insufficient park infrastructure and facilities (specifically restrooms, showers, and parking; n=18); the impact of the homeless park residents (n=13); and conflicts between kitesurfers (specifically) and other ocean watersport user groups (n=12).

When the DPR asked Kanahā Beach Park stakeholders what they felt were the most important issues currently facing the park, the words most frequently cited by respondents were homeless, parking, illegal, and facilities (Figure 11).

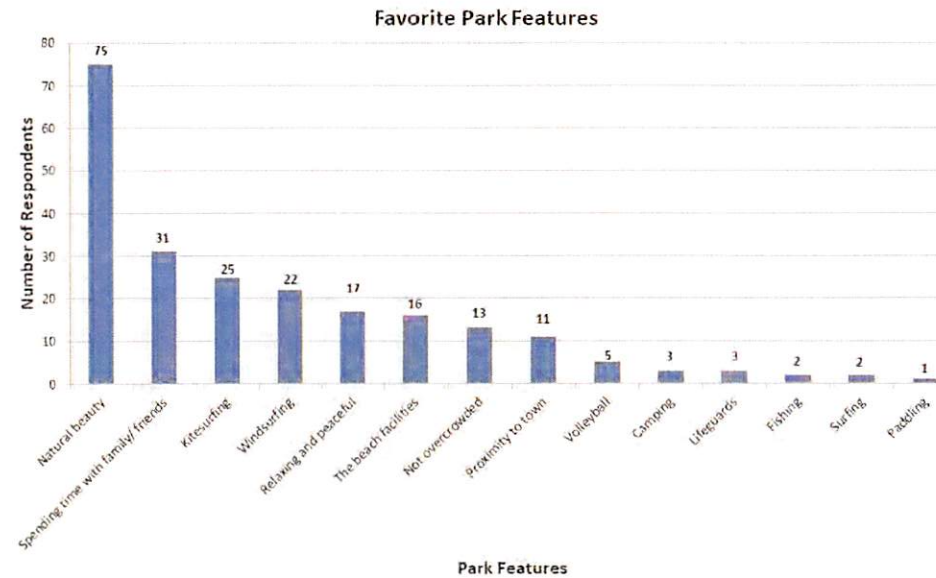


Figure 9

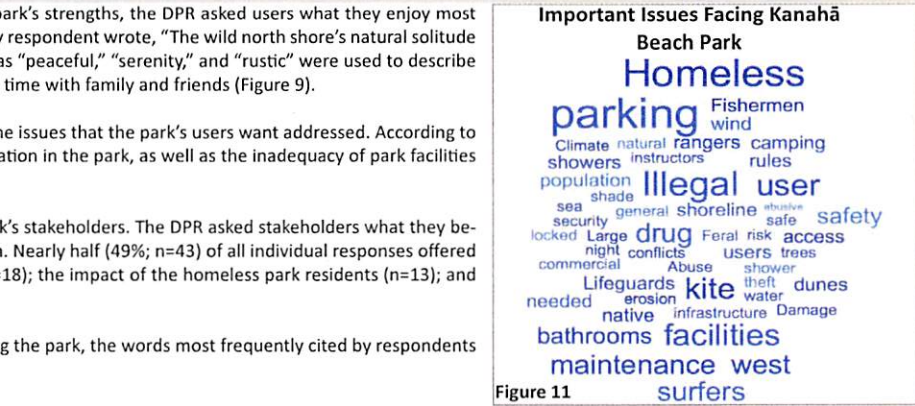


Figure 11

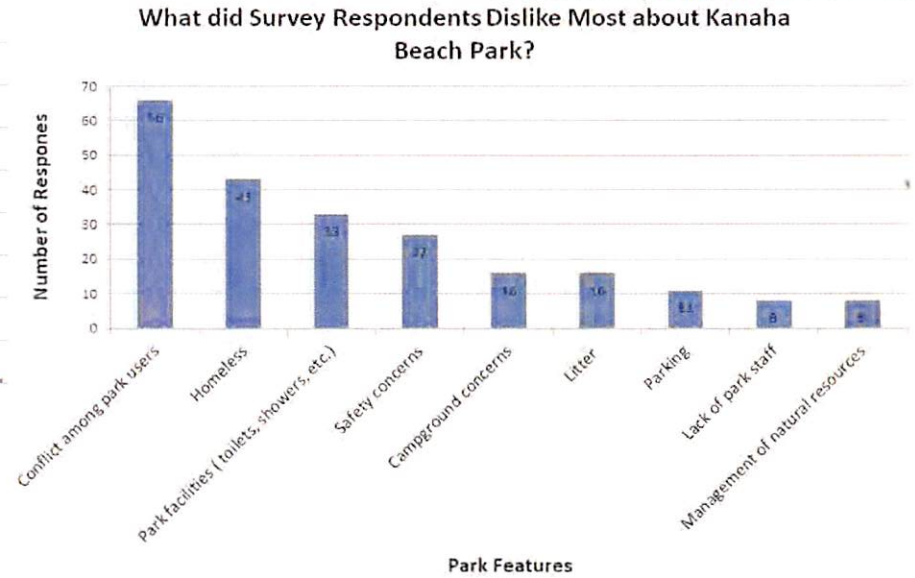


Figure 10

Master Planning Process

The DPR asked Kahanā Beach Park Stakeholders what they felt were the greatest needs relating to the park's facilities, infrastructure, and recreational uses that should be prioritized under the park's new master plan. Stakeholders offered 85 individual responses to this question at stakeholder meetings held between October 20-21, 2015. All individual responses were reviewed and discussed during the stakeholder meeting. A total of 13 improvement needs were identified through group analysis across all four stakeholder meetings.

Four of these thirteen improvement needs identified account for more than half (61%; see Figure 12) of all discussion points raised during group analysis: the need to improve enforcement of county rules/regulations and state laws within the park (23%); restroom or shower improvements (16%); natural area or native habitat improvements (11%); and signage improvements (11%).

Content analysis of key word frequencies for all individual responses related to the park's greatest needs identifies the following key words as the most commonly cited by stakeholder respondents: parking; bathrooms; showers; restrooms; facilities; rules; maintain; access; signage; protect; lifeguard; and trees (Figure 13). The findings from the user survey parallel the findings from the stakeholder meetings. Survey respondents identified the following as their top four desired park improvements: 1. More showers; 2. More restrooms; 3. More parking; and 4. More lifeguards (Figures 14 and 15).

Improvements Needed at Kanahā Beach Park

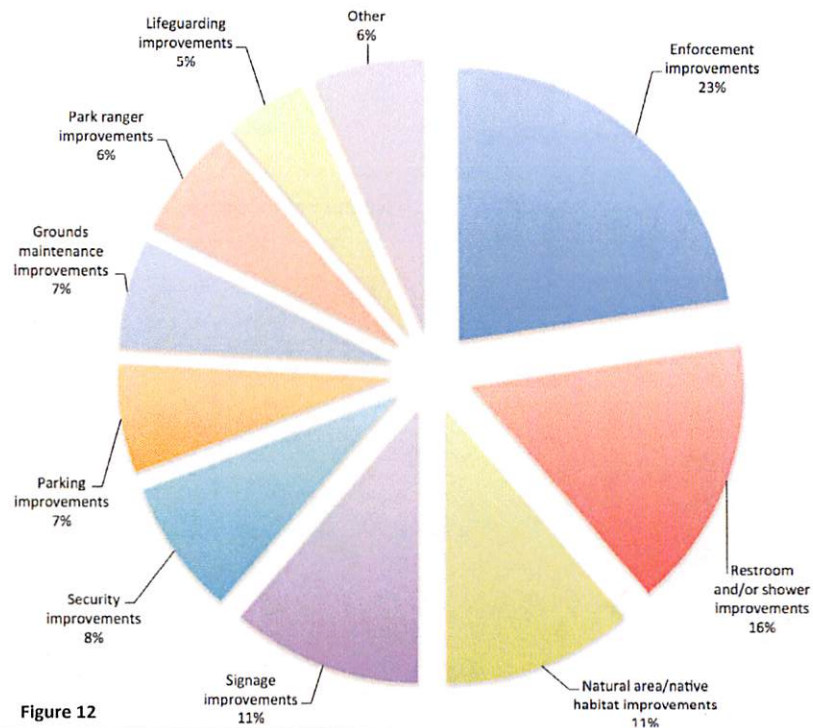


Figure 12

Kanahā Beach Park's Greatest Needs



Figure 13

Master Planning Process

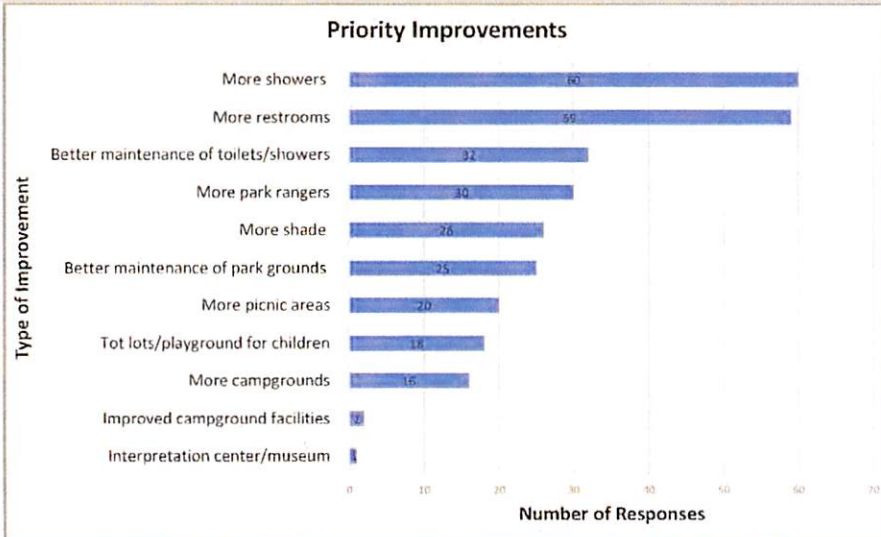


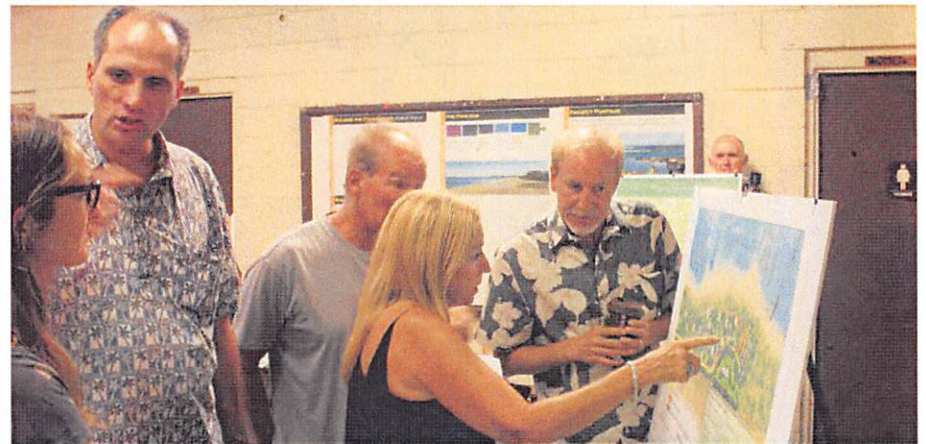
Figure 14



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Figure 15



County of Maui Department of Parks and Recreation

Master Planning Process

As part of the public process the DPR conducted a series of workshops with Kanahā Beach Park user groups as well as representatives from applicable federal, state and county agencies. The purpose of the workshops were to 1. Identify the geographic area on land of general opportunities and concerns; and 2. Identify the location of recommended management, facility, and infrastructure improvements. The DPR collected and analyzed 13 workshop maps through this process.

The DPR followed up the stakeholder meetings with a community vision workshop to gather broad community input on some of the common ideas and themes that were identified through the user survey and stakeholder meetings. The community vision workshop included six interactive stations, where participants could provide comments to help the DPR accomplish the following:

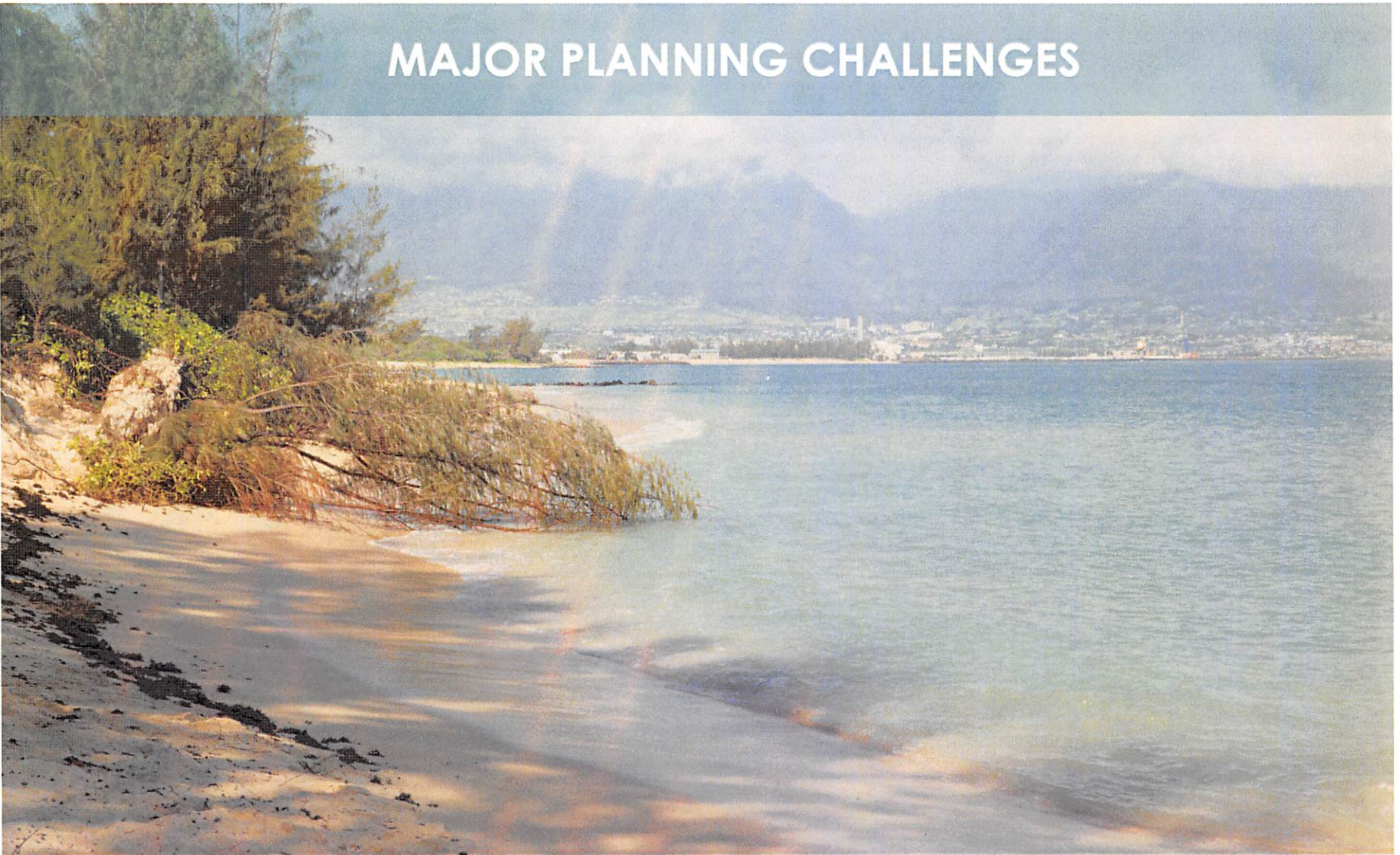
1. Prioritize future park improvements;
2. Evaluate alternative schematic design approaches related to park expansion, circulation and parking treatment;
3. Identify appropriate wetland and dune restoration and management strategies, trail orientation, and related improvements;
4. Identify improvements to address safety and security concerns; and
5. Strengthen existing ranger and lifeguard programs.

The Humane Society also had a booth at the workshop to share information about existing programs to humanely manage populations of feral cats.

The DPR distilled the information received through its technical studies, and the planning process, and developed a list of master plan recommendations. The DPR hosted an open house on August 25, 2016, to gather additional public comments on the Draft Master Plan. The DPR updated the Draft Master Plan to reflect comments received at the open house. The DPR also identified areas of stakeholder disagreement that would benefit from additional stakeholder consultation. In June 2017, the DPR convened a series of facilitated working group meetings with key stakeholders to narrow differences around the location and design of future parking improvements and park expansion.



MAJOR PLANNING CHALLENGES

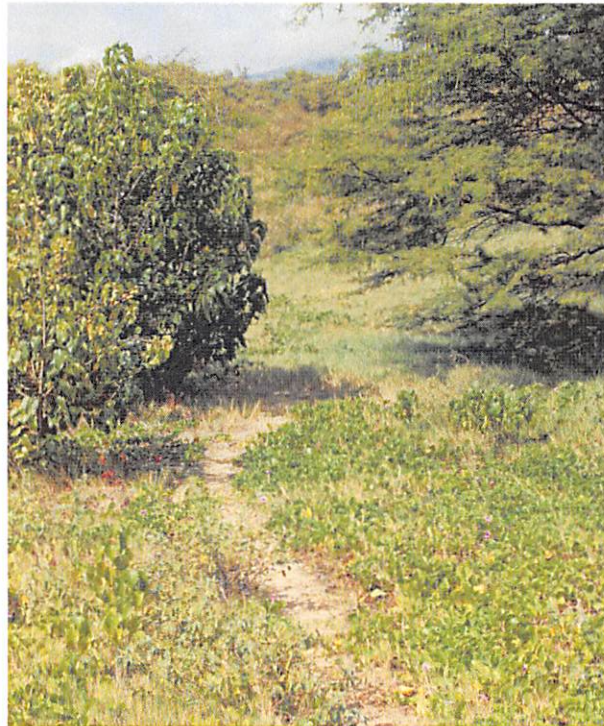


Major Planning Challenges

MAJOR PLANNING CHALLENGES

Interjurisdictional Management

A key challenge at Kanahā Beach Park is the numerous overlapping governmental jurisdictions and boundaries. A host of county, state and federal agencies have different roles and responsibilities, and at times conflicting imperatives. The lack of a single entity responsible for the management of Kanahā Beach Park as a whole complicates the development of policy and programs to address the desires of competing user groups, and impedes timely response to challenges like sea level rise and coastal erosion.



