DEPARTMENT OF DESIGN AND CONSTRUCTION
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DEPUTY DIRECTOR

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QUALITY CONTROL

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June 20, 2018

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health
State of Hawai'i
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Mr. Glenn:

Subject: Chapter 343, Hawai'i Revised Statutes and
Title 11, Chapter 200, Hawai'i Administrative Rules
Draft Environmental Impact Statement

Project:	Ala Moana Regional Park and Magic Island Improvements
Applicant:	City and County of Honolulu, Department of Design and Construction (Elaine Morisato)
Agent:	Belt Collins Hawai'i LLC (Joanne Hiramatsu)
Location:	Makai of Ala Moana Boulevard and Ala Moana Shopping Center between Kamakee Street and Atkinson Drive
Tax Map Keys:	TMK: 2-3-37: 001, 002 022, 023 and 025
Proposal:	The City is proposing to restore, revitalize, enhance, and improve the Ala Moana Regional Park (AMRP) and the Magic Island peninsula (Magic Island) grounds and facilities as a result of a recent master plan process that outlined both long-term and short-term improvement plans. The project area receives the most usage of any other park in the State and is also one of the oldest. Many park users visit it daily or several times during the week. The City wishes to extend the Parks' longevity as a gradual increase in visits is forecasted for the foreseeable future. Some of the major improvements include sand replenishment, renovations to existing structures, improving pond edges, widening access over the drainage canal along Ala Moana Boulevard, create a wider promenade along Ala Moana Park Drive and reconfiguring the parking.

We respectfully request publication of the Project Summary of the DEIS in the next edition of *The Environmental Notice* on July 8, 2018. Enclosed is one (1) hard copy and one (1) electronic copy on compact disc of the EISPN and forms. The Publication Form, including Project Summary, was also sent via electronic mail to your office

18-708

Should you have any questions, please contact Elaine Morisato, Project Manager for the Department of Design and Construction, at 768-8406.

Very truly yours,

Robert J. Kroning, P.E.
Director

RJK:ln

Enclosures

18-708

AGENCY
PUBLICATION FORM

Project Name:	Ala Moana Regional Park and Magic Island Improvements
Project Short Name:	AMRP and Magic Island Improvements
HRS §343-5 Trigger(s):	Use of state or county land and funds
Island(s):	O'ahu
Judicial District(s):	Honolulu
TMK(s):	2-3-37: 001, 002 022, 023 and 025
Permit(s)/Approval(s):	U.S. Department of Army Permit; Section 401 Water Quality Certification; Coastal Zone Management Federal Consistency Certification; Conservation District Use Permit; National Pollutant Discharge Elimination Systems Permit; Chapter 6E Review; Special Management Area Use Permit
Proposing/Determining Agency:	The City and County of Honolulu, the Department of Design and Construction
Contact Name, Email, Telephone, Address	Robert Kroning, Director rkroning@honolulu.gov (808) 768-8480 650 S. King Street, 11th Floor Honolulu, HI 96813
Accepting Authority:	Office of the Mayor, City and County of Honolulu
Contact Name, Email, Telephone, Address	Mayor Kirk Caldwell kcaldwell@honolulu.gov<mailto:kcaldwell@honolulu.gov> (808) 768-5885 630 S. King Street, 3rd Floor Honolulu, HI 96813
Consultant:	Belt Collins Hawaii LLC
Contact Name, Email, Telephone, Address	Joanne Hiramatsu, Director of Planning jhiramatsu@bchdesign.com (808) 521-5361 2153 North King Street, Suite 200 Honolulu, HI 96819-4554

Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
__X__ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.

____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

The City is proposing to restore, revitalize, enhance, and improve the Ala Moana Regional Park (AMRP) and the Magic Island peninsula (Magic Island) grounds and facilities as a result of a recent master plan process that outlined both long-term and short-term improvement plans. The project area receives the most usage of any other park in the State and is also one of the oldest. Many park users visit daily or several times during the week. The City wishes to extend the Parks' longevity as a gradual increase in visits is forecasted for the foreseeable future. Some of the major improvements include sand replenishment, renovations to existing structures, improving pond edges, widening access over the drainage canal along Ala Moana Boulevard, create a wider promenade along Ala Moana Park Drive and reconfiguring the parking.

Ala Moana Regional Park and Magic Island Improvements Draft Environmental Impact Statement

July 2018

Volume 1 of 2

BELT COLLINS

BRV BIEDERMAN REDEVELOPMENT VENTURES

WCITARCHITECTURE

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List of Acronyms

ADA	Americans with Disabilities Act
AGL	Above Ground Level
AMRP	Ala Moana Regional Park
BLNR	Board of Land and Natural Resources, State of Hawaiʻi
BMPs	Best Management Practices
BS	Beaches
BWS	Board of Water Supply, City and County of Honolulu
CAA	Clean Air Act
CAB	Clean Air Branch, Department of Health, State of Hawaiʻi
CFR	Code of Federal Regulations
City	City and County of Honolulu
CSH	Cultural Surveys Hawaiʻi, Inc.
CWA	Clean Water Act
CWB	Clean Water Branch, Department of Health, State of Hawaiʻi
CWRM	Commission on Water Resource Management
CZM	Coastal Zone Management
DA	Department of the Army
DAR	Division of Aquatic Resources, Department of Land and Natural Resources, State of Hawai´i
dBA	Decibels Adjusted
DBEDT	Department of Business, Economic Development & Tourism, State of Hawaiʻi
DDC	Department of Design and Construction, City and County of Honolulu
DEIS	Draft Environmental Impact Statement
DEM	Department of Emergency Management
DLNR	Department of Land and Natural Resources, State of Hawai´i
DOE	Department of Education / Energy

DOH	Department of Health, State of Hawai´i
DPP	Department of Planning and Permitting, City and County of Honolulu
DPR	Department of Parks and Recreation, City and County of Honolulu
DTS	Department of Transportation Services, City and County of Honolulu
DTS	Department of Transportation Services
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
EMF	Electromagnetic Field
EMF RAPID	Electric and Magnetic Field Research and Public Information Dissemination
EMS	Emergency Medical Services
ENV	Department of Environmental Services
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment / Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FAA	Federal Aviation Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FL	Fill Land
HAR	Hawai´i Administrative Rules
HASA	Hawaiian Amateur Surf Association
HCDA	Hawaiʻi Community Development Authority
HEPA	Hawaiʻi Environmental Policy Act
HESD	Honolulu Emergency Services Department, City and County of Honolulu
HFD	Honolulu Fire Department, City and County of Honolulu

HPD	Honolulu Police Department, City and County of Honolulu
HRHP	Hawai´i Register of Historic Places
HRS	Hawai´i Revised Statutes
KIRA	Kānaka Ikaika Racing Association
LID	Low Impact Development
LOS	Level of Service
LUO	Land Use Ordinance, City and County of Honolulu
MBTA	Migratory Bird Treaty Act
MGD	Million gallons per day
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
MRCI	Marine Research Consultants, Inc.
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NIEHS	National Institute of Environmental Health Services
NMFS	National Marine Fisheries Services
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OCCL	Office of Conservation and Coastal Lands, Department of Land and Natural Resources, State of Hawai´i
OEQC	Office of Environmental Quality Control
OP	Office of Planning
OSLS	Ocean Safety and Lifeguard Services
PUC DP	Primary Urban Center Development Plan, City and County of Honolulu
RII	Realty Inspections, Inc.
ROH	Revised Ordinance of Honolulu
SCAP	Stream Channel Alternation Permit

SEI	Sea Engineering, Inc.
SHPD	State Historic Preservation Division, Department of Land and Natural Resources
SIHP	State Inventory of Historic Places
SMA	Special Management Area
State	State of Hawaiʻi
SUP	Stand Up Paddle
SWCA	SWCA Environmental Consultants, Inc.
SWPCP	Storm Water Pollution Control Plan
TCLP	Toxicity Characteristic Leaching Procedure
TCP	Traffic Control Plan
TMDL	Total Maximum Daily Load
TMK	Tax Map Key
U.S.	United States
UBC	Uniform Building Code
UH	University of Hawai´i
UH – CGG	University of Hawai´i, Coastal Geology Group
UIC	Underground Injection Control
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WQC	Water Quality Certification
WWB	Waste Water Branch, Department of Health, State of Hawai´i
WWII	World War II
WWPS	Waste Water Pumping Station
ZCTAs	Zip Code Tabulation Areas

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

PROPOSING ORGANIZATION	City and County of Honolulu, Department of Design and Construction
ACCEPTING AUTHORITY	City and County of Honolulu, Mayor's Office
GENERAL PROJECT DESCRIPTION	The Proposed Action of this project is: • Pi'ikoi Street and Queen Street pedestrian entrance expansions and partial drainage canal cover; • Widening the shared-use path along the makai side of Ala Moana Park Drive; • Widening the shared-use path along the Ala Wai Small Boat Harbor; • Improve the existing canoe launch ramp and crossing from the Canoe Hālau; • Rearranging the parking along the makai side of Ala Moana Park Drive to add loading and unloading zones near crosswalks; • Reconfigure parking on the mauka side of Ala Moana Park Drive to add more stalls; • Keyhole parking lot expansion and reconfiguration; • Reconfigure and expand Magic Island parking lot; • Improve the pond edges and paths; • Renovate McCoy Pavilion and the banyan courtyard; • Improve "high spot" terrace for ADA access, repair pergola, and widen the shared-use paths on both sides; • Repair drainage canal walls; • Repair the Bridle Bridge • Add a dog park near Kewalo Basin; • Repair Roosevelt Portals at Atkinson Street entrance and improve the Kamakee Street entrance. • Sand replenishment and long-term beach nourishment; • Build a playground; • Relocate the maintenance yard; • Create a multiuse facility at the Lawn Bowling area; • Relocate the Ocean Safety's Honolulu Headquarters.
PROJECT LOCATION **PROJECT LOCATION**	Ala Moana Regional Park (AMRP) and Magic Island (Parks) are located along Ala Moana Boulevard, between Kamakee Street and Atkinson Drive. The Parks are bounded by Kewalo Basin on the 'Ewa side and the Ala Wai Boat Harbor on the Diamond Head side. Ala Moana

(continued)	Shopping Center and Ward Centre are located mauka of the Parks and on the mauka side of Ala Moana Boulevard. The project area has two main vehicular entrances at the intersections of Kamakee Street and Ala Moana Boulevard, and Atkinson Drive and Ala Moana Boulevard. Magic Island is located along the ʻEwa end of the AMRP and can be accessed from Ala Moana Park Drive. Pedestrian access is available at the two main entrances to the AMRP and there are four bridges spanning the drainage canal for additional pedestrian access along Ala Moana Boulevard. Located in the Honolulu and Waikīkī districts, the project area is identified by Tax Map Key (TMK) as (1) 2-3-037:001 (Ala Moana Regional Park), (1) 2-3-037:002 (fee owner State of Hawaiʻi, maintenance building and lot), (1) 2-3-037:022 and 023 (fee owner City and County of Honolulu, lessee Tasty Foods of Hawaii LTD), and (1) 2-3-037:025 (Magic Island). The total land acreage comprised of the five TMKs is about 119 acres.
EXISTING USES	Public park for recreational purposes.
Zoning / Land Use	State Land Use: Urban Zoning: P-2 General Preservation District Special District: No Special Management Area: Within Special Management Area
ANTICIPATED DETERMINATION	
REQUIRED PERMITS AND APPROVALS	US Army Corps of Engineers (USACE), Clean Water Act (CWA), Section 404 permit USACE, Rivers and Harbors Act, Section 10 permit National Marine Fisheries Service (NMFS), Endangered Species Act (ESA), Section 7 consultation and possibly U.S. Fish and Wildlife Service (USFWS) NMFS, Essential Fish Habitat (EFH) consultation (possible) State Department of Health (DOH), Clean Water Branch, Section 401 Water Quality Certification CWA, Section 402, National Pollutant Discharge Elimination System (NPDES) permit (DOH) DOH, Noise Permit/Variance State Office of Planning, Hawaiʻi Coastal Zone Management Federal Consistency Review State Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL), Conservation District Use Permit
REQUIRED PERMITS AND APPROVALS	Office of Environmental Quality Control (OEQC) Chapter 343, Hawaiʻi Revised Statutes (HRS), Environmental Review

(continued)	City Department of Planning and Permitting (DPP), Special Management Area Permit
CONSULTED AGENCIES AND STAKEHOLDERS DURING EARLY CONSULTATION PERIOD (Italicized text indicates a comment was received)	FEDERAL AGENCIES Department of Agriculture National Resources Conservation Service Department of Commerce National Marine Fisheries Service Department of the Interior, Geological Survey, Pacific Islands Water Science Center Department of the Interior Fish and Wildlife Service Department of the Interior National Parks Service Department of the Navy Department of Transportation (DOT) Federal Aviation Administration Department of Transportation, Federal Transit Administration Department of Transportation, Federal Highways Administration Department of Homeland Security Coast Guard Environmental Protection Agency U.S. Army Corps of Engineers, Honolulu District U.S. Representative U.S. Senator STATE AGENCIES Department of Agriculture *Department of Accounting and General Services* Department of Accounting and General Services, Archives Division Department of Business, Economic Development, and Tourism Department of Business, Economic Development, and Tourism, Research Division Library Department of Business, Economic Development, and Tourism, Strategic Industries Division Department of Business, Economic Development, and Tourism, Office of Planning Department of Commerce and Consumer Affairs, Division of Consumer Advocacy Department of Commerce and Consumer Affairs, Public Utilities Commission *Department of Defense* Department of Education Department of Education, Hawai‘i State Library, Hawai‘i Documents Center Department of Education, Hawai‘i State Library, McCully-Mō‘‘ili‘ili Regional Library *Department of Hawaiian Home Lands* *Department of Health (DOH), Environmental Planning Office* Department of Health, Clean Water Branch *Department of Land and Natural Resources, Division of Aquatic Resources*

CONSULTED AGENCIES AND STAKEHOLDERS DURING EARLY CONSULTATION PERIOD (continued)	*Department of Land and Natural Resources, Division of Boating and Ocean Recreation* *Department of Land and Natural Resources, Office of Conservation and Coastal Lands* *Department of Land and Natural Resources, Engineering Division* Department of Land and Natural Resources Commission on Water Resources Management *Department of Land and Natural Resources Division of State Parks* Department of Land and Natural Resources, Forestry and Wildlife *Department of Land and Natural Resources, Land Division* Department of Land and Natural Resources, State Historic Preservation Division *Department of Land and Natural Resource*s, State Historic Preservation Division, Oʻahu Island Burial Council *Department of Transportation – Airport Division* *Department of Transportation – Highways Division* *Department of Transportation – Harbors Division* Hawaiʻi State Legislature Senate Districts University of Hawaiʻi, Office of Capital Improvement University of Hawaiʻi, Water Resources Research Center University of Hawaiʻi, Environmental Center University of Hawaiʻi, Marine Program UH University of Hawaiʻi, Thomas H. Hamilton Library University of Hawaiʻi, at Hilo, Edwin H. Moʻokini Library University of Hawaiʻi, Maui College Library University of Hawaiʻi, Kauaʻi Community College Library Office of Hawaiian Affairs Legislative Reference Bureau Library State Senator State Representative CITY AND COUNTY OF HONOLULU *Board of Water Supply* Department of Customer Services Municipal Library *Department of Community Services* *Department of Design and Construction* *Department of Community Services* *Department of Emergency Management* Department of Environmental Services *Department of Facility Maintenance* *Department of Parks and Recreation* *Department of Planning and Permitting* *Department of Transportation Services* Department of Emergency Management Honolulu City Council Districts 4 and 5

CONSULTED AGENCIES AND STAKEHOLDERS DURING EARLY CONSULTATION PERIOD (continued)	*Honolulu Fire Department* *Honolulu Police Departmen*t Honolulu Emergency Services Department County Council Representative Neighborhood Board No. 9, Waikīkī Mayor's Office ORGANIZATIONS Hawaiian Electric *Historic Hawai'i Foundation* Waikīkī Business Improvement District Association Waikīkī Community Center Waikīkī Improvement Association Waikīkī Surf Club INDIVIDUAL STAKEHOLDERS AND PARK USERS Ai Oyama Audrey Lee Bradley Ebisuya Brandon Yoza Brian Furumoto Brian Walter Bruce Lum Channing Ching Charles Langlas ClaudeTakanishi Craig Sugihara Derek Hama Diane Fujimura Richard Fujie Gail Murakami Guy Kudo Helene Philips Ivan Kaisan James Kaneshiro Jan Asuncion Jon Nishimot Kimo KVIBE Lance Higa Larry Erwin Leighton and Maude Fujinaka Linda Howe Lori McCarney Michael Arita

CONSULTED AGENCIES AND STAKEHOLDERS DURING EARLY CONSULTATION PERIOD (continued)	Michael Garsva Michael Tominaga Michelle Matson Michelle Wong Mikal Weiss Nancy Ardito Overdafalls Patti Choy Ray Madigan Sen Uyeunten Sharlene Chun-Lum Stan Sakai Steve Kalilimoku Steven Horio Sylvia Hayashi William Kaeo

CHAPTER 1

Purpose and Need

CHAPTER 1
PURPOSE AND NEED

1.1 INTRODUCTION

The Ala Moana Regional Park (AMRP) and Magic Island recreational parks (project area or Parks)[1] are man-made developments owned and operated by the City and County of Honolulu (City). In colloquial conversation, the AMRP is also known as "Ala Moana Beach Park" and "Ala Moana Park." The project area is vastly known for its ocean recreational activities and spacious open space for picnicking and land recreational activities. Every year, the Parks host thousands of visitors during large community events such as the Lantern Floating Festival and the 4th of July Fireworks show. There are water features located within the AMRP property which include a mile-long drainage canal that borders the majority of the mauka (inland) park boundary and empties into two ponds on the 'Ewa (west) and Diamond Head (east) ends of the Park. A two-way road separates the green open space of the AMRP from Magic Island and the beach. Parking is currently available on both sides of the road and is the major artery that allows access to other parking lots within the project area. Recreational amenities on land include: ten tennis courts, a lawn bowling facility, exercise apparatuses, walk/run/jog paths, a canoe shelter, and large open lawn spaces (The Great Lawn) for field activities like soccer and football. There are over 1,000 trees scattered throughout the project area providing ample shade for picnicking and gatherings, many of which are considered exceptional trees. Two concession stands that serve local food are located in the AMRP. A popular aspect of the project area is the mile-long beach that stretches from Magic Island to the Kewalo Basin. A lagoon surrounded by a seawall fronts Magic Island for more beach and water activities. The calm nearshore waters on the makai (seaward) end of the Park attracts people from different levels of water experience making it suitable for ocean recreational activities, such as swimming and paddle boarding. Ocean waters beyond the reef that protects the nearshore waters are popular for surfing.

1.2 LOCATION AND OWNERSHIP

The project area is located along Ala Moana Boulevard, between Kamakee Street and Atkinson Drive. The Parks are bounded by Kewalo Basin on the 'Ewa side and the Ala Wai Boat Harbor on the Diamond Head side. Ala Moana Shopping Center and Ward Centre are located mauka of the Park and on the mauka side of Ala Moana Boulevard.

[1] THE EIS REFERS TO ALA MOANA REGIONAL PARK AND MAGIC ISLAND AS "PROJECT AREA" OR "PARKS."

