

Mālaekahana State Recreation Area - Kahuku Section Park Improvements, Lā‘ie, O‘ahu, Hawai‘i

Special Management Area Use Permit Application

July 2018

Landowner:



State of Hawai‘i

Department of Land and Natural Resources, Division of State Parks

Agent:



(This page intentionally left blank.)

Special Management Area Use Permit Application
for the
MĀLAEKAHANA STATE RECREATION AREA
KAHUKU SECTION PARK IMPROVEMENTS
Lā‘ie, O‘ahu, Hawai‘i

Prepared For:

State of Hawai‘i
Department of Land and Natural Resources
Division of State Parks

Prepared By:

The Limtiaco Consulting Group
Civil Engineering and Environmental Consultants
1622 Kanakanui Street
Honolulu, Hawai‘i 96817

July 2018

(This page intentionally left blank.)

CONTENTS

	<u>page</u>
I. General Information	1
A. Applicant	1
B. Recorded Fee Owner	1
C. Agent	1
D. Tax Map Keys	1
E. Land Area	1
F. Agencies Consulted in Making Assessment	1
II. Description of the Proposed Action	4
A. General Description	4
1. Brief Narrative Description of Entire Proposed Project	4
2. Relation of Project Site to Special Management Area	5
3. Location Map	5
4. Land Use Approvals Granted and/or Approvals Required	8
B. Technical Characteristics	9
1. Use Characteristics	9
2. Physical Characteristics	9
3. Construction Characteristics	10
4. Utility Requirements	10
5. Liquid Waste Disposal	10
6. Solid Waste Disposal	10
7. Access to Site	10
8. Other Pertinent Information	11
C. Economic and Social Characteristics	11
D. Environmental Characteristics	13
1. Soils	13
2. Topography	13
3. Surface Runoff, Drainage and Erosion Hazard	13
4. Federal Flood Insurance Rate Map Zone, Land Use Ordinance Flood Hazard District, Other Geologic Hazards	14
5. Other Pertinent Information	16
III. Affected Environment	16
1. Brief Description of Subject Site in Relation to Surrounding Area and Description of Surrounding Area	16
2. Project Site in Relation to Publicly Owned or Used Beaches, Parks, and Recreation Areas; Rare, Threatened, or Endangered Species and Their Habitats; Wildlife and Wildlife Preserves; Wetlands, Lagoons, Tidal Lands, and Submerged Lands; Fisheries and Fishing Grounds; Other Coastal/Natural Resources	16
3. Relation to Historic, Cultural, and Archaeological Resources	17

CONTENTS (continued)

	<u>page</u>
4. Coastal Views from Surrounding Public Viewpoints and from the Nearest Coastal Highway Across the Site to the Ocean or to Coastal Landform	18
5. Quality of Receiving Waters and Ground Water (Including Potable Water) Resources. Describe Effects on the Groundwater Recharge Cycle within the Groundwater Control Area, Show Existing and Proposed Well Locations with Pumping Estimates. Describe Effects on Receiving Waters – Streams and Ocean Waters	18
6. Include Suitable and Adequate Location and Site Maps.....	19
7. Other Pertinent Information.....	19
IV. Project Impacts	19
V. Mitigation Measures.....	28

LIST OF FIGURES

Figure 1 Site Location Map.....	6
Figure 2 Parcel Map	7
Figure 3 Phase One Project Elements	12

LIST OF APPENDICES

Appendix A	Transect Plots
Appendix B	Final EA
Appendix C	Schematic Design Plans

LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Definition</u>
BMPs	Best Management Practices
BS	Beach sand
CZM	Coastal Zone Management
DLNR	State of Hawai'i, Department of Land and Natural Resources
DOH	State of Hawai'i, Department of Health
DPP	City and County of Honolulu, Department of Planning and Permitting
EA	Environmental Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
IBC	International Building Code
JaC	Jaucus sand
LUO	City and County of Honolulu Land Use Ordinance
NFPA	National Fire Protection Association
NPDES	National Pollutant Discharge Elimination System
OHA	State of Hawai'i, Office of Hawaiian Affairs
ROH	Revised Ordinances of Honolulu 1990
SCS	Scientific Consultant Services, Inc.
SHPD	State of Hawai'i Department of Land and Natural Resources, Historic Preservation Division
SMA	Special Management Area
TLCG	The Limtiaco Consulting Group
TMK	Tax Map Key
UIC	Underground Injection Control
USFWS	U.S. Department of the Interior, Fish and Wildlife Service

(This page intentionally left blank.)

I. GENERAL INFORMATION

A. Applicant

Department of Land and Natural Resources, Division of State Parks

Contact: Curt Cottrell, State Parks Administrator

B. Recorded Fee Owner

State of Hawai'i
Department of Land and Natural Resources
1151 Punchbowl Street, Room 310
Honolulu, HI 96813

Mālaekahana Beach Campground, LLC has partnered with Kama'aina Kids to manage the project site for five years. The lease awarded to MBC has an effective date of April 1, 2015. The execution of a subsequent lease may allow the qualifying organization to complete park improvements. State Parks anticipates a phased approach for completing proposed park improvements due to timing and funding constraints.

C. Agent

The Limtiaco Consulting Group
1622 Kananui Street
Honolulu, HI 96817

D. Tax Map Keys

Planned improvements will occur within the park, which encompasses the following properties:

(1) 5-6-001: 024, 025, 045 to 047, 049, 051, and 053 to 065

E. Land Area

The park area is approximately 36.288 acres.

F. Agencies Consulted in Making Assessment

Agencies, organizations, and individuals were contacted as part of the Environmental Assessment (EA) process. Project information was shared at the August 14, 2014 meeting of the Ko'olauloa Neighborhood Board No. 28. Participants identified by the ✓ below provided twenty-five (25) formal responses that were appended to the Draft EA.

During the statutory 30-day public review and comment period for the Draft EA, one formal comment and an email comment were received. This is documented in the Final EA.