Coastal Resilience and Climate Adaptation

The overwhelming consensus of climate scientists is that the rate of sea level rise is likely to increase dramatically in the coming decades. Global mean sea level rise is projected to be already rising at three times the rate of the 20th century (Chen).

For Kanahā Beach Park this means focusing on sea level rise impacts. Although there is uncertainty about the exact timing and extent of sea level rise, studies suggest that the erosion episodes that have taken place at Kanahā Beach Park will happen more frequently, causing significant shoreline erosion and damage to park infrastructure. Low lying areas will be more vulnerable to flooding, and the entire park will be more vulnerable to hurricanes and tsunami. Careful planning is needed to ensure that steps are taken to protect the coastal ecosystem, including dune and wetland resources. A healthy and vibrant coastal ecosystem will make Kanahā Beach Park more resilient to the impacts of climate change. Additionally, careful planning is needed to ensure that park infrastructure is located well outside the shoreline setback area.



Sense of Place / Character

Kanahā Beach Park has a unique convergence of natural and environmentally sensitive coastal areas and urban developed beach park uses that distinguishes it from the more developed urban beach parks of Kihei, Kā'anapali and Kapalua. The eastern portion of the park is characterized by broad, expansive, and well shaded lawns facing a sandy beach. The central and western areas of the park are largely undeveloped, and are characterized by white sandy beaches flanked by dune and wetland systems. The importance of Kanahā Beach Park's natural beauty to park users was reflected in the Kanahā Beach Park Master Plan Users Survey. To gain a better understanding of what park users' value most about Kanahā Beach Park, as well as to highlight the park's strengths, users were asked what they enjoy most about Kanahā Beach Park. Kanahā Beach Park's natural beauty was overwhelmingly mentioned as the feature that park users enjoy most. In the written responses, words such as peaceful, serenity, and rustic were used to describe the atmosphere of Kanahā. Future planning and improvements should be respectful of, and consistent with, Kanahā Beach Park's unique sense of place.



MASTER PLAN RECOMMENDATIONS



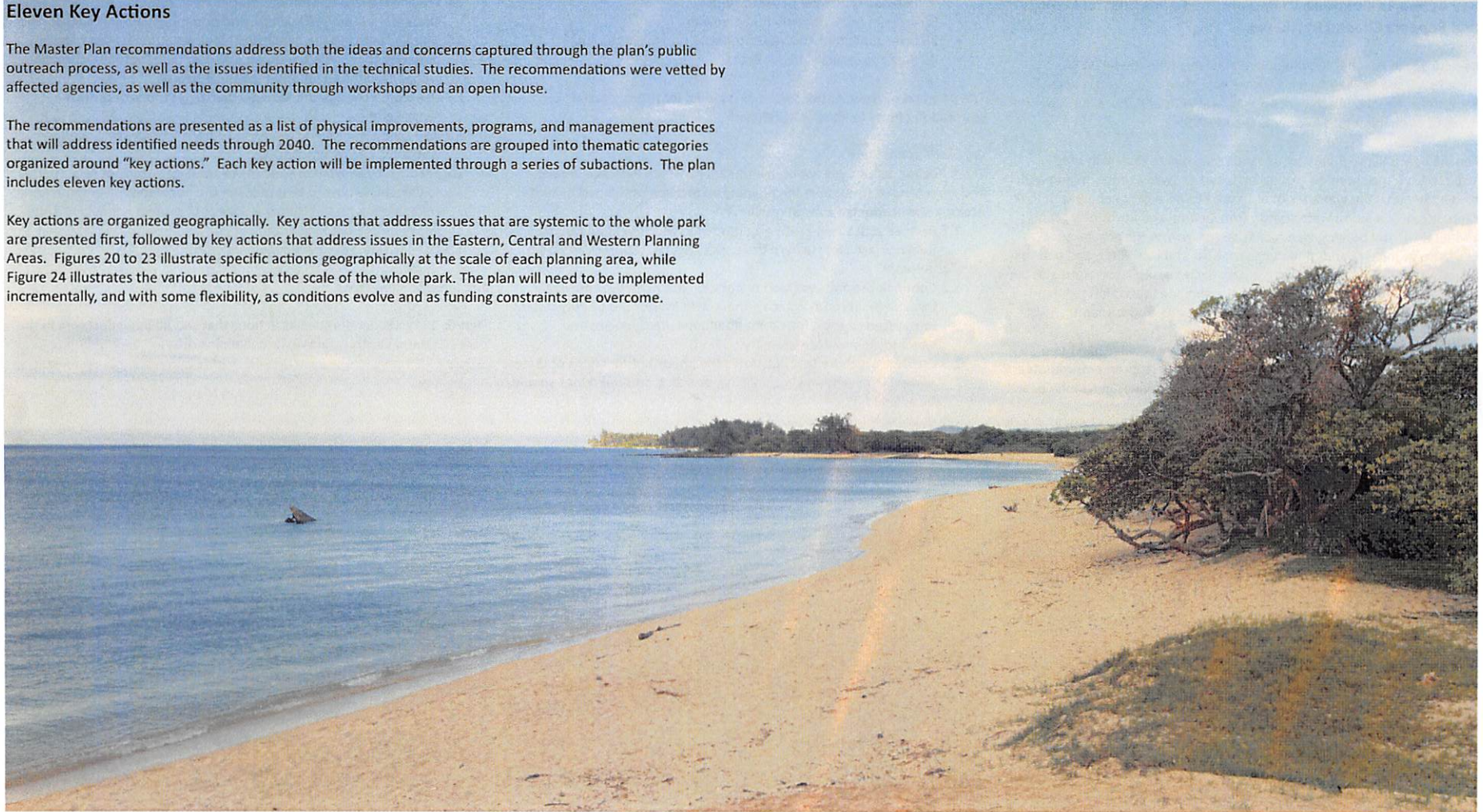
Master Plan Recommendations

Eleven Key Actions

The Master Plan recommendations address both the ideas and concerns captured through the plan's public outreach process, as well as the issues identified in the technical studies. The recommendations were vetted by affected agencies, as well as the community through workshops and an open house.

The recommendations are presented as a list of physical improvements, programs, and management practices that will address identified needs through 2040. The recommendations are grouped into thematic categories organized around "key actions." Each key action will be implemented through a series of subactions. The plan includes eleven key actions.

Key actions are organized geographically. Key actions that address issues that are systemic to the whole park are presented first, followed by key actions that address issues in the Eastern, Central and Western Planning Areas. Figures 20 to 23 illustrate specific actions geographically at the scale of each planning area, while Figure 24 illustrates the various actions at the scale of the whole park. The plan will need to be implemented incrementally, and with some flexibility, as conditions evolve and as funding constraints are overcome.



Master Plan Recommendations, Parkwide

Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience.

Kanahā Beach Park has a symbiotic relationship with the KPSWS. The KPSWS and Kanahā Beach Park are part of an integrated coastal ecosystem. Kanahā Beach Park's dunes, wetlands and shoreline support much of the habitat that frequents the KPSWS.

Kanahā Beach Park's dunes act as sand reservoirs to replenish sand scoured from the shoreline during large surf or swell events. Inland and below the dune, the wetlands of both the KPSWS and Kanahā Beach Park capture rain and storm water runoff from central and upcountry Maui and retain it, and buffer groundwater discharge into the coastal zone. Ecologically, the wetlands and dunes capture, stabilize, filter, and naturally assimilate discharge from storm drainage systems and impervious surface areas. The park's wetlands and dunes also provide protection to inland areas by absorbing the impact of high surf, storms, and tsunami.

Prior to 2001 much of Kanahā Beach Park's coastal ecology had been degraded. Since 2001, and as part of the Wild Coasts program, volunteers successfully completed a number of restoration activities in Kanahā Beach Park including the following four actions:

- 75 acres of coastal wetlands and sand dunes protected by

- installation of vehicle barricades;
- 50 acres of non-native plants removed;
- 25 acres replanted and vegetated with native plants; and
- All areas have public beach access.

The program outlined above serves as a model for future coastal restoration efforts at Kanahā Beach Park.

Parkwide subactions

The following actions are applicable to Kanahā Beach Park as a whole, and are intended to support the ongoing restoration of the park's coastal ecology and encourage coastal resilience.

- 1.1 Partner with a non-profit group, such as Mālama Maui Nui, to help manage and steward the park's natural resources and trail network.
- 1.2 Continue previous wetland restoration activities by removing invasive plants and replacing them with indigenous or Polynesian-introduced species. Introduce additional plant species into wetlands to promote diversity.
- 1.3 Create a brochure that illustrates the important functions of dunes, and explains why staging, walking, or sitting on sand dunes should be avoided.

- 1.4 Provide signage to promote proper stewardship of the park's wetlands, dunes, marine ecology, and other environmental resources.
- 1.5 Monitor paths to the beach and along sand dunes. Use natural buffering to impede the use of inappropriate footpaths through wetlands, dunes, and other sensitive habitat.
- 1.6 Use wooden posts connected with barrier ropes to protect sensitive areas.
- 1.7 Add access and signed interpretive trails to edges and overlooks of wetlands, where appropriate.
- 1.8 Encourage the Humane Society to conduct a study of feral species to determine how to best manage the population. Continue to collaborate with the Humane Society to protect endangered and native birds from feral cats.
- 1.9 Commission a dune management study.

Site Specific Subactions

Figures 16 to 18 identify specific actions that should be undertaken in the park's Eastern, Central and Western Planning Areas.



Fencing Captures Sand and Restores the Dune at "Keyhole"



Dune and Native Plant Restoration at "School Beach"



Signage at Pā'ia Bay to Support Dune Restoration

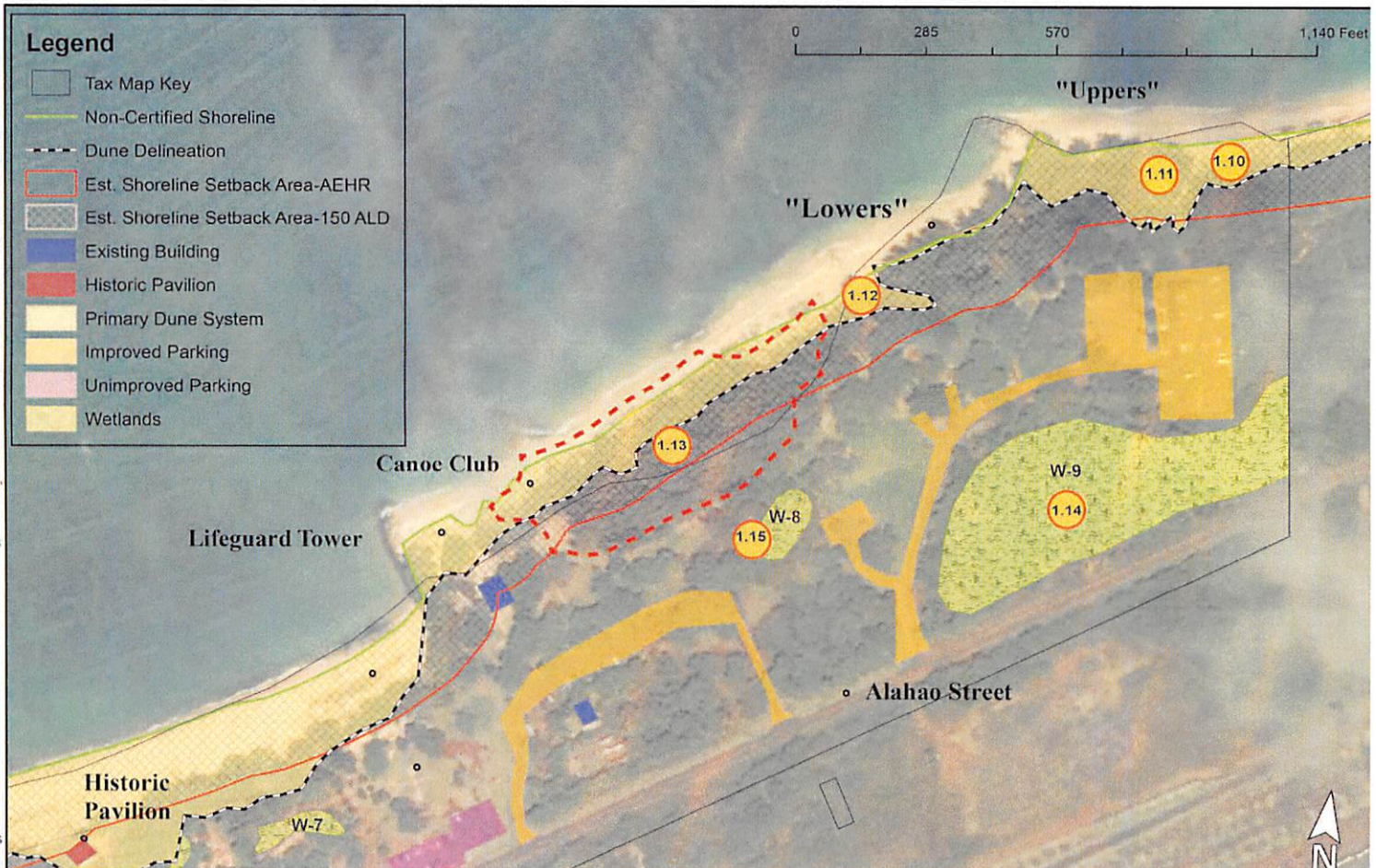
Master Plan Recommendations, Parkwide

Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience Eastern Planning Area

Figure 16

Recommendations:

- 1.10** Install exclusion barriers (stumps, snags, branches) at the entrance to the foot path running along the back side of the sand dune to prevent dune blowout. Remove ironwood saplings along the crest of the dune.
- 1.11** Reorient the concrete and trex access path into the prevailing wind. Restore dune function using native plantings, wood posts with rope barriers, and signage.
- 1.12** Reorient the beach access between the ironwood-created scarp and the children's swimming area into the prevailing wind to prevent dune blowout. Redirect foot traffic through the installation of posts, rope, signage, and native vegetation.
- 1.13** Native habitat restoration. Replace the ironwood trees with shade-producing native trees.
- 1.14** Remove some of the non-indigenous trees and replace them with indigenous species. Add a birding trail to take advantage of the various habitats, including a permanent water ponding area, woodland coastal area, and grassy drainage ditch.
- 1.15** Remove the existing deteriorating fencing and replace with a hedge. Use the wetland and perimeter for theme plantings for educational and cultural considerations, such as a canoe plant grouping, or indigenous plants that are used for handicrafts.



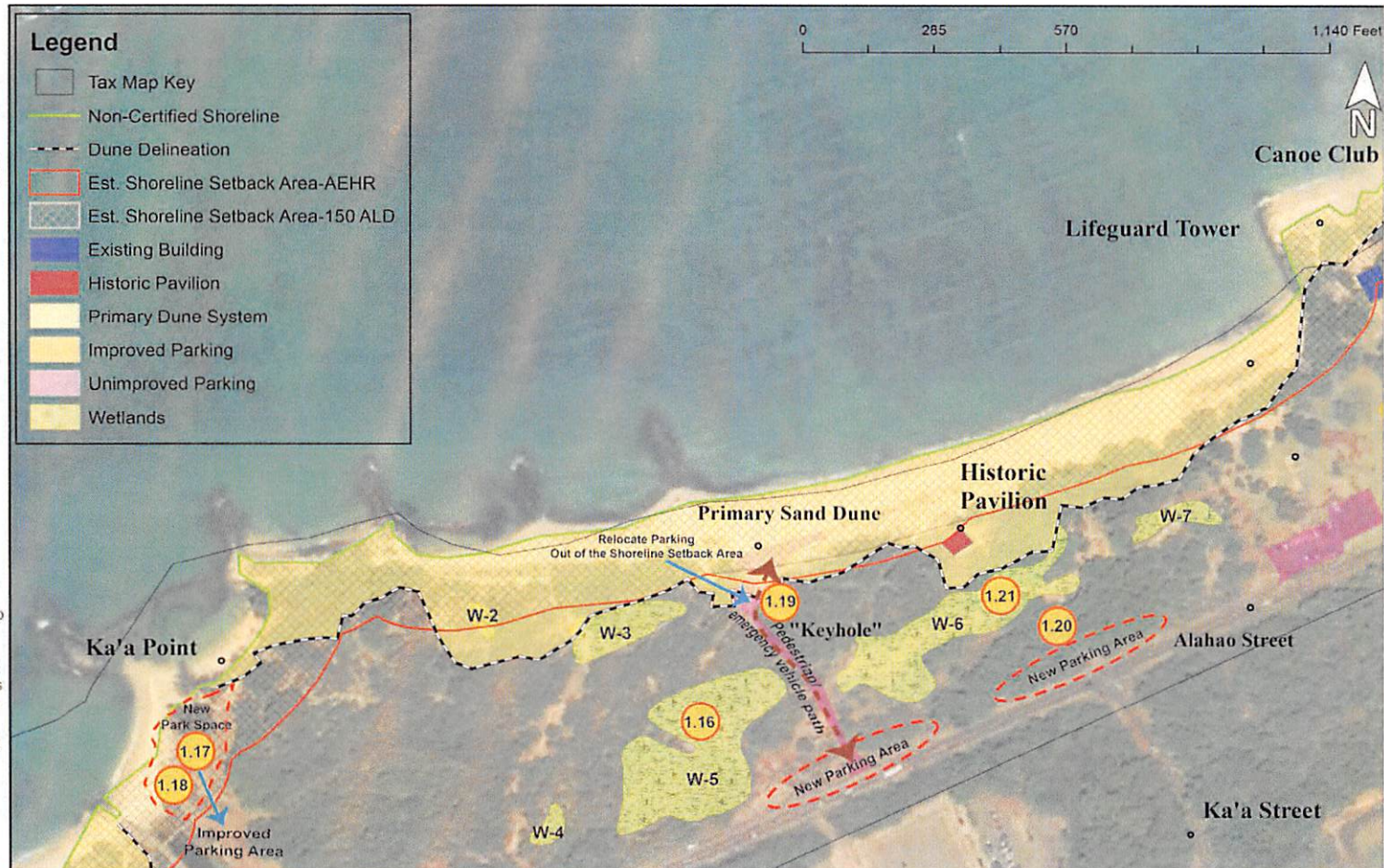
Master Plan Recommendations, Parkwide

Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience Central Planning Area

Figure 17

Recommendations:

- 1.16** Add additional native plant species to diversify the wetland and to support animal species. Create a birdwatching trail along the southeastern edge of the wetland. Remove patches of tar within the wetland that appear to have trapped birds in the past.
- 1.17** Relocate the existing informal parking at Ka'a Point out of the shoreline setback area and improve the area for picnicking.
- 1.18** Restore the shoreline with native plantings, exclusion barriers, and beach-quality sand available from the KWRF.
- 1.19** Relocate the existing informal parking at "Keyhole" out of the shoreline setback area to a new parking lot along Alahao Street. Limit access from the new parking lot to "Keyhole" to pedestrians and emergency vehicles. Restore the area's wetlands and native plants.
- 1.20** Create paths, boardwalks, or both from the new parking area along Alahao Street to the beach. Prevent lateral access through wetland W-7 by installing natural barriers. Block the informal access from the beach to footpaths leading through wetlands W-6 and W-7 using natural buffers.
- 1.21** Add additional native plant species to diversify the wetland and support animal species. Add a nature trail for public education of wetland functions and values.