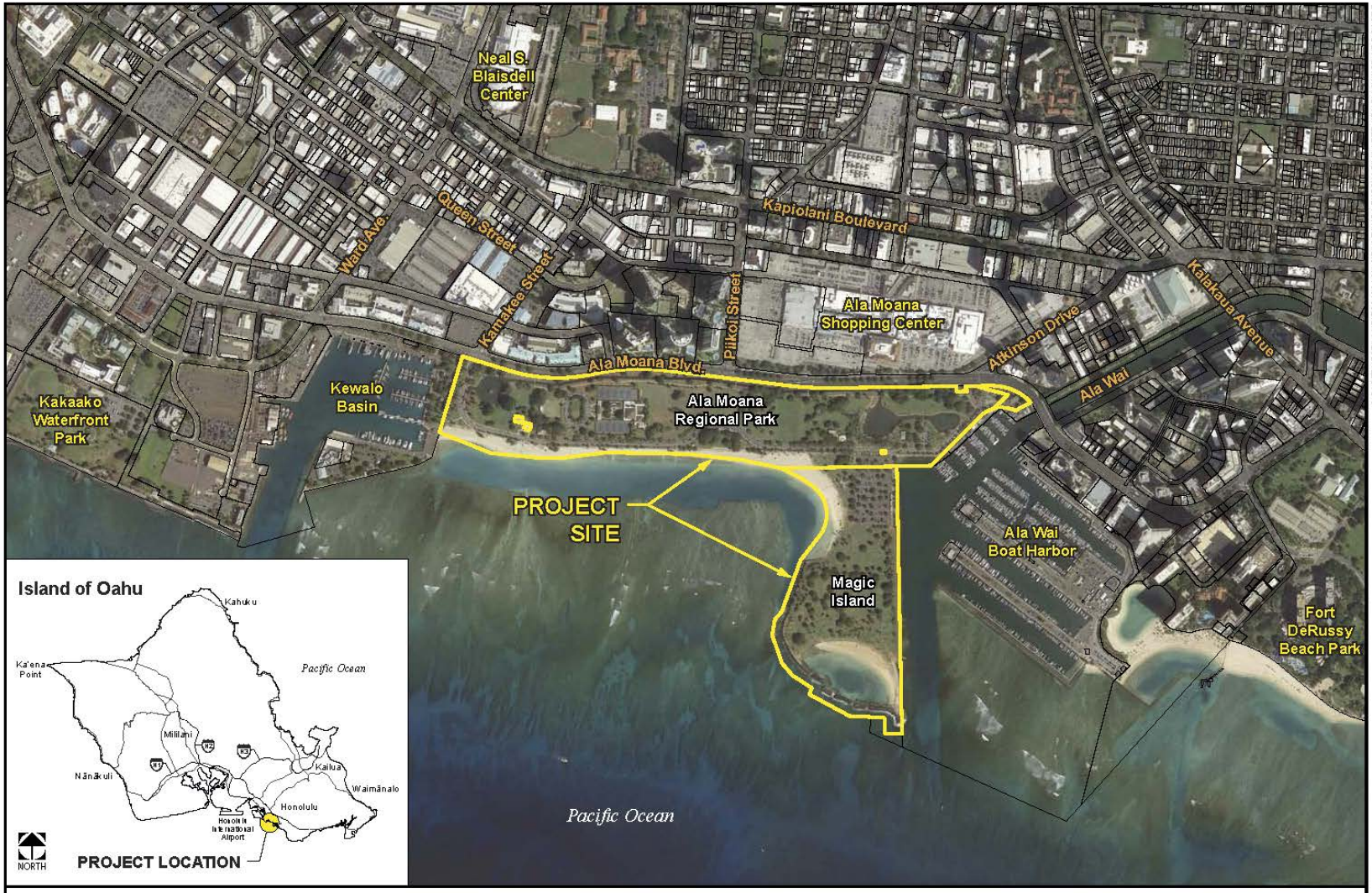
The project area has two main vehicular entrances at the intersections of Kamakee Street and Ala Moana Boulevard, and Atkinson Drive and Ala Moana Boulevard. Magic Island is located along the ʻEwa end of the AMRP and can be accessed from Ala Moana Park Drive. There is a total of 948 free parking stalls that are a mix of parallel stalls along Ala Moana Park Drive and perpendicular parking lots on Magic Island, near McCoy Pavilion (Keyhole), and the Canoe Hālau. Pedestrian access is available at the two main entrances to the AMRP and there are four bridges spanning the drainage canal for additional pedestrian access along Ala Moana Boulevard.

Located in the Honolulu and Waikīkī districts, the project area is identified by Tax Map Key (TMK) as (1) 2-3-037:001 (Ala Moana Regional Park), (1) 2-3-037:002 (fee owner State of Hawaiʻi, maintenance building and lot), (1) 2-3-037:022 and 023 (fee owner City and County of Honolulu, lessee Tasty Foods of Hawaii LTD), and (1) 2-3-037:025 (Magic Island). (see Table 1-1 and, Figures 1-1 and 1-2 below) The total land acreage comprised of the five TMKs is about 119 acres.

Table 1-1: Land Use and Ownership

Property Name	Parcel Number	Address	Land Usage	Land Acreage
Ala Moana Regional Park, City and County of Honolulu, fee owner	(1) 2-3-037:001	1201 Ala Moana Boulevard	Public Park	75.21
State of Hawaiʻi, fee owner, under the control and management of the City and County of Honolulu (E.O. 1348)	(1)-2-3-037:002	1605 Ala Moana Boulevard	Maintenance Building and lot	0.857
Tasty Foods of Hawaiʻi, LTD lessee, City and County of Honolulu, fee owner	(1) 2-3-037:022	1401 Ala Moana Boulevard	Concession Stand	0.11
Tasty Foods of Hawaiʻi, LTD lessee, City and County of Honolulu, fee owner	(1) 2-3-037:023	1141 Ala Moana Boulevard	Concession Stand	0.17
Magic Island, City and County of Honolulu, fee owner	(1) 2-3-037:025	1365 Ala Moana Boulevard	Public Park	42.67
			Total land acreage (approx.)	119

Source: City and County of Honolulu, Department of Budget and Fiscal Services Real Property Assessment Division, property records search at:
http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370010000
http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370020000
http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370220000
http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370230000
http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370250000



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BELT COLLINS

NORTH

0 300 600 1200
SCALE IN FEET

Figure 1-1
LOCATION MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

BELT COLLINS

NORTH

0 200 400 800
SCALE IN FEET

Figure 1-2
LOCATION WITH TMK MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

1.3 PURPOSE AND NEED

1.3.1 Introduction

The City is proposing to restore, revitalize, enhance, and improve the AMRP and Magic Island recreational parks' grounds and facilities as a result of a new master plan process that outlined both long-term and short-term improvement plans. The City, primarily, has a commitment to public safety for its park users while restoring the historical and popular features, and maximizing usage of other features and spaces. Some of the proposed improvements are motivated by public safety through restoration of the features, and by providing better access to the amenities. Other proposed improvements are motivated by landscape aesthetics to maximize park space usage.

1.3.2 Purpose

The project area receives the most usage compared to other parks in the State and is also one of the oldest. Many park users visit daily or several times during the week. The AMRP receives over 3 million visitors per year and serves as one of the few large beach parks in Honolulu. The Parks are conveniently located and can accommodate large gatherings with a generous amount of park and beach space, and parking. The new urban residential development and the impending rail transit developing near the Parks could result in more residents using the Parks. The Proposed Action will help the Parks adapt to the evolving neighborhood around it.

The Park's resources have a significant amount of wear and tear from a high volume of usage and vandalism over the last 80 years (Figure 1-3). Safety has been a growing concern over the years with more homeless encampments scattered throughout the Parks. About 300-350 homeless either pass through or stay at the Parks every day. Other matters raised by the community and focus groups were park accessibility, nighttime lighting, ocean safety, sand erosion, steep canoe ramp, condition of the comfort stations, tree health, concession food quality, lack of parking, lack of loading and unloading zones, and general park maintenance and management concerns. Some of these issues are currently being addressed by the "9-Point Community Action Plan" that was announced on July 15, 2015. Major improvements like park access ways, parking, park lighting, restoration of the canal and lagoons, McCoy Pavilion renovation, and sand erosion are addressed in this draft Environmental Impact Statement (EIS).

Various plans and management policies have been proposed over the last few decades, and a plan to solidify the parks' preservation for the future is now being implemented. The City continues the on-going efforts to keep the Parks at a functioning level. Basic repairs and improvements that could fulfill some short-term needs (some listed in the 9-Point Community Action Plan) were recommended prior to any major renovations keeping the Parks accessible. The community and current park users have expressed concerns to keep the Park's character the same. There was

no desire to upscale the Park with modern design and added structures. The community and the City recognize the need to update and enhance certain aspects of the Parks. The master plan will have full details of the City's Proposed Action over a period of several years once the EIS is completed. The long-term goal for the Park's revitalization is to maintain and improve the grounds and facilities while remaining true to its local character as "The People's Park." [2]

1.3.3 Need

The Proposed Action is needed to accommodate the anticipated volume of visitors associated with the projected population growth of Hawai'i residents. The City needs to restore the aging and deteriorating facilities to a sustainable standard that will comply with current polices and regulations.

[2] Named "The People's Park" by President Franklin Delano Roosevelt in 1934; City and County of Honolulu, Department of Customer Service. Updated January 3, 2017. http://www.honolulu.gov/cms-csd-menu/site-csd-sitearticles/982-site-csd-news-2016-cat/25596-11-01-16.html

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Figure 1-3
EXISTING CONDITIONS

Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

1.4 ENVIRONMENTAL REVIEW

This EIS has been prepared in accordance with the provisions of Chapter 343, Hawai'i Revised Statutes (HRS), and Title 11, Department of Health (DOH), Chapter 200 (EIS Rules), Hawai'i Administrative Rules (HAR) because City funds and lands will be used. This document evaluates the improvements proposed by the City's Master Plan for the Ala Moana Regional Park and Magic Island. The main purpose is to disclose environmental, economic, social, cultural, and technical impacts of the Master Plan improvements and to propose measures for minimizing potential adverse impacts.

There are nine environmental review "triggers" initiated by the Hawai'i Environmental Policy Act (HEPA) outlined as HRS §343-5. The proposed project area is owned by the City and the City will also fund the repairs and improvements thus triggering an environmental review. The AMRP is also on the Hawai'i Register of Historic Places. The City has determined that an EIS is required by a review of the proposed action's overall and cumulative effects pursuant of HAR §11-200-12, Environmental Impact Statement Rules, Significance Criteria. An EIS, rather than an environmental assessment (EA), is being prepared because the parks are considered to be public facilities, is a historic site, and some of these proposed improvements could potentially have impacts on the natural environment, historic properties, and attract more park users thus increasing effects on public facilities.

Discretionary permits will need to be obtained because the project is within the Special Management Area (SMA), regulated by the State of Hawai'i, Department of Business, Economic Development & Tourism (DBEDT), Office of Planning (OP). The mauka of the shoreline is within the State Urban District, but the shoreline and offshore waters are in the State Conservation District and will need a permit from the State of Hawai'i, Board of Land and Natural Resources (BLNR), Office of Conservation and Costal Lands (OCCL) for beach nourishment. See Chapter 5 for a listing of all permits needed for this project.

The 75.2-acre Ala Moana Park is listed on the Hawai'i State Register of Historic Places (State Inventory of Historic Properties [SIHP] No. 50-80-14-1388). The proposed action is subject to a historic preservation review pursuant of HRS §6E-8 and HAR §13-275. The summaries of the archaeological and architectural surveys completed for this EIS can be found in Chapter 4 and the full reports by the consultants can be found in the Appendices.

1.5 APPLICANT AND ACCEPTING AUTHORITY

HRS Chapter 343, Environmental Impact Statement, establishes an environmental review process whereby a public entity proposing a project must prepare an EIS that considers potential adverse environmental impacts from the project. In this environmental review process, the City is the applicant and the Honolulu Mayor's Office is the accepting authority.

1.6 PUBLIC INVOLEMENT AND OUTREACH

1.6.1 Introduction

Early consultation is the most important element of the HEPA process. Section 11-200-15, HAR requires that the proposing agency consult appropriate agencies, citizen groups, or individuals. Scoping and other outreach procedures to identify environmental concerns to be addressed in the EIS are described in Sections 1.6.2 and 1.6.3, respectively. Input received through consultation is summarized in Section 1.6.4.

1.6.2 Scoping

Scoping for the AMRP and Magic Island Improvement project was an early and open process for actively and constructively involving agencies (federal, state and county), organizations, stakeholders, and the public in helping to determine the environmental concerns to be addressed in the EIS. The following activities, described below, were conducted during scoping: meetings, publication and distribution of an EIS preparation notice (EISPN), and three public informational meetings.

The first public informational meeting was held on March 10, 2015 to provide opportunities for the community to obtain information on the Proposed Action and to provide their concerns about changes to the Parks. A second public meeting was held on April 28, 2016 to show the community some of the improvements being considered at the Parks, based on what the development team heard at the first meeting. As a result of these public interactions, substantial input from agencies and the public was obtained.

EIS Preparation Notice

On December 23, 2017, the EISPN was published by the State Office of Environmental Quality Control (OEQC) in its *Environmental Notice.* The notice announced that an EIS would be prepared for the proposed Ala Moana Regional Park and Magic Island Improvements project. The EISPN included a description of the Proposed Action, alternatives, and potential impacts. Copies of the EISPN were mailed to interested parties for review and comment.

A list of more than 600 e-mail and postal addresses had been compiled including: 66 government/institutional agencies (federal, state, and county), 25 elected officials, four libraries and 44 community organizations, special interest groups and other stakeholders. Of the 139-plus parties who received the EISPN by mail, 22 provided comments (see Appendix A for copies of comment and response letters). There were an additional 49 individual community members that sent comments via email. Several parties requested to be placed on the EIS mailing list to receive updates on the project and to be notified when the DEIS will be available for public review. Other commenters offered project information to be included in the DEIS, and requested compliance with existing government regulations. Table 1-2 below was used to alert interested parties to the publication of the EISPN and DEIS. Only community members who responded to the email notification are listed here since they provided their name and a valid email address.

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
UNITED STATES		
U.S. Army Corps of Engineers	x	
U.S. Coast Guard	x	
U.S. Fish and Wildlife Service	x	
National Oceanic and Atmospheric Administration		
National Marine Fisheries Service	x	
National Park Service	x	
Environmental Protection Agency	x	
Department of Transportation		
Federal Highways Administration	x	
Federal Transit Administration	x	
Federal Aviation Administration	x	
U.S. House of Representatives, Rep. Tulsi Gabbard	x	
U.S. House of Representatives, Rep. Colleen Hanabusa	x	
U.S. Senator Mazie Hirono	x	
U.S. Senator Brian Schatz	x	
STATE OF HAWAIʻI		
Department of Agriculture	x	
Department of Accounting and General Services	x	x
Department of Budget & Finance	x	
Department of Business, Economic Development and Tourism		
Office of Planning	x	
Department of Commerce and Consumer Affairs	x	
Department of Defense	x	x
Department of Education	x	
Department of Hawaiian Home Lands	x	x
Department of Health	x	
Environmental Planning Office	x	x
Office of Environmental Quality Control	x	
Department of Land & Natural Resources	x	
Division of Aquatic Resources	x	x
Division of Boating and Ocean Recreation	x	x
Division of Forestry and Wildlife	x	
Engineering Division	x	x

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
Land Division	x	x
Office of Conservation and Coastal Lands	x	x
State Historic Preservation Division	x	
Oʻahu Island Burial Council	x	
Department of Transportation	x	
Airport Division	x	x
Highways Division	x	x
Statewide Transportation Office	x	x
Governor's Office	x	
Land Use Commission	x	
Office of Hawaiian Affairs	x	
University of Hawaiʻi at Mānoa, Environmental Center	x	
State Senator Les Ihara, Jr.	x	
State Senator Brickwood Galuteria	x	
State Senator Brian T. Taniguchi	x	
State Representative Della Au Belatti	x	
State Representative Tom Brower	x	
State Representative Issac W. Choy	x	
State Representative Sylvia Luke	x	
State Representative Scott Y. Nishimoto	x	
State Representative Scott K. Saiki	x	
CITY AND COUNTY OF HONOLULU		
Mayor, City and County of Honolulu	x	
Department of Community Service	x	x
Department of Design and Construction	x	x
Department of Environmental Services	x	
Department of Emergency Management	x	x
Department of Facility Maintenance	x	x
Department of Transportation Services	x	x
Department of Parks and Recreation	x	x
Department of Planning and Permitting	x	x
Honolulu Authority for Rapid Transportation	x	
Honolulu Emergency Services Department		x
Honolulu Fire Department	x	x

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
Honolulu Board of Water Supply	x	x
Honolulu Police Department	x	x
Ocean Safety and Lifeguard Services	x	
Satellite City Hall No. 1, Ala Moana	x	
Neighborhood Board No. 8, McCully/Mōʻiliʻʻili	x	
Neighborhood Board No. 9, Waikīkī	x	
Neighborhood Board No. 10, Makiki/Lower Punchbowl/Tantalus	x	
Neighborhood Board No. 11, Ala Moana-Kakaʻako	x	
Councilmember Ann Kobayashi	x	
Councilmember Trevor Ozawa	x	
LIBRARIES AND NEWS OUTLETS		
Hawaiʻi State Main Library	x	
McCully-Mōʻiliʻili Public Library	x	
Salt Lake/Moanalua Public Library	x	
Waikīkī Public Library	x	
University of Hawaiʻi Library	x	
Honolulu Star-Advertiser	x	
Hawaiʻi Midweek	x	
Hawaiʻi Public Radio	x	
SPECIAL INTEREST AND STAKEHOLDERS GROUPS		
808 Adult Recreation Sports	x	
808 Clean Ups	x	
Ala Wai Watershed Association	x	
Beach Workout	x	
Big Brothers Big Sisters Hawaiʻi	x	
Boy Scouts of Honolulu	x	
Boys and Girls Club of America	x	
Cycle on Hawaiʻi	x	
Cycle Mānoa	x	
Dragon Boat Races	x	
Hawaiian Canoe Racing Association	x	
Greek Festival	x	
Hawaiʻi Amateur Surfing Association	x	
Hawaiʻi Architectural Foundation	x	

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
Hawaiʻi Bicycling League	x	
Hawaiʻi Bikeshare	x	x
Hawaiʻi Lodging & Tourism Association	x	
Hawaiʻi Paddleboard Association	x	
Hawaiʻi Tennis League	x	
Hawaiʻi Tourism Association	x	
Hawaiʻi Surfing Association	x	
Historic Hawaii Foundation	x	x
Honolulu Hawaiian Civic Club	x	
Honolulu Lawn Bowls Club	x	
Lantern Floating Hawaiʻi	x	
No ʻOhana O Nā Hui Waʻa	x	
Oʻahu Hawaiian Canoe Racing Association	x	
Outdoor Circle	x	
Paddle Surf Hawaiʻi	x	
Purple Lotus Yoga, Surf n Wellness	x	
Regatta Racing	x	
Scottish Festival	x	
Soccer Club	x	
Standup Paddle Association of Hawaiʻi	x	
U.S. Tennis Association (USTA) Hawaiʻi Pacific Section	x	
Waikīkī Community Center	x	
Waikīkī Hawaiian Civic Club	x	
Waikīkī Improvement Association	x	
Waikīkī Surf Club	x	
Waikīkī Yacht Club	x	
Yoga Kai Hawaiʻi	x	
Young Men Christian's Association	x	
INDIVIDUAL STAKEHOLDERS AND PARK USERS		
Ai Oyama		x
Audrey Lee		x
Bradley Ebisuya		x
Brandon Yoza		x
Brian Furumoto		x

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
Brian Walter		x
Bruce Lum		x
Channing Ching		x
Charles Langlas		x
ClaudeTakanishi		x
Craig Sugihara		x
Derek Hama		x
Diane Fujimura		x
Richard Fujie		x
Gail Murakami		x
Guy Kudo		x
Helene Philips		x
Ivan Kaisan		x
James Kaneshiro		x
Jan Asuncion		x
Jon Nishimot		x
Steve Kalilimoku		x
KVIBE		x
Lance Higa		x
Larry Erwin		x
Leighton and Maude Fujinaka		x
Michael Arita		x
Michael Garsva		x
Michael Tominaga		x
Michelle Matson		x
Mikal Weiss		x
Overdafalls		
Patti Choy		x
Ray Madigan		x
Sen Uyeunten		x
Sharlene Chun-Lum		x
Stan Sakai		x
Steven Horio		x
Sylvia Hayashi		x

Table 1-2: Agency and Public Comments on EISPN

Respondents and Distribution	Received EISPN	Comment
William Kaeo		x
All persons on the list of stakeholders who have attended Park planning meetings since 2015 or commented during the process were notified of the publication of the EISPN and invited to comment.		
UTILITIES		
Hawaiian Electric Company	x	x
Hawaiian Telcom	x	
Spectrum	x	

Public Meetings

Three public informational meetings were held to inform the public about the project and to gather community input. The first meeting was held at McCoy Pavilion on March 10, 2015 to provide opportunities for the community to obtain information on the Proposed Action and to provide their concerns about changes to the Parks. Approximately 400 people attended this first public informational meeting. They included mainly residents and users of the park facilities. The primary comment from the participants was to not commercialize the Parks for tourists and maintain it for the residents. The participants divided into small group sessions to brainstorm their comments on maps that were provided.