Federal Agencies

- ✓ U.S. Fish and Wildlife Service
- ✓ U.S. Department of Commerce, National Oceanic and Atmospheric Administration
 - National Marine Fisheries Service, Pacific Islands Regional Office

State of Hawai'i

- ✓ Department of Transportation
- Department of Business, Economic Development and Tourism - Office of Planning
- Department of Land and Natural Resources
 - Commission on Water Resource Management
- ✓ Division of Aquatic Resources
- ✓ Division of Forestry and Wildlife
- ✓ Division of State Parks
- ✓ Engineering Division
- ✓ Land Division
 - O'ahu Island Burial Council
- ✓ Office of Conservation and Coastal Lands
 - State Historic Preservation Division
- Department of Education
 - ✓ Windward District Office
 - Kahuku High and Intermediate School
 - Hawai'i State Public Library System
 - Hawai'i and Pacific Section, Documents Center
 - Kahuku Public and School Library
- Department of Health
 - Office of Environmental Quality Control
 - ✓ Clean Air Branch
 - ✓ Clean Water Branch
 - Environmental Health Services Division
 - Environmental Management Division
 - ✓ Environmental Planning Office
 - ✓ Indoor and Radiological Health Branch
 - Safe Drinking Water Branch
 - Solid and Hazardous Waste Branch
 - ✓ Wastewater Branch
 - ✓ Office of Hawaiian Affairs
 - Department of Hawaiian Home Lands

State of Hawai'i (continued)

Senator for District 23

Representative for District 47

City and County of Honolulu

Department of Budget and Fiscal Services

✓ Department of Design and Construction

✓ Department of Enterprise Services

Department of Environmental Services

✓ Department of Parks and Recreation

Department of Planning and Permitting

✓ Department of Transportation Services

✓ Board of Water Supply

✓ Honolulu Fire Department

✓ Honolulu Police Department

Councilmember for District 2

Neighborhood Commission Office

Ko'olauloa Neighborhood Board No. 28

Utilities

Hawaiian Electric Company

Oceanic Time Warner Cable

Hawaiian Telcom

The Gas Company (dba Hawai'i Gas)

Organizations, Associations and Individuals

Cy Bridges

Hui Malama I Na Kupuna O Hawai'i Nei

✓ Lanihuli Community Development Corporation (Friends of Mālaekahana)

Hau'ula Community Association

Ka'a'awa Community Association

Kahuku Community Association

Ko'olauloa Hawaiian Civic Club

Lā'ie Community Association

Punalu'u Community Association

Sunset Beach Community Association

Neighboring or Nearby Property Owners and Recorded Lessees

5-6-001-011 through 5-6-001-013

5-6-001-026 through 5-6-001-033

5-6-001-066

Neighboring or Nearby Property Owners and Recorded Lessees (continued)

5-6-001-068 through 5-6-001-084

5-6-001-086 through 5-6-001-090

5-6-002-027

5-6-002-027 (0001 thru 0052)

5-6-002-036

5-6-002-045

5-6-002-048

✓ 5-6-006-006 (Hawai'i Reserves, Inc.)

5-6-006-018

5-6-006-058

II. DESCRIPTION OF THE PROPOSED ACTION

A. General Description

1. Brief Narrative Description of Entire Proposed Project

The proposed project involves park improvements at an established, 36-acre public recreation area that is utilized for camping, lodging and day use activities. The nineteen (19) separate but contiguous parcels that comprise the Mālaekahana State Recreation Area - Kahuku Section (hereafter the project site) have been utilized for park purposes since the 1980s when the residential (R-5) parcels were acquired through condemnation. Grant monies from the Land and Water Conservation Fund program were utilized to acquire and establish the project site as a public park; the use of said federal funds requires, with limited exceptions, that the property be used for outdoor recreation and open space at all times in perpetuity. The letter from the Chairperson of the Department of Land and Natural Resources (DLNR) to the Acting Director of the City and County of Honolulu, Department of Planning and Permitting (DPP) dated October 9, 2017 includes the following background information pertaining to the project site:

Upon acquisition in 1980, these lands became unencumbered State lands owned by DLNR, and State Parks took the operation and management responsibilities for this park area. In 2002, DLNR transferred the ownership of the subject parcels to State Parks through Executive Order No. 3928.

DLNR proposes to improve its project site on the windward coast of the island of O‘ahu between the towns of Kahuku and Lā‘ie for continued recreational use including camping, lodging and day use activities. The project is expected to enhance established public recreational opportunities and will not affect the use of or access to coastal or other public recreational opportunities. Improvements will include new infrastructure (e.g., the installation of water, wastewater and electrical/communication systems) and construction of a comfort station and satellite restroom facilities. The project also includes the replacement of the administration office, a security office and seven (7) cabins along with related improvements. The structures and associated infrastructure would be sited to optimize the functionality and spatial aesthetics of the park.

The first phase of the project is expected to include the installation of underground utilities, one accessible cabin, and one comfort station. Improvements to the site circulation route and one parking area are also expected to be completed in phase one. Funding availability may allow DLNR to complete the installation of one satellite restroom and improvements to the southernmost parking area by 2020.

2. Relation of Project Site to Special Management Area

The project site is on the *makai* or seaward side of the two-lane Kamehameha Highway and entirely within the Special Management Area (SMA) boundary. Thirteen (13) of the nineteen (19) parcels that comprise the project site abut the shoreline. Proposed park improvements will be away from the shoreline because DLNR intends to ensure that the public continues to have a shoreline access route along Mālaekahana Bay.

3. Location Map

The project site is located between Kamehameha Highway (State Route 93) and Mālaekahana Bay on the windward side of O‘ahu (see Figures 1 and 2). As shown in the figures, the project site is wider along its northern boundary since its shape is influenced by the existing highway and the northern half of the crescent-shaped Mālaekahana Bay.

Mālaekahana Stream, which traverses the abutting privately-owned property (TMK 5-6-002: 045) is immediately north of the project site. Contiguous residential parcels along Mālaekahana Bay are immediately south of the project site. Kahuku District Park, which is near the center of the rural community of Kahuku is roughly 0.5 miles to the northwest; the Mālaekahana State Recreation Area - Kalanai Section is 0.7 miles to the southeast; and the town of Lā‘ie is approximately 1.5 miles southeast of the project site.