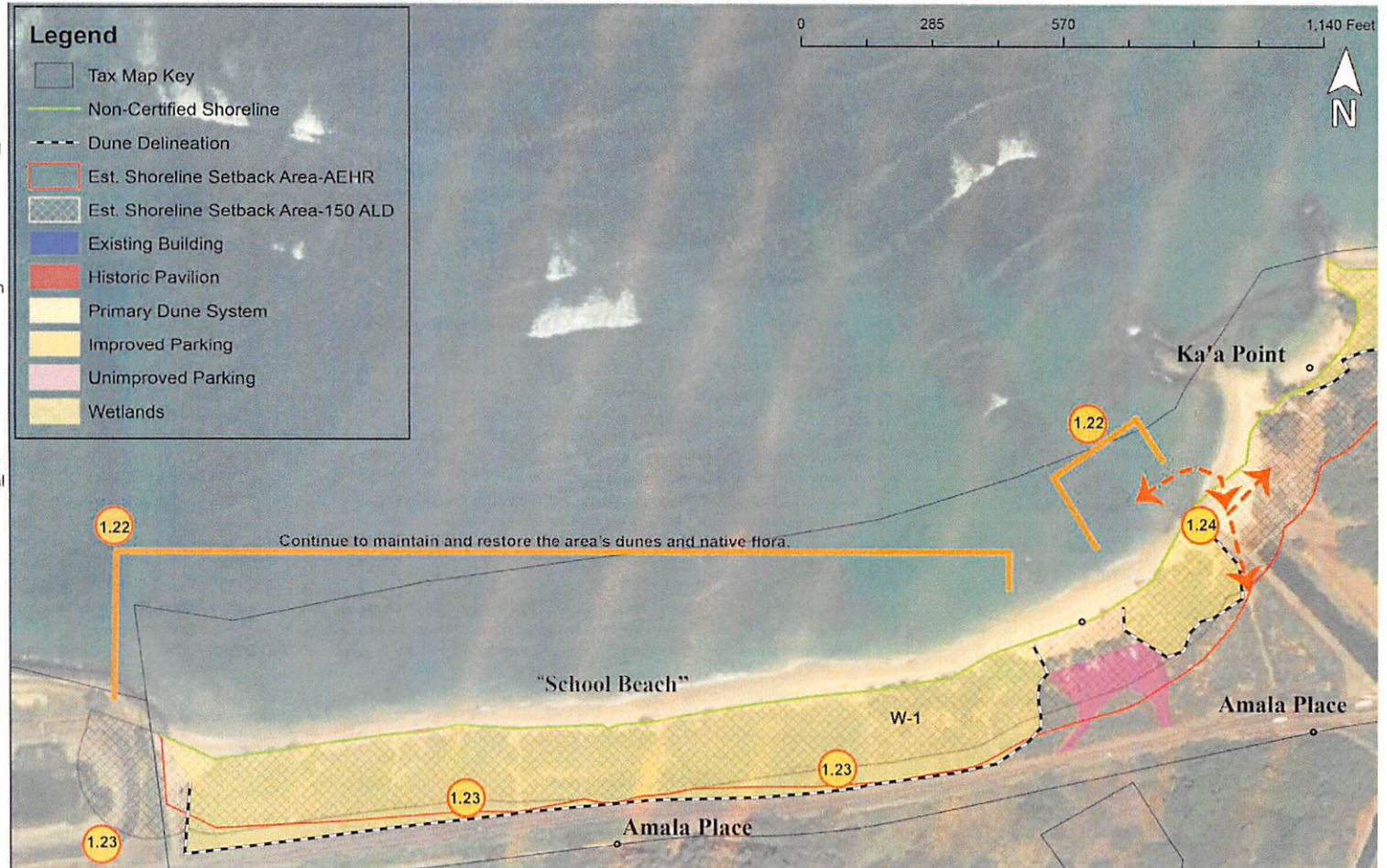
Master Plan Recommendations, Parkwide

Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience Western Planning Area

Figure 18

Recommendations:

- 1.22 Continue to maintain and restore the area's dunes and native flora.
- 1.23 Establish controlled pedestrian paths from Amala Place to the beach with posts and rope, and where appropriate, elevated boardwalks.
- 1.24 Reestablish and improve the existing concrete pedestrian path leading from the egress just west of the Alahao Street canal bridge where it turns to Amala Place.



Master Plan Recommendations, Parkwide

Key Action 2: Improve Pedestrian, Bicycle and Vehicular Circulation as well as Parking

The natural beauty, unique and varying landscape, and linear shape of Kānāhā Beach Park present a special opportunity to make pedestrian circulation within the park a rewarding and meaningful park experience. From nearly all areas of the park, pedestrians will be rewarded with magnificent views of the ocean and the beauty of the park's open spaces, flora, and fauna.

The Master Plan takes advantage of this opportunity by proposing an interconnected network of controlled paths and boardwalks that will provide for efficient pedestrian circulation within the park.

The purpose of the park's circulation and parking plan is to 1. Facilitate pedestrian travel as the primary form of movement within the park; 2. Provide a network of controlled paths to increase access from the parking lots to the shoreline, and from the eastern end of the park to the western end of the park, while protecting sensitive resources; 3. Increase the efficiency and capacity of the parking lots; and 4. Relocate parking out of the shoreline setback area to create more beach front park space and make the park more resilient to sea level rise, coastal erosion, and natural disasters.

Access to the park is by means of Hobron Avenue, which connects Hana Highway to Amala Place. Amala Place is a two-lane roadway that fronts the western portion of the park site. Amala Place becomes Alahao Street in the vicinity of Kāliālinui Gulch headed eastbound. The road terminates at the eastern end of the park where it becomes a restricted access road for the airport and a bicycle path.

Pedestrian and Bicycle Circulation

The plan envisions an interconnected network of pathways that will provide efficient and environmentally responsible pedestrian circulation throughout the park. An approximate 10-foot-wide pathway will link the eastern end of the park to "School Beach" (2.1). This path will improve east-to-west circulation, while providing an opportunity for users to enjoy the park's inland and coastal natural beauty. To keep pedestrians from walking through environmentally sensitive habitat, portions of the path comprise elevated boardwalk, while other areas may be bound by wood posts and barrier rope. A series of smaller pathways and boardwalks will

connect the primary pathway to Alahao Street, parking areas, and the coastline (2.2). A smaller path will run parallel and makai of the multi-use path from the parking lots in the eastern section of the park to Ka'a Point where the two paths will join (2.2). This path will allow pedestrians to walk through the park just mauka of the shoreline on a controlled path designed to direct pedestrians away from sensitive ecological resources.

The plan also envisions the creation of a landscaped, dedicated bicycle path that will be located on the mauka side of Alahao Street and Amala Place (2.3). The bicycle path will run the distance of the park and will address dangerous riding conditions that exist along Alahao Street and Amala Place. The separated bicycle path will run from the eastern end of the park to the KWRF, where it will connect to Amala Place. The bike path will facilitate bicycle travel between central and eastern Maui, and help to make the park a destination for bicyclists.

Vehicular Circulation

There are several driveways - both paved and unpaved - that provide access to the park. The Master Plan proposes connecting the driveways in the Eastern Planning Area to improve circulation between driveways and the various parking lots.

This will be achieved by connecting the parking lot at the former campground to the driveway just east of the campground that serves the canoe hale and the volleyball courts (2.4). This area will then be connected to the easternmost parking lots (2.4), thereby providing unfettered vehicle connectivity within the Eastern Planning Area.

Parking

The goal of the parking plan for the Eastern Planning Area is to increase the efficiency of existing parking lots, to develop new parking capacity to meet future user demand, and to ensure that parking areas are resilient to coastal hazards and are environmentally sustainable. To achieve this, the gravel parking lot at the eastern end of the park (2.5), and the gravel lot fronting the former campground will be improved (2.7). In addition, three new parking lots will be developed to provide 146 additional stalls (2.8).

In the Central Planning Area, the informal parking located along and at the end of the dirt road leading to "Keyhole" will be relocated outside of the shoreline setback area to an improved parking lot just makai of Alahao

Street (2.10). A 12-foot-wide pedestrian and emergency-vehicle-only path will link the "Keyhole" parking lot to the beach (2.11). An additional improved parking lot will be constructed on the makai side of Alahao Street opposite Ka'a Street (2.9).

At Ka'a Point the plan envisions moving the informal parking that is located just east of the mouth of Kāliālinui Gulch, and mauka of the swimming area, to an improved parking lot located outside of the shoreline setback area (2.12). This new parking lot will be more efficient and more resilient to coastal hazards than the existing parking area.

The parallel parking along Amala Place in the Western Planning Area will be retained (2.14).

Subactions

- 2.1 Construct an approximately 10-foot-wide primary pathway.
- 2.2 Create a network of walkways and trails throughout the park.
- 2.3 Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.
- 2.4 Connect driveways within the Eastern Planning Area.
- 2.5 Improve (pave) the easternmost gravel parking lot.
- 2.6 Provide a drop-off area fronting "Lowers."
- 2.7 Improve (pave) the parking lot at the former campground.
- 2.8 Build parking lots E-1, E-2, and E-3 in the Eastern Planning Area.
- 2.9 Build parking lot C-1 (92 stalls) along Alahao Street opposite Ka'a Street.
- 2.10 Build parking lot C-2 (49 stalls) at "Keyhole."
- 2.11 Build an approximately 12-foot-wide pathway, for pedestrians and emergency vehicles, from the "Keyhole" parking lot to the beach.
- 2.12 Build parking lot C-3 (76 stalls) at Ka'a Point.
- 2.13 Resurface the existing driveway pavement throughout the Park.
- 2.14 Retain parallel parking along Amala Place in the Western Planning Area.
- 2.15 Provide vendor parking near the park headquarters and visitor information center.

Please see Figure 19 for an illustration of improvements to the park's circulation and parking facilities.

Master Plan Recommendations, Parkwide

Figure 19
Key Action 2: Improve Parking, Pedestrian, Bicycle, and Vehicular Circulation

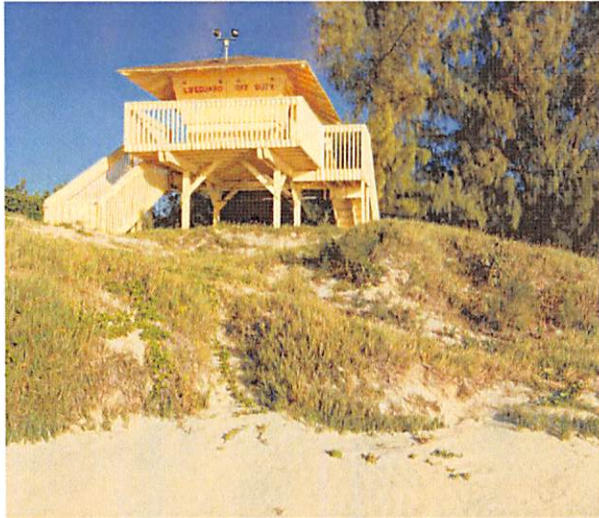


Master Plan Recommendations, Parkwide

Key Action 3: Create a Safer and More Secure Environment for Park Users

In the Kanahā Beach Park public user survey, a large number of survey respondents voiced that safety and security were among their top concerns. Numerous park users expressed that sections of Kanahā felt “unsafe.” Furthermore, when asked what characteristics of Kanahā Beach Park they disliked the most, “safety concerns” were among the top responses.

In particular, safety and security are a major concern where the campground was formerly located. Many campers appeared to be using the public campground as a permanent residence, creating unsightly and unsanitary conditions, user conflicts, and concerns about public safety. In the midsection of Kanahā Beach Park, users expressed a need for a permanent park ranger to enforce park rules and to provide safety and security. Users throughout the park also reported that vehicle break-ins and theft were prevalent concerns. Many park users said they were reluctant to leave their valuables in their vehicles or out-of-eyes reach.



A Lifeguard Station is Proposed at Ka'a Point

Stakeholders expressed similar concerns. The DPR collected input through a series of focused stakeholder meetings. Stakeholders identified those activities or uses that are perceived as being the most problematic in the park. Four of the 14 problems identified have safety and security related implications and account for over half (56%) of all discussion points raised during group analysis: homeless/illegal encampment impacts on other users (24%); kitesurfing impacts on other users (13%); lack of security (for public safety; 10%); and substance abuse at the park (8%).

In response to these issues, the Master Plan includes the following subactions to make Kanahā Beach Park a safer and more secure environment for park users.

Subactions:

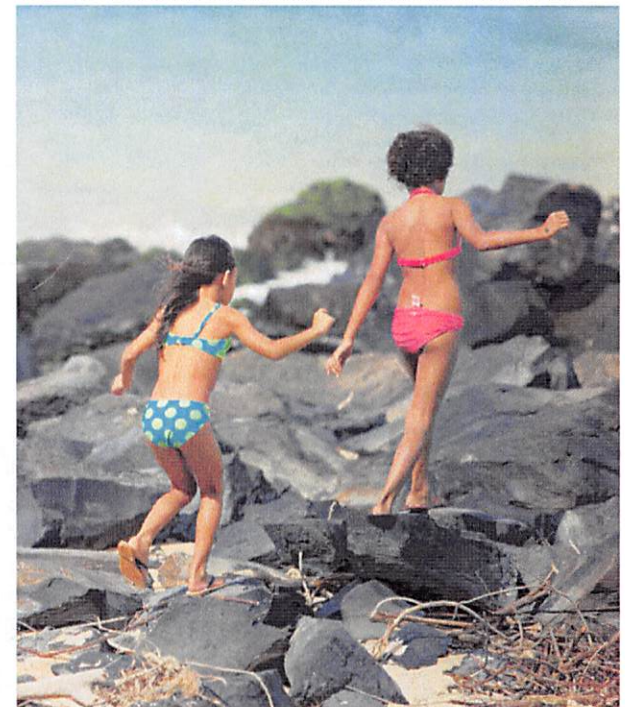
- 3.1 Develop a park headquarters to include a ranger station.
- 3.2 Provide a new, staffed lifeguard station at Ka'a Point.
- 3.3 Extend the hours of the lifeguard at the existing station near the canoe hale to sunset.
- 3.4 Manage access to the park in the evening hours through a gate on Ka'a Street where it meets Alahao Street, and a gate on Amala



Lifeguard Protecting Public Safety

Place across from the easternmost section of the KWRF.

- 3.5 Provide appropriate lighting near the restrooms.
- 3.6 Provide additional signage with park hours and emergency phone numbers.
- 3.7 Post park rules at appropriate locations throughout the park.
- 3.8 Encourage the State DLNR to provide new signage with DLNR use areas and DLNR Division of Conservation and Resource Enforcement (DOCARE) Kokua rules.
- 3.9 Authorize and support Kanahā citizen patrols.
- 3.10 Consider establishing a group of Kanahā park docents and ambassadors to help with education.
- 3.11 Create a hotline for reporting issues, concerns, and complaints.



Children at Play Along a Rocky Shoreline

Master Plan Recommendations, Parkwide

Key Action 4: Upgrade Infrastructure and Facilities

Existing, non-circulation related facilities within the park include two comfort stations, showers, hose spigots, water fountains, picnic tables, BBQ pits, trash and recycle receptacles, public phones, a beach volleyball area, two lifeguard stations, drainage improvements, water service, sewer service, and electrical service. A summary of existing infrastructure and facilities within the park can be found in Appendix A.2.

The plan envisions the upgrade and expansion of both restrooms in the eastern section of the park (4.8 and 4.9). A new potable water lateral (4.1) is proposed to support both this expansion and the proposed ranger station (2.1). A fire-line and hydrants (4.5), as well as a double check detector assembly (4.4), will also be needed to support improvements to the park headquarters area.

The plan recommends that a new potable water meter be obtained (4.2) so the existing water meter can be used exclusively for irrigation purposes. New potable water distribution lines will also be needed to serve new showers and hose spigots (4.3).

A new landscaped drainage retention area is proposed for the western side of the Ka'a Point parking lot (4.7), and miscellaneous drainage improvements are proposed for other areas of the park (4.6).

Subactions

- 4.1 Install a potable water lateral.
- 4.2 Install a new water meter for potable water (potable water meter fee (1-1/2").
- 4.3 Install potable water distribution lines.
- 4.4 Install a double check detector assembly (DCDA).
- 4.5 Install a fire line and hydrants for the park headquarters.
- 4.6 Miscellaneous drainage improvements throughout the park.
- 4.7 Create a landscaped drainage retention area along the western boundary of the Ka'a Point parking lot.
- 4.8 Expand the restroom in the eastern area of the park.
- 4.9 Expand the existing restroom in the park headquarters area.

Many of the park's existing facilities are reaching the end of their useful lives, and will need to be replaced by 2040. New spigots, showers, picnic tables, recycle bins, BBQs, portable toilets and a lifeguard station will also be needed in improved park areas.