The second public meeting was held on April 28, 2016 at McCoy pavilion. This meeting presented the Master Plan. After receiving a large quantity of comments through the various outreach efforts, the City proposed short-term improvements through a 9-Point Community Action Plan that could address immediate facility needs. These were actions that could be completed without an environmental review. The 9-Points included the following:

1. Hire More Staff
2. Renovate Comfort Stations
3. Repair Magic Island Exercise Path
4. Irrigate Great Lawn
5. Fix rocky Beach Areas
6. New Street Trees along Ala Moana Boulevard
7. New Playground
8. Make the Park Safer
9. Local Favorites in Concession

Not all alternatives presented at the second public meeting were acceptable to the public and specifically the removal of the makai parking stalls along Ala Moana Drive.

The third public meeting was held on January 29, 2018 at the McCoy Pavilion (See Figure 1-4) to present the Proposed Action that is in the environmental review process. The City proposed modest improvements to historical features, beach nourishment, and access improvements to the Parks. The Mayor also provided the status of the 9-Point Community Action Plan and other smaller projects. Several hundred community members were in attendance to hear the updates to the Proposed Action and to express their concern about removing the makai parallel parking stalls along Ala Moana Park Drive. Many park users have been erecting tents and barbecue grills for their picnic areas along the grassy area on the makai side of the Ala Moana Park Drive, which impedes other beachgoers from accessing the sandy beach. These tents also block views to the ocean from areas mauka of the makai parking. The City proposed to widen the makai walkway by removing the parallel stalls for better access for all park users. The new walkway would have additional bench seating and landscaped improvements for infiltration and drainage purposes. Drop off areas for loading and unloading were proposed for safer access for all including children, elderly, and the disabled. The number of parking stalls would increase at the Parks by reconfiguring the mauka parallel parking to perpendicular stalls and by expanding the Keyhole parking lot near McCoy Pavilion and the Magic Island lot. At the meeting participants strongly opposed the changes to the parking and the walkway and felt that the changes were for the tourists and people living in the condominiums adjacent to the Parks. After the presentation, the participants were asked to split into focus groups to discuss the proposed improvements. Most of the crowd congregated around the Mayor to discuss their dissatisfaction with the changes to the parking and the procedures of the meeting. Some people wanted their concerns heard by everyone in attendance at the meeting rather than just to the Mayor and a smaller group. Even though the majority attended to discuss the parking, the plan for the meeting was chosen to give everyone a chance to discuss other issues or give feedback on other proposed improvements. The Mayor assured the public that the plans are not final and the City will continue to refine the plan throughout the EIS process.

Figure 1-4
JANUARY 2018 MASTER PLAN PUBLIC MEETING
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

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1.6.3 Other Outreach

Project Website

A project website called "Our Ala Moana Park" was launched in July 2015 to keep the public informed during the master plan period. It included the following pages: Welcome, Preview, Presentation, Comments, Summary, Updates, Results, and Early Projects. The website address is www.ouralamoanapark.com. There are links to current news and latest information from the City and the media. It also shares results from any public event involving the improvements for the Parks. The website is regularly updated and has a contact box for the public to ask questions or express concerns. The public was encouraged to add feedback on the various proposed projects and to provide ideas. Commenters could vote on whether or not they agreed or disagreed with the comments made. There were over 30,000 interactions on the website. These comments ranged from basic restoration of the Park to higher to dramatic new elements to the Park.

1.6.4 Summary of Input from Consultations

Agency input was predominantly requests for information to be included in the EIS in order for the agencies to review project impacts. Stakeholder input generally included information about their recreational use of the Parks, which was used to describe proposed activities and assess their environmental impacts. Issues and concerns identified during the EISPN consultation process are summarized below.

- Some community members did not want the makai parallel parking removed
- Ocean safety wants to be centrally located since they are the first responders to all emergencies in AMRP
- Incorporate security and safety measures
- Address general maintenance issues (restrooms, drainage, vandalism etc…)
- Sea level rise needs to be discussed
- No metered parking
- A traffic study should be prepared
- Provide visible signage indicating the rules and regulations of the Parks to assist the Honolulu Police Department in enforcing them.
- Provide an access road for the Honolulu Fire Department and sufficient water flow for fire protection.
- Complete Streets policies are being addressed
- Implement Best Management Practices (BMP) during construction

- Clarify the role of the Honolulu Emergency Services Department as the primary providers for emergencies at the Parks.
- Discuss the project's compliance with City policies and the new Rules Relating to Water Quality.
- Discuss the Applicant/Contractor's awareness to the State of Hawaii Office of Planning Technical Assistance Memorandum relating to the airport.
- Improvements should comply with the American Disabilities Act (ADA)
- Do not commercialize the park
- Remove the rocks from the shoreline

CHAPTER 2

Proposed Action and Alternatives

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

An analysis was conducted to define the proposed project and the alternatives to be evaluated in this EIS, in compliance with the requirements of the State of Hawai‘i (State) HRS Chapter 343 and its implementing rules, HAR 11-200. The alternatives analysis also meets anticipated requirements of the project’s Department of the Army (DA) permit, specifically those relating to the Clean Water Act (CWA) Section 404(b)(1) Guidelines.

The first step in identifying the range of alternatives developed during the planning process involved public outreach to create the Parks’ master plan. A scoping meeting for the master plan was held in 2015 for members of the public to brainstorm improvement ideas for the Parks that could address overall needs. Additional sources such as the Parks’ official website, social media, stakeholder and agency meetings, and regular site visits by planning staff were used to engage the public and collect feedback. Both long-term and short-term needs were discussed along with needs that required immediate attention. In 2016, the public reconvened to review the master plan alternatives presented by the Mayor. The alternatives derived from the input gathered from the public and the various participating agencies with the intent to restore existing character features, promote current inactive areas of the Parks, and enhance the popular amenities. The master plan’s goal was to address the overall needs, and to find long-term, sustainable solutions for the Parks. The City also created the “Mayor’s 9-Point Action Plan” (Table 2-1) to address the immediate short-term needs. The following categories were used to distinguish each alternative: restore, enhance, and evolve. These alternatives were then compared to the purpose, and, need of the project (see section 1.3).

Table 2-1: Progression of the 9-Point Community Action Plan

Actions	Progress	Media Source
Offer Local Favorites in Concession	Opened two L & L Barbeque locations in Summer 2015	L&L Barbeque concession stand: http://khon2.com/2015/07/03/ll-hawaiian-barbecue-opens-concession-stand-at-ala-moana-beach-park/
Renovate Comfort Stations, not replace	Comfort stations at Magic Island were renovated. Improvements to the Diamond Head side bathhouse beginning on 12/11/17. Plans to renovate Ewa-side bathhouse with similar renovations.	khon2.com/2016/01/07/many-ala-moana-beach-park-improvements-could-take-years-to-complete-2/
Hire More Park Staff	Hired 14 permanent staff including groundskeepers and park caretakers	khon2.com/2017/03/20/ala-moana-beach-park-improvement-work-continues/
Repair Magic Island's Exercise Path	Repairs and repaving of the pathway completed in 2016	khon2.com/2016/02/02/new-path-staffing-in-the-works-as-ala-moana-park-upgrades-continue/
Beautify the Park	44 trees installed Along Ala Moana Blvd. in September 2016. Added the island's first designated sand volleyball courts to the Ewa-side of the Park in October 2017. Informed public about dangers and damage caused by improperly dumping cooking coals through media coverage.	Tree planting ceremony for phase 1: www.ouralamoanapark.com/blog/community-action-9-point-plan http://khon2.com/2016/08/08/city-to-plant-dozens-of-trees-as-part-of-ala-moana-park-improvements/ http://the.honoluluadvertiser.com/article/2006/Jan/14/ln/FP601140337.html http://khon2.com/2017/11/10/sand-volleyball-courts-open-at-ala-moana-regional-park/
Fix Rocky Areas of the Beach	Volunteers and park staff relocated beach rocks/coral on two separate occasions in October 2016. Maintenance staff also conducted sand pushing following the relocation efforts.	Beach Rocks Cleanup by Volunteers: khon2.com/2016/10/08/city-tackles-beach-erosion-problem-driven-by-tourism-revenue/

Table 2-1: Progression of the 9-Point Community Action Plan

Actions	Progress	Media Source
Irrigation Improvements	Work on the irrigation system began at the Great Lawn on November 1, 2016 and is expected to be completed by February 2018. Magic Island irrigation improvements are scheduled to be completed by the end of 2018.	khon2.com/2016/11/01/irrigation-system-upgrade-begins-at-ala-moana-regional-park/
Make the Park Safer	Converted park lights to brighter, more efficient LED lights, added security staff to monitor the Park during afternoon and evening hours, added security gates and screens to bathroom facilities, and added security cameras to two bathhouses. Following the installation of the cameras, staff have not noticed vandalism in these two facilities.	khon2.com/2016/11/21/security-cameras-to-begin-operating-at-ala-moana-regional-park-comfort-stations/ http://www.civilbeat.org/2016/02/ala-moana-park/
Build a playground	Not started	http://www.staradvertiser.com/2017/05/09/hawaii-news/playground-in-vision-for-ala-moana-park/?HSA=3cb75f3d5344fc1b633e164ad3987037f6f6c87f

2.2 PROJECT COMPLIANCE

One of the long-term needs of the Parks is replenishing the sand at the beach. Years of constant wave action and other natural elements have eroded the beach and exposed sharp rocks at the shoreline. The only alternative is to recover beach sand from various offshore sites rather than another beach or offsite location on land. Therefore, the sand replenishment phase of the project will be conducted in waters of the United States (US) requiring a DA permit pursuant to CWA Section 404. The CWA Section 404(b)(1) Guidelines prohibit "discharges of dredged or fill material if a practicable[1] alternative to the proposed discharge exists that would have less adverse impacts on the aquatic ecosystem, as long as the alternative does not have other significant adverse environmental consequences."[2] Hence, the next step of the alternatives analysis involved identifying alternatives to meet the CWA Section 404(b)(1) Guidelines. The possible site location options for beach sand recovery are listed as separate alternatives. The City examined practicable alternatives to the proposed discharge that will not have an adverse effect on the aquatic environment.[3] A sand replenishment study was conducted for the project to investigate potential offshore sand sources, and to develop a recovery and placement plan. Identifying such alternatives was challenging considering the purpose, need, and objectives of the proposed project. In particular, the following objectives are needed for a beach nourishment project:

- To create a wider beach to increase the sandy beach area
- Increase the elevation for a dry beach for more useable area during high tides
- Reduce inundation or flooding of the backshore area

At the City level in terms of water quality, the project must comply with new City Rules Relating to Water Quality that became effective on August 16, 2017. The proposed designs of the land improvements are predicated on compliance with these rules. A Storm Water Quality Strategic Plan will be prepared for the initial grouping of projects which is programmed to include the Japanese and Hawaiian pond edge improvements, Bridle Bridge repairs, keyhole parking reconfiguration, widening of the beachfront shared use path along Ala Moana Park Drive, and adding perpendicular parking along its mauka side. The Strategic Plan will contain a written description of the projects, expected activities and likely pollutant generated at the site, low impact development (LID) strategies being implemented and the projects' schedules. In addition, an Erosion and Sediment Control Plan (ESCP) prepared in accordance with the Rules will also be completed for each project. The ESCP is required to contain pre-construction, during construction and post-construction best management practices

[1] The term practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 Code of Federal Regulations [CFR] §230.3[q]).

[2] 40 CFR §230.10(a)

[3] 40 CFR §230.5(c)

(BMPs). The Strategic Plan will address the activities common to all the projects including post-construction BMPs, with the ESCP containing project-specific requirements.

The initial grouping will constitute a Category 5 project under the Rules, and all requirements for plan preparation, content and BMPs will be addressed, along with BMP inspections at least once every 7 days by ESCP Coordinator during, and certification upon completion of, construction. A National Pollutant Discharge Elimination System (NPDES) permit for construction storm water discharges will also be obtained for the project grouping. Subsequent master plan projects will follow similar procedures complying with the Rules, and obtaining a NPDES permit when the project or group of projects involves ground disturbance of one acre or more.

The alternatives considered in this EIS ranged in site location options for sand replenishment, parking configuration options, and site access location options. They were evaluated in terms of the project purpose, need, and objectives. The Proposed Action and the Sand Replenishment alternatives were carried forward for further evaluation, in compliance with HRS Chapter 343, and CWA Section 404(b)(1) requirements. The Alternative Action was determined to meet the stated purpose, need, and objectives.

- Proposed Action (Section 2.3). Under the Proposed Action, restoration of the Parks' features can be accomplished and the potential to maximize usage of other features/spaces can be recognized. These actions are meant to sustain the popular recreational spaces for the future while evolving with City's policies and initiatives that relate to the environment and public health.

- Sand Replenishment Alternatives— (Section 2.4). There are no design codes for beach nourishment projects. Nourishment of the beach could be as little or as much as the owner desires, but is limited by the availability of sand, the cost and adverse impacts. There are three alternatives that vary by the volume of sand placed on the beach, but is also constrained by the available space on the beach.

Section 2.7 discusses the alternatives that were considered but were not carried forward for further analysis in this EIS, including reasons why the alternatives were dismissed.

2.3 PROPOSED ACTION

In January 2018, the City held a third public meeting to present the preferred alternative for the master plan which is referenced as the Proposed Action for the EIS. Some of the proposed projects presented herein were revised based on the feedback received at the meeting. Since the AMRP is on the State's Historic Register, the City had an early consultation meeting with the State Historic Preservation Division (SHPD) and decisions made from that meeting reflect in some of descriptions of this Proposed

Action. Several projects are proposed to restore the historic features of the AMRP in a historically appropriate manner.[4] SHPD has concurred with the proposed mitigation per the determination letter dated June 18, 2018 (Appendix D-1). See Section 2.3.1 to Section 2.3.18 for a current description of the Proposed Action. An annotated list of the projects is as follows:

- Pi‘ikoi Street and Queen Street pedestrian entrance expansions and partial drainage canal cover;
- Widening the shared-use path along the makai side of Ala Moana Park Drive;
- Widening the shared-use path along the Ala Wai Small Boat Harbor;
- Improve the existing canoe launch ramp and crossing from the Canoe Hālau;
- Rearranging the parking along the makai side of Ala Moana Park Drive to add loading and unloading zones near crosswalks;
- Reconfigure parking on the mauka side of Ala Moana Park Drive to add more stalls;
- Keyhole parking lot expansion and reconfiguration;
- Reconfigure and expand Magic Island parking lot;
- Improve the pond edges and paths;
- Renovate McCoy Pavilion and the banyan courtyard;
- Improve “high spot” terrace for ADA access, repair pergola, and widen the shared-use paths on both sides;
- Repair drainage canal walls;
- Repair the Bridle Bridge
- Add a dog park near Kewalo Basin;
- Repair Roosevelt Portals at Atkinson Street entrance and improve the Kamakee Street entrance.
- Sand replenishment and long-term beach nourishment (alternative discussion in Section 2.4);
- Build a playground;
- Relocate the maintenance yard;
- Create a multiuse facility at the Lawn Bowling area;
- Relocate the Ocean Safety’s Honolulu Headquarters.

[4] Letter from Robert Kroning (City Department of Design and Construction, Director) to Kaiwi Yoon (State Historic Preservation Division, Architecture Branch Chief) requesting a determination letter pursuant to Hawaii Revised Statutes Chapter 6E-8 and Hawaii Administrative Rules Chapter 13-275-3.

LEGEND

1. Dog Park
2. Improve Pond Edges and Paths
3. Queen Street Pedestrian Expansion Entrance
4. Pi'ikoi Street Pedestrian Expansion Entrance
5. Repair Canal Walls
6. Reconfigure Free Parking with No Loss of Stalls
7. Improve "High Spot" Terrace
8. Renovate McCoy Pavilion and Banyan Court
9. Playground
10. Relocate Maintenance Base Yard (Long-Term; Location TBD)
11. Relocate Ocean Safety Headquarters (Long-Term; Location TBD)
12. Widen the Shared-Use Path
13. Sand Replenishment and Long-Term Beach Nourishment
14. Repair Roosevelt Portals
15. Improve Kamakee Entrance
16. Repair Bridle Bridge
17. Multiuse Facility Near Lawn Bowling (Long-Term)

BELT COLLINS

NORTH

0 150 300 600
SCALE IN FEET

Figure 2-1
PROPOSED ACTION
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

2.3.1 Dog Park

The location for the proposed dog park is currently used as an open space and is situated on the 'Ewa side of the AMRP and adjacent to Kewalo Basin. One of the goals of the Master Plan is to bring activity to areas of the Park that are overlooked. This area is underutilized and away from the more active areas of the Park.

A dog park is proposed for park users to have an open area for their dogs. Some dog owners walk their dogs through the Park, but do not clean up after them according to feedback from the scoping meetings. A dog park could be a solution to this since the area will be contained by a fence and it will include waste stations. It will also provide two play areas, one for small dogs and another for all dogs (Figure 2-2).

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Source: PRB Hawaii and Associates, Inc.

BELT COLLINS

NORTH

0 8 16 12
SCALE IN FEET

Figure 2-2
DOG PARK
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

2.3.2 Hawaiian Pond and Japanese Pond Improvements

Louise Gaylord Dillingham was the president of the Outdoor Circle and had a significant influence on the design of the AMRP in the late 1920s[5]. Her husband, Walter Francis Dillingham and his company Hawaiian Dredging Company, would play a substantial role in reclaiming the Park land over coral reef. It was Louise Dillingham's suggestion to incorporate water features in the Park to keep maintenance low and to add aesthetic and recreational benefit. The Hawaiian Pond/Eastern Lagoon[6] and the Japanese Pond/Western Lagoon were dredged by 1932 along with the drainage canal.

The edges around the two ponds on the AMRP property are currently covered by hardened top soil, sparse shrubs and grass. Two rows of filter socks are observed along the banks of Hawaiian Pond to address storm water runoff. The filter socks hinder access to the water feature for recreational use such as fishing. Earlier photographs of the Japanese Pond showed more shrubs and a wall surrounding the banks, although it appeared discontinuous. Current conditions of the Japanese Pond edges have less shrubs and sections of the wall need repairs.

Proposed improvements include both vegetative and hardened edges (Figure 2-3). Hardened edges would be installed along the immediate shoreline of the ponds and low maintenance vegetation would be planted behind it. Design of the improvements would be cohesive with the need to prevent storm water discharge into the ponds and to meet recreational needs. Pathways leading to seating areas around the ponds are proposed to increase access. These pathways could connect the ponds to the rest of the Park.

[5] Weyeneth, Robert. 1987. *Ala Moana: The People's Park.* Prepared for the City and County of Honolulu Department of Parks and Recreation. Pg. 7

[6] Referred to as "lagoon" in the *Ala Moana: The People's Park* book.