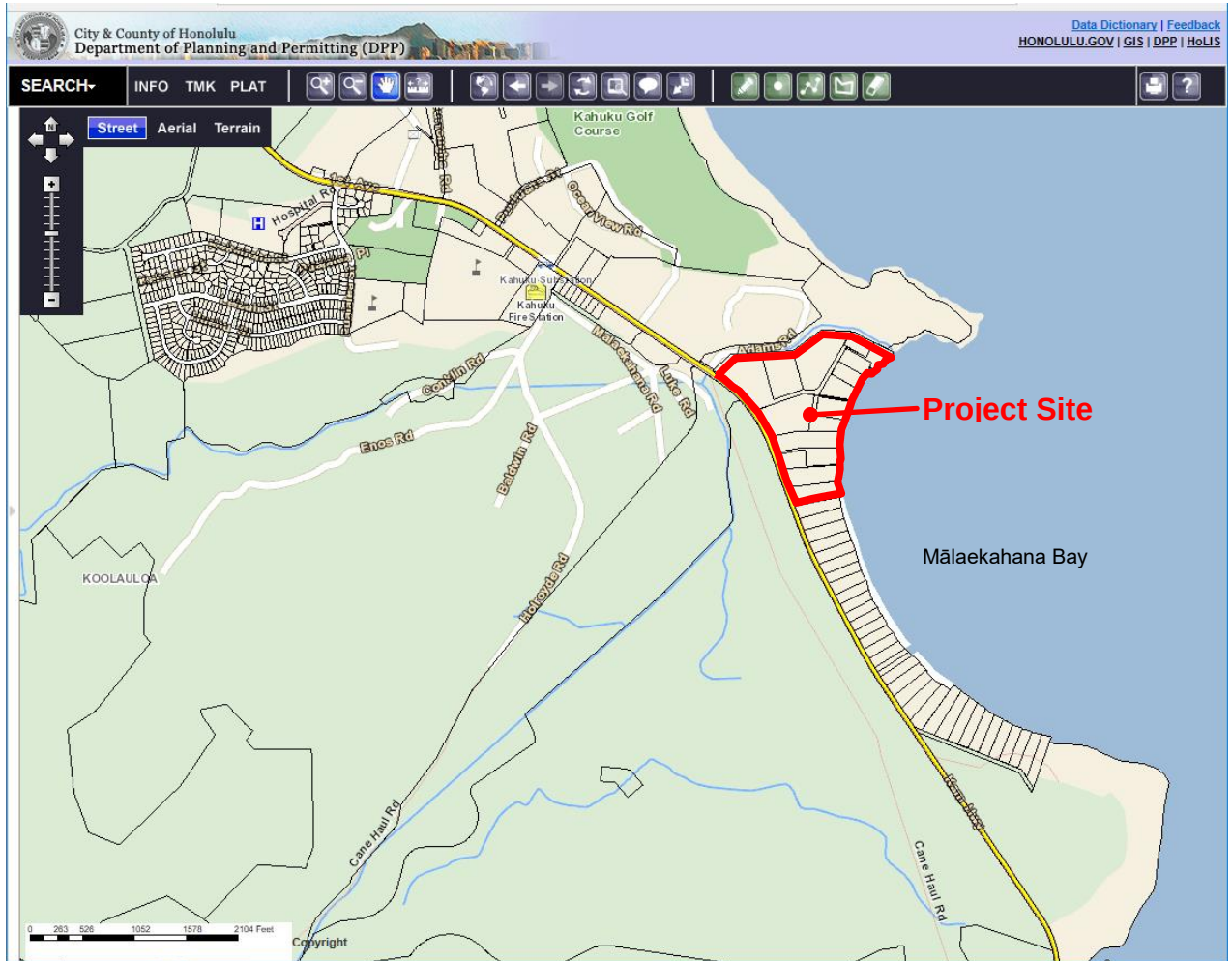
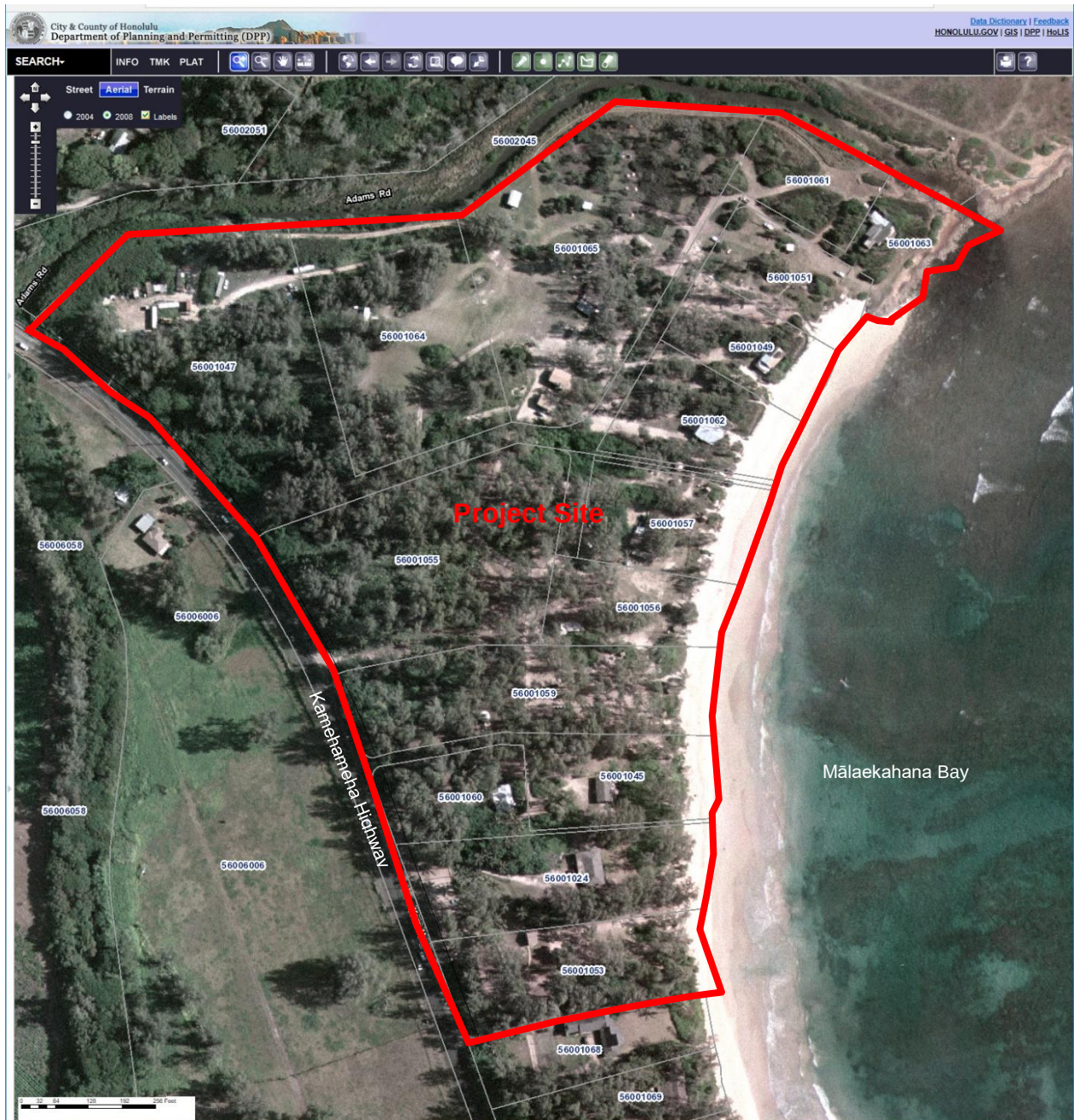


Figure 1 Site Location Map



Notes: TMKs 5-6-001-025 and 5-6-001-054 are narrow, linear parcels along Kamehameha Highway.
TMKs 5-6-001-046 and 5-6-001-058 are immediately west and north, respectively, of TMK 5-6-001-057.