EASTERN PLANNING AREA



Master Plan Recommendations, Eastern Planning Area

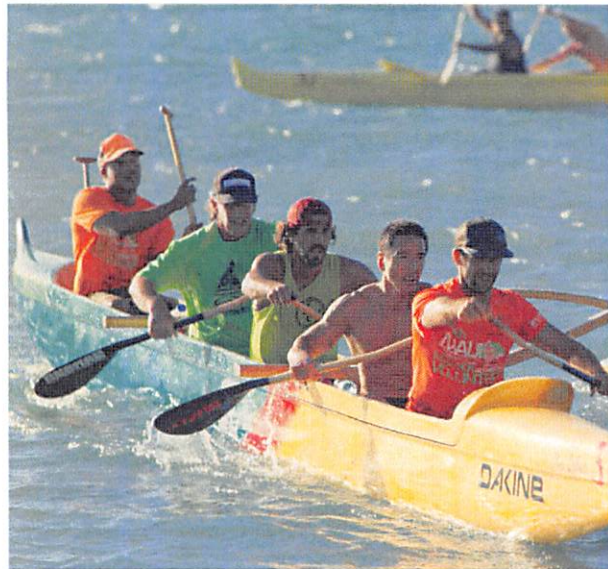
The Eastern Planning Area can be characterized as the gathering place of Kanahā Beach Park. On weekdays when the trade winds are blowing, the Eastern Planning Area's green lawns come alive with windsurfers. On weekends, families pop tents and spread their blankets on the soft grass to enjoy a picnic. Children's laughter fills the air as they run on the lawns or jump around in bouncy castles. Along the shoreline, the beachfront and the ocean provide a playground for volleyball players, windsurfers, beach loungers and surfers alike. On weekdays, when the trade winds are not drawing a large number of windsurf enthusiasts to the ocean, the Eastern Planning Area becomes a place for quiet contemplation.

Major Planning Challenges:

1. Safety and security;
2. Lifeguard accessibility; and
3. Adequacy of facilities.

According to the Kanahā Beach Park Master Plan user survey, those surveyed at the east end of the park were the most satisfied park users. However, 28% of those surveyed reported that they were "unsatisfied" or "very unsatisfied" with lifeguard accessibility. Park stakeholders also identified safety and security as a major concern. When east-end park users were asked what improvements they would like to see in this area of the park, the top comments were better maintenance of bathrooms and showers, more bathrooms, more showers, and access to a lifeguard. Input obtained through stakeholder meetings and an open house also showed a desire for improved landscaping and ground maintenance.

For more information about the Eastern Planning Area, please see pages 8 to 9.



Master Plan Recommendations, Eastern Planning Area

Key Action 5: Enhance Landscape Planting and Grounds and Facility Maintenance

The Master Plan proposes a complete renovation of the existing irrigation system at Kanahā Beach Park. The first step in the renovation would be installing a separate potable water meter to supply the park, which would free up the existing water meter to be used for landscaping without any waste water charges. While incrementally repaired over the last forty years, most of the system should be replaced with new efficient irrigation heads, valves, and controllers to effectively water and manage the system's operation. This would allow the DPR to maintain the quality of the grass, ground cover, and trees throughout the 88.5 acre park. It would also give the DPR the ability to network Kanahā Beach Park with its other Maxi-com controlled parks in Central Maui. With proper watering and management, the park's turf grass would be dramatically improved for park users. Furthermore, a reduction in the cost of maintaining old equipment would result in significant savings in water and maintenance costs.

The park's landscape consists of both native and non-native planting that would benefit from a properly designed irrigation system. A landscape renovation plan would be beneficial in identifying plant material that is either high maintenance or provides no shade or visual value to park users. While the introduction of native plant material along the shoreline would be effective in stabilizing the existing dunes, the removal of ironwood trees and some non-native species could open up areas for park use and habitat restoration. The existing lawn areas need to have the soil amended with organic compost and be irrigated. Salt tolerant grass species should be considered where lawn areas are replanted.

Subactions:

- 5.1 Update and replace the existing irrigation system.
- 5.2 Renovate the existing landscape.
- 5.3 Restore habitat (See Figure 16, Subaction 1.13):
 - 5.3.1 Thin ironwood trees; and
 - 5.3.2 Plant native shrubs and trees.



Key Action 6: Establish a Centrally Located Park Headquarters and Visitor Information Center

Considering the vast size of Kanahā Beach Park (approximately 88.5 acres) and because of its high usage, the Kanahā Beach Park Master Plan proposes the development of a Park Headquarters and Visitor Information Center. The purpose of the Park Headquarters and Visitor Information Center is to increase safety, security, and educational opportunities for park users. Safety and security was one of the top concerns identified by Kanahā Beach Park users and stakeholders. The physical presence of park rangers will foster a safer and more secure park experience.

The park headquarters and visitor information center will be strategically located mauka of the canoe hale and the volleyball courts and just to the east of the Central Planning Area. The park headquarters and visitor information center will include a staffed ranger station with office space for staff (6.1), a storage area for the canoe club (6.2), and an equipment drop-off area (6.3).

Subactions:

- 6.1 Develop a park headquarters to include a ranger station with office space.
- 6.2 Develop a canoe club storage area.
- 6.3 Provide an equipment drop-off area.

Please see Figure 20 for a conceptual illustration of the subactions related to Key Action 6.



Key Action 7: Expand Recreational Opportunities

Given the volume and diversity of park users in the Eastern Planning Area, and the projected increase in the use of the park over time, the Master Plan recommends additional volleyball courts adjacent to the existing courts (7.3), a children's play area located near the roundabout (7.2) that will blend in with the natural atmosphere of Kanahā Beach Park, more BBQ and picnic areas also near the roundabout (7.1), and nature and bird watching trails along the wetland areas in the westernmost section of the Eastern Planning Area (Figure 17, Sub-action 1.13). The goal is to create more recreational opportunities for the many existing and future users of the Eastern Planning Area, while also preserving Kanahā Beach Park's natural environment, and its unique "sense of place."

Subactions:

- 7.1 Provide additional areas with picnic facilities.
- 7.2 Provide a children's play area.
- 7.3 Add more beach volleyball courts.
- Other: Establish birdwatching and nature trails (Figure 16, Subaction 1.14)

Figure 22 illustrates the general location of proposed new recreational opportunities in the Eastern Planning Area.



Master Plan Recommendations, Eastern Planning Area

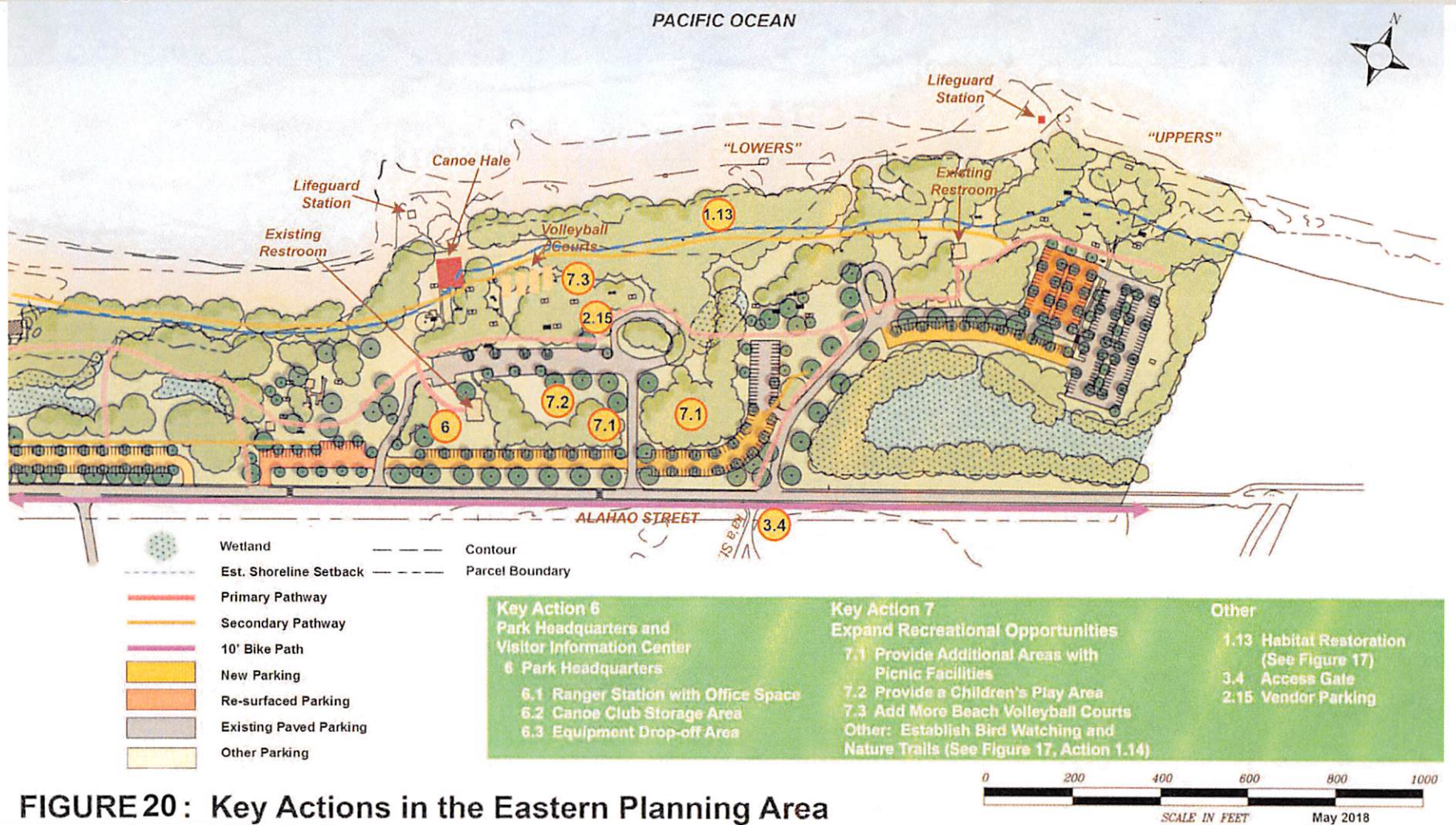


FIGURE 20: Key Actions in the Eastern Planning Area

CENTRAL PLANNING AREA



Master Plan Recommendations, Central Planning Area

Central Planning Area

The mostly undeveloped Central Planning Area offers a tapestry of wetland habitat rich in native flora and fauna along a broad expanse of white sandy beach. The area also hosts the park's most significant historical sites, including a World War II era pavilion that sits gracefully atop a sand dune. The Central Planning Area extends from the lifeguard station and former campground to the east to the Kalialinui Gulch drainage canal to the west.

Major Planning Challenges:

1. Severe coastal erosion;
2. Degradation of wetlands, dunes, flora, and fauna caused by unmanaged pedestrian and vehicular access;
3. Safety and security / conflict among users; and
4. Lack of parking, toilet, and lifeguard facilities.

For more information about the Central Planning Area, please see pages 10 and 11.



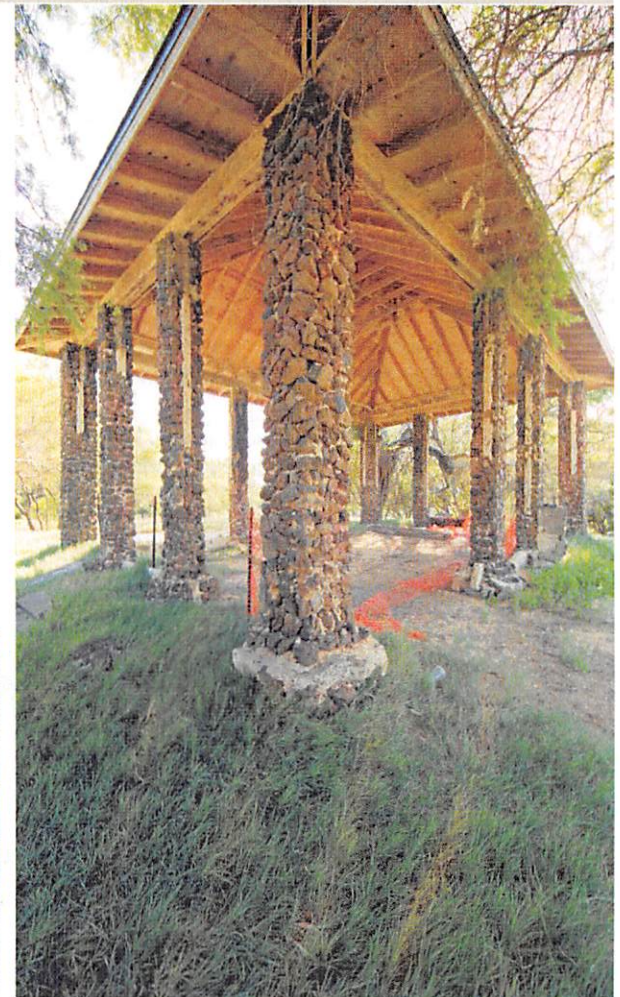
Key Action 8: Restore and Reuse the Historic Pavilion

In the Central Planning Area, the remains of a World War II era historic pavilion stand atop a dune, offering a sweeping panorama of the Kanahā coastline. Research suggests the pavilion was once used as a beach club where dances were held in the evenings. Later, the structure was re-fashioned as a pavilion for the Girl Scouts. This historic structure has columns of basalt cobbles, separating three large openings on each side of the building. Natural stone steps lead up to the structure on the north and south sides. A cement foundation lies on the inland side of the structure. The historic pavilion is one of the unique man-made and historical features of Kanahā Beach Park that gives park users a look into the park's past. It is also one of the few historical structures in the park that is in fair condition.

The Master Plan proposes the preservation and adaptive reuse of the historic pavilion (8.4). The objective is to restore the historic pavilion as a facility for family gatherings, small events, and relaxation, while providing users an opportunity to enjoy and admire the beauty of the open air facility and to learn of its historical significance.

Subactions:

- 8.1. Prepare Historic American Building Survey (HABS) documentation.
- 8.2. Prepare architectural renderings and construction plans.
- 8.3. Permitting (shoreline certification, shoreline setback, flood development, SMA, CDUA, building permit).
- 8.4. Restore the historic pavilion.



Master Plan Recommendations, Central Planning Area

Key Action 9: "Keyhole" – Strengthen Coastal Resilience and Expand Recreation and Access

Nestled among wetlands, rich in native flora and fauna, lying at the foot of a broad white sandy beach, and veiled in a canopy of otherworldly Kiawe trees lies one of Kanahā Beach Park's treasures, which is affectionately known by park users as "Keyhole." "Keyhole" is a popular access point for kitesurfers seeking some of the world's best windsurfing as well as fishers and sunbathers.

The Master Plan seeks to make "Keyhole" more resilient to coastal hazards while creating a more rewarding park experience. A small pocket of landscaped picnic, BBQ, and park space will be created at the north end of "Keyhole" at the entrance to the beach (9.1). "Keyhole's" unique wetland and dune habitat will be restored (9.3, also see Figure 17, Subactions 1.16 and 1.19), making the area an attractive birding and nature experience.

The parking at "Keyhole" will be relocated mauka of the shoreline setback area to allow the dunes to rebuild a reservoir of sand to resupply the beach during periods of erosion. A controlled primary path for pedestrians and emergency vehicles will connect the new parking area with the beach and picnic area, while providing a means to access the shoreline without trampling the wetlands (9.2). A controlled primary pathway will also provide pedestrian access to the eastern and western portions of the park. An Americans with Disability Act (ADA) accessible portable toilet will be provided (9.4).

Subactions:

- 9.1 Provide picnic facilities.
- 9.2 Create an access path for pedestrians and emergency vehicles.
- 9.3 Restore coastal habitat.
- 9.4 Provide ADA accessible portable toilet(s) - "Keyhole."

Figure 21 illustrates the conceptual location of improvements at "Keyhole." Figure 22 shows how a boardwalk from Alahao Street to the beach could be used to traverse sensitive wetland resources.

Key Action 10: Ka'a Point – Strengthen Coastal Resilience and Expand Recreation and Access

The plan envisions the creation of new beachfront picnic, BBQ, and landscaped park space along the shoreline at Ka'a Point at the location of the existing dirt parking lot (10.2). The new park space will provide needed room for families and friends to enjoy some of the most spectacular coastal scenery and shoreline on Maui. The park space will alleviate crowding at the existing picnic tables and along the narrow beach fronting the pocket swimming area.

With the relocation of the dirt parking area out of the shoreline setback area the Ka'a Point area will become more resilient to coastal hazards; additional beachfront park space will be created; and measures will be taken to restore shoreline, dune, and native plant habitat. Please see Figure 17, Subactions 1.17 and 1.18.

A new, improved parking lot will be created outside of the shoreline setback area just mauka of the pathway leading to the pedestrian bridge that crosses Kalialinui Gulch. The area to the west of the parking area will be landscaped and will function as an open space drainage retention area (10.3). An ADA accessible portable toilet will be provided (10.4).

Subactions:

- 10.1 Install a lifeguard station.
- 10.2 Create park space with picnic facilities.
- 10.3 Install a landscaped drainage retention area.
- 10.4 Provide ADA accessible portable toilet(s) - Ka'a Point.

Figure 21 illustrates the conceptual location of improvements at Ka'a Point.