JAPANESE POND - BEFORE

HAWAIIAN POND - BEFORE

JAPANESE POND - AFTER

HAWAIIAN POND - AFTER

Figure 2-3
POND EDGE AND PATH IMPROVEMENTS
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

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2.3.3 Pedestrian Entrance Expansions at Pi‘ikoi Street and Queen Street

There are four secondary pedestrian access points into the Parks that are designated by openings through the AMRP's park boundary wall. These access points are from Ala Moana Boulevard and are located across from Ward Center, at Queen Street, at Pi‘ikoi Street, and across from the Park Lane condominiums at Ala Moana Center. A pedestrian bridge is located near each of the access points for crossing over the drainage canal.

Formal entrances at Pi‘ikoi Street and Queen Street would enhance pedestrian ingress/egress to the Parks and provide for emergency pedestrian evacuation from the Parks. Several new condominiums have been developed adjacent to the Parks including: Park Lane, Waiea, Anaha, ‘A‘ali‘i, Gateway Towers, 1133 Waimanu, Waihonua, Koolani, and Hokua. These developments are in addition to the Nauru Tower, 1350 Ala Moana, and the Yacht Harbor Towers located along Ala Moana Boulevard and across from the Parks. Wider access points would encourage more pedestrian traffic and less vehicle traffic entering the Parks from these high-density areas. These secondary main entrances could also alleviate pedestrian traffic congestion during large events like the 4th of July Fireworks Show or during an emergency.

The current pedestrian bridges around Pi‘ikoi Street and Queen Street are offline with the street's crosswalk. The Park's boundary wall presents some obstacles between the crosswalk and the Park with narrow openings. The proposed crossing and new entrances would align with the crosswalks over Ala Moana Boulevard. The Park boundary wall fronting the new entrances will be removed to increase safety and access while entering and exiting the Park.

The locations at Pi‘ikoi Street and Queen Street would add central main entrances since the other main entrances are located at the Diamond Head and ‘Ewa ends of the AMRP. Adding additional pedestrian access at the center of the Park would direct less pedestrian traffic toward the vehicle entrances which would promote public safety. A rail station is proposed on the mauka side of the Ala Moana Center and near Pi‘ikoi Street. A pedestrian crossing to the AMRP could benefit those using the rail for transportation to the Parks. A conceptual rendering plan proposes to align a wider access point at Pi‘ikoi Street with the crosswalk (Figure 2-4).

At least three options were considered for crossing the drainage canal. The first option proposed to install a pipeline system and backfill the entire canal. This option was considered costly and not feasible because there was no available space for a new pipeline system. The second option proposed to install wider bridges. This option was also costly and there was uncertainty on whether the existing canal walls could support the larger structures. Therefore, it was recommended to remove and replace the canal walls to install the new bridges. This option was not explored further due to cost and the recommendation to remove and replace the canal walls. The third option proposes to install a box culvert in the canal to reinforce a 25-foot wide walkway over the canal. The existing bridges will be removed and a large box culvert would be placed

in the canal to expand the walkways above while allowing water to flow beneath them. The walls of the culverts are meant to blend in with the existing canal walls and bottom. Railings will be installed on the new walkways.

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Current view of Pi'ikoi Entrance

Proposed improvements to Pi'ikoi Entrance

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Figure 2-4
PI 'IKOI PEDESTRIAN ENTRANCE
Ala Moana Regional Park and Magic Island Improvements EIS
Honolulu, Oahu, Hawaii

2.3.4 Repair Drainage Canal Walls

The drainage canal is about a mile long and stretches between the Japanese Pond on the ʻEwa side and the Hawaiian Pond on the Diamond Head side. The ponds and the canal were dredged around 1932 to manage stormwater runoff toward the ocean. The canal serves the same function today as when it was built. Currently, it drains Ala Moana Boulevard and portions of Kakaʻako and most of lower Makiki. Over time, the canal walls have deteriorated and sections of the walls have collapsed (Figure 2-5). Attempts have been made to address the collapsed sections and general restoration of all the walls, but its historic structural composition has challenged structural engineers. For one, there is no record of the material or construction method that was used for the walls. Another challenge was the lack of footings which may have been the cause for collapse. Finally, the soil composition around the walls is very weak lagoonal deposits and mostly comprised of sandy-gravel, sand, and silt. These materials are considered unstable as support for the canal walls.

Restoration of the sections of the fallen walls is needed and proposed. Several alternatives were considered and were predicated on safety, feasibility, and historic significance for both construction materials and methods. After consultation with structural engineers and concrete ready-mix suppliers, it was determined that the option to use the same materials and construction method from the 1930s was not considered a viable option. This is because the material used is no longer available or made and 1930s practices do not conform to current codes and industry standards. Other alternatives considered, consisted of stabilization with tie-back support and using the existing walls, but the condition of failed sections do not allow for reuse. A full replacement of the walls was considered, but was the highest in cost. The preferred alternative is to replace the existing walls that have collapsed with a precast concrete panel in combination with using tie-back support to stabilize some of the walls that are near collapse. The surface finish of the panel should blend with the existing wall. Removal of the existing walls should be limited to those sections that have failed.

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Figure 2-5
CANAL WALLS EXISTING CONDITIONS
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Draft Environmental Impact Statement

2.3.5 Parking

The AMRP design through time has evolved as demand increased for certain amenities. The first plans from the 1930s for the AMRP did not show parking lots even though automobiles were present in Hawai‘i. A few parking stalls were observed within the Keyhole area, however, in earlier photographs from 1935. Plans for parking were mentioned about 30 years later when the City was looking to capitalize on the tourism industry by building a resort. A resort endeavor would have demanded more parking. Lack of public support for a resort eradicated the idea and Magic Island was added to the AMRP as park space with a parking lot in the 1970s.

Over time, more parking lots have been added to the Parks as demand increased for more stalls. Besides the Magic Island lot, there are public parking lots at McCoy Pavilion (Keyhole lot), and the Canoe Hālau. Parallel parking stalls are available along the mauka and makai sides of the 1.1-mile Ala Moana Park Drive.

The original proposal for the current Master Plan was to convert the mauka side parking to perpendicular stalls and remove about 50 stalls along the makai side of Ala Moana Park Drive. The reconfiguration of parking was mainly intended to accommodate an improved makai shared-use path. Compensation for the loss of stalls along the makai side would be acquired by reconfiguring the Keyhole lot and the Magic Island lot. This plan would have also increased the number of stalls by 221 and provide closer access to the Magic Island lagoon.

Members of the public strongly opposed the removal of the parking on the makai side of Ala Moana Park Drive at the public meeting in January 2018 and by letter/email responses to the project’s EISPN announcement. Therefore, the City reviewed and revised the proposed parking plan to obtain an acceptable response by the public. Only about 20 stalls would be removed fronting the new Keyhole parking lot to create a wider walkway for people moving their supplies to the preferred beachside location. This new walkway will have drop off zones and crosswalks on both sides for safe crossing to the mauka parking lot. All other parallel stalls on the makai side would remain. See Table 2-2 and Table 2-3 below, for the current stall count along with the proposed number of stalls.

The City’s new proposal for parking is to retain the makai parallel stalls except for those fronting the Keyhole (See Figure 2-6). The reason for the removal of these stalls is to add pedestrian crossing safety features from the newly expanded Keyhole lot that will gain 103 stalls. Parking along Ala Moana Park Drive at the Keyhole lot will be removed to provide a clear visual for cars maneuvering through that area and for pedestrian crossing to the makai side of the roadway where the pathway will be installed for easier pedestrian movement. The total number of stalls within the AMRP and Magic Island will be increased by 234 stalls to meet the demand from the growing population.

The mauka stalls are still proposed to be reconfigured to perpendicular stalls, but will also include parallel stalls where appropriate. The Magic Island lot will also have more

stalls by reconfiguring the lot length-wise. The City recently received concurrence for the Keyhole lot expansion by the SHPD. As noted above, the Keyhole has been documented by earlier photographs and design plans declaring it as a historic feature that has been altered over time.

A total of five, two-car drop off zones have been added on the makai side of Ala Moana Park Drive at the crosswalks for park users to drop of their supplies before parking their cars.

Table 2-2: Proposed and Existing Parking Count (Public Parking)

Parking Area	Proposed	Existing
Mauka Side:		
Parallel	91	175
Perpendicular	178	
Makai Side		
Parallel	162	181
McCoy Pavilion (Keyhole Parking Lot)	180	77
Magic Island	507	469
Canoe Halau	32	32
Reserved Stalls (Life guards and maintenance staff)	18	18
TOTAL:	**1168**	**934**

Note: Total includes 25 ADA stalls

Table 2-3: Proposed and Existing Parking Count (Staff Parking)

Parking Area	Proposed	Existing
Lifeguard:		
Makai Side	7	7
Magic Island	2	2
New Ocean Safety/Existing Maintenance Lot	9	5
TOTAL:	**18**	**14**

Note: Includes 1 ADA stall at the Ocean Safety Lot

1

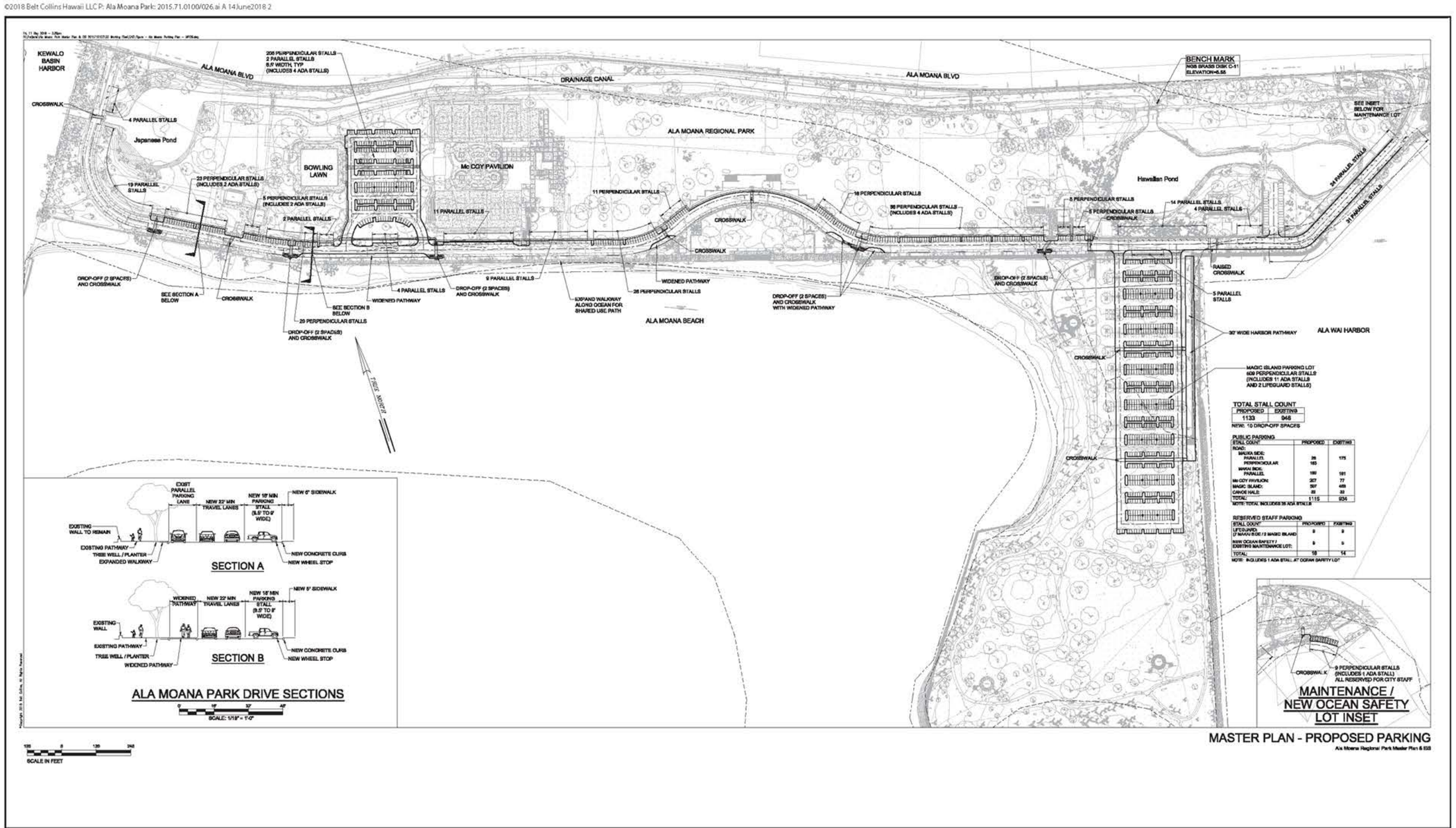

Figure 2-6
PARKING PLAN
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
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2

2.3.6 Makai Shared-Use Path

Catherine Jones Richards and Robert Oliver Thompson[7] were tasked to design the landscaping of the Park in the 1930s[8]. They originally designed a shoreline walkway with a line of trees for shade. Later design concepts in the 1970s proposed a wider promenade that replaced the road making the promenade accessible for pedestrians and bicyclists only. Designers believed that future use of the Park should not be a parking lot, but a place for active recreation and aesthetic enjoyment. Earlier planners and designers predicted the evolution of transportation to be less dependent on automobiles and more adaptive to other modes of transportation. This is seen today as becoming more of a reality with the establishment of the rail transit system and the Complete Streets initiative. The Complete Streets Ordinance 12-15 was passed in 2012 by the City Council. Some of the objectives of the ordinance includes: "protect and promote accessibility and mobility for all; balance the needs and comfort of all modes and users; encourage opportunities for physical activity and recognize the health benefits of an active lifestyle; and incorporate trees and landscaping as integral components of complete streets."[9]

Today, the makai shared-use path is one of the most actively used recreational features of the Parks. Access to the beach and views of the ocean attract recreational users to it. The shared-use path/walkway has been a popular attraction of the AMRP since before the installation of the beach. Currently, the shared-use path is mostly used for walking, jogging, running, cycling, sunset watching, group exercise, and picnicking (Figure 2-7). Early mornings and evenings are when the path is crowded with walkers, joggers, runners, and cyclists. Picnickers are also seen under pop-up tents with barbeques in the grassy area of the path. The path has sporadic park benches, trees, and drinking fountains along a narrow walkway.

The proposed shared-use path will comply with the Complete Streets Ordinance by creating a proper shared-use path along the beachfront allowing safe passage for both bicyclists and pedestrians. A shared-use path also exists on the mauka side of the AMRP along the drainage canal. More bikeways are being planned on City streets around urban Honolulu. The AMRP shared-use paths are used to seamlessly connect these commuting areas. Other similar paths have been established in many other public areas, such as the edges of Kapiʻolani Park.

During the scoping meetings, the public asked for a wider and shaded pathway that could serve a variety of recreational needs and purposes. This could be accomplished by landscaping alterations (Figure 2-8). Additional planters and trees will increase shade and address storm water quality issues. Additional benches will be added to allow park users to sit on a shaded bench to watch the sunset or their family members

[7] Catherine Jones Richards and Robert Oliver Thompson were later referred to as "Thompson and Thompson" after marriage.

[8] Weyeneth, Robert. 1987. *Ala Moana: The People's Park.* Prepared for the City and County of Honolulu Department of Parks and Recreation. Pg. 9

[9] https://www4.honolulu.gov/docushare/dsweb/Get/Document-126869/6_3g_8rv.pdf

enjoying the sandy beach or swimming in the calm ocean waters. Improvements to the lighting and pathway pavement are proposed to keep the path safe and accessible especially during peak hours.

The grassy area alongside the shared-use path must comply with the City's new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposal design of the shared-use path is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's NPDES Permit No. HI-S000002.

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Figure 2-7
SHARED-USE PATH RECREATIONAL USES
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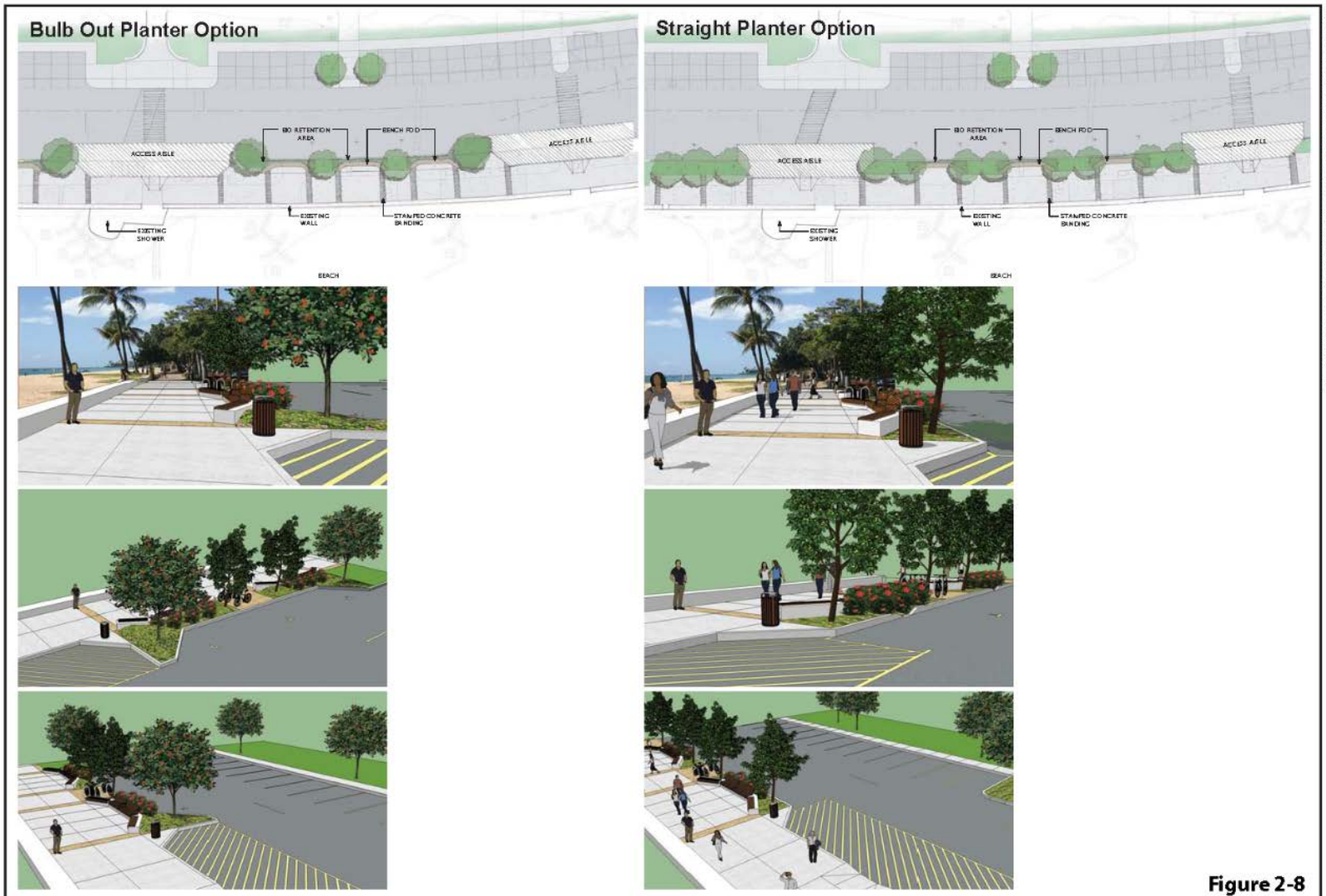

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Figure 2-8
WIDEN SHARED-USE PATH
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2.3.7 Roosevelt Portals

The Roosevelt Portals were completed in the early 1930s and dedicated by President Franklin Delano Roosevelt in 1934.[10] The president's involvement in providing the labor to complete some of the work for the AMRP was significant during the Depression Era. The portals are designed by Harry Sims Bent, an architect hired to provide associated designs to the landscaping plan for the Park. His designs for the AMRP are known as Art Deco. They are two gates on either side of Ala Moana Park Drive and were meant to stand as a welcoming pedestrian entrance to the Park. Over time, the street grid changed as the city developed around the Park and transportation evolved to automobiles. The portals today remain as a reminder of the Park's history, but show its need for restoration (Figure 2-9). Boulder concrete was the material used to construct the Roosevelt Portals and many other features in the Park. This material consists of concrete poured over coral and lava rocks and was considerably lower in cost during the Depression Era. The portal walls were coated with stucco and painted white to conceal any deformities.[11]

Repairs to the Roosevelt Portals are proposed to restore and preserve its historic character. The repairs were recommended by the project's master plan to restore sections that need attention and to preserve the historic construction. Options to use the same materials used in the 1930s were considered, but were not feasible because boulder concrete is no longer available and it would not comply with current industry standards and building codes. A corrosion inhibiting concrete penetrating sealer is the recommended material to be used by the structural engineers. The sealer could be used to protect the outer surface of the portals from moisture without disturbance to its historical nature.