Figure 2 Parcel Map

4. Land Use Approvals Granted and/or Approvals Required

The letter dated April 6, 2018 from DPP to DLNR confirms that park use pre-dates the City and County of Honolulu Land Use Ordinance (LUO), which was adopted on October 22, 1986. In addition to acknowledging the background circumstances that pertain to DNLR's project, DPP states that it will consider the project site as a single development lot without requiring a Conditional Use Permit (CUP) for joint development or Consolidation via the subdivision process. DPP does not consider the parcels to be a nonconforming joint development but will not require a separate land use permit or Consolidation since joint use of the land is required to fulfill the stated goals and objectives of the Order of Condemnation and the Executive Order. The April 6, 2018 letter to DLNR includes the following statement about DPP's preference for an official record-keeping action in the future to resolve the parcel consolidation issue:

Therefore, we have determined that we will review the current proposals without requiring either a CUP for joint development or a Consolidation, with the understanding that in the long run, it would benefit both the State and City if the parcels were officially joined.

We reiterate, however, that in general such record-keeping mechanisms are preferable and will simplify development in the long run.

The State land use designation for the entire project site is Urban. Park uses are permitted within the Urban District designation. The project site is a public use that is permitted in the R-5 Residential District and has been continuously utilized for a public purpose (e.g., a regional park) while under State ownership. DPP confirms in the April 6, 2018 letter that the park use is considered a public use and structure, which is permitted in the R-5 Residential District. In addition, §18-3.1 of the Revised Ordinances of Honolulu 1990 (ROH) provides that work performed for any state government agency is exempt from building permit requirements except where permits are sought by the agency. The April 6, 2018 letter to DLNR confirms that no permits are required under Chapter 18, ROH; however, this exemption does not grant authorization for any work to be done in violation of the provisions of the technical codes or any other laws or ordinances of this jurisdiction.

New park structures are expected to comply with the 25-foot above-grade height limit as prescribed in the City and County of Honolulu Land Use Ordinance (LUO), Section 21-4.60, Heights. DLNR has requested to be waived from development and design standards pursuant to §21-2.130 of the LUO, which applies to public uses and structures. DPP confirms that public uses and structure qualify for Zoning Waivers.

B. Technical Characteristics

1. Use Characteristics

The proposed project provides the opportunity to install park facilities that conform to the International Building Code (IBC), the applicable sections of the National Fire Protection Association (NFPA), the 2010 Americans with Disabilities Standards for Accessible Design, and related standards pertaining to health and safety. The associated infrastructure (e.g., water, wastewater and electrical/communication systems) will be in compliance with applicable safety codes and State Department of Health guidelines. New restroom and shower facilities are expected to contribute to a cleaner park. Improved park facilities will allow State Parks to better accommodate and meet the recreational needs of residents and visitors. DLNR intends to ensure that the property is continuously utilized for outdoor recreation and open space for the foreseeable future. DLNR's objective with regards to the project is to balance the development of adequate recreational facilities and venues with concerns about public beach access, increased traffic and environmental resources.

2. Physical Characteristics

Numerous landform alterations have occurred within the project site as a result of private residential use and subsequent improvements associated with public park and recreation purposes. The project site contains dense thickets of shrubs and other vegetation, campgrounds, parking areas, open air structures for day use activities (e.g., picnicking), rinsing showers, beach areas, and unimproved roads. A baseyard for the campground operator's vehicles and equipment is located on the northwestern corner of the project site and away from other park functions.

The proposed project is not intended to increase the density of the area nor increase the number of rental units within the park that were present prior to the necessary demolition of dilapidated recreational cabins and support structures in November 2014. In March 2015, DLNR's lessee sited portable toilets and temporary, portable structures within the project site per the terms and conditions of its lease. Flatter areas within the project site host newly authorized rental units. A website (www.malaekahana.net) for online reservations provides information about the site configuration, campground facilities and park amenities. On-site infrastructure that was installed prior to DLNR's acquisition of the property in October 1980 warrants replacement due to wear, obsolescence and more stringent standards for regulatory compliance.

3. Construction Characteristics

All equipment and staging are expected to occur within the project site. Underground utilities are expected to be installed using conventional construction methods (e.g., open trench construction). DLNR's contractor must comply with an approved archaeological monitoring plan. If existing pedestrian pathways must be closed to ensure public safety during construction, the contractor must establish a temporary pedestrian route that complies with applicable standards for accessibility.

4. Utility Requirements

Existing utility systems are expected to remain in use because these are needed for continued park use. Water, electrical and communications service that is currently available through existing providers may be temporarily disrupted during construction but will be restored as soon as possible to minimize the disruption. Coordination with the utility providers will occur as the project progresses through various stages of design and construction.

5. Liquid Waste Disposal

Construction activities are expected to occur away from the shoreline and surface waters (e.g., Mālaekahana Stream) such that potential hazards from liquid waste releases are eliminated or minimized. The contractor must implement a spill prevention and response plan to eliminate and minimize the discharge of pollutants during construction due to leaks or spills. The proposed project is not expected to generate liquid waste from dewatering that will affect the recreation value of coastal areas. The construction contractor will be responsible for implementing a storm water management plan that prevents a concentration of runoff from flowing into neighboring areas.

6. Solid Waste Disposal

The construction contractor will be required to dispose of or recycle construction-related waste material at approved sites.

7. Access to Site

Vehicular access and egress is via three driveways along Kamehameha Highway. The northernmost access road has a padlocked gate to prevent unauthorized entry. Construction activities such as the delivery of materials and equipment to the project site may cause temporary inconveniences and traffic disruptions that would cease upon completion of proposed work. The contractor will need to obtain a permit to perform construction within the State

of Hawaii, Department of Transportation right-of-way. There are no anticipated long-term impacts to coastal recreation opportunities from proposed work.

8. Other Pertinent Information

Phase one project elements with respect to all improvements described in the Final EA are identified in Figure 3. This application includes plans for proposed improvements including reconstruction of the access road and gravel parking lot, construction of a new gravel parking lot, comfort station, satellite restroom, cabin, three (3) pot wash stations, and supporting infrastructure (potable water lines, fire lines, individual wastewater treatment systems, and electrical system). Proposed improvements that may be accomplished in subsequent phases by a new lessee involve landscaping; changes to park entrances, access roads, gates and parking areas; campgrounds; picnic pavilions; rinsing showers; a baseyard; new lodging facilities; a comfort station; satellite restrooms; and pot/dish wash stations. Plans pertaining to the specific elements in each phase will be developed throughout the progression of the project, which may span several decades.

C. Economic and Social Characteristics

The estimated costs for DLNR's project may range from \$10 to \$18 million; however, the timing and phasing of improvements is expected to influence total costs. The completion of all satellite restroom facilities, the replacement of the administration office, a security office and seven (7) cabins along with related improvements may ultimately be achieved through multiple phases of work. The exact timeframe for completion is unknown and may take several decades. DLNR is striving to complete the first phase of improvements by 2020 since this would coincide with the five-year term of the awarded lease that has an effective date of April 1, 2015.