Master Plan Recommendations, Central Planning Area

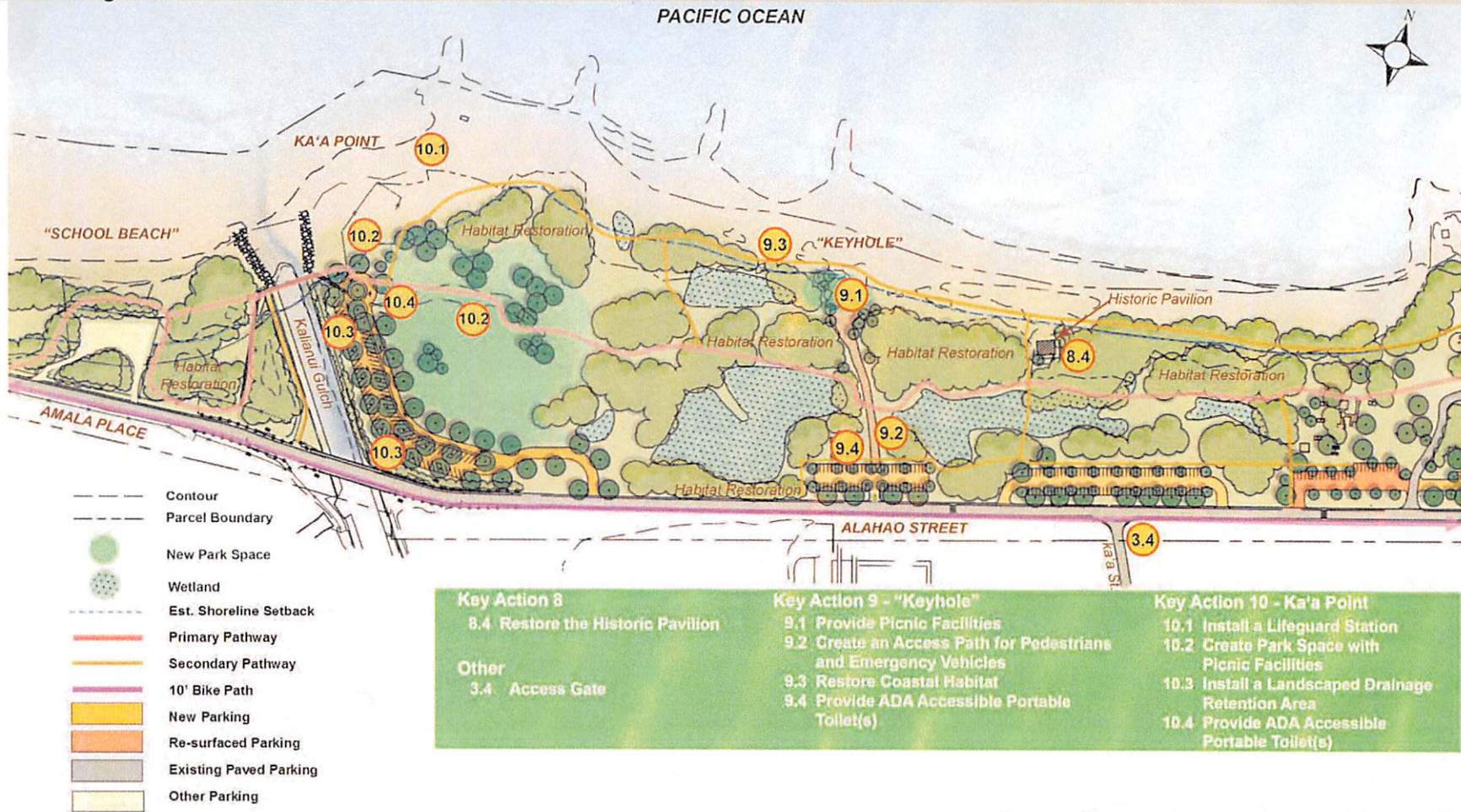


FIGURE 21: Key Actions in the Central Planning Area

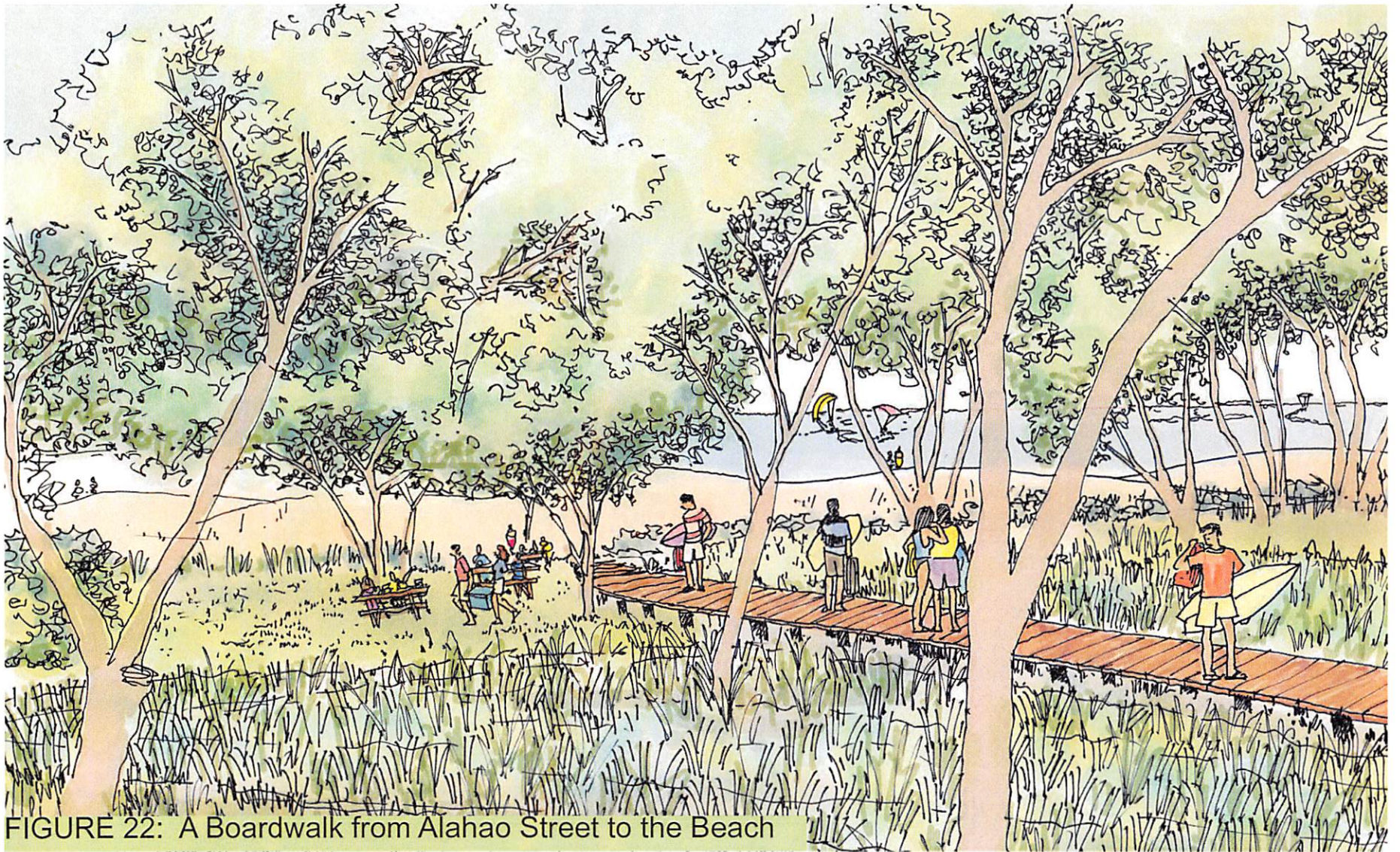
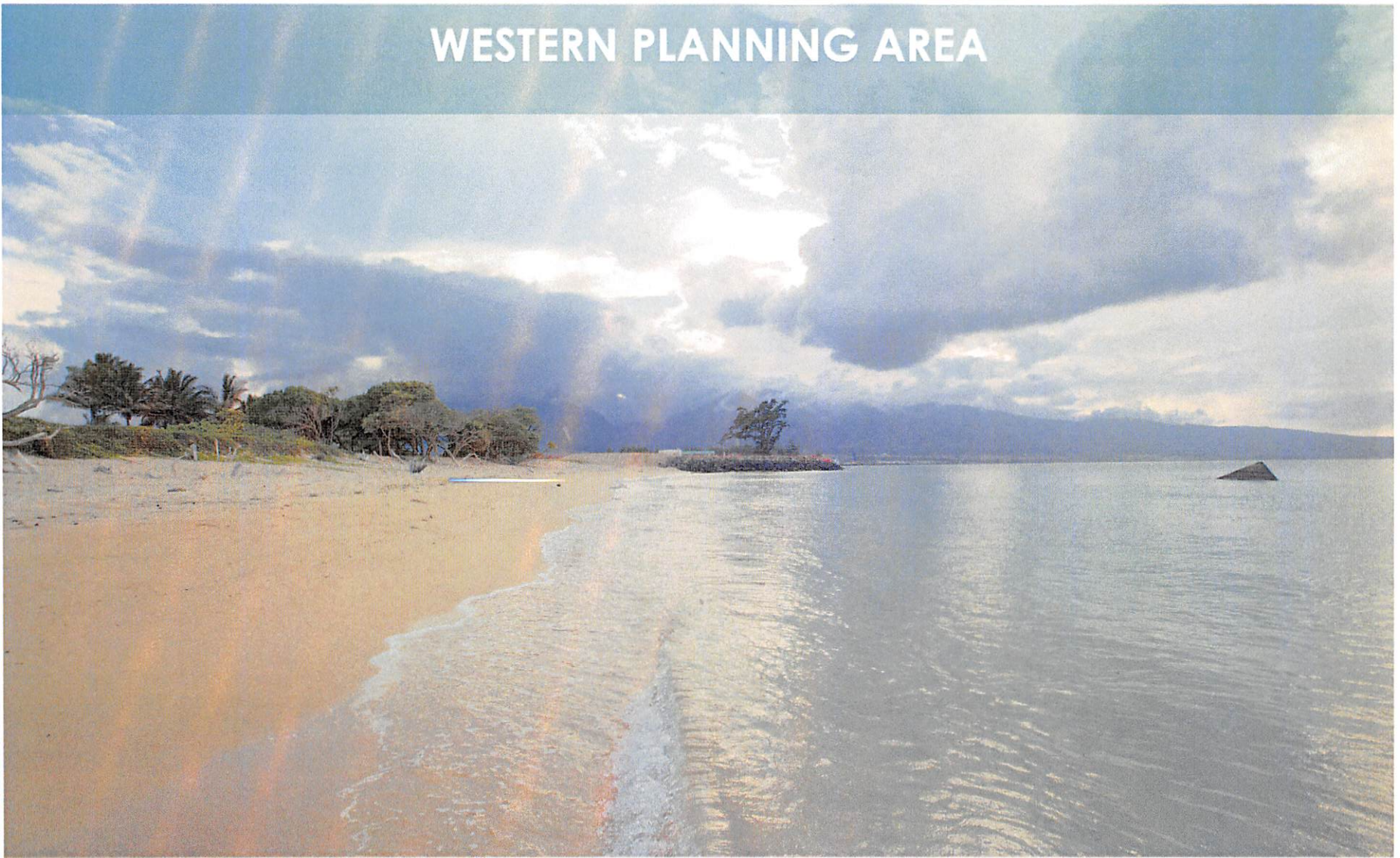


FIGURE 22: A Boardwalk from Alahao Street to the Beach



WESTERN PLANNING AREA



Master Plan Recommendations, Western Planning Area

Western Planning Area

With its long white sandy beach, azure waters, unique coastal ecology, views of the ocean and Haleakalā, and sustained trade winds, the Western Planning Area offers both Maui residents and visitors a unique recreational experience. "School Beach" is a world-renowned kitesurfing destination that is popular with both locals and visitors. It is also a popular fishing destination for local residents.

The dune fronting "School Beach" represents the most intact dune segment within the park, and one of the best examples of natural dunes on Maui. The dune acts as a natural buffer between KPSWS and "School Beach" and is ecologically functional. Severe coastal erosion of between 3-to-4 feet per year continues to be a major planning challenge in the Western Planning Area.

Major Planning Challenges:

1. Rising sea-levels and coastal erosion;
2. Maintaining and protecting coastal habitat;
3. Protecting user health and safety; and
4. Managing user conflicts.



Kanahā Beach Park Master Plan | August 2018

Key Action 11: "School Beach" – Strengthen Coastal Resilience

The purpose of Key Action 11 is to make "School Beach" more resilient. The "School Beach" dune segment should remain undeveloped and in as near a natural state as possible. No expansion of parking areas, paved or unpaved, or installations of park amenities such as picnic tables, barbecues, pavilions or showers should occur within the extent of this sand dune.

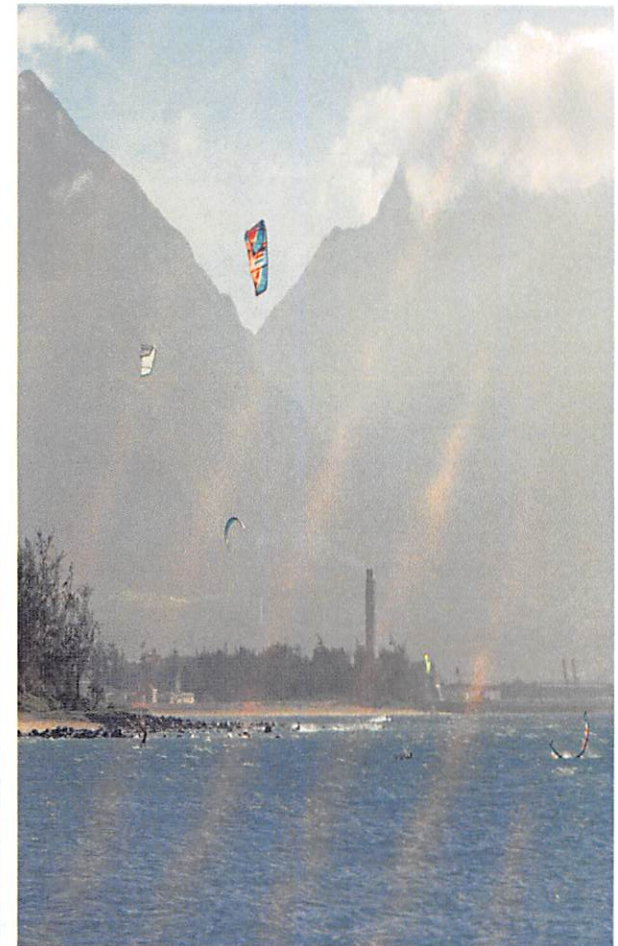
The footpaths extending from Amala Place to the beach should be closely monitored throughout the dune segment. If trampling of dune plants or dune blow-outs begin to appear, the pathways should be reoriented using wooden posts connected with rope and appropriate dune restoration signs. Similarly, the vehicle barrier should be actively maintained to ensure continued protection of the dune system, and the plants that grow within it.

The restoration of the area's dunes and native plants should continue, and include installing sand fencing in appropriate locations, using vehicle barriers, removing non-native plants such as Kiawe and ironwoods, planting native plant species that are adapted to the dune environment, installing educational signage, and roping off areas to direct access to the beach and maintaining these improvements (Figure 23).



Subactions:

- 11.1 Maintain parallel parking along Amala Place.
- 11.2 Provide ADA accessible portable toilet(s).



Master Plan Recommendations, Western Planning Area

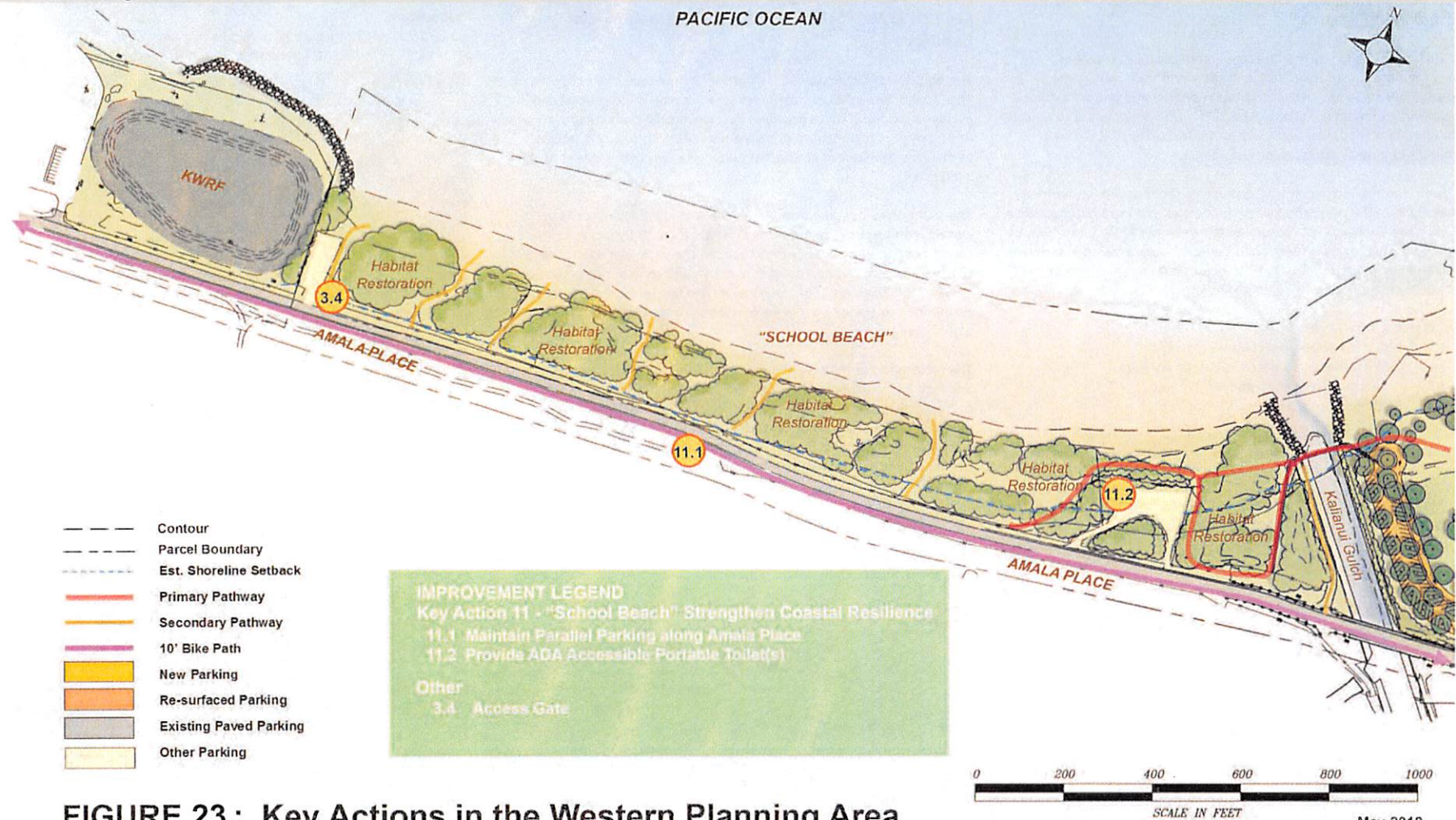
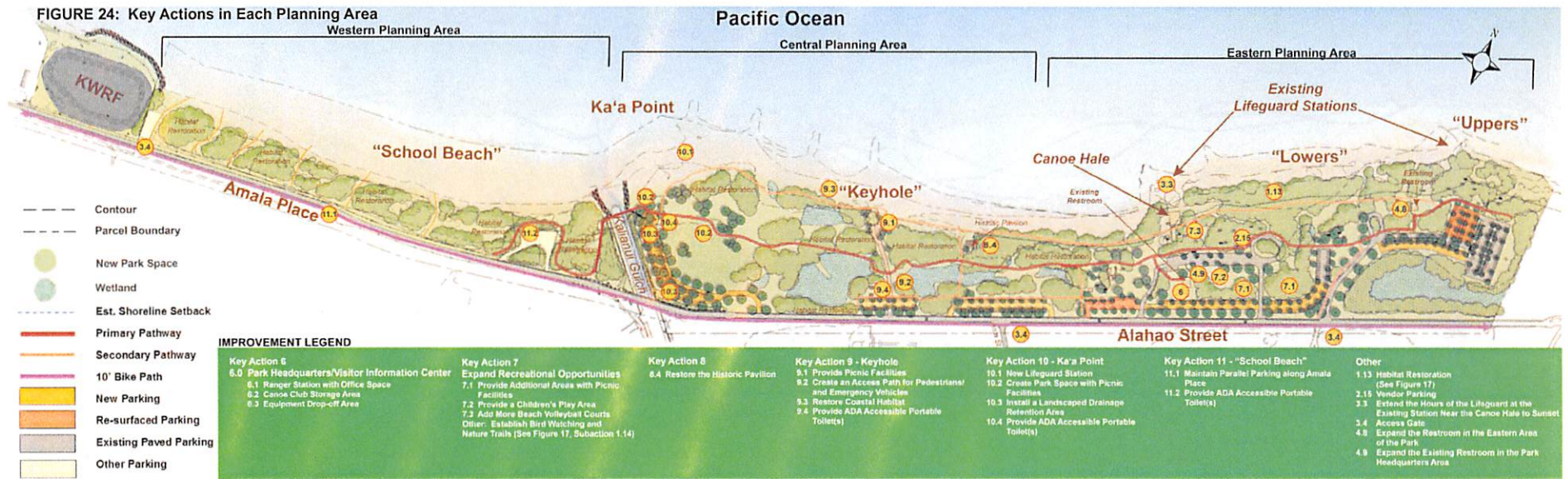


FIGURE 23: Key Actions in the Western Planning Area

**Master Plan Recommendations,
Western Planning Area**



FIGURE 24: Key Actions in Each Planning Area



IMPLEMENTATION STRATEGY



Implementation Strategy

Priorities and Phasing Plan

The Kānehā Beach Park Master Plan should be phased to allow for proper budgeting and implementation management. Phasing of improvements considers the desirability and ease of implementing individual projects, the time required to obtain permits for individual projects, and the benefits of combining several projects to take advantage of construction efficiencies. Preference is also given to actions that will protect public health and safety, as well as actions that will prevent the loss of irreplaceable natural resources.