[10] Ibid, Weyeneth, Robert. 1987. Pg. 14

[11] Ibid, Weyeneth, Robert. 1987. Pg. 23

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BEFORE

Current view of Roosevelt Gate and entry plaza

AFTER

Proposed improvements to Roosevelt Gate and entry plaza

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Figure 2-9
ROOSEVELT PORTALS

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2.3.8 Kamakee Street Entrance

Plans for the Kamakee Street Entrance were included with earlier design plans, but were never implemented. It does not appear to have the character of a main entrance even though it is considered to be like the Atkinson Drive Entrance. The coral walls that border the entryway are historic, but understated in comparison with the Park's historic theme.

The proposed plan is a new entry gate that would complement the Roosevelt Portals at the Atkinson Drive Entrance (Figure 2-10). The updated entry would include a new park sign and designed wall over the existing coral wall to emphasize the area. Entry portals for the pedestrian entrance are also proposed. The landscaping around the entryway will be included in the update.

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BEFORE

Current view of Kamakee Entry

AFTER

Proposed improvements to Kamakee Entry

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Figure 2-10
IMPROVE KAMAKEE ENTRANCE

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2.3.9 Repair Bridle Path Bridge

The Bridle Path Bridge is one of the more recognized designs of Harry Sims Bent in Honolulu. The bridge is referred to as "Equestrian Bridge," and "Canal Bridge" in earlier documents. It was originally designed in the landscaping plans to be part of a series of connecting paths between the AMRP and Kapiʻolani Park. The bridge was completed in 1934 as Bent's first design in the Park. The bridge is composed of rebar and concrete with concrete columns for support.[12] It is unknown if boulder concrete was the type of concrete used to construct the bridge. The condition of the bridge is poor in comparison to the Roosevelt Portals. A site inspection of all the bridges of the AMRP was completed by Realty Inspections, Inc. (RII). They reported that the underside of the bridge is crumbling and rebar is exposed in many areas due to moisture. The support columns and footings are damaged at the base. The white painted finish is also cracking and patches of discoloration show signs of vandalism (Figure 2-11). The pathway above is composed of concrete and is worn and cracking.[13] RII recommended that a structural engineer should further assess the condition of the bridge and provide applicable mitigation. The City engaged a structural assessment of all AMRP bridges[14]. The need for maintenance repairs to the Bridle Path Bridge was confirmed. Like the Roosevelt Portals, an immediate measure to prevent the bridge from further depreciation would be to use a corrosion inhibiting concrete penetrating sealer on the entire bridge. Other recommendations included repairs to the exposed areas on the underside of the bridge and to address the damaged areas of the columns and footings. Restoration of the bridge should be done in a historically appropriate manner.

[12] Realty Inspections Inc. May 2015. "Inspection Report of Ala Moana Beach Park Bridges". Pg 7.

[13] Ibid.

[14] Nagamine Okawa Engineers Inc. September 2016. "Ala Moana Regional Park Structural Assessment of Pedestrian Bridges".

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BELT COLLINS

Figure 2-11
BRIDLE BRIDGE EXISTING CONDITIONS
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2.3.10 Magic Island (Ala Wai Boat Harbor) Shared-Use Path

The Magic Island shared-use paths provide a series of connected walking/running routes that are popular with recreational users. There seems to be a disconnect of the path, however, between where the Park ends and where the parking lot begins. Currently, there is a simple sidewalk along the parking lot. Large tour buses are often seen parked along this area. Many users gather along the Park's edge near the Ala Wai Boat Harbor side to picnic, watch the Friday evening fireworks from the Hilton Hawaiian Village, pole fishing, take photographs of Waikīkī and Diamond Head, or watch a sailboat race and canoe paddling race. Improvements to the path would benefit these users by expanding it along the parking lot as well.

The proposed plan to reconfigure the Magic Island parking lot will give the City the opportunity to improve and widen the path. The City proposes to separate the path from the parking lot by using landscaped improvements. Additional seating benches are proposed to enhance the use of the area by spectators. Much like the Makai Shared-Use Path, the design of this path will comply with the Complete Streets initiatives.

2.3.11 Canoe Hālau Crossing and Canoe Launch Ramp

The Canoe Hālau building was completed within the last 10 years and it is located near the Atkinson Drive entrance to the AMRP and the Ala Wai Boat Harbor. Canoe paddling was gaining popularity which prompted public need for a new canoe storage facility. It was built to support the local canoeing community that promoted "personal growth, character development, education, and awareness of Hawaiian cultural values."[15] The hālau was designed to house up to 30 six-man canoes with ancillary space to store related equipment.[16]

The canoe launch is located across Ala Moana Park Drive from the hālau. Currently, the canoe paddlers are crossing Ala Moana Park Drive with large canoes causing safety and traffic concerns. There is a speed bump and marked crosswalk in the road fronting the Canoe Hālau, but they are inadequate as a safe crossing for the paddlers. Options, such as relocating the Canoe Hālau to Magic Island, were considered to resolve the concerns, but were not considered feasible. Proposed improvements will increase visibility at the street crossing with a larger raised crosswalk and crossing signage (Figure 2-12). The raised crosswalk slows traffic and alerts drivers to expect crossing pedestrians. The raised crosswalk is proposed to be wider than normal so that the paddlers can cross safely with their canoe and without having to step on and off the street curbs.

The current launch ramp is proposed to be replaced with two longer concrete ramps for easier access to the water. Attendees from the public meetings reported that the current launch ramp is too short, steep, and slippery which made accessing the water

[15] Arthur Kimbal Thompson Architect, AIA. August 2004. *Ala Moana Regional Park Canoe Hālau Final Environmental Assessment*. Prepared for the City and County of Honolulu, Department of Design and Construction. Pg. 6

[16] Ibid

hazardous. Other proposed improvements could include additional landscaping along the boat harbor side of the road such as trees and seating areas. Such amenities could enhance an active area that hosts spectators of marine activities and fishermen.

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Figure 2-12
CANOE LAUNCH AND ROAD CROSSING IMPROVEMENTS

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2.3.12 McCoy Pavilion and Banyan Court Renovations

McCoy Pavilion and Banyan Court was once known as the "Sports Pavilion and Banyan Court" before it was renovated and reopened in 1978.[17] The renovations were mostly done for the Sports Pavilion and they included: meeting rooms, a large auditorium to host events, dining hall, kitchen, dressing room, 10 restrooms, administrative offices and storage, 10 tennis courts, and open outdoor lanai areas.[18] The Sports Pavilion and Banyan Court was previously completed in 1937 and it was envisioned to be a recreation center that included: craft rooms, game rooms, and men and women locker rooms.[19] The Banyan Court had six planters with banyan trees and a few ponds. The Banyan Court was also designed by Harry Sims Bent, but did not follow the art deco theme found throughout the Park. The inspiration for the design came from a postcard of a Balinese garden.[20] Bent thought it was suitable to use the idea because the design would complement the materials and labor that was available to them.[21]

Today, the Banyan Court has four exceptional banyan trees and remains mostly intact from its original design. Overall conditions of the McCoy Pavilion and Banyan Court were assessed by Realty Inspections, Inc. and they rated the building as fair with some areas that needed immediate attention.[22] The Banyan Court and McCoy auditorium have the most damage due to the banyan tree roots growing under them. The foundation of the courtyard and auditorium is cracked and uneven causing hazardous walking conditions for users. Some of the auditorium doors are unable to open because of the uplifted surface.

In order to address the physical condition of the courtyard and auditorium, the City proposes to remove the four exceptional banyan trees in the courtyard. This removal will allow installation of a filtration system in the Banyan Court ponds and restore the areas damaged by tree roots. The filtration system will address water quality issues in the ponds. An update to the kitchen and dining facility is also proposed. The AMRP hosts community events and festivals at the pavilion and improvements are meant to sustain these events for the long-term. Plans to add a restaurant and more food vendors could be considered in the long-term future. Although a total overhaul of the pavilion's infrastructure will be needed to accomplish this vision. Planting of a replacement tree(s) will also be considered.

2.3.13 High Spot Improvements

Mention of the "High Spot" was recorded in earlier documents and was referred to as the "central terrace." This was part of the Richard and Thompson design and was

[17] Ibid. Weyeneth, Robert. 1987. Pg. 17

[18] Realty Inspections Inc. April 2015. "Inspection Report of Ala Moana Beach Park McCoy Pavilion". Pg 3-12

[19] Ibid. Weyeneth, Robert. 1987. Pg. 17

[20] Ibid. Weyeneth, Robert. 1987. Pg. 18

[21] Ibid.

[22] Ibid. Realty Inspections, Inc. May 2015. Pg. 3

completed by 1932. The "terrace" was described as "raised with a retaining wall."[23] Like the Roosevelt Portals, boulder concrete was the material used to create the walls and terraces. The retaining walls were also coated with stucco and painted white. The character of the boulder concrete construction is most reflective at the High Spot since it shows more of the crushed rocks in the finish.

The High Spot offers a larger picnicking area with closer beach access and an ocean view. Today, the High Spot is underutilized due to broken amenities (picnic benches) and access issues. The stairs leading to the raised area are narrow, uneven, and difficult to use for those using wheelchairs and strollers. The stairs may also cause potential issues for people bringing large equipment for picnicking. The trees around the High Spot are overgrown and would need maintenance. And like other historical features on the AMRP, the original retaining wall should be restored. The City proposes to bring people back to this area by adding an ADA-compliant ramp in place of the stairs and to restore the picnicking areas by adding more benches and sitting areas. A raised traffic calming table at the mauka to makai pedestrian crossing near the High Spot is also proposed for safer traffic circulation. Other potential uses for High Spot could be programming such as musical and artistic performances.

2.3.14 Sand Replenishment and Long-Term Beach Nourishment

The beach was added to the Park in 1955 after 55,000 cubic yards of sand was brought in from west side of Oʻahu to fill in a mile-long stretch from Magic Island to Kewalo Basin.[24] It instantly became a popular attraction and is still the most popular attraction today. As mentioned in the Section 2.1, the beach requires replenishment since wave action and variable weather erodes the sand into the swim channel. The dredging of the boat channel in 1928 prevented the beach from replenishing the sand naturally. Beach nourishment treatment usually lasts about 20 years before another treatment is required. Ala Moana Beach is due for nourishment and park staff have been undertaking smaller projects to mitigate the erosion in the meantime such as removing the coral rocks from the shoreline and a sand pushing project.

Based on results from Sea Engineering's Coastal Assessment and Design Report, sand for beach nourishment could come from four different locations: Reef Runway (inner section), Diamond Head, Hilton, and Waikīkī Maintenance area. The volume of sand to nourish the beach varies from a 20- or 35-year estimated life before the shoreline returns to current conditions.

2.3.15 Playground

The immediate goals of the master plan are to address the condition of the existing facilities of the Parks before adding larger scale amenities. Plans for the playground are currently being considered with a potential sponsor. The playground is proposed between the Diamond Head concession building and the Hawaiian Pond. This area is

[23] Ibid, Weyeneth, Robert. 1987. Pg. 10

[24] Ibid, Weyeneth, Robert. 1987. Pg. 32

currently not an active area of the Park. Overall community feedback for the playground was considered positive during the scoping meetings.

2.3.16 Relocate Maintenance Base Yard

Relocation of the maintenance base yard to a more central location in the AMRP is considered, but will be a long-term project. The details of the relocation have not been designed or determined.

2.3.17 Multiuse Facility near Lawn Bowling

The Lawn Bowling facility was installed during the original establishment of the Park's recreational amenities in the late 1930s. It was another design by Harry Sims Bent. The area is tucked away behind large banyan trees and a surrounding a wall.

Like the playground, immediate plans for the multiuse facility are not imminent. Additional recreational games such as shuffle board, bocce, and Portuguese horseshoe are possible suggestions near the lawn bowling area to provide more options and to attract more park users to the area. Renovations adjacent to the site such as expanding the Keyhole parking and improvements to McCoy Pavilion could also indirectly attract more awareness to an underutilized area.

2.3.18 Relocate Ocean Safety Office

Relocation of the Ocean Safety headquarters has been discussed and brought to the attention of the landowner during the outreach meetings, but it is considered a long-term project. The details of the relocation have not been designed or determined.

2.4 SAND REPLENISHMENT ALTERNATIVES

A report documenting the source and characteristics of the sand required to nourish the beach at AMRP was prepared by Sea Engineering, Inc. (SEI). SEI identified several locations on the south shore that would be compatible for sand nourishment of AMRP. They also identified several viable options for beach nourishment as follows:

- Option 1 included widening the beach in the central area to 60 ft., measured from the beach crest to the backshore seawall to straighten the shoreline. The dry portion of the beach would increase up to 45 ft. wide and the mean sea level (MSL) would move seaward by up to 52 ft. The elevation of the dry sand beach will increase to +6 ft. MSL, which is the approximate height of the beach wall and where the beach begins. On the Diamond Head and 'Ewa areas the sand would also be placed at +6 and inshore of the MSL line and would taper to the existing beach. The foreshore slope would be 1V:6H, which matches the slope of the existing beach. The entire beach would increase to about +6 ft. MSL, which is the approximately elevation of the backshore wall crest (see

Figure 2-13). The total fill volume in Option 1 is approximately 37,600 cubic yards of sand.

- Option 2 would consist of beach nourishment to widen the beach in the central area to match the 1957 shoreline location. A review of historical images suggests that the shoreline in 1957 was the widest the beach has been. The dry beach at the central area would increase in width by up to 78 ft. MSL and move seaward by up to 85 ft. Again, the dry beach would have an elevation of approximately +6 ft. MSL and tapered into the existing beach face. The foreshore slope would also be 1V:6H, which matches the existing slope. This option would require approximately 50,600 cubic yards of sand for beach nourishment. The majority of the fill would be placed in the central and Diamond Head side of beach (see Figure 2-14).

- Option 3 has the greatest volume of sand for beach nourishment at approximately 65,700 cubic yards. This option widens the beach in both the ‘Ewa and Central areas to the 1957 shoreline location and along the Magic Island area, which is the widest the beach has been historically. Most of the sand would be placed in the central and Diamond Head areas. The dry beach in the central area would be about 78 ft. wide from the beach wall and +6 ft. MSL with a slope of 1V:6H. On the Diamond Head side of the beach would be nourished above the MSL contour and extend to the Magic Island seawall (see Figure 2-15).

In addition to the Options described above, a 77,000-sq. ft. footprint could be added on the Diamond Head side of the beach to provide for future sand pushing that may be required for the central beach area. Approximately 2,200 cubic yards of sand could be placed over the 77,000-sq. ft. area which would increase the height from +6 ft. MSL to approximately 7 ft. MSL for a 1-ft. increase in elevation (see Figure 2-16). If more “reserve” sand is needed another 2,200 cubic yards could be added to increase the elevation to approximately 8 ft. Erosion is expected to continue with sea level rise, so this could be an option to consider, since the erosion rate of 2.4 ft. per year has occurred

It is anticipated that Option 1 would take approximately 20 years before it returns to the current condition. Nourishment from Options 2 and 3 could take approximately 35 years before the shoreline erodes to current conditions. However, storm impacts from hurricanes or Kona storms could result in a more rapid erosion of the shoreline. The State forecast for sea level rise could be as much as 3.2 ft. by the year 2100. In order to maintain the usability of the beach, regular maintenance is recommended. A reserve of sand on the Diamond Head end of the Park could be used in a similar manner as the 2016 sand pushing project.