DLNR may achieve the completion of the park improvements by offering a long-term lease to an organization seeking to operate a camping and lodging facility with the improvements described in the EA. DLNR's lessee would be authorized to operate a commercial campground including the following activities: cabin and portable structure rentals, pavilion rentals for various events, camping and beach equipment rentals and sales, food and beverage sales, educational and instructional programs including watersports activities and other recreational uses consistent with a coastal park campground. The terms of the long-term lease may allow for the construction of improvements necessary to operate the campground including cabins and other infrastructure to the extent that the improvements are not completed by State Parks due to timing and funding constraints.



Notes: DLNR and its lessee do not allow camping along Mālaekahana Stream or the shoreline setback area. No improvements or camping may occur near the reinterment site, the protected zone or where the potential for subsurface artifacts remains high.

Figure 3 Phase One Project Elements

D. Environmental Characteristics

1. Soils

According to the Web Soil Survey (U.S. Department of Agriculture, Natural Resources Conservation Service, n.d.), the predominant soil type in the vicinity of the project site is classified as Jaucus sand (JaC), 0 to 15 percent slopes. The JaC soil type is characterized by rapid permeability and very slow to slow runoff. The water erosion hazard is slight; however, the wind erosion hazard is severe in the absence of vegetation. The project site also contains light-colored beach sand (BS) derived from coral and seashells. The JaC soil type is suitable for pasture, sugar cane, truck crops and urban development, whereas beach sand that is free of stones is highly suited for recreational uses.

Earth disturbing activities may temporarily create exposed areas at the project site that are susceptible to erosion from wind and rain. The construction contractor will be responsible for implementing dust control measures that effectively minimize or prevent nuisance concerns from fugitive dust and the effects of wind erosion. Areas affected by project actions will be stabilized and may be landscaped, which reduces the long-term potential for erosion by water and wind. No graded areas will remain uncovered.

2. Topography

Most of the project site between Kamehameha Highway and the sloping shoreline area is between 5 to 20 feet above mean sea level. The project site contains gently sloping areas, small mounds and some knolls. DLNR's project would generally retain the characteristic landscape elements and overall topographic profile for most of the site. In general, proposed structures would be situated within the flatter, open areas of the project site thereby minimizing site work and preparation activities. Minor grubbing and grading will be accomplished to the extent necessary within the limits of the affected construction area.

3. Surface Runoff, Drainage and Erosion Hazard

Proposed park improvements will not change existing land and water uses. Mālaekahana Stream will not be diverted or altered as a result of placing park facilities and related infrastructure in previously disturbed or developed areas of the project site. The marine habitat along the unconsolidated shoreline would also be unaffected since no structures or associated infrastructure will be sited or installed within the shoreline setback area. A gravel mix will be

used for the parking areas and internal roadways to help retain stormwater on-site.

A short-term and temporary impact of the project may occur from the generation of sediment-laden surface runoff during earth-disturbing activities, especially if heavy rains coincide with the activity. A National Pollutant Discharge Elimination System (NPDES) Permit for discharges of pollutants, including stormwater runoff (e.g., construction dewatering effluent) is required for the disturbance of one acre or more of total land area pursuant to HAR Title 11, Chapter 55, "Water Pollution Control." The construction contractor will be responsible for implementing Best Management Practices (BMPs) to address stormwater runoff that can transport loose soil, excess nutrients and other pollutants. BMPs are also expected to be developed and implemented by the contractor in accordance with the Honolulu County Code for erosion and sedimentation control.

4. Federal Flood Insurance Rate Map Zone, Land Use Ordinance Flood Hazard District, Other Geologic Hazards

The Hawai'i - National Flood Insurance Program GIS Web Map depicts flood risk information from the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM). The area from Mālaekahana to Lā'ie falls within FEMA FIRM Panel No. 15003C 0045H. Most of the project site is within the non-special flood hazard area, which is characterized by low-to-moderate flood risk. The Zone X designation refers to areas outside the 0.2 percent annual chance floodplain. The northern and eastern boundaries of the project site are within Zones AE, AEF and VE, which are special flood hazard areas subject to inundation by the 1 percent annual chance (or 100-year) floods. The special flood hazard areas within the project site generally follow the Mālaekahana Stream corridor and the coastline. The entire shoreline area is designated as Zone VE, which is subject to velocity hazards from wave action and has base flood elevations of 10 to 12 feet.

Development in a Special Flood Hazard Area must comply with the rules and regulations of the National Flood Insurance Program (Code of Federal Regulations Title 44) and local flood ordinances. The regulations pertaining to development within flood hazard districts are under ROH Section 21-9.10. Proposed park improvements located within a floodway are expected to be designed to meet the federal and local requirements for development.

There are no geologically hazardous lands that would be affected by proposed park improvements. The proposed project provides the opportunity to install park facilities that conform to the specifications and recommendations for seismic design, the IBC, the applicable sections of the

NFPA, the 2010 Americans with Disabilities Standards for Accessible Design, and related standards pertaining to health and safety.

The entire project site is located within the tsunami evacuation zone. Campsites and lodging facilities for temporary overnight use may be closed to the public due to safety concerns prior to the onset of approaching hazard events (e.g., high winds, flooding and strong surf from tsunamis and severe storms). The risks to human life are expected to be minimized by observing the tsunami warning and evacuating to a safe zone on higher ground.

Data from shoreline studies (see www.soest.hawaii.edu/coasts/erosion) that establish erosion rates along transects spaced every 66 feet along the Mālaekahana and Lā'ie shoreline suggest that the beach in the project area has experience little long-term change since 1928, with most erosion/accretion rates under 0.5 feet per year. The historical shoreline and profile surveys also indicate that the beach experiences shorter-term change that is interannual to seasonal. The transect plots for Mālaekahana and Lā'ie are attached to this application as Appendix A.

Interior areas of the project site may be affected by sea level rise of 2.0-feet according to data prepared by the National Oceanic and Atmospheric Agency. Areas immediately adjacent to Mālaekahana Stream and along the shoreline may be subject to inundation from 0.5 feet of sea level rise. The timeframe for experiencing the effects of various sea level rise scenarios is unknown; however, DLNR is siting park structures and improvements away from Mālaekahana Stream and the shoreline. The future completion of park improvements beyond phase one of the project allows for the incorporation of design considerations for areas where observable inundation or related effects are occurring. Possible actions may include the relocation of park structures and improvements, and the incorporation of new materials or innovative techniques.

New infrastructure (e.g., new water distribution system, wastewater disposal and treatment system, comfort stations, satellite restrooms and drainage features) will replace older utility systems that were already in use when the parcels were acquired through condemnation. Existing underground utility lines may be abandoned in place. Improved utility infrastructure and new structures will be designed for regulatory compliance and are expected to be less vulnerable to the effects of sea level rise. New underground systems are expected to be less susceptible than older, aging systems to infiltration caused by tidal fluctuations that influence the groundwater table.

5. Other Pertinent Information

Cesspools within the project site were closed, which is consistent with DOH policies for eliminating cesspools and protecting the ocean, streams and groundwater from contamination.