Please see Figure 25 for a conceptual schedule of implementation milestones.

Required Land Use Permits and Approvals

Many of the actions in this Master Plan may be implemented with few permitting requirements. This is especially true for many of the actions intended to protect public health and safety, protect and maintain coastal and wetland habitat, and rehabilitate existing landscaping.

The implementation of other actions will trigger a requirement to prepare an Environmental Assessment (EA) pursuant to HRS Chapter 343. For these actions, this plan encourages the preparation of a single, programmatic EA that addresses the cumulative impacts of the various actions in the Master Plan. The entire beach park is located within the SMA, and because construction costs exceed \$500,000, an SMA major permit will be required.

A Conservation District Use Application (CDUA) will also be required for certain actions. Removal of existing plants and planting of landscaping may be an administrative approval if less than 10,000 square feet. If more than 10,000 square feet, Board of Land and Natural Resource approval may be required.

For any structures which are regulated by the building code, a building permit will be required. Structures will also need to comply with the shoreline setback rules of the Maui Planning Commission, and a request for a shoreline determination will be required. This will require a licensed surveyor's shoreline certification, topographic maps, development plans, photographs, and other data required by Maui County. Most new structures will also need a flood development permit. Please see Appendix A.4 for further information about regulatory considerations.

Cost Estimates

Table 1 illustrates the preliminary cost estimates by project phase. Table 2 provides preliminary cost estimates for design, construction, and associated project costs for the park site. These estimates will need to be refined upon completion of more detailed planning and construction documents.

Long Term Maintenance

Long-term maintenance of parks is a challenge, given Maui County's limited budget. Proposed improvements should incorporate features that minimize future maintenance requirements during design. Additionally, formal partnerships with local community organizations, some of which already have ties to Kānehā Beach Park, are encouraged to support maintenance and management efforts.

PHASE	ESTIMATED BUDGET	
Phase 1	\$6,222,862.50	¹ All costs are in 2018 dollars
Phase 2	\$4,996,242.50	² The estimated budget doesn't include operating or programmatic costs
Phase 3	\$2,009,687.50	³ Material costs only (Doesn't include installation)
Phase 4	\$1,003,750.00	⁴ 12 x 18" custom high strength aluminum sign mounted on a high strength, corrosion resistant, 8' tall steel post
Ongoing ⁵	\$3,150,000.00	⁵ Carved, sandblasted or engraved 2.5-cedar, redwood or mahogany wood single-face signs, 48" x up to 96" wide, stained and/or painted with up to three colors
TOTAL	\$17,382,542.50	⁶ Ongoing costs represent the total estimated cost of annual expenditures on an action over the planning period.

Table 1

KANAHĀ BEACH PARK MASTER PLAN - COST ESTIMATES

	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET\1,12	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	PHASE	ASSUMPTIONS
Restore Coastal Ecology and Support Coastal Resilience								
Partner with a non-profit organization to restore and maintain the park's coastal ecology as set forth in the following plan subactions: 1.1, 1.2, 1.5, 1.6, 1.7, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.18, 1.21, 1.22				\$1,500,000.00	\$375,000.00	\$1,875,000.00	Ongoing 6/	\$75,000.00 annual allowance
1.3 Create a brochure that illustrates the important functions of dunes, and explains why staging, walking or sitting on sand dunes should be avoided.	1			\$5,000.00	\$1,250.00	\$6,250.00	1	Tri-fold color
1.4 Provide signage to promote proper stewardship of the park's wetlands, dunes, marine ecology, and other environmental resources.				See Facility/Signage Costs			1	
1.9 Commission a dune management study.	1			\$50,000.00	\$12,500.00	\$62,500.00	1	
Improve Pedestrian, Bicycle and Vehicular Circulation as well as Parking								
2.1 Construct an approximately 10-foot-wide primary pathway.	50,000	sf	\$10.00	\$500,000.00	\$125,000.00	\$625,000.00	2	Crushed cinder
2.2 Create a network of walkways and trails throughout the park.	60,000	sf	\$10.00	\$600,000.00	\$150,000.00	\$750,000.00	2	Sand and cinder
2.3 Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.	64,000	sf	\$10.00	\$640,000.00	\$160,000.00	\$800,000.00	2	6,400' long x 10' wide Cost included in Subaction 2.13
2.4 Connect driveways within the Eastern Planning Area.				See Subaction 2.13			1	Subaction 2.13
2.5 Improve (pave) the easternmost gravel parking lot.	20,900	sf	\$10.00	\$209,000.00	\$52,250.00	\$261,250.00	1	
2.7 Improve (pave) the parking lot at the former campground.	13,500	sf	\$10.00	\$135,000.00	\$33,750.00	\$168,750.00	1	
2.8 Build parking lots E-1, E-2, and E-3 in the Eastern Planning Area.								
E-1 (45 stalls)	18,875	sf	\$10.00	\$188,750.00	\$47,187.50	\$235,937.50	3	
E-2 (82 stalls)	31,100	sf	\$10.00	\$311,000.00	\$77,750.00	\$388,750.00	3	
E-3 (51 stalls)	21,000	sf	\$10.00	\$210,000.00	\$52,500.00	\$262,500.00	3	
2.9 Build parking lot C-1 (92 stalls) along Alahao Street opposite Ka'a Street.	27,800	sf	\$10.00	\$278,000.00	\$69,500.00	\$347,500.00	4	
2.10 Build parking lot C-2 (49 stalls) at "Keyhole."	15,650	sf	\$10.00	\$156,500.00	\$39,125.00	\$195,625.00	2	
2.11 Build an approximately 12-foot-wide pathway, for pedestrians and emergency vehicles only, from the "Keyhole" parking lot to the beach.	6,000	sf	\$20.00	\$120,000.00	\$30,000.00	\$150,000.00	2	
2.12 Build parking lot C-3 (76 stalls) at Ka'a Point.	52,900	sf	\$10.00	\$529,000.00	\$132,250.00	\$661,250.00	3	
2.13 Resurface the existing driveway pavement throughout the park.	80,000	sf	\$10.00	\$800,000.00	\$200,000.00	\$1,000,000.00	1	
Safety and Security								
3.1 Develop a park headquarters to include a ranger station.	1,450	sf	\$350.00	\$507,500.00	\$126,875.00	\$634,375.00	2	
3.2 Provide a new, staffed lifeguard station at Ka'a Point.				See Facility/Signage Costs Estimates			1	
3.3 Extend the hours of the lifeguard at the existing station near the canoe hale to sunset.				Program Cost			1	(Estimate is for lighting near the two restrooms)
3.5 Provide appropriate lighting near the restrooms.	4 poles and line ext.	Pole	\$20,000.00	\$80,000.00	\$20,000.00	\$100,000.00	1	
3.6 Provide additional signage with park hours and emergency phone numbers.				See Facility/Signage Costs Estimates			1	
Infrastructure (water, wastewater, irrigation, drainage, electrical)								
4.1 Install a potable water lateral.	1			\$20,000.00	\$5,000.00	\$25,000.00	2	
4.2 Install a new water meter for potable water (potable water meter fee (1-1/2")).	1			\$72,000.00	\$18,000.00	\$90,000.00	1	
4.3 Install potable water distribution lines.	2,850	lf	\$70.00	\$199,500.00	\$49,875.00	\$249,375.00	2	
4.4 Install a double check detector assembly (DCDA).	1			\$20,000.00	\$5,000.00	\$25,000.00	2	
4.5 Install a fire line and hydrants for the park headquarters.	1,000 lf 6" WL; 3	Lf; hydrant	\$150.00; \$10,000.00	\$180,000.00	\$45,000.00	\$225,000.00	2	
4.6 Miscellaneous drainage improvements throughout the park (to include improvements in the Eastern Planning Area near proposed parking lot E-1 and elsewhere as needed)	10,000	sf	\$6.00	\$60,000.00	\$15,000.00	\$75,000.00	Ongoing 6/	

KANAHĀ BEACH PARK MASTER PLAN - COST ESTIMATES

	QTY	UNIT	UNIT COST	TOTAL ESTIMATED BUDGET ^{1,2}	CONTINGENCY (25%)	GRAND TOTAL ESTIMATED BUDGET	PHASE	ASSUMPTIONS
4.8 Expand the restroom in the eastern part of the park.	600	sf	\$850.00	\$510,000.00	\$127,500.00	\$637,500.00	1	
4.9 Expand the restroom in the park headquarters area.	600	sf	\$850.00	\$510,000.00	\$127,500.00	\$637,500.00	1	
9.4 Provide ADA accessible portable toilet(s) - "Keyhole."				See Facility/Signage Costs Estimates				
10.4 Provide ADA accessible portable toilet(s) - Ka'a Point.				See Facility/Signage Costs Estimates				
Landscape Planting and Grounds and Facility Maintenance								
5.1 Update and replace the existing irrigation system.	12	ac	\$100,000.00	\$1,200,000.00	\$300,000.00	\$1,500,000.00	1	
5.2 Renovate the existing landscape (those areas used for active recreation in the Eastern Planning Area)	12	ac	\$80,000.00	\$960,000.00	\$240,000.00	\$1,200,000.00	Ongoing 6/	
5.3.1 Thin ironwood trees.	100	trees	\$5,000.00	\$500,000.00	\$125,000.00	\$625,000.00	2	Allowance
5.3.2 Plant native shrubs and trees.	10,000	sf	\$5.00	\$50,000.00	\$12,500.00	\$62,500.00	2	Allowance
Expand Recreational Opportunities and Park Space								
7.1 Provide additional landscaped park space.	sf	75,000.00	\$4.00	\$300,000.00	\$75,000.00	\$375,000.00	3	
7.2 Construct a children's play area.				\$60,000.00	\$15,000.00	\$75,000.00	2	Allowance
7.3 Add more beach volleyball courts.				\$25,000.00	\$6,250.00	\$31,250.00	1	Allowance
6.2 Develop a canoe club storage area.	2,000	sf	\$200.00	\$400,000.00	\$100,000.00	\$500,000.00	2	
"Keyhole" Area								
9.1 Provide picnic facilities.				\$15,000.00	\$3,750.00	\$18,750.00	2	Allowance
Ka'a Point Area								
10.2 Create park space with picnic facilities.	3	ac	\$175,000.00	\$525,000.00	\$131,250.00	\$656,250.00	4	
Key Action 8: Restore and Reuse the Historic Pavilion				\$500,000.00	\$125,000.00	\$625,000.00	1	
Miscellaneous Facility / Signage Cost Estimates								
Lifeguard station - 1 Unit <u>3/</u>	1	station	\$36,300.00	\$36,300.00	\$9,075.00	\$45,375.00	1	
Picnic tables - 12 Units <u>3/</u>	12	table	\$908.00	\$10,896.00	\$2,724.00	\$13,620.00	2	
BBQ - 12 Units ³	12	BBQ	\$333.00	\$3,996.00	\$999.00	\$4,995.00	2	
Recycle trash cans - 7 Units <u>3/</u>	7	Trash Can	\$1,586.00	\$11,102.00	\$2,775.50	\$13,877.50	2	
Bike racks - 5 Units <u>3/</u>	5	Rack	\$500.00	\$2,500.00	\$625.00	\$3,125.00	2	
ADA portable toilet - 3 Units <u>3/</u>	3	Toilet	\$3,400.00	\$10,200.00	\$2,550.00	\$12,750.00	1	
Hazard signage - 35 Units <u>3/</u> , <u>4/</u>	35	Sign	\$60.00	\$2,100.00	\$525.00	\$2,625.00	1	
Habitat signage (wetlands, dunes, flora, fauna) - 70 Units <u>3/</u> , <u>4/</u>	70	Sign	\$57.00	\$3,990.00	\$997.50	\$4,987.50	1	
Park rules signage - 20 Units <u>3/</u> , <u>4/</u>	20	Sign	\$60.00	\$1,200.00	\$300.00	\$1,500.00	1	
Major park entrance signs - 2 Units <u>3/</u> , <u>4/</u> , <u>5/</u>	2	Major Sign	\$1,750.00	\$3,500.00	\$875.00	\$4,375.00	1	
Fees and Permitting								
Civil engineering design fees				\$100,000.00	\$25,000.00	\$125,000.00	1	
Landscape architecture design fees				\$125,000.00	\$31,250.00	\$156,250.00	1	
Hawaii Revised Statutes (HRS) Chapter 343 and Chapter 205A Compliance				\$600,000.00	\$150,000.00	\$750,000.00		Includes required
TOTAL				\$13,906,034.00	\$3,476,508.50	\$17,382,542.50		1 technical studies

1/ All costs are in 2018 dollars

2/ The estimated budget doesn't include operating or programmatic costs







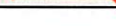




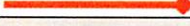





















3/ Material costs only (Doesn't include installation)

4/ 12 x 18" custom high strength aluminum sign mounted on a high strength, corrosion resistant, 8' tall steel post

5/ Carved, sandblasted or engraved 2.5-cedar, redwood or mahogany wood single-face signs, 48" x up to 96" wide, stained and/or painted with up to three colors

6/ Ongoing costs represent the total estimated cost of annual expenditures on an action over the planning period

Table 2

	CONCEPTUAL IMPLEMENTATION MILESTONES			
	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience.				
Key Action 1: Partner with a non-profit organization to restore and maintain the park's coastal ecology as set forth in the following plan subactions: 1.1, 1.2, 1.4 - 1.8; 1.10 - 1.18, 1.20 - 1.24				
1.3 Create a brochure that illustrates the important functions of dunes, and explains why staging, walking, or sitting on sand dunes should be avoided.				
1.9 Commission a dune management study.				
1.19 Relocate the existing informal parking at "Keyhole" out of the shoreline setback area to a new parking lot along Alahao Street. Limit access from the new parking lot to "Keyhole" to pedestrians and emergency vehicles. Restore the area's wetlands and native plants.				
Key Action 2: Improve Pedestrian, Bicycle and Vehicular Circulation as well as Parking				
2.1 Construct an approximately 10-foot-wide primary pathway.				
2.2 Create a network of walkways and trails throughout the park.				
2.3 Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.				
2.4 Connect driveways within the Eastern Planning Area.				
2.5 Improve (pave) the easternmost gravel parking lot.				
2.6 Provide a drop-off area fronting "Lowers."				
2.7 Improve (pave) the parking lot at the former campground.				
2.8 Build parking lots E-1, E-2 and E-3 in the Eastern Planning Area.				
2.9 Build parking lot C-1 (92 stalls) along Alahao Street opposite Ka'a Street.				
2.10 Build parking lot C-2 (49 stalls) at "Keyhole."				
2.11 Build an approximately 12-foot-wide pathway, for pedestrians and emergency vehicles only, from the "Keyhole" parking lot to the				
2.12 Build parking lot C-3 (76 stalls) at Ka'a Point.				
2.13 Resurface existing driveway pavement throughout the park.				
2.14 Retain parallel parking along Amala Place in the Western Planning Area.				
2.15 Provide vendor parking near the park headquarters and visitor information center.				
Key Action 3: Create a Safer and More Secure Environment for Park Users				
3.1 Develop a park headquarters to include a ranger station.				
3.2 Provide a new, staffed lifeguard station at Ka'a Point.				
3.3 Extend the hours of the lifeguard at the existing station near the canoe hale to sunset.				
3.4 Manage access to the park in the evening hours through a gate on Ka'a Street where it meets Alahao Street, and a gate on Amala Place across from the easternmost section of the KWRF.				
3.5 Provide appropriate lighting near the restrooms.				
3.6 Provide additional signage with park hours and emergency phone numbers.				
3.7 Post park rules at appropriate locations throughout the park.				
3.8 Encourage the State DLNR to provide new signage with DLNR use areas and DLNR DOCARE Kokua rules.				
3.9 Authorize and support Kanahā citizen patrols.				
3.10 Consider establishing a group of Kanahā park docents and ambassadors to help with education.				
3.11 Create a hotline for reporting issues, concerns, and complaints.				
Key Action 4: Upgrade Infrastructure and Facilities				
4.1 Install a potable water lateral.				
4.2 Install a new water meter for potable water (potable water meter fee (1-1/2")).				
4.3 Install potable water distribution lines.				