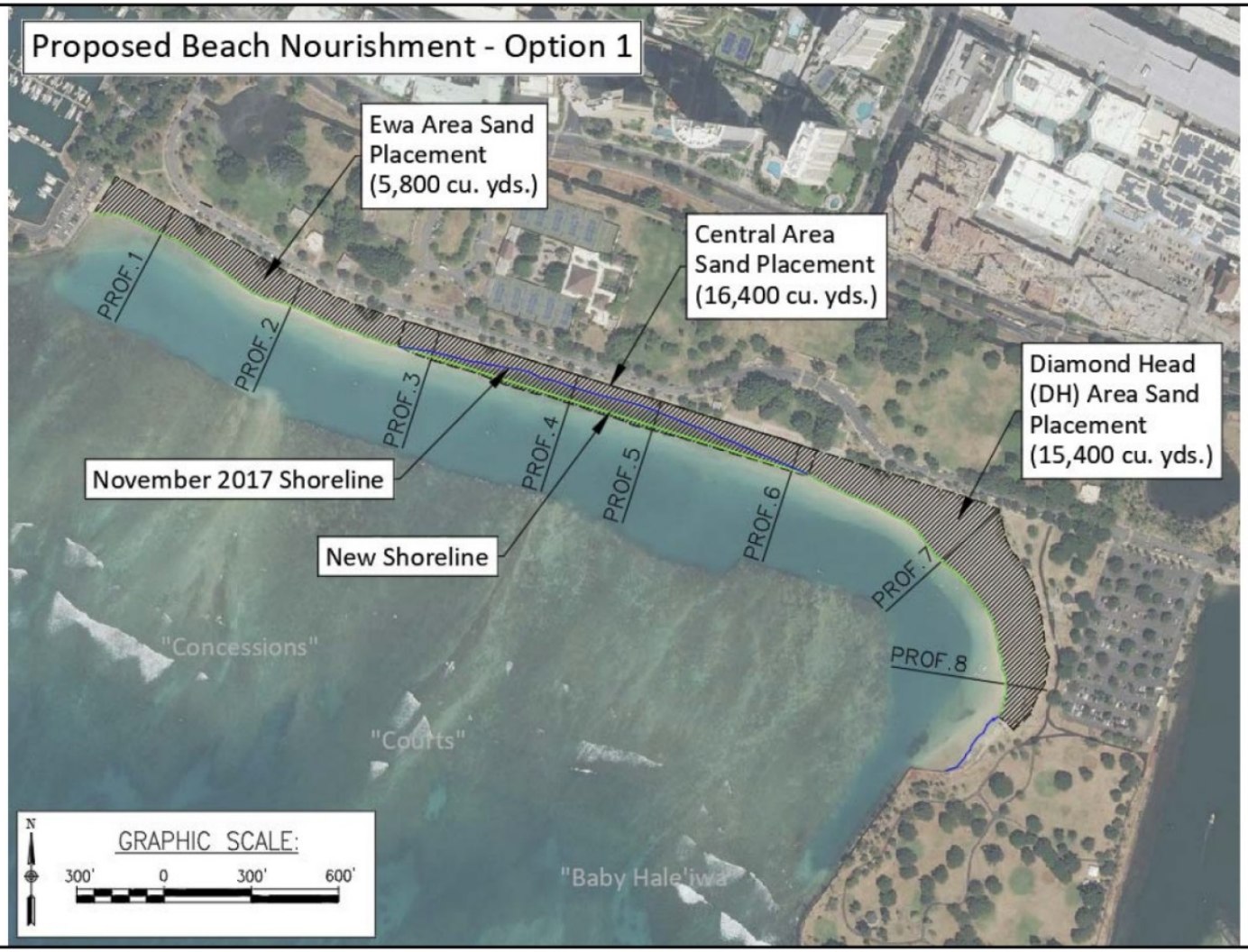

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Figure 2-13
PROPOSED BEACH NOURISHMENT–OPTION 1
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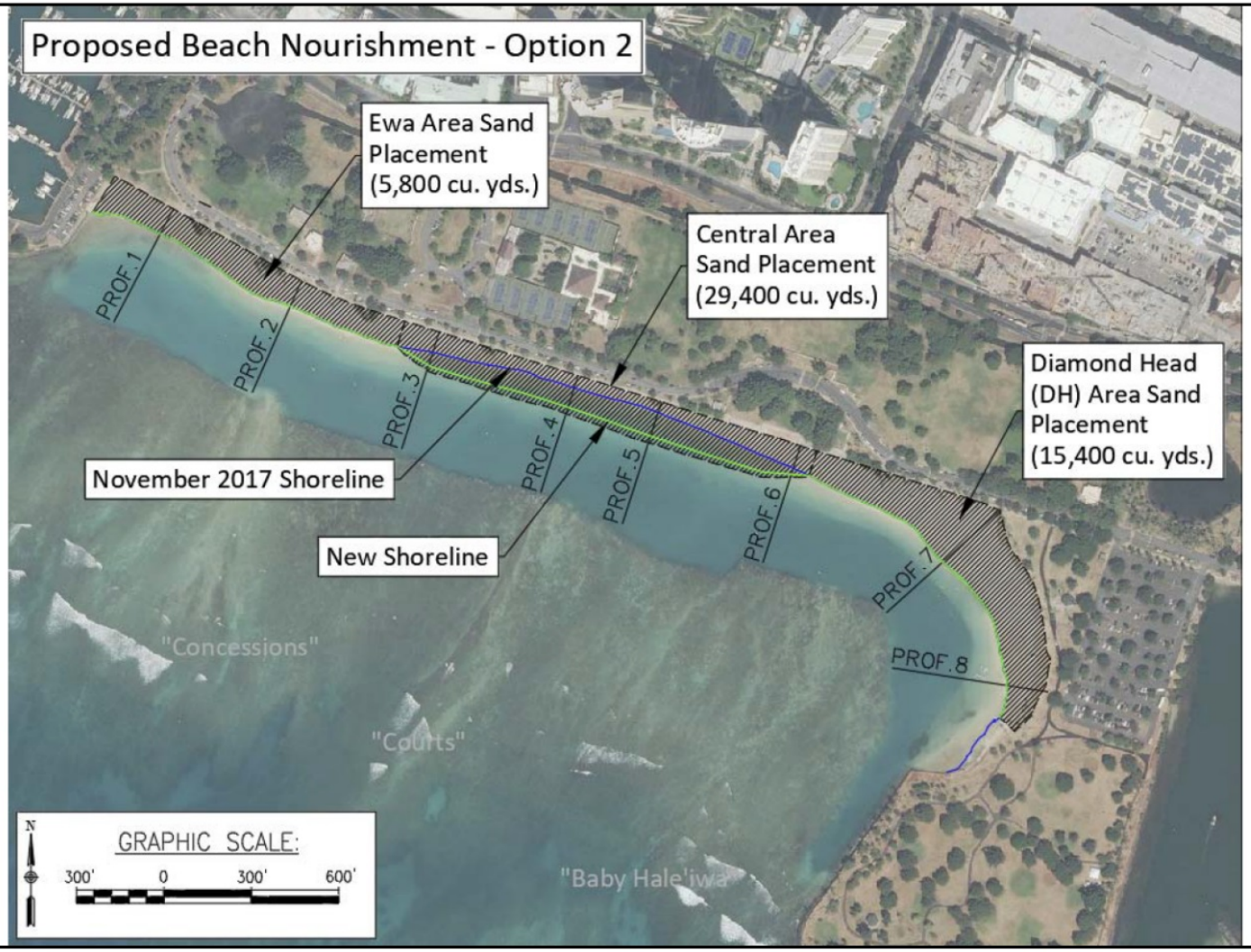

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Figure 2-14
PROPOSED BEACH NOURISHMENT–OPTION 2
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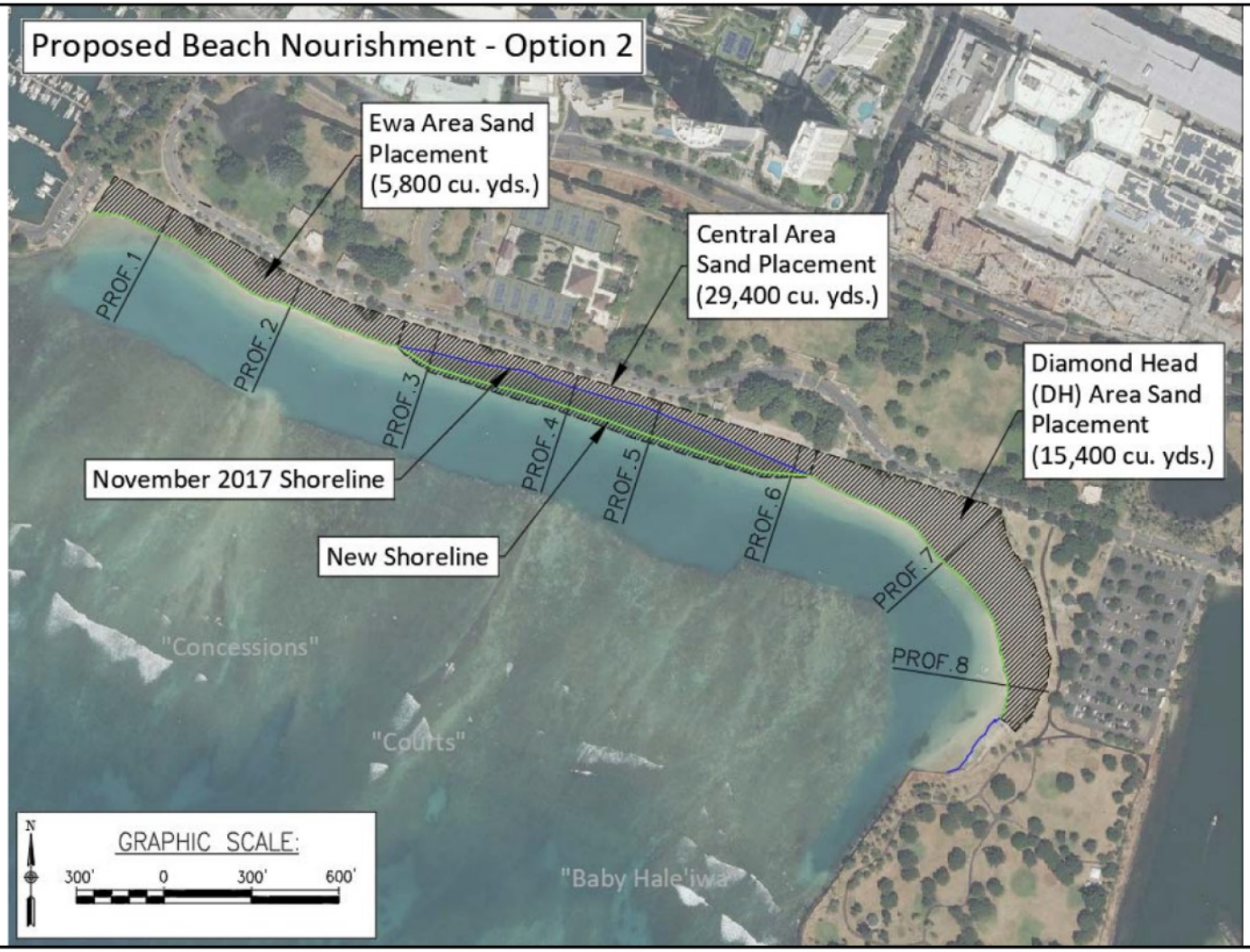

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Sea Engineering, Inc.

Figure 2-15
PROPOSED BEACH NOURISHMENT–OPTION 3
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Sea Engineering, Inc.

Figure 2-16
PROPOSED BEACH NOURISHMENT–BERM ENHANCEMENT
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2.4.1 Construction Activities

There are several methods for recovering the sand from offshore locations. The sand could be pumped to the shore or dredged using a clamshell excavator and loading the sand onto a barge. Each location or recovery method have different regulatory requirements that also need be considered before a location is selected. The following methods could be used to recover the sand:

- Clamshell Dredging – This recovery method will use an excavator that has a clamshell bucket. There are various sizes ranging from one cubic yard to 20 cubic yards. The bucket could also be sealed or open. The sealed bucket would create less turbidity in the ocean, but will contain a lot of water that would need to be disposed of properly. The clamshell bucket would lift the sand out of the water and dispense the sand onto a waiting barge, such as a hopper barge. Once the barge reaches capacity, the barge will go to a dock to offload the sand where it would be transported by truck to the AMRP beach. Alternatively, the barge could be taken offshore, closer to the site, then utilizing a hydraulic or slurry pump deposit the sand directly onto the beach.

- Submersible Slurry Pump – This method lowers the pumps to just above the sand bottom via hydraulic or electric pumps. The barge will require a minimum four-point mooring array to stabilize the barge. A booster pump may also be required depending on the distance to the shoreline. One of the benefits of the submersible pump is the ability to reach into tight spaces. However, this method is very labor intensive and dewatering the sand is also an issue. Given the distant locations of the available sand that could be recovered, pumping the sand to AMRP will not be feasible.

2.5 PRELIMINARY SCHEDULE

Table 2-4 below shows a list of projects that are considered for construction in the short-term and long-term future. Short-term projects could be approved for bidding as soon as the 4th quarter of 2019.

Table 2-4: Preliminary Project Schedule

Short-Term Projects (2-5 Years)	Long-Term Projects (5-10 Years)
Pi'ikoi Street and Queen Street pedestrian entrance expansions	Sand replenishment and Beach Nourishment
Shared-use path improvements along the makai side of Ala Moana Park Drive	Build a playground
Shared-use path improvements along the Ala Wai Small Boat Harbor	Relocate Maintenance Base Yard
Improve the existing canoe launch ramp and crossing from the Canoe Hālau	Relocate Ocean Safety Headquarters
Reconfigure parking on Ala Moana Park Drive and all parking lots	Multiuse Facility near Lawn Bowling
Improve the pond edges and paths	
Renovate McCoy Pavilion and the Banyan courtyard	
Improve "high spot" terrace for ADA access, repair pergola, and widen the shared-use paths on both sides	
Repair drainage canal walls, Repair Bridle Bridge, Repair Roosevelt Portals	
Add a dog park near Kewalo Basin	

2.6 PRELIMINARY COST ESTIMATES

The proposed improvements will be paid for by the City's capital improvement project funds. The estimated construction costs for the project is approximately $144M in 2016 dollars.

2.7 ALTERNATIVES ANALYSIS

The process used to determine the reasonable range of alternatives evaluated in this EIS, described in Section 2.1 and 2.2 was based on screening the alternatives with the project's purpose, need, and objectives. Environmental issues and community concerns were also considered. The Proposed Action and Sand Replenishment Alternative met the purpose, need, and objectives, as stated in Chapter 1. The alternatives that were screened out and not further considered for evaluation in this EIS include: the no action, the restore, and the evolve alternative.

2.7.1 No Action Alternative

Under this alternative, neither the Proposed Action nor the Sand Replenishment Alternative would occur. The City would continue to perform routine maintenance to the parks' grounds and facilities. The project area would continue to operate with existing facilities at their existing locations. Future increases in vehicular and foot traffic volume from population growth would create stress on facilities, grounds, and

infrastructure. This intensified use could cause delays for parking spaces and prolonged closure of the parks' amenities. A modest increase in routine maintenance may be possible, but not sufficient to meet future needs.

Environmentally, no improvement of the project area would result in no changes to the Parks' physical and biological conditions and to the nearby waters. Existing land uses on the property would continue to operate as they do today.

Under the No Action Alternative, population growth and demand for recreational space would not change. Hence, evaluation of the No Action Alternative would involve considering the effects of trying to meet anticipated demands without the Proposed Action. Proceeding with the no action alternative would not meet the purpose and need for the project.

2.7.2 Alternative: Restore

The restore alternative was intended to maintain the Parks with a more aggressive approach to bring the Parks quickly up to standards by proposing repairs to the grounds and facilities. As mentioned in Section 2.1, the Mayor announced a proposal for a "9-Point Community Action Plan" over the next three years. Table 2-1lists the nine points and the current progress of those actions. Some of the minor improvements listed in the plan have been completed, or are currently under construction.

The major improvements proposed in the master plan restore alternative are a remediation program for the beach erosion, parking management, drainage canal restoration, widening the pedestrian promenades within the Parks, and public accessibility to McCoy Pavilion.

The restore alternative is intended to improve the existing conditions without any additional facilities or changes. The repairs to the grounds and facilities will meet short-terms needs, but may not sustain the longevity of the Parks and ensure its preservation. For these reasons, the restore alternative was not considered further.

2.7.3 Alternative: Enhance

The enhance alternative includes all proposed improvements in the restore alternative with some changes to the existing conditions. This is the preferred alternative that was selected and the projects are identified in Section 2.3.

2.7.4 Alternative: Evolve

The evolve alternative includes all proposed improvements in the restore and enhance alternatives and also conceptualizes a large-scale modernization of the Parks' facilities. These additional improvements included:

- A large elevated curving promenade with steps and platforms down to the water's edge on the Ala Wai Boat Harbor side of Magic Island.
- Modern sunbathing seating along the wall that separates the beach from the Ala Moana Park Drive.
- A multi-story parking structure where the outer shell would be designed to camouflage the concrete walls
- Decks and viewing areas over the ponds with access to the pond edge in some areas and wetland vegetation in other areas.
- Relocating the Canoe Hālau to Magic Island near the canoe launch ramp.
- Placing modern art features throughout the park.

These grandiose improvements were viewed as impacting the historic nature of the existing Parks. The art deco character of the Bridle Path Bridge, the Roosevelt portals and coral walls would not blend well with the modernized park features described above. Modernization of the Parks could attract more visitors and would not preserve the Parks' existing character. The community has expressed strong opinions to have the Parks remain as a local recreational resource. For these reasons, the evolve alternative was not considered further.

CHAPTER 3

Built Environment

CHAPTER 3
BUILT ENVIRONMENT

Chapters 3 and 4 describe the affected environment (existing/baseline conditions) at the Ala Moana Regional Park and Magic Island,[1] disclose any impacts of the Proposed Action, and propose mitigation measures if needed. Chapter 3 addresses resources/issues in the built environment (listed below), while Chapter 4 addresses issues/resources in the natural environment. The built environment includes:

- Land Use
- Land Ownership
- Public Health and Safety
- Noise
- Circulation, Traffic, and Parking
- Infrastructure
- Public Services and Facilities
- Visual and Aesthetic Resources
- Recreation
- Socio-Economic Setting

3.1 LAND USE

This section describes existing land uses at the AMRP and Magic Island as well as in the surrounding areas, and then analyzes the project's land use compatibility with those areas. The extent of the impact is first determined by whether the proposed activities are allowable within the designated State land use district or City zoning district. The analysis then determines the proximity of the proposed activities to other land uses in the immediate vicinity.

[1] For purposes of this EIS, identification of existing conditions establishes the baseline in the environment from which changes in the affected area caused by the Proposed Action are measured.

3.1.1 Existing Land Use

The AMRP and Magic Island are owned and managed by the City's Parks and Recreation Department (DPR). The Parks lie on the southeast side of the island on Oʻahu and along Ala Moana Boulevard, a major thoroughfare into Waikīkī. The Parks are public recreational parks used for various outdoor and community purposes. The two Parks combined are equipped with six comfort stations, showers, a bowling lawn, ten tennis courts, exercise apparatus area, ocean safety services and headquarters, canoe storage, beach access, two concessions, pedestrian pathways, and free parking. See Figure 3-1a and Figure 3-1b for examples of the amenities at the Parks and their locations. Park users can use the open spaces on the lawn for parties, gatherings and other activities allowed by permits. The beach area of the AMRP is available for sunbathing and water activities. The Parks also hosts annual events like the Fourth of July fireworks show, the Lantern Floating Festival, and Dragon Boat Racing. An overall existing land use map is shown in Figure 3-2.

The entire project area is within the Urban State Land Use District (Figure 3-3) and the City P-2, General Preservation District zone (Figure 3-4). The intent of P-2 "…is to preserve and manage major open space and recreation lands and lands of scenic and other natural resource value. It is also the intent that lands designated urban by the state, but well-suited to the functions of providing visual relief and contrast to the city's built environment or serving as outdoor space for the public's use and enjoyment be zoned P-2 general preservation district. Areas unsuitable for other uses because of topographical considerations related to public health, safety and welfare concerns shall also be placed in this district."[2] Permitted structures allowed for development in a P-2 zone are listed in Table 21-3, Master Use Table of the Land Use Ordinance, Chapter 21 Article 3, Establishment of Zoning Districts and Zoning District Regulations.

The project would need to conform with the development standards of the P-2 zone or the developer would need to seek a permit or waiver from the City's Department of Planning and Permitting (DPP). The development standard for the P-2 zone is[3]:

(1) Height. The maximum height may be increased from 15 to 25 feet if height setbacks are provided.

(2) Height Setbacks. Any portion of a structure exceeding 15 feet shall be set back from every side and rear buildable area boundary line one foot for each two feet of additional height above 15 feet.

[2] Land Use Ordinance [LUO]. Sec. 21-3.40 Preservation districts--Purpose and intent.

[3] Ibid. Sec. 21-3.40-1 Preservation uses and development standards.