III. AFFECTED ENVIRONMENT

A Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) determination was issued for DLNR's project in July 2016. The Final EA/FONSI is attached to this application as Appendix B. DLNR's project has not significantly changed in size, scope, intensity, use, location, timing, or other means since the publication of the Final EA/FONSI. As noted in the Final EA, proposed park improvements will occur in phases that are largely influenced by funding constraints.

Schematic Design plans for the first phase of improvements are included with this application as Appendix C. Minor changes to the overall park improvements plan were made due to design progression and project phasing. The environmental and social impacts addressed in the Final EA remain valid; therefore, a supplemental assessment of project impacts is not warranted. The discussions presented in this section are summarized from the EA.

1. Brief Description of Subject Site in Relation to Surrounding Area and Description of Surrounding Area

The areas immediately surrounding the project site are designated for urban and agricultural uses. Lands across from the project site on the *mauka* (or landward) side of Kamehameha Highway are actively utilized for agriculture. Privately-owned property along the northern boundary of the project site was previously used as a grazing field. Areas to the immediate south of the project site are in residential use.

2. Project Site in Relation to Publicly Owned or Used Beaches, Parks, and Recreation Areas; Rare, Threatened, or Endangered Species and Their Habitats; Wildlife and Wildlife Preserves; Wetlands, Lagoons, Tidal Lands, and Submerged Lands; Fisheries and Fishing Grounds; Other Coastal/Natural Resources

DLNR's proposed project consists of site improvements within a recreational area that would support the continuation of existing uses such as camping, lodging and day use activities. As noted previously in this application, several government agencies provided input during the EA process. The City's Department of Enterprise Services states in its letter dated August 19, 2014 that, "the project appears to have minimal or no impact to the Kahuku Golf

Course.” The City’s Department of Parks and Recreation indicates in its letter dated August 22, 2014 that, “the proposed project will have no impact on any program or facility of the department.”

Proposed structures and new infrastructure will be sited within the project site in areas that are unlikely to contain species listed by the USFWS or in the Endangered Species Act since these areas were previously disturbed and are utilized for human activities. The BMPs provided by USFWS for species avoidance and the minimization of impacts are from its letter dated September 18, 2014. USFWS also recommended “adding signage or a kiosk to educate park-goers regarding the seabird fallout issue and to let people know that downed birds can be taken to Sea Life Park for rehabilitation.” Section 2.7 of the Final EA contains specific considerations that pertain to the Hawaiian hoary bat, seabirds, sea turtles, and monk seals since human activities by park uses may directly or indirectly affect wildlife that frequents the project area.

Project actions may involve the necessary removal of on-site vegetation consisting of introduced, non-native floral species in select areas. The USFWS recommends landscaping with native plants to the extent practical or with “species that are thought to have a low risk of becoming invasive.” The federal definition of invasive species is an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order No. 13112, 1999). Ironwood trees (*Casuarina equisetifolia*), for example, are characterized as a weed species that may pose a high risk of becoming an invasive pest in Hawai’i and other Pacific Islands.

3. Relation to Historic, Cultural, and Archaeological Resources

The project site was developed in modern times for low-density, single-family residential uses. It is not known whether site preparation for the homes and associated subsurface utility systems resulted in substantial ground altering activities since these actions occurred before archaeological surveys were conducted.

The project site is not listed on the State or National Register of Historic Places and is within a geographic area that has experienced a long history of land disturbance and changes in land usage. No properties on the State and National Register of Historic Places are immediately adjacent to the project site. The nearest listed property (State Site Number 80-02-9816, Kahuku Plantation Supervisor’s House) is approximately 0.9 miles northwest of the project site in Kahuku Town.

The project site contains a reinterment site for disinterred remains (or *iwi*) and has undergone archaeological investigations that included subsurface testing and monitoring. DLNR is aware that the potential for subsurface artifacts remains high in the area *mauka* of the sand dunes based on previous archaeological investigations. A subsurface cultural deposit that was investigated in 2015 by Scientific Consultant Services (SCS) was assigned State Site 50-50-02-7774 and is outside of the proposed areas of development. Proposed park improvements are intentionally sited to avoid known resources (e.g., the reinterment site, the protected zone that encompasses Site 7774 and areas near sand dunes where the potential for subsurface artifacts remains high based on the findings from archaeological investigations).

The proposed project will improve the spaces utilized for large group functions including family gatherings and does not restrict access to coastal areas. Proposed park improvements have the potential to foster appreciation, understanding and educational opportunities pertaining to the natural and cultural environment at Mālaekahana. State Parks, the Office of Hawaiian Affairs and Hawai'i Reserves, Inc. provided statements of support for DLNR's project (refer to the letters in Appendix D of the Final EA).

4. Coastal Views from Surrounding Public Viewpoints and from the Nearest Coastal Highway Across the Site to the Ocean or to Coastal Landform

The visual character of the Mālaekahana area is dominated by agricultural uses, low-density residential areas, churches, parks and public use facilities. There is little to no visual access to the shoreline from Kamehameha Highway due to existing vegetation and closely-spaced stands of tall trees within the project site. The areas of dense on-site vegetation contribute to the green space along Kamehameha Highway that mostly obscures the visual impact of human activities within the recreation area.

5. Quality of Receiving Waters and Ground Water (Including Potable Water) Resources. Describe Effects on the Groundwater Recharge Cycle within the Groundwater Control Area, Show Existing and Proposed Well Locations with Pumping Estimates. Describe Effects on Receiving Waters – Streams and Ocean Waters

The project site is seaward or *makai* of the Underground Injection Control (UIC) line, which indicates that the underlying groundwater is not considered a potential source of drinking water. The shoreline portion of the project site is along Mālaekahana Bay, which has a marine water quality classification of Class A. The protection of Class A waters is primarily to ensure their continued use for recreational purposes and aesthetic enjoyment. Nonpoint

source pollution from urban activities including sediment-laden runoff and seepage from the many cesspools within the Koʻolau Loa region are known threats to marine water quality and coastal ecosystems.

Mālaekahana Stream is on the Clean Water Act §303(d) list of impaired waters. The stream corridor along the northern boundary of the project site is classified on the U.S. Fish and Wildlife Service National Wetland Inventory maps as estuarine and subtidal (e.g., the substrate is permanently flooded with tidal water). A linear strip along the unconsolidated shoreline is classified as marine and regularly flooded (e.g., tidal water alternately floods and exposes land surface at least once daily). The project site contains no ponds or other open water bodies. There are no other wetland areas (or marshes, swamps, bogs, etc.) within the project site.

6. Include Suitable and Adequate Location and Site Maps

See attached plans.

7. Other Pertinent Information

As previously mentioned in this application, DPP's preference is for an official record-keeping action in the future to resolve the parcel consolidation issue.