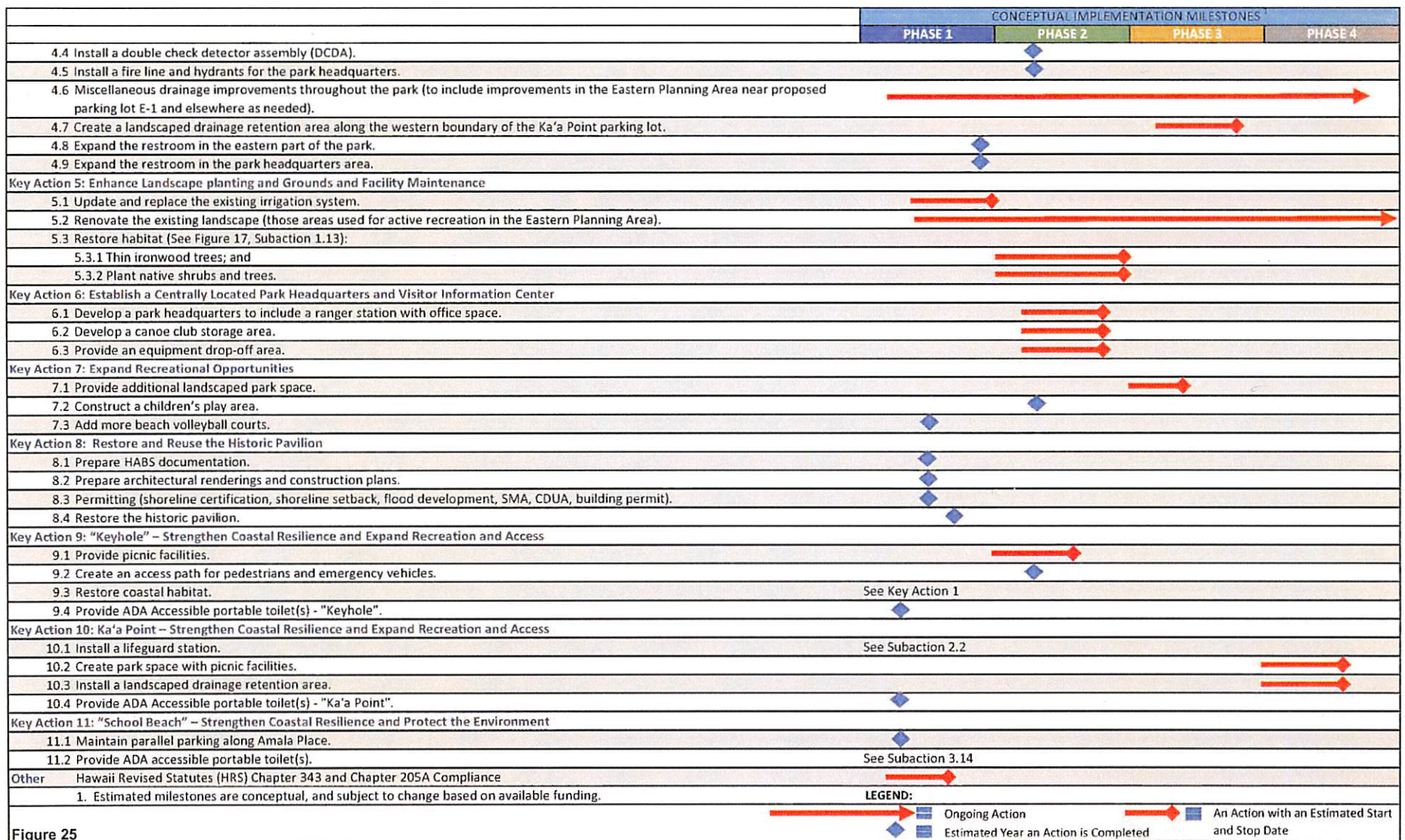


Figure 25

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Appendix A.1: Kanahā Beach Park Master Plan Key Actions and Subactions

Key Action 1: Continue to Restore the Park's Coastal Ecology and Support Coastal Resilience.

Subactions:

- 1.1 Partner with a non-profit group, such as Mālama Maui Nui, to help manage and steward the park's natural resource areas and trail network.
- 1.2 Continue previous wetland restoration activities by removing invasive plants and replacing them with indigenous or Polynesian-introduced species. Introduce additional plant species into wetlands to promote diversity.
- 1.3 Create a brochure that illustrates the important functions of dunes, and explains why staging, walking, or sitting on sand dunes should be avoided.
- 1.4 Provide signage to promote proper stewardship of the park's wetlands, dunes, marine ecology, and other environmental resources.
- 1.5 Monitor paths to the beach and along sand dunes. Use natural buffering to impede the use of inappropriate footpaths through wetlands, dunes, and other sensitive habitat.
- 1.6 Use wooden posts connected with barrier ropes to protect sensitive areas.
- 1.7 Add access and signed interpretive trails to edges and overlooks of wetlands, where appropriate.
- 1.8 Encourage the Humane Society to conduct a study of feral species to determine how to best manage the population. Continue to collaborate with the Humane Society to protect endangered and native birds from feral cats.
- 1.9 Commission a dune management study.

Eastern Planning Area

- 1.10 Install exclusion barriers (stumps, snags, branches) at the entrance to the foot path running along the back side of the sand dune to prevent dune blowout. Remove ironwood saplings along the crest of the dune.
- 1.11 Reorient the concrete and trex access path into the prevailing wind. Restore dune function using native plantings, and wood posts with rope barriers, and signage.
- 1.12 Reorient the beach access between the ironwood-created scarp and the children's swimming area into the prevailing wind to prevent dune blowout. Redirect foot traffic through the installation of posts, rope, signage, and native vegetation.
- 1.13 Native habitat restoration. Replace the ironwood trees with shade-producing native trees.
- 1.14 Remove some of the non-indigenous trees and replace them with indigenous species. Add a birding trail to take advantage of the various habitats, including a permanent water ponding area, woodland coastal area, and grassy drainage ditch.
- 1.15 Remove the existing deteriorating fencing and replace it with a hedge. Use the wetland and perimeter for theme plantings for educational and cultural considerations, such as a canoe plant grouping or indigenous plants that are used for handicrafts.

Central Planning Area

- 1.16 Add additional native plant species to diversify the wetland and to support animal species. Create a birdwatching trail along the southeastern edge of the wetland. Remove patches of tar within the wetland that appear to have trapped birds in the past.
- 1.17 Relocate the existing informal parking at Ka'a Point out of the shoreline setback area, just behind the berm line, and improve the area for picnicking and other park uses. Maintain a line of sight from the new parking area behind the berm to the beach.

- 1.18 Restore the shoreline with native plantings, exclusion barriers, and beach-quality sand available from the KWRP.
- 1.19 Relocate the existing informal parking at "Keyhole" out of the shoreline setback area to a new parking lot along Alahao Street. Limit access from the new parking lot to "Keyhole" to pedestrians and emergency vehicles. Restore the area's wetlands and native plants.
- 1.20 Create paths, boardwalks, or both from the new parking area along Alahao Street to the beach. Prevent lateral access through wetland W-7 by installing natural barriers. Block the informal access from the beach to footpaths leading through wetlands W-6 and W-7 using natural buffers.
- 1.21 Add additional native plant species to diversify the wetland and support animal species. Add a nature trail for public education of wetland functions and values.

Western Planning Area

- 1.22 Continue to maintain and restore the area's dunes and native plants.
- 1.23 Establish controlled pedestrian paths from Amala Place to the beach with posts and rope and, where appropriate, elevated boardwalks.
- 1.24 Reestablish and improve the existing concrete pedestrian path leading from the egress just west of the Alahao Street canal bridge where it turns to Amala Place.

Key Action 2: Improve Pedestrian, Bicycle and Vehicular Circulation as well as Parking

Subactions:

- 2.1 Construct an approximately 10-foot-wide primary pathway.
- 2.2 Create a network of walkways and trails throughout the park.
- 2.3 Develop a dedicated bike path along the mauka side of Alahao Street and Amala Place.
- 2.4 Connect driveways within the Eastern Planning Area.
- 2.5 Improve (pave) the easternmost gravel parking lot.
- 2.6 Provide a drop-off area fronting "Lowers."
- 2.7 Improve (pave) the parking lot at the former campground.
- 2.8 Build parking lots E-1, E-2 and E-3 in the Eastern Planning Area.
- 2.9 Build parking lot C-1 (92 stalls) along Alahao Street opposite Ka'a Street.
- 2.10 Build parking lot C-2 (49 stalls) at "Keyhole."
- 2.11 Build an approximately 12-foot-wide pathway, for pedestrians and emergency vehicles only, from the "Keyhole" parking lot to the beach.
- 2.12 Build parking lot C-3 (76 stalls) at Ka'a Point.
- 2.13 Resurface the existing driveway pavement throughout the park.
- 2.14 Retain parallel parking along Amala Place in the Western Planning Area.
- 2.15 Provide vendor parking near the park headquarters and visitor information center.

Key Action 3: Create a Safer and More Secure Environment for Park Users

Subactions:

- 3.1 Develop a park headquarters to include a ranger station.
- 3.2 Provide a new, staffed lifeguard station at Ka'a Point.
- 3.3 Extend the hours of the lifeguard at the existing station near the canoe hale to sunset.
- 3.4 Manage access to the park in the evening hours through a gate on Ka'a Street where it meets Alahao

Appendix A.1: Kanahā Beach Park Master Plan Key Actions and Subactions

- Street, and a gate on Amala Place across from the easternmost section of the KWRF.
- 3.5 Provide appropriate lighting near the restrooms.
 - 3.6 Provide additional signage with park hours and emergency phone numbers.
 - 3.7 Post park rules at appropriate locations throughout the park.
 - 3.8 Encourage the State DLNR to provide new signage with DLNR use areas and DLNR DOCARE Kokua rules.
 - 3.9 Authorize and support Kanahā citizen patrols.
 - 3.10 Consider establishing a group of Kanahā park docents and ambassadors to help with education.
 - 3.11 Create a hotline for reporting issues, concerns, and complaints.

Key Action 4: Upgrade Infrastructure Facilities

Subactions:

- 4.1 Install a potable water lateral.
- 4.2 Install a new water meter for potable water (potable water meter fee (1-1/2")).
- 4.3 Install potable water distribution lines.
- 4.4 Install a double check detector assembly (DCDA).
- 4.5 Install a fire line and hydrants for the park headquarters.
- 4.6 Miscellaneous drainage improvements throughout the park (to include improvements in the Eastern Planning Area near proposed parking lot E-1 and elsewhere as needed).
- 4.7 Create a landscaped drainage retention area along the western boundary of the Ka'a Point parking lot.
- 4.8 Expand the restroom in the eastern part of the park.
- 4.9 Expand the restroom in the park headquarters area.

Key Action 5: Enhance Landscape planting and Grounds and Facility Maintenance

Subactions:

- 5.1 Update and replace the existing irrigation system.
- 5.2 Renovate the existing landscape (those areas used for active recreation in the Eastern Planning Area).
- 5.3 Restore habitat (See Figure 17, Subaction 1.13):
 - 5.3.1 Thin ironwood trees; and
 - 5.3.2 Plant native shrubs and trees.

Key Action 6: Establish a Centrally Located Park Headquarters and Visitor Information Center

Subactions:

- 6.1 Develop a park headquarters to include a ranger station with office space.
- 6.2 Develop a canoe club storage area.
- 6.3 Provide an equipment drop-off area.

Key Action 7: Expand Recreational Opportunities

Subactions:

- 7.1 Provide additional areas with picnic facilities.
- 7.2 Construct a children's play area.
- 7.3 Add more beach volleyball courts.

Other: Establish Birdwatching and nature trails (See Figure 17, Subaction 1.14)

Key Action 8: Restore and Reuse the Historic Pavilion

Subactions:

- 8.1 Prepare HABS Documentation.
- 8.2 Prepare architectural renderings and construction plans.
- 8.3 Permitting (shoreline certification, shoreline setback, flood development, SMA, CDUA, building permit).
- 8.4 Restore the historic pavilion.

Key Action 9: "Keyhole" – Strengthen Coastal Resilience and Expand Recreation and Access

Subactions:

- 9.1 Provide picnic facilities.
- 9.2 Create an access path for pedestrians and emergency vehicles .
- 9.3 Restore Coastal habitat.
- 9.4 Provide ADA accessible portable toilet(s) - "Keyhole."

Key Action 10: Ka'a Point – Strengthen Coastal Resilience and Expand Recreation and Access

Subactions:

- 10.1 Install a lifeguard station.
- 10.2 Create park space with picnic facilities.
- 10.3 Install a landscaped drainage retention area.
- 10.4 Provide ADA accessible portable toilet(s) - "Ka'a Point."

Key Action 11: "School Beach" – Strengthen Coastal Resilience and Protect the Environment

Subactions:

- 11.1 Maintain parallel parking along Amala Place.
- 11.2 Provide ADA accessible portable toilet(s).

Appendix A.2: Site Description

	SITE FEATURE	DESCRIPTION
NATURAL	Slope and Topography	The topography of the project area varies throughout from flat zones of grassland, trees, and wetlands to rolling sand dunes along the shoreline covered in coastal trees and shrubs. Based on the aerial topographic survey provided by R.M. Towill taken in May 2015, the topography of the site ranges from sea level to 16.5 feet above mean sea level (MSL) at the high point where Amala Place crosses over the existing concrete drainage channel. The grades along Amala Place (about 2,600 feet of street frontage) as it borders the park site vary from 5.7 feet to 7.2 feet above MSL and along Alahao Street (approximately 4,100 feet) from 2.8 feet to 7.9 feet above MSL. The interior of the park parcels varies considerably as there are several areas of dunes which rise to between 10 feet to 13 feet above MSL (especially on the west portion of the park); as well as low lying wetland areas which go down to as low as 0.1 feet above MSL.
	Geology and Soils	Soils are classified as Dune Lands (DL) on the eastern half of the site, and as Jaucas Sand, Saline (JcC) in the western half of the site (Foote et al, 1972). Dune Land soils consist of loose unconsolidated particulate sands, while Jaucas Sand, Saline Soils are firmer with accumulations of alluvial material and higher salt content. The shoreline is classified as Beach Sand. Hard-packed basaltic soil is present closer to Alahao Street and Kaliahinui Stream.
	Wetlands and Drainage	A wetlands assessment study was prepared for the Master Plan and is titled "Wetland Assessment and Waters of the U.S. Jurisdictional Determination, Maui County." Kanahā Beach Park Master Plan, Kahului, Maui and was prepared by Robert W. Hobdy in May 2015 to determine the wetlands areas. Nine wetlands were identified and mapped across the length of Kanahā Beach Park. Some areas are as large as 3.6 acres in size. These areas are planned to be passive and protective with no buildings, grading, or paving.
	Coastal Dunes and Shoreline	<p>The park has a near continuous beach backed intermittently by sand dunes. Behind these dunes are wetlands that capture and filter runoff, sediment, and pollution from upland and inland sources. The connectivity of these ecological features; beach, dune and wetlands, play a key role in keeping near shore waters clean and pollution free. The beach supports habitat for many marine and terrestrial organisms including endangered native Hawaiian plants and animals. Healthy beaches are central to the health and vitality of the shoreline area and coastal waters. Sand on the beach helps absorb wave energy and the slope of the beach dissipates energy through wave run-up and swash.</p> <p>The Kanahā Beach Park area contains a remnant sand dune system behind the beach. Fore dunes face the beach and those landward of fore dunes are usually called back dunes. In a typical development of dunes the slope behind the fore dune becomes more stable, nutrient levels increase, and sand inundation and salt spray levels decrease. This allows the area to be colonized by a range of plant species that take advantage of these more stable conditions. At Kanahā swales are present in these back dune areas, some likely resulting from wind scouring (deflation) to an elevation near the water table where moist sand is encountered that cannot be readily transported. Some of the wetlands present at the park are present in these swale areas. Back dune areas are often heavily modified from human-induced disturbance and this is true at Kanahā Beach Park where historical military use, construction, and more recent vehicle operation have severely altered this system as evidenced by historical documentation and aerial photos of the area. In some areas at the Park the back-dune system is no longer present or is present in highly altered form. A coastal report was prepared to support the preparation of the Kanahā Beach Park Master Plan. The report, titled "Coastal Report for Kanahā Beach Park, Maui, Hawaii," was prepared by Thorne Abbott in February 2016 to recommend potential enhancements and restoration opportunities for Kanahā Beach Park's beaches and sand dunes.</p>
	Flora and Fauna	<p>Robert W. Hobdy surveyed the park site and prepared the "Botanical and Fauna Survey Kanahā Beach Park Master Plan, Kahului, Maui", dated May 2015. The vegetation varies considerably over this project area. Different species occupy the developed park, the coastal dunes, the peripheral forests, and the wetlands. A total of 138 plant species were recorded during four site visits. The vegetation varies considerably over this project area. Different species occupy the developed park, the coastal dunes, the peripheral forests, and the wetlands. A total of 138 plant species were recorded during four site visits. Thirty two species of endemic and indigenous native plants were recorded during the survey. These species were mostly concentrated in the less developed west end of the park, many having been planted by the Community Work Day program as a coastal native species enrichment/restoration project. Two of these plants, the 'ohai and the dwarf naupaka, are endangered species that are federally protected (USFWS, 2015). As a whole, these two endangered plants, along with the other 30 native plants, are creating a unique opportunity to showcase a native coastal ecosystem that could enhance light shoreline uses.</p> <p>Native wildlife recorded totaled four species: the Hawaiian bat which was uncommon and three insects, the Blackburn's sphinx moth, the green darter, and the globe skimmer that were all rare in the project area. Nēnē (<i>Branta sandvicensis</i>) were not seen during the survey but they are wide-ranging and could show up almost anywhere. No protected water birds were seen during the survey, but the ae'o or Hawaiian stilt (<i>Himantopus mexicanus knudseni</i>), the 'alae ke'oke'o or Hawaiian coot (<i>Fulica alai</i>) and the koloe or Hawaiian duck (<i>Anas wyvilliana</i>) could be attracted to the park's wetland features. Hawaiian petrels (<i>Pterodroma phaeopygia sandwichensis</i>) and Newell's shearwaters (<i>Puffinus auricularis newellii</i>), may transit over the project area when flying between the ocean and nesting sites in the mountains during their breeding season (March through November). A feral cat population in the area was noted and should be removed for the protection of the protected species in the area.</p>
	Flood Inundation Area	The park site is in the flood zone designated as VE with a small portion adjacent and east of the Kaliahinui Channel designated as AEF on a flood zone map prepared by Otomo Engineering, Inc. in May 2015 in support of the Kanahā Beach Park Master Plan Project. Flood Zone VE represents areas of coastal flood zone with velocity hazard and base flood elevations (BFE) determined. The BFE within the park range from 15 feet to 20 feet. There is a small portion of Zone AEF and X just to the east of Kaliahinui Gulch. Flood Zone AEF represents floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE. Flood Zone X represents areas outside the 0.2% annual chance floodplain.