BELT COLLINS
NORTH
0 150 300 600
SCALE IN FEET

Figure 3-1a
PARK AMENITIES PICTURES WITH MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

BELT COLLINS
NORTH
0 150 300 600
SCALE IN FEET

Figure 3-1b
PARK AMENITIES PICTURES WITH MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

BELT COLLINS

NORTH

0 150 300 600
SCALE IN FEET

Figure 3-2
EXISTING LAND USE MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

1

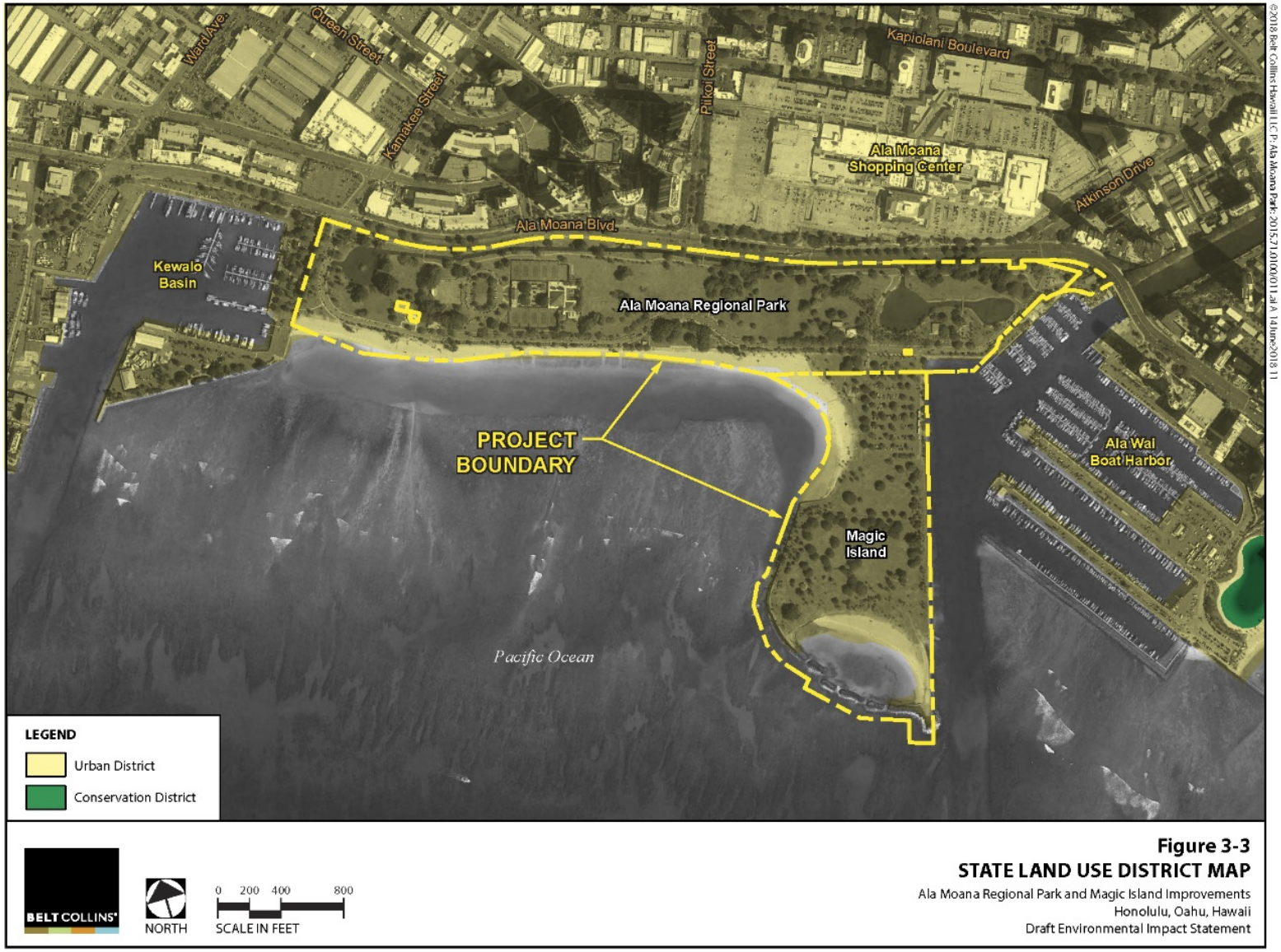

Figure 3-3
STATE LAND USE DISTRICT MAP
Ala Moana Regional Park and Magic Island Improvements
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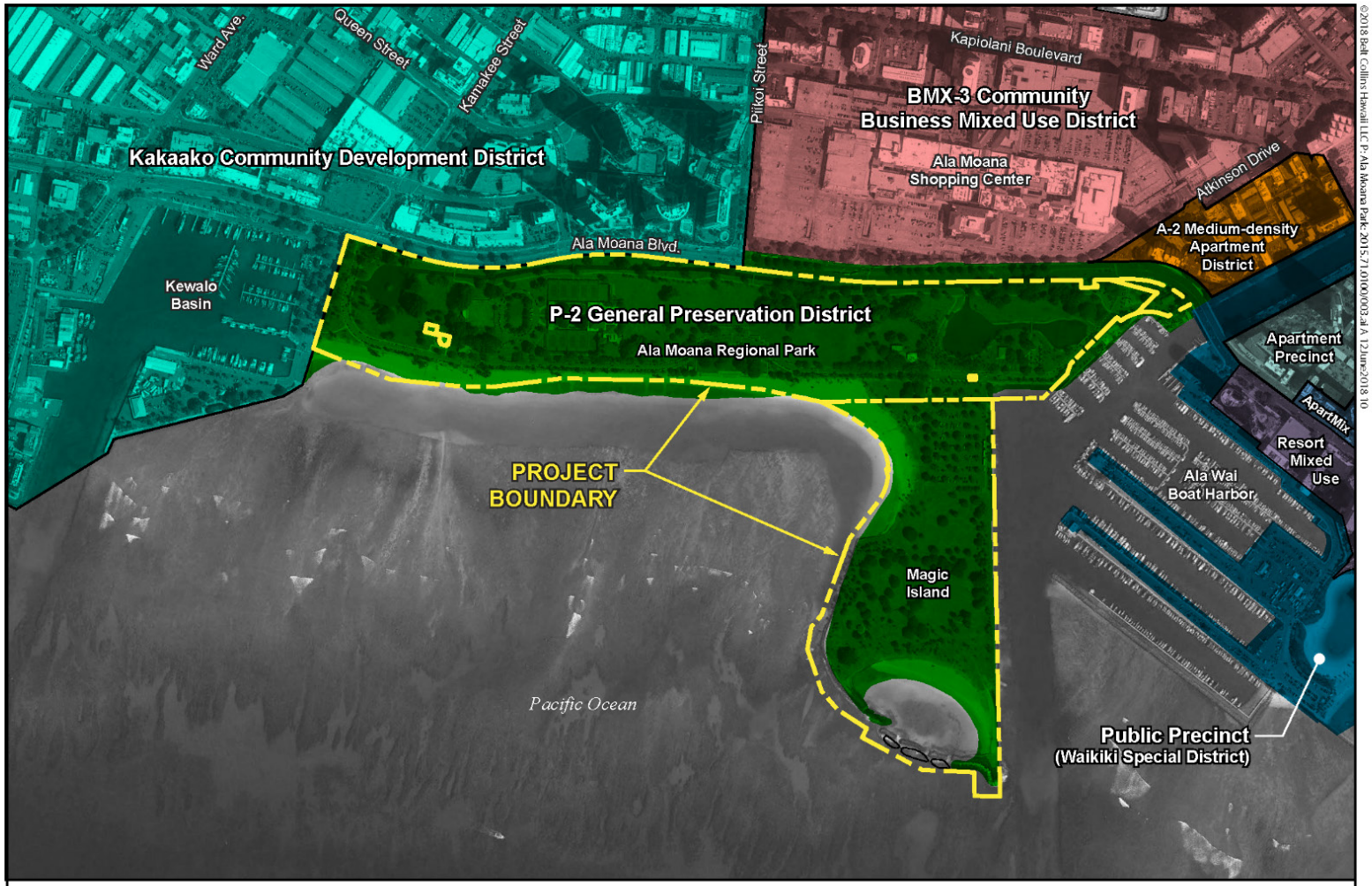

BELT COLLINS

NORTH

0 200 400 800
SCALE IN FEET

Figure 3-4
ZONING MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

3.1.2 Surrounding Land Uses

Land uses surrounding the project area include: The Ala Moana Shopping Center, Ward Centre, high-rise residential condominiums, rental apartments, and single-family dwellings to the north; Kewalo Basin to the west; Ala Wai Canal to the northeast; Ala Wai Boat Harbor and Waikīkī to the east; and the Pacific Ocean to the south.

The main residential areas surrounding the project area are Waikīkī, Kakaʻako, and, Ala Moana neighborhoods. Waikīkī includes residential condominiums and apartment buildings, hotels, transient residences, visitor-oriented commercial establishments, and recreational and public facilities. The Waikīkī areas surrounding the project area are zoned as A-2, Medium-Density Apartment District, Apartment Precinct, Apartment Mix, Resort Mixed Use, and the Waikīkī Special District (Figure 3-5). Waikīkī serves primarily as a visitor destination in Hawaiʻi bringing in millions of visitors each year. According to the DBEDT 2016 Hawaiʻi State Data Book, Waikīkī has a residential population of 20,095 in 2010.[4] However, the de facto[5] population increased to 96, 859[6] when including visitors.

The Ala Moana/Kakaʻako areas surrounding the project area are zoned as BMX-3, Community Business Mixed Use District and the Kakaʻako Community Development District (Figure 3-6). Within the BMX-3 zone are the Ala Moana Shopping Center, commercial establishments, residential condominiums, and apartment buildings. Ala Moana Boulevard serves as a major thoroughfare through Kakaʻako, Ala Moana, and is one of the main access roads to Waikīkī. Residential space is growing rapidly in this area with the residential addition to the Ala Moana Shopping Center and residential developments on the Howard Hughes Ward Villages properties. Further west along Ala Moana Boulevard and within Kakaʻako more residential developments on the Kamehameha School properties will replace most of the commercial establishments. The resident population of the Kakaʻako/Ala Moana area in 2010 was 19,014.[7]This number is expected to increase gradually over the next ten years.

The Ala Wai Boat Harbor is approximately 120 acres and identified as TMK 2-3-37:12. It borders the project area on the east. The State Department of Transportation (DOT) Harbors Division has ownership of the harbor. The harbor is known as one of the four main docking facilities in Honolulu. It is used primarily for small recreational vessels and the largest of its kind in the State. The harbor includes both privately-owned yacht

[4] State Department of Business, Economic Development and Tourism [DBEDT]. *2016 Hawaiʻi State Data Book,* Table 1.15. Posted at http://files.hawaii.gov/dbedt/economic/databook/2016-individual/01/011516.pdf.

[5] The de facto population is defined as the number of persons physically present in an area, regardless of military status or usual place of residence. It includes visitors present but excludes residents temporarily absent, both calculated as an average daily census.

[6] Ibid. State Department of Business, Economic Development and Tourism [DBEDT]. 2015 Hawaiʻi State Data Book, Table 1.20.

[7] Ibid. State Department of Business, Economic Development and Tourism [DBEDT]. *2015 Hawaiʻi State Data Book,* Table 1.15.

clubs like the Waikīkī Yacht Club and the Hawai'i Yacht Club, and public mooring facilities operated by the State. The total capacity of the harbor is about 1,000 vessels.

Kewalo Basin is located to the west of the project area. It is a commercial and recreational boat harbor that was first developed in the 1920s and later expanded in the 1950s. It is approximately 35 acres and identified by TMK: 2-1-058-132. The State Hawai'i Community Development Authority (HCDA) has had jurisdiction and management of Kewalo Basin since 2009. Total capacity of the harbor is 143 vessels; however, it should be noted that the slips vary in size due to the harbor's commercial and recreational uses. Tenants at the harbor are a mix of charter tour vessels, commercial fishing vessels, research vessels, and private vessels.

3.1.2.1 *Airport*

The Office of Planning provided an advisory (TAM – 2016-1, Issued 08-01-2016)[8] that examines FAA Order 5190.6B[2] and its potential impact to land use near the airports. The project area is approximately 3.75 miles from a proposed runway extension at the Daniel K. Inouye Airport. Per the advisory memorandum, for any project within five miles from an airport, the Contractor hired by the City would need to be aware of the advisory and apply the subsequent responsibilities. Specifically, the State DOT[9] outlined the following as possible precautions:

- 2-1. General. The wildlife attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. Other hazards that attract wildlife include glint/glare hazards, certain street and property lighting designs, and aerial obstruction hazards, all of which threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to Wildlife Hazard Management at Airports, Glint/Glare, and Obstruction guidance materials prepared by the FAA.

- 4-3. Other Land-Use Practice Changes. As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports, to include glint/glare hazards and aerial obstructions to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the

[8] State of Hawaii. Office of Planning. August 01, 2016. State of Hawai'i Office of Planning Technical Assistance Memorandum (TAM-2016-1). http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf

[9] Letter from Jade Butay (State Department of Transportation, Interim Director of Transportation) to Joanne Hiramatsu (Belt Collins Hawaii, Director of Planning) responding to the Ala Moana Regional Park and Magic Island Improvements EISPN notice. January 31, 2018.

airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

Land use practices that may attract hazardous wildlife, and may also be a glint/glare hazard or an aerial obstruction hazard to existing flight paths include, but are not limited to:

- Underwater waste discharges
- Aquaculture activities conducted outside of fully enclosed buildings
- Water features on properties such as fountains or ponds, areas of permanent or temporary standing water, and furrow irrigation and drainage systems
- Landfills and material recycling/processing facilities
- Photovoltaic/Solar panels
- Utility poles and lines
- Wind turbines
- Antenna towers
- High rise building structures
- Cranes
- Tethered Air Balloon Devices
- Street and exterior property lights
- Certain landscape, trees, and ground cover

- The project area is also located within the 55-65 Day-Night Average Night Sound Level noise contours on the 2008 Noise Exposure Map. The City and park users should be aware of the Parks' proximity to the airport and any potential noise impacts from airport operations.

BELT COLLINS

NORTH

0 500 1000 1500
SCALE IN FEET

Figure 3-5
WAIKIKI SPECIAL DISTRICT
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
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BELT COLLINS

NORTH

0 300 600 1200
SCALE IN FEET

Figure 3-6
KAKA'AKO COMMUNITY DEVELOPMENT DISTRICT
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

3.1.3 Potential Impacts and Mitigation Measures

Improvements to the project area would not change current land uses in the project area. The proposed actions are designed to serve and improve the existing land uses. An effect will be a temporary restriction to certain sections of the Parks during construction. For example, the City shutdown the immediate sections surrounding the work site during the irrigation system upgrade project of the Great Lawn. The majority of the Park remained open to the public.

In the short term, temporary project impacts are expected during the project's construction phase. Full use of the affected properties may be temporarily hindered by site preparation, trenching, stockpiling, utility installation, backfilling, site cleaning, and restoration. Construction work in existing parking lots and roadways will experience temporary traffic delays from possible lane closures, rerouting, and parking prohibitions.

To mitigate these potential impacts, the contractor will be responsible for following the City's approved construction management plan and traffic control plan (TCP) as prepared for the individual projects as they are implemented. The contractor will likely perform work during routine work hours, which generally off-peak traffic hours for the Parks. See Section 3.8.2 of this chapter for detailed mitigation measures. Project scheduling and public notification for sections of the Parks closed to the public during construction could help minimize impacts to park usage. The City has been using multiple media outlets to announce updates on the project and its upcoming schedule.

In regards to the airport, the Contractor/City is required to notify the FAA if the following is proposed:[10]

(a) Any construction or alteration that is more than 200 ft. above ground level (AGL) at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

[10] Ibid. State of Hawaii. Office of Planning. August 01, 2016.

3.2 PUBLIC HEALTH AND SAFETY

3.2.1 Flood Hazards

Land areas affected by surface flooding are identified on the Federal Insurance Rate Maps (FIRMs) prepared by the Federal Emergency Management Agency (FEMA). The maps, based on flood studies, identify flood hazard areas and flood elevations (Figure 3-7).

The majority of the AMRP and the mauka portion of Magic Island are in Flood Zone AE, which is within the 1 percent annual chance of flood and where the base flood elevations of 6 to 10 feet have been determined. The makai portions of Magic Island are within Flood Zone X, which is within the 0.2 percent annual chance of flood and where it is at a moderate risk of flooding.

1

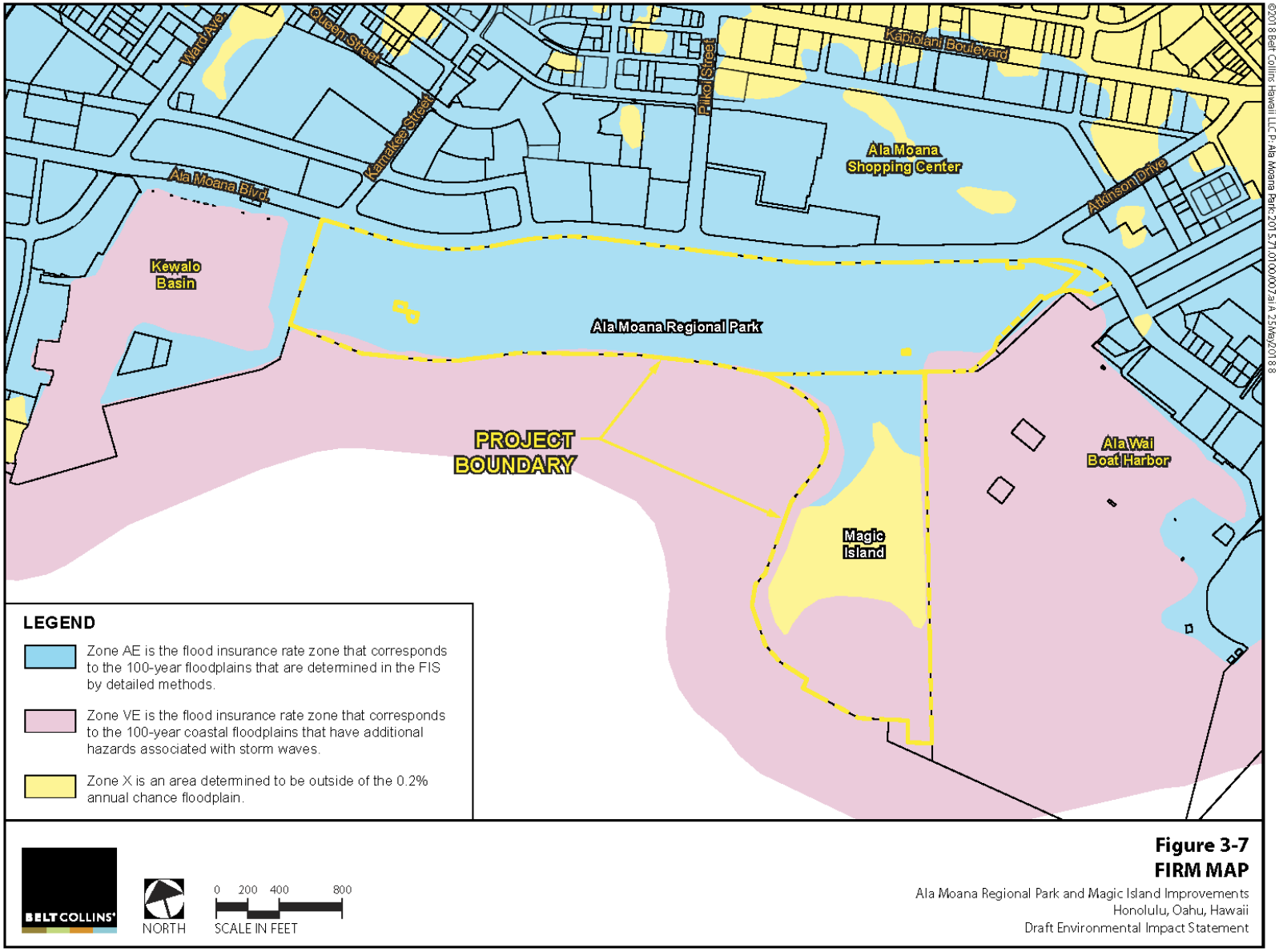

Figure 3-7
FIRM MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

The shoreline of the AMRP and the Magic Island Lagoon are within Zone VE (El 10). These areas are within the 1 percent annual chance of flood and is susceptible to wave action. The base flood elevation for this Zone VE has been determined to be 10 feet.

3.2.2 Tsunami Evacuation Zone

Tsunamis are caused by displacement of large volumes of ocean water, typically caused by underwater earthquakes and landslides. The downward pull of gravity on the displaced water initiates the tsunami. Hawai‘i is at risk from tsunamis caused by both distant ("teleseismic") and local sources. In either case, a large, shallow earthquake originating beneath the ocean floor has the potential to generate a tsunami, as described by the NOAA Pacific Tsunami Warning Center:

- Tsunamis from Distant Sources: Most tsunamis that affect Hawai‘i originate from seismically active areas around the Pacific. Tectonic subduction zones such as Alaska's Aleutian Island chain and the west coast of South America, generate most of the world's tsunamigenic earthquakes. Seismic activity in Alaska allows for approximately four hours of tsunami warning in Hawai’i as the dispersed water travels in sets of waves across the Pacific Ocean, while seismic activity in Chile allows for approximately 10 hours warning. Distant tsunamis with run ups exceeding three meters in Hawai‘i have occurred in 1868 (Chile), 1877 (Chile), 1896 (Japan), 1906 (Chile), 1923 (Kamchatka), 1933 (Japan), 1946 (Aleutians), 1952 (Kamchatka), 1957 (Aleutians), 1960 (Chile), 1964 (Alaska).