IV. PROJECT IMPACTS

A. Coastal Zone Management Objectives

The ROH Chapter 25, Section 3.1 states that the objectives and policies of this chapter shall be those contained in Hawai'i Revised Statutes (HRS), Section 205A-2, Coastal Zone Management (CZM) Program. The italicized objectives and policies are copied directly from HRS Section 205A-2.

1. Recreational Resources

Objectives. Provide coastal recreational opportunities accessible to the public.

Policies. Improve coordination and funding of coastal recreational planning and management; and

Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

- (i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
- (ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or*

- requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
- (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
 - (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
 - (v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;*
 - (vi) Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
 - (vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
 - (viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

DLNR's project consists of park improvements at an established public recreation area that is utilized for camping, lodging and day use activities. New and replacement structures will be sited outside of the shoreline setback area. Planned park improvements will allow DLNR to continue to provide adequate, accessible, and diverse recreational opportunities at the Mālaekahana State Recreation Area - Kahuku Section, which is in the coastal zone management area.

2. Historic Resources

Objectives. *Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies. *Identify and analyze significant archaeological resources;*

Maximize information retention through preservation of remains and artifacts or salvage operations; and

Support state goals for protection, restoration, interpretation, and display of historic resources.

The project site contains a reinterment site for disinterred remains (or *iwi*) and has undergone archaeological investigations that included subsurface testing and monitoring. As indicated in the EA, subsurface testing by SCS revealed no archaeological resources where park improvements are planned that would be endangered by project actions. State Parks will ensure that the

construction contractor complies with an approved archaeological monitoring plan that identifies specific activities to be monitored during the construction phase due to the potential for encountering undocumented features, including burials. If cultural or human remains are inadvertently discovered during construction, the contractor will be required to halt construction activities and to immediately notify SHPD of the discovery.

3. Scenic and Open Space Resources

Objectives. Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies. Identify valued scenic resources in the coastal zone management area; Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

Encourage those developments that are not coastal dependent to locate in inland areas.

Grant monies from the Land and Water Conservation Fund program were utilized to acquire and establish the project site as a public park; the use of said federal funds requires, with limited exceptions, that the property be used for outdoor recreation and open space at all times in perpetuity. Proposed park improvements are compatible with the surrounding visual environment, which contains both natural features and built structures. Tall trees and vegetation within the project site help to obscure the views of built structures from Kamehameha Highway and contribute to the overall visual impact of green space. Proposed improvements are not expected to diminish scenic views toward coastline areas from within the park.

4. Coastal Ecosystems

Objectives. Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies. Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

Improve the technical basis for natural resource management;

Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Proposed improvements are sited away from the shoreline and are not expected to disrupt or degrade coastal water ecosystems. The project does not involve any stream diversions or channelization and proposed park improvements do not change existing land and water uses. Existing utility infrastructure that was installed to serve the beach residences that existed prior to the establishment of the park will be improved for regulatory compliance. Four cesspools within the project site that allowed untreated sanitary waste to be discharged into the ground were closed in accordance with prescribed abandonment procedures that are meant to protect water sources from contamination. The current lessee has sited portable bathroom facilities throughout the project site in accordance with the terms and conditions of its lease. Proposed septic tanks and leach fields will be designed to comply with Hawaii Administrative Rules (HAR) 11-62, Wastewater Systems. New restroom and shower facilities are expected to contribute to a cleaner park. The construction contractor will be responsible for implementing a storm water management plan and controlling runoff that can transport loose soil, excess nutrients and other pollutants.

5. Economic Uses

Objectives. *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies. *Concentrate coastal dependent development in appropriate areas; Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*

Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

- (i) Use of presently designated locations is not feasible;*
- (ii) Adverse environmental effects are minimized; and*
- (iii) The development is important to the State's economy.*

On-site infrastructure that was installed prior to DLNR's acquisition of the property in October 1980 warrants replacement due to wear, obsolescence and more stringent standards for regulatory compliance. Proposed improvements including a new water distribution system, wastewater disposal

and treatment system, comfort station, satellite restrooms and drainage features will support existing park uses.

6. Coastal Hazards

Objectives. Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

Prevent coastal flooding from inland projects.

The proposed project provides the opportunity to install park facilities that conform to existing life safety standards. The project site serves as a regional recreation area that may be closed to the public due to safety concerns prior to the onset of approaching hazard events (e.g., high winds, flooding and strong surf from tsunamis and severe storms). DLNR may also close the park to ensure the safety of park users during maintenance and/or mitigation activities. For example, DLNR closed the project site on November 20, 2014 due to public safety concerns from falling tree limbs in the camping area.

7. Managing Development

Objectives. Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

The project does not impact or influence the development review process. During the EA process there were opportunities for public participation and comments pertaining to a variety of issues and topics including coastal resources and hazards.

8. Public Participation

Objectives. Stimulate public awareness, education, and participation in coastal management.

Policies. Promote public involvement in coastal zone management processes; Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

The EA process provided opportunities for public participation. Received comments were addressed and appended to the EA. The process for the SMA Use Permit (Major) includes a public notice and public hearing prior to the final decision by county authorities.

9. Beach Protection

Objectives. Protect beaches for public use and recreation.

Policies. Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

Minimize the construction of public erosion-protection structures seaward of the shoreline.

Public access to beach areas will be maintained. All proposed structures will be sited outside of the shoreline setback area so as to avoid impacts to natural shoreline processes. The project does not involve the construction of erosion-protection structures seaward of the shoreline.

10. Marine Resources

Objectives. Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies. Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Proposed park improvements will be sited outside of the shoreline setback area and do not involve the use or development of marine resources. The project site serves as a regional park that provides opportunities for the public to utilize and enjoy marine and coastal resources. DLNR will continue to endeavor towards a balance between park uses and the protection and conservation of marine and coastal resources under its purview.

B. SMA Guidelines

The project site is located within the SMA and is therefore subject to the regulations of Chapter 25 of the ROH. The proposed project is expected to require an SMA Use Permit (Major), which applies to development with a valuation equal to or exceeding \$500,000. The first phase of the SMA Use Permit (Major) application process is the preparation and acceptance of an EA.

The italicized text is copied directly from ROH Chapter 25-3.2, Review Guidelines. Responses are provided below each of the stated guidelines.

The following guidelines shall be used by the council or its designated agency for the review of developments proposed in the SMA.

(a) All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:

(1) Adequate public access, by dedication or other means, to and along the publicly owned or used beaches, recreation areas and natural reserves is provided to the extent consistent with sound conservation principles:

The project does not impede public access to any beach or coastal recreation area.

(2) Adequate and properly located public recreation areas and wildlife preserves are reserved;

Construction activities may temporarily restrict select areas of the park. Full access and use is expected to be restored after once construction activities are completed.

(3) Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources; and

During construction, temporary wastewater collection will continue. In the long run, the new septic tanks and leach fields may reduce the risk of environmental contamination from wastewater disposal.

(4) Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, wind damage, wave damage, storm surge, landslides, erosion, sea level rise, siltation or failure in the event of earthquake.