Appendix A.2: Site Description

	SITE FEATURE	DESCRIPTION
SCENIC AND CULTURAL	Views	The views from the park site are limited on the mauka side as the topography of the site is relatively flat and large trees block most of the view of Haleakalā. However, there are numerous significant views from the shoreline to the West Maui mountains and the Waihee coastline. There are also significant views of the ocean from Amala Place. The "Maui Coastal Scenic Resources Study" prepared in 1990 by Environmental Planning Associates notes the West Maui mountains view as "noteworthy" from Kanahā Beach Park.
	Historic and Archaeological Resources	<p>"Archaeological Reconnaissance at Kanahā Beach Park, Island of Maui TMK: (2) 3-8-01: 119 and 19 (por.)" was prepared by Scientific Consultant Services, Inc. (SCS) in April 2015 to assess the presence/absence of archaeological sites on the parcel, the types of sites, and to provide recommendations for future recommended archaeological work in the project area.</p> <p>A walk through reconnaissance was done in March 2015 for this assessment. The reconnaissance survey led to the identification of eight archaeological sites, all representing the Historic WW II period. All eight sites are believed to have been built during the early 1940s WW II era, when military build-up in the islands led to the development of the Kahului Naval Station (NASKA; later Kahului Airport). Two of the eight sites identified during the current study were previously recorded by Frederickson (2003) in his report for the Kanahā Beach Park Expansion Project. The functional nature of the features composing the eight sites includes flood control, sand retention, military storage and protection, structural foundations, and temporary shelters.</p> <p>Mentioned in the report were a group of four small arms magazines located along Alaheo Street near the middle of the park site; and an enlisted men's beach pavilion located on the shoreline near the area across the intersection of Alaheo and Ka'a Streets. The group of arms magazines consists of four 9.5' wide x 14' long x 8.5' high masonry structures with flat roofs and one-foot overhangs. Each has one two-inch thick tongue and groove wood doors covered with sheet metal and at least two small high openings on each side of the door. The enlisted men's beach pavilion seems to have been built in 1945 and called "Helani". It was damaged by the tidal wave on April 1, 1946, and subsequently repaired. The remains of the building include lava rock columns. The dimensions of the building are 25' x 37' with only a remnant of the concrete floor on the mauka side. Lava rock stairs bordered by lava rock walls and piers exist on the west side of the building.</p>
INFRASTRUCTURE & FACILITIES	Water	<p>The park is currently serviced by the county water system by means of two-inch water meters (#96931032 & #96998330) located along Alahao Street near the intersection with Ka'a Street. This meter is off a six-inch waterline which runs along Ka'a Street and toward the airport area. The water service extends east into the park site and services the two existing comfort stations and the irrigation for the eastern section of the park. There are no waterlines between Ka'a Street and the KWRF.</p> <p>There are no fire hydrants in the park or along Amala Place and Alahao Street. Existing structures may be under an exemption relative to fire protection. Any new structures or additions to the existing structures may be required to be non-combustible or require an exemption from fire flow requirements from the Maui County Water and Fire Departments.</p>
	Wastewater	Wastewater collected from the region is transported to the KWRF located immediately to the west of the park. There is an existing eighteen-inch sewer line along Alahao Street conveying wastewater from the east to the Ka'a pump station located to the east of Kaliahului Gulch, which then pumps the wastewater to the treatment plant. Currently the two existing comfort stations within the park are connected to the existing eighteen-inch sewer line fronting the park. The various hose bibs and showers around the park do not have a sewer connection and allow water to percolate into the ground. The KWRF treats wastewater to R-2 levels, but does not have services for any reuse within the park property. R-2 recycled water is allowed to be used for irrigation purposes with restrictions to the location and time of use.
	Drainage	The existing ground undulates in all directions from elevation of approximately eleven feet above mean sea level at various locations of the property to elevation 0 feet at the ocean. There are no major drainage improvements within the project site. The onsite runoff presently sheet flows to various low spots within the park site where it is allowed to percolate into the soils which have a high infiltration rate. Areas immediately around the water sources such as hose bibs and showers tend to puddle and become muddy as there is no drainage or sewer to capture the water.
	Driveways and Parking	There are several driveways providing access to the park property which are both paved and unpaved. Within the park there are several parking areas which are also both paved and unpaved. A majority of the existing paved parking area are properly striped, although the condition of the pavement and striping varies with some areas experiencing extensive deterioration. The unpaved parking areas do not have any striping or markers therefore uncontrolled parking occurs varying the parking capacity of these areas. In 2016, it was recorded that in the western section of the park, there are zero formal parking stalls and 138 informal parking stalls. In the central section of the park there are zero formal parking stalls and 157 informal parking stalls. In the eastern section of the park there are 181 formal parking stalls and 206 informal parking stalls. Therefore, throughout the park there is a total of 181 formal parking stalls and 501 informal parking stalls totaling 682 parking stalls located in Kanahā Beach Park.
	Electrical	There is an existing electrical transmission system traversing along Amala Place and Alahao Street fronting the park. The existing overhead system currently extends into the eastern section of the park to provide service to the buildings.
	Lighting	There is minimal lighting at the park, mainly at the driveway entrances which are mounted on the utility poles.

Appendix A.2: Site Description

SITE FEATURE	DESCRIPTION
Restrooms and Showers	There are three portable toilets and one restroom in the far eastern section of the park. The female side of the restroom is equipped with a sink, toilet, and a changing area. The male section of the restroom has a sink, urinal, toilet and a changing area. There are also two showers in the far eastern section of the park. Closer to the campground, and near the canoe hale, there is a single portable toilet and a restroom. The female side of the restroom has two sinks and two toilets. The male section has two sinks, a urinal and a toilet. There are two showers in this east-central area. In the former campground area there are three additional showers. To the west, at "Keyhole", there is one portable toilet. Further west, at Ka'a Point, there is a single portable toilet. "School Beach" has two portable toilets.
Picnic Facilities	In the far eastern section of the park there are nine picnic tables and five BBQ facilities. Near the canoe hale, there are fifteen picnic tables and eleven BBQs. In the campground area there are five picnic tables and four BBQs. In the central region of the park, "Keyhole" has three picnic tables and Ka'a Point also has three picnic tables. In the western section of the park, "School Beach" has three picnic tables.
Water Safety	Two lifeguard stations are strategically located overlooking one of two dedicated and marked swimming areas. One station is located just seaward (makai) of the canoe hale, while the second station is located further east and is adjacent to the marked swimming area.
Park Office and Storage Space	There is a park office and three containers in the eastern section of the park.
Signage	There are two information signs and one major entrance sign in the far eastern section of the park. There is one major entrance sign near the campground. In the central section of the park there is another major entrance sign.
Trash Cans/ Recycle Bins	There are ten trash cans/ recycle bins and four informal trash cans in the far eastern section of the park. Closer to the campground and near the canoe hale there are seven trash cans/recycle bins, two informal trash cans, and two dumpsters. In the campground there are five informal trash cans. Further west "Keyhole", Ka'a Point and "School Beach" all have one informal trash can in each respective location.
Spigots	In the far eastern section of the park there are two spigots. Near the campground there are three spigots, and in the campground there are two additional spigots.
Water Fountains	There are two water fountains located in the eastern section of the park. One is in the far eastern section, and the other further west towards the campground.
Telephones	There is one pay-telephone in the far eastern section of the park. There is one functioning pay-telephone in the middle eastern section of the park and one broken pay-telephone.
Other	There are three volleyball courts adjacent to the canoe hale.

Appendix A.3: Parking Survey Results

KANAHĀ BEACH PARK PARKING SURVEY SUMMARY FINDINGS

EASTERN SUBAREA FINDINGS

1. During non-peak use periods (weekdays, mornings and evenings), parking is readily available throughout the Eastern Subarea.
2. During the peak use periods, i.e. weekend and holiday afternoons, parking areas within the Eastern Subarea were operating at 90% of their estimated capacity.
3. During the 4th of July, the parking areas within the Eastern Subarea were operating at 127% of their combined capacity at 2:00 PM.
4. With projected population growth to 2030, parking shortages are expected within the Eastern Parking Subarea during peak periods.

EAST-CENTRAL SUBAREA FINDINGS

1. During non-peak use periods (weekdays, mornings and evenings), parking is readily available throughout the East-Central Subarea.
2. During the peak use periods, i.e. weekend and holiday afternoons, parking areas within the East-Central Subarea were operating at 89% of their combined estimated capacity.
3. During the 4th of July, the parking areas within the East-Central Subarea were operating at 128% of their combined capacity at 2:00 PM.
4. With projected population growth to 2030, parking shortages are expected within the East-Central Subarea during peak periods.

CENTRAL SUBAREA FINDINGS

1. During both peak and non-peak use periods, parking is readily available throughout the Central Subarea.
2. The “Keyhole” is popular during windy days, and it was observed to be at 81% capacity during these peak periods.
3. The dirt parking lot along the shoreline at Ka’a Point is most popular during weekends and holidays, and it operated at 80% capacity during these peak periods.
4. The access driveway to parking areas at Ka’a Point is constrained by deep potholes at the driveway’s connection with Alahao Street.
5. The parking along Alahao Street is lightly used, even during peak periods. This is likely the result of park users’ concerns with vehicle security, as well as the distance of this parking from the beach.

WESTERN SUBAREA FINDINGS

1. During both peak and non-peak use periods, parking is readily available throughout the Western Subarea.
2. The “School Beach” parking area is popular during windy days, and it was observed to be at 105% capacity during these peak periods. During the 4th of July, the “School Beach” parking area operated at 165% of capacity at 2:00 PM.
3. The parking along Amala Place is lightly used, even during peak periods. This is likely the result of the inconvenience of these parking stalls relative to the “School Beach” parking stalls and concerns about security.
The “School Beach” parking area is in the shoreline setback area along a shoreline that is eroding at 3-4 feet annually. Over time, this parking area will likely be affected by erosion and sea level rise.

Appendix A.4: Regulatory Considerations

	Regulatory Consideration	DESCRIPTION
Federal	Mean High Water Mark	<p>The U.S. Army Corps of Engineers regulates the placement of structures or fill on any areas seaward of the mean higher high water mark (MHHWM) to prevent navigation hazards and control sources of water pollution.</p> <p>Some offshore activities, such as placing floatation devices as boundaries for swimming or ocean recreation areas, will require a jurisdictional determination and may require a Department of Army permit. Any alterations to the groins along the coastline would also require the U.S. Army Corps of Engineers review.</p>
	Shoreline Location	Improvements at Kanahā Beach Park will likely require a certified shoreline. The process to certify the shoreline's location is determined by submitting a survey to the state surveyor who reviews it in conjunction with a site visit by the DLNR Office of Conservation and Coastal Lands (OCCL). The certified shoreline will be used to establish the baseline from which the county's shoreline setback line is measured.
State	Conservation District	<p>Kanahā Beach Park is located on land owned by the State of Hawaii DLNR that has been provided to the County of Maui through an executive order.</p> <p>The park is entirely within the State Conservation District. Conservation districts are categorized into subzones and regulated pursuant to Section 13-5-13 of the DLNR Hawaii Administrative Rules (HAR). Kanahā Beach Park is located within the Limited subzone.</p> <p>As a result, any construction or improvements in Kanahā Beach Park may require review and approval by the DLNR OCCL and/or the Board of Land and Natural Resources (Board). The rules for Conservation Districts are administered by DLNR OCCL and the Board pursuant to HAR Chapter 13-5. The rules identify a wide variety of land uses that are permissible based on four categories of agency review. HAR Chapter 13-5-23 identifies land uses that are permissible within the Limited Subzone. Identified land uses within the rules may require no permit from the DLNR or may require a site plan approval, department permit, or board permit depending on the scale and nature of the proposed action.</p>
	Environmental Review	It is likely that an environmental review will be required for proposed actions, land uses, or improvements within the park. HRS Chapter 343 is triggered when using state or county funds, or when a proposed action occurs within a conservation district or shoreline setback area.
County	Special Management Area	<p>Kanahā Beach Park is located within the Special Management Area (SMA). The Maui County Planning Department requires an assessment of any proposed action within the SMA to determine the action's potential to adversely impact coastal resources; to identify measures proposed to avoid, minimize, or mitigate potential adverse impacts; and to determine the valuation of the proposed action. The Department may issue an SMA exemption, SMA minor use permit, SMA emergency permit, or the Department may deny the proposed action because of its potential for adverse impacts. For large projects, such as those costing \$500,000 or more, or those projects with adverse impacts, the Department may require an SMA major use permit approved by the Maui Planning Commission during a public hearing of the proposed action.</p> <p>The DPR could submit an annual SMA assessment of their planned improvements to the park based on their annual council-approved budget. Providing an annual SMA assessment would tend to reduce the amount of permitting encountered annually for day-to-day maintenance and repair. This could help speed up proposed park maintenance and minor improvement efforts.</p>

Appendix A.4: Regulatory Considerations

Regulatory Consideration	DESCRIPTION
Shoreline Setback Area	<p>Much of Kanahā Beach Park lies within the shoreline setback area. Within the shoreline setback area, only minor structures and minor activities (as defined in Chapter 12-203-4 of the Shoreline Rules of the Maui Planning Commission) are permitted without a shoreline setback variance. A shoreline setback variance requires approval by the Maui Planning Commission during a public hearing of the proposed action.</p> <p>Within the park four buildings are within the shoreline setback area: two lifeguard towers, the canoe hale, and the historic pavilion. The lifeguard tower and canoe hale are on an accreting shoreline and are permissible structures. The lifeguard tower is portable and movable and is necessary for public safety. Additional lifeguard towers would likely qualify as permissible based on Subsection 12-203-12(a)(9) of the Shoreline Rules of the Maui Planning Commission.</p> <p>The canoe hale is an open-air post structure with a natural floor that allows sand and water to freely move and shift with natural forces. Although it is technically owned by a canoe club, it arguably qualifies as a watersports recreational facility that is not interfering with natural beach processes and can be maintained or repaired. However, any proposal to harden its floor, such as with poured concrete, or any enlargement of the structure would require a shoreline setback variance.</p> <p>The historic pavilion is also within the shoreline setback area. It may qualify as a non-conforming structure because it was built before there were rules requiring setbacks from the shoreline. As such, it can be repaired or renovated without financial limitation provided that the repairs are not the result of damages from coastal hazards and the repairs are permitted by flood hazard regulations (MCC 19.62). The building cannot be enlarged or expanded without a shoreline setback variance.</p> <p>Four informal parking sites are within the shoreline setback area: “Keyhole”, Ka’a Point, “School Beach”, and adjacent to the KWRF at the western end of the park. The first three of these are comprised of natural materials, such as dirt or sand, the latter of these has a remnant concrete slab that would be considered a non-conforming structure. Considering all of these parking areas are on retreating shorelines that are experiencing some of the highest erosion rates on the Island of Maui, it is recommended that all four of these parking lots be relocated inland. Any paved improvements to these facilities would likely require a variance from regulatory prohibition, both in terms of shoreline setbacks and dune protection.</p>
Dune Protection Areas	<p>Grading of any dunes requires a dune delineation conducted by a coastal scientist. Grading of a primary dune is prohibited. Any fill used must be beach quality sand rather than topsoil to facilitate native plant growth. Compliance with MCC 20.08 is required when seeking a grading or grubbing permit. Accordingly, the construction of paved parking areas or paved roadways within the primary dune’s footprint would be prohibited and would negatively affect sand and beach resources.</p>
Flood Hazard Areas	<p>The park site is in the flood zone designated as VE with a small portion adjacent and east of the Kalia Inui Channel designated as AEF on a flood zone. Flood Zone VE represents areas of coastal flood zone with velocity hazard and base flood elevations (BFE) determined. The BFE within the park range from 15’ to 20’. There is a small portion of Zone AEF and X just to the east of Kalia Inui Gulch. Flood Zone AEF represents floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE. Flood Zone X represents areas outside the 0.2% annual chance floodplain.</p> <p>A Flood Development Permit would be required for any new buildings or substantial built improvements in the park and an Elevation Certificate and Coastal High Hazard Certification would be required, and signed, by a licensed professional.</p> <p>There are minimum standards for development within coastal high hazard areas as described in MCC 19.62.060.G.(4) and (5). Specifically, no fill can be used for structural support of a building, as it could be scoured away by wave action. Also, any manmade alteration of sand dunes cannot increase potential flood damage. Buildings within a flood zone have to be elevated above base flood elevation or designed to withstand the forces of wave action.</p> <p>Any structures within this zone will be required to be built above the BFE or have “break away” walls complying with flood zone restrictions. The lowest structural cross members (such as floor framing or roof beams and fascia) for these buildings will be required to be above the BFE. Based on this premise (and that the lowest structural cross member is the fascia) and assuming a 10’ high fascia, the building pad will need to be located on grades between 8’ to 10’ above MSL. This is assuming also that all walls and slabs are “break away” construction. This restricts the area that can be built without or with limited elevation of structures to an area bounded to the east by the Kalia Inui Channel and to the west by the existing unpaved parking lot and close to the roadway. This seems to be the only area high enough with existing grades between 10’ and 13’ high. All existing buildings (including their fascia) seem to be below the BFE in the areas they were built. These existing building could be renovated with construction costs not to exceed 50% of the appraised value of the building.</p>