The proposed project does not substantially alter existing land and water uses. Proposed park improvements would not cause adverse effects to water, scenic, or recreational resources, and would not cause additional susceptibility to damage caused by natural disasters or hazards. The proposed project would be designed to conform to health and safety standards including specifications and recommendations for seismic design.

(b) No development shall be approved unless the council has first found that:

(1) The development will not have any significant adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include but not be limited to the potential cumulative impact of individual developments, each one of which taken in itself might not have a significant adverse effect and the elimination of planning options;

The proposed project is not anticipated to result in any adverse environmental or ecological effect either by itself or cumulatively with other existing activities within the project area. Cesspools within the project site were closed, which is consistent with DOH policies for eliminating cesspools and protecting the ocean, streams and groundwater from contamination. The construction of a new comfort station and satellite restrooms along with the installation of new, on-site wastewater systems is expected to reduce nonpoint source pollution concerns.

(2) The development is consistent with the objectives, policies, and special management area guidelines set forth in Section 25 3.1 and area guidelines contained in HRS Section 205A 26;

As discussed in this SMA application, the project is consistent with the objectives, policies, and SMA guidelines set forth in ROH Section 25 3.1 and HRS Section 205A 26.

(3) The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required.

The proposed project is consistent with the City and County of Honolulu General Plan and the Koʻolau Loa Sustainable Communities Plan as discussed in Sections 3.4 and 3.5 of the Final EA. No change in the existing R-5 Residential District zoning designation is required for the project.

(c) The council shall see to minimize, where reasonable:

(1) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon;

The project does not involve any dredging, filling, or alteration of the aquatic environment.

(2) Any development which would reduce the size of any beach or other area usable for public recreation

The project does not reduce any beach or area used for public recreation.

(3) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;

Proposed park improvements do not restrict public access to tidal and submerged lands, beaches, or rivers and streams within the SMA.

(4) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and

The proposed project is expected to have no impact on scenic vistas or view planes. The visual impact of new structures that support park uses is expected to be obscured by existing trees and dense vegetation within the project site. The natural character of the project site may be further

emphasized by additional measures such as painting building elements to complement the natural setting and landscaping the areas around the structures.

(5) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Proposed park improvements would not affect surface resources, including fisheries and wildlife habitat. BMPs and monitoring throughout the duration of construction activities will minimize the potential for adverse impacts through inadvertent releases that could temporarily degrade water quality.

V. MITIGATION MEASURES

The design effort for the project, which includes the intentional siting of structures away from the shoreline and in flatter areas where beach residences were previously located, avoids impacts to the marine environment and helps to minimize site work, grading and related construction impacts. Anticipated construction activities associated with the proposed project are expected to generate short-term effects such as fugitive dust, noise, intermittent traffic, solid waste and potential disruptions to utility services that would cease upon project completion. The use of appropriate construction techniques and Best Management Practices (BMPs) is expected to help mitigate adverse impacts. In the long term, proposed park improvements will ensure that recreational uses including camping, lodging and day use activities continue at the project site.

REFERENCES

- City and County of Honolulu, Department of Planning and Permitting. 1999. *Koʻolau Loa Sustainable Communities Plan*. October. Available from: <http://www.honoluludpp.org/Planning/DevelopmentSustainableCommunitiesPlans/KoolauloaPlan.aspx>.
- City and County of Honolulu, Department of Planning and Permitting. 2018. *Honolulu Land Information System*. Accessed June 15, 2018. Available from: <http://gis.hicentral.com/maps.html>.
- Coastal Geology Group. 2016. *Hawaii Coastal Erosion Website*. "Oahu Shoreline Study Erosion Maps." Downloadable files. Available from: <http://www.soest.hawaii.edu/coasts/erosion/>.
- Dagher, Cathleen A. and Robert L. Spear. 2016a. (Draft) *An Archaeological Inventory Survey Report for the Mālaekahana State Recreation Area Kahuku Section, Mālaekahana Ahupuaʻa, Koʻolauloa District, Island of Oʻahu, Hawaiʻi [TMK: (1) 5-6-001: Various]*. Prepared for the State of Hawaiʻi, Department of Land and Natural Resources, Division of State Parks. SCS Project Number 1647-1 AIS. February.
- Executive Order No. 13112. 1999. 64 Federal Register 6183 (February 8, 1999). "Invasive Species." A Presidential Document by the Executive Office of the President, signed on February 3. Downloadable file. Available from: <http://www.archives.gov/federal-register/executive-orders/1999.html>.
- Group 70 International. 2009. *Koʻolau Loa Watershed Management Plan*. Prepared for the Honolulu Board of Water Supply. August. Available from: <http://www.hbws.org/cssweb/display.cfm?sid=1406>.
- Hawaiʻi - National Flood Insurance Program. n.d. "Flood Hazard Assessment Tool." Accessed June 15, 2018. Available from <http://gis.hawaiiinfip.org/fhat/>.
- Hawaiʻi State Civil Defense. n.d. "Tsunami Evacuation Zone Mapping Tool". Accessed June 15, 2018. Available from <http://www.scd.hawaii.gov/>.
- Pacific Islands Ocean Observing System. 2018. "Sea Level Rise: Hawaiʻi Sea Level Rise Viewer." Accessed June 15, 2018. Available from <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>.

- PBR Hawai'i and Associates, Inc. 2013. *Stormwater Impact Assessments: Connecting primary, secondary and cumulative impacts to Hawai'i's Environmental Review Process*. Prepared for the State of Hawai'i Office of Planning, Coastal Zone Management Program. Downloadable files. Available from <http://planning.hawaii.gov/czm/initiatives/cumulative-secondary-impact-csi-stormwater-impact-assessment/>.
- State of Hawai'i, Department of Health, Safe Drinking Water Branch. 2017. "UIC Map Navigation Tool." Accessed June 15, 2018. Available from <http://health.hawaii.gov/sdwb/underground-injection-control-program/>.
- State of Hawai'i, Department of Health, Clean Water Branch. 2018. *Water Quality Standards*. "Hawai'i Department of Health Water Quality Standards Map of the Island of O'ahu." Downloadable files. Available from <http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/>.
- The Limtiaco Consulting Group. 2016. *Final Environmental Assessment for the Mālaekahana State Recreation Area - Kahuku Section Park Improvements, Lā'ie, O'ahu, Hawai'i*. Prepared for the State of Hawai'i Department of Land and Natural Resources, Division of State Parks. June.
- U.S. Department of Agriculture, Natural Resources Conservation Service. n.d. "Web Soil Survey." Accessed June 15, 2018. Available from <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.

(This page intentionally left blank.)

Appendix A

Transect Plots

(This page intentionally left blank.)

Appendix B
Final EA
(Bound Separately)

(This page intentionally left blank.)

Appendix C
Schematic Design Plans
(Bound Separately)

(This page intentionally left blank.)