- Tsunamis from Local Sources: Because Hawai‘i is seismically active, a shallow undersea earthquake can generate a local tsunami. While destructive local tsunamis are less frequent, the proximity to land leaves little time for evacuation warnings. For example, a tsunami generated from the seismically active southeast coast of Hawai’i Island only take about 30-40 minutes to reach O’ahu. Local tsunamis with run ups exceeding three meters have occurred in 1868 (Ka`u) and 1975 (Kalapana).

The Tsunami Evacuation Zone Map was prepared for the City by the Department of Emergency Management (DEM). This map was last updated in April 2015. The project area can be found on map number 19 from the DEM website. Given the project’s proximity to the coastline, the project area is located in the Tsunami Evacuation Zone (Figure 3-8).[11] The Tsunami Evacuation Zone calls for evacuation in the event of any tsunami warning. The DEM website suggests a minimum distance of 2,000 feet inland from the shoreline is the safe zone.

[11] City and County of Honolulu, Department of Emergency Management. Tsunami Evacuation Zones. Updated April 2015, http://www.honolulu.gov/rep/site/dem/dem_docs/tsunami_evac/etez_final/Waikiki_map_1_waikiki.pdf

1

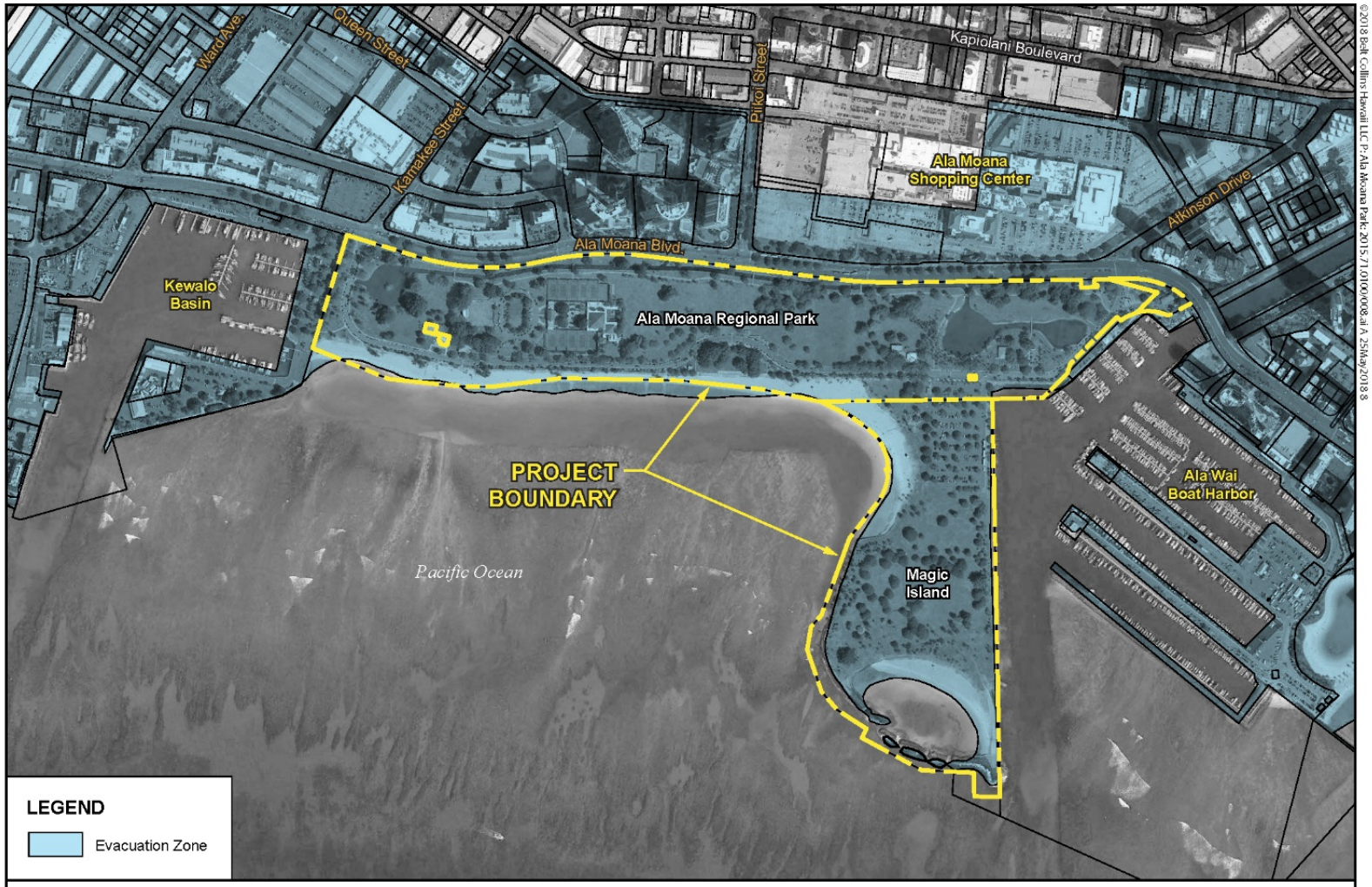

Figure 3-8
TSUNAMI EVACUATION ZONE MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

3.2.3 Climate Change / Sea Level Rise

The state of Hawaiʻi has taken a leading role in climate change mitigation. Act 234. (Session Laws of Hawaiʻi 2007) requires that statewide emissions be reduced to levels at or below 1990 levels by January 1, 2020. It recognized that, "climate change poses a serious threat to economic well-being, public health, natural resources, and the environment."[12] It further identifies major industries in Hawaiʻi vulnerable to climate change impact such as tourism and recreation. The AMRP is a part of the tourism and recreation industry. Additionally, the AMRP is adjacent to the shoreline and thus directly impacted by coastal hazards related to climate change such as sea level rise, coastal erosion, and high storm surge.

The National Oceanic and Atmospheric Administration's (NOAA) online sea level rise mapping tool uses nationally consistent data sets and analyses to provide a preliminary look at sea level rise and coastal flooding impacts. Key implications for the Parks include beach erosion and flooding from the ponds and drainage canal. With sea level rise, storm surge along Hawaiʻi's coasts will reach farther inland than it does today. Figure 3-9 shows conditions of the Parks at the current Mean Higher High Water (MHHW) mark. The low-lying areas that may flood during current MHHW are the Japanese Pond, Hawaiian Pond, and the drainage canal. Figure 3-10**,** shows coastal flooding potential with a plus-six-foot MHHW mark. Under this scenario, flooding is predicted to occur within the entire AMRP and the Magic Island parking lot. Kalākaua Avenue and Kapiʻolani Boulevard above the Parks also have the potential for flooding at a plus six-foot MHHW.

In 2012, Act 286 amended the Hawaiʻi State Planning Act, Chapter 226, by adding climate change adaptation priority guidelines, 10 total, to part III; creating Chapter 226-109. The AMRP project area is a man-made development; the park land and beach were both created from swamp and shallow coral bed. All proposed project activities are to be implemented in a sustainable way to minimize contributions to climate change.

[12] State of Hawaiʻi, Office of Planning. Adapting to Climate Change. Copyright 2018. http://planning.hawaii.gov/czm/initiatives/adapting-to-climate-change-2/

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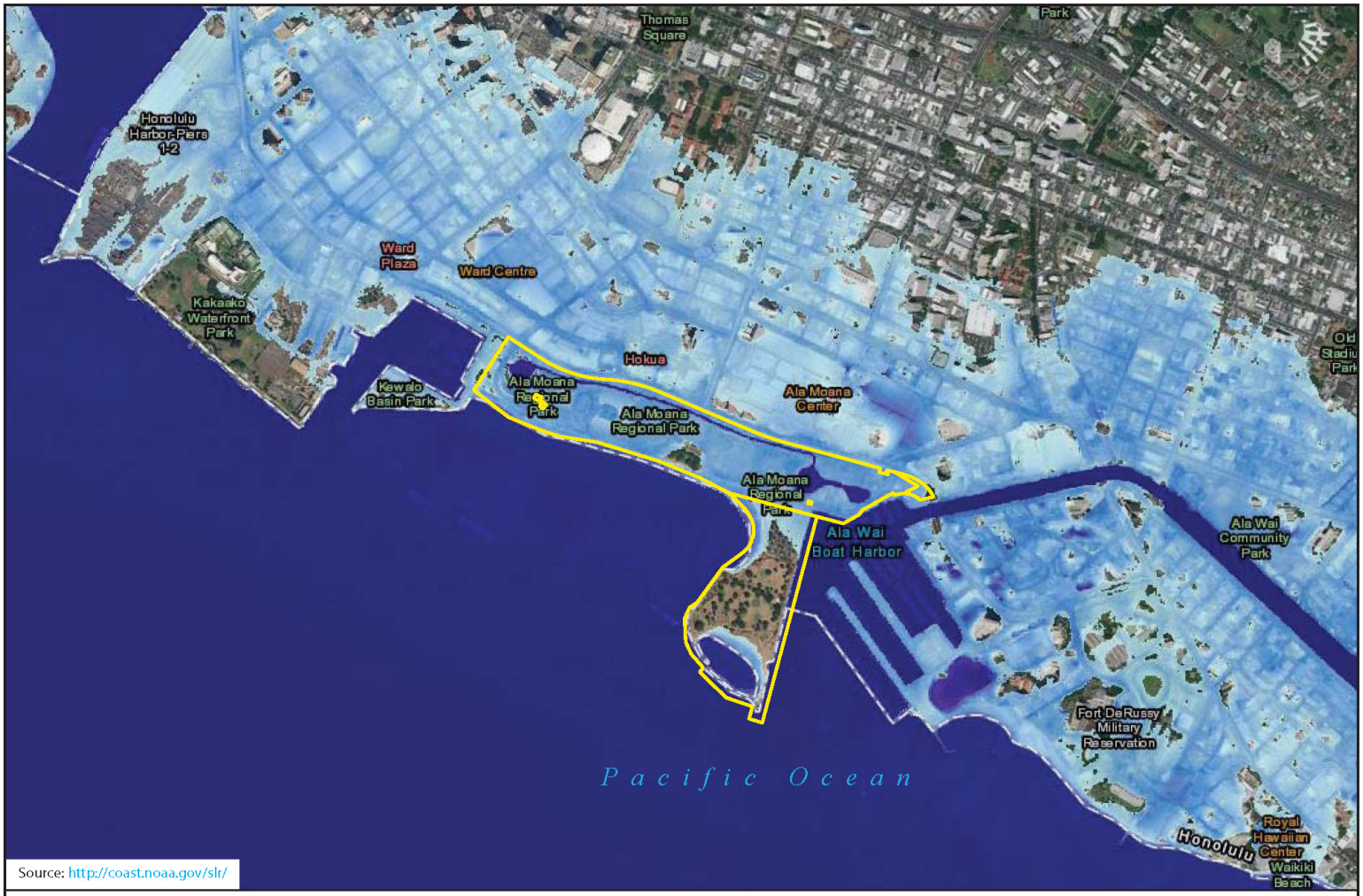
BELT COLLINS

NORTH

0 500 1000 1500
SCALE IN FEET

LEGEND
Project Area
Low-lying Area

Figure 3-9
CURRENT MEAN HIGH WATER MARK
Kalākaua Avenue Water System Improvements
Honolulu, O'ahu, Hawai'i
Environmental Assessment



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BELT COLLINS

NORTH

0 500 1000 1500
SCALE IN FEET

LEGEND
Project Area
Low-lying Area

Figure 3-10
6 FT ABOVE CURRENT MEAN HIGH WATER MARK
Kalākaua Avenue Water System Improvements
Honolulu, O'ahu, Hawai'i
Environmental Assessment

3.2.4 Earthquakes

In Hawai'i, earthquakes tend to be concentrated in volcanically active areas, primarily around the island of Hawai'i. On O'ahu, the occurrence of earthquakes is generally related to tectonic activity along seafloor fractures and faults, such as the Diamond Head Fault, which extends along the seafloor northeast of O'ahu.[13] Several earthquakes ranging in magnitude from 4.0 to 5.0 have been historically documented along the Diamond Head Fault.[14] While the seismic risk on O'ahu is relatively low compared to more volcanically active areas, the sedimentary layer that underlies Honolulu, particularly along the shoreline, is more prone to heightened ground motion than adjacent areas of bedrock.[15]

In 1997, the Uniform Building Code (UBC) seismic risk ranking for O'ahu was upgraded from 1 to 2A, indicating a higher risk of seismicity than previously thought.[16] UBC's seismic provisions contain six seismic zones, ranging from 0 to 4. Zone 0 has no chance of severe ground shaking, while zone 4 has a 10 percent chance of severe shaking in a 50-year interval. Ground shaking is quantified in terms of g-force, the earth's gravitational acceleration.

3.2.5 Hurricanes

Hurricane season in Hawai'i typically begins in June and lasts through November. Storms can originate in the Central Pacific and the Eastern Pacific near the coasts of southern Mexico and Central America. Some hurricanes arrive near the Hawaiian Islands region but most weaken to tropical storms. They take a northwesterly path over cooler waters and less favorable atmospheric conditions.

Hurricane winds are measured by the Saffir-Simpson Hurricane Wind Scale. Hurricanes for Hawai'i are measured from a 1 to 5 categorization based on their intensity. The scale does not address the potential for such other hurricane-related impacts as coastal inundation, waves, and storm surge, rainfall-induced floods, and tornadoes. The wind-caused impacts are to apply to the worst winds reaching the coast and the damage would be less elsewhere. Hurricane wind damage is also dependent upon such other factors as duration of high winds, change of wind direction, amount of accompanying rainfall, and age and strength of structures.[17] Recent hurricanes that impacted the Hawaiian Islands were Hurricane Iwa in 1982

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[13] Furumoto, A.S., E. Herrero-Bevera and W.M. Adams. 1990. *Earthquake risk and hazard potential of the Hawaiian Islands*. Hawai'i Institute of Geophysics.

[14] Fletcher, C.H., E.E. Grossman, Richmond, B.M., and A.E. Gibbs. 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. U.S. Geological Survey. Prepared in cooperation with University of Hawai'i, State of Hawai'i Office of Planning, and National Oceanic and Atmospheric Administration (NOAA).

[15] Ibid. Furumoto, A.S., E. Herrero-Bevera and W.M. Adams. 1990.

[16] U.S. Geological Survey (USGS) Hawaiian Volcano Observatory. *Hazards in Hawai'i*. http://hvo.wr.usgs.gov/earthquakes/hazards. Accessed March 4, 2016.

[17] US National Oceanic and Atmospheric Administration. 2017. Central Pacific Hurricane Center, Saffir-Simpson Hurricane Wind Scale. http://www.prh.noaa.gov/cphc/pages/aboutsshs.php

and Hurricane Iniki in 1992. Hurricane Iwa was a Category 1 storm (sustained winds 74-95 mph). Kauai had the most wave action damage along the south shore. The Waiʻanae coast, parts of central Oʻahu, and windward Oʻahu had the most wind damage. Hurricane Iniki was a Category 4 storm (sustained winds 130-156 mph). Kauaʻi absorbed most of the damage from Iniki which included wind and storm surge damages. The leeward coast received the most damage for Oʻahu.

3.2.6 Electromagnetic Fields (EMFs)

The National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health and the Department of Energy (DOE) started the EMF evaluation process and also consulted with public and private agencies. This evaluation, known as the Electric and Magnetic Fields Research and Public Information Dissemination (EMF RAPID) Program, was a six-year project with the goal of providing scientific evidence to determine whether exposure to power-frequency EMF involves a potential risk to human health.[18] Electric fields are a result of the voltage or electric potential of an object. They are generated by devices that operate on electricity. An appliance does not need to be in operation to create an electric field; an electric field is established as soon as it is plugged into an outlet. Magnetic fields, on the other hand, are created when an electrical current flows through a conductor. Magnetic fields are present only when an electrical device is in operation or a wire is transmitting electricity. Both electric and magnetic fields are strongest at the source and become exponentially weaker with increased distance from the source. Electric fields can be blocked by walls and objects, while magnetic fields are not as easily blocked and can pass through walls and objects.

There are both natural and manmade sources of EMFs. Power lines, electrical wiring, electrical equipment (such as generators), and home appliances all produce EMFs. Other power lines, electrical wiring, and electrical equipment in the vicinity of the project area are existing sources of EMFs. In this project, construction equipment will be a temporary source of EMFs.

3.2.7 Potential Impacts and Mitigation Measures

The proposed project is not expected to adversely affect public health or safety. The project will not increase the risk of flood hazards, tsunamis, earthquakes, or hurricanes. With regards to EMFs, hazardous and regulated material, the proposed project is not expected to adversely affect or increase exposure. The project will update the existing conditions, pedestrian and vehicle access, and some of the infrastructure at the Parks. Some of the proposed elements of the project will improve

[18] National Institute of Environmental Health Sciences and National Institutes of Health. June 2002. *EMF: Electric and Magnetic Fields Associated with the Use of Electric Power Questions and Answers.* https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

emergency egress in the event of a natural disaster by widening walkways and crossings over the drainage canal for pedestrian evacuation.

FLOOD HAZARDS, TSUNAMIS, EARTHQUAKES, HURRICANES: In the case of unpredicted tsunamis or flooding during construction operations, construction activities would cease and equipment and materials would be secured in support areas; BMPs would be followed to ensure the safety of construction workers and community members who live near the project area.

ELECTROMAGNETIC FIELDS: Health concerns regarding EMFs came into focus following a 1979 report on the possibility of an association between EMFs and childhood leukemia.[19] Many studies have been done since then to verify the results or to identify other health concerns regarding EMFs. According to a publication by the National Grid, these health reviews have, in general, failed to definitively conclude that EMFs cause any long-term, adverse effects on health.[20]

Currently there are no federal, state, or county standards for powerlines related to EMFs. In Hawai'i, DOH has a policy of "prudent avoidance" as written in a 1994 statement:[21]

> *"The Department of Health, in response to continuing but inconclusive scientific investigation concerning electric and magnetic fields (EMF) from low-frequency power sources, recommends a "prudent avoidance" policy. "Prudent avoidance" means that reasonable, practical, simple, and relatively inexpensive actions should be considered to reduce exposure.*
>
> *A cautious approach is suggested at this time concerning exposure to electric and magnetic fields (EMF) around low-frequency sources, such as electric appliances and power lines. The existing research data on possible adverse health effects, including cancer, are inconclusive and not adequate to establish or quantify a health risk. For example, the biological mechanisms that might underlie any apparent relationship between EMF and cancer, it is a very small increase. Other epidemiological studies suggest that there is no increased risk.*
>
> *The Department of Health will continue to collect and evaluate information on possible health hazards associated with electric and magnetic fields. If adequate data ever become available to establish what level may be harmful, appropriate standards will be established."*

---

[19] Wertheimer, N. and E. Leeper. 1979. *Electrical Wiring Configurations and Childhood Cancer*. In American Journal of Epidemiology, 109: 3.

[20] National Grid. November 2009. *Electric and Magnetic Fields*. Downloaded from www.nationalgridus.com.

[21] State of Hawai'i, Department of Health. January 19, 1994. *DOH Policy Relating to Electric and Magnetic Fields from Power-Frequency Sources.*

At the project area, no increase in EMF is expected as a result of the proposed improvements of the project area.

CLIMATE CHANGE: The Proposed Action will not increase the risk of climate change and sea level rise.

3.3 NOISE

3.3.1 Existing Conditions

The zoning district categories (see Section 3.1.1) determine the "maximum permissible sound level" outlined by HAR §11-46-4 which allows varying sound levels without a noise permit. According to the State DOH Community Noise Control, HAR §11-46-2, the definition of zoning districts is "the land use districts established by rules or ordinances adopted by council, legislature, county, or state government agencies."[22] The zoning district for the project area is classified based on the guidelines outlined by HAR §11-46-3 below:

(1) Class A zoning districts include all areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.

(2) Class B zoning districts include all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.

(3) Class C zoning districts include all areas equivalent to lands zoned agriculture, country, industrial, or similar type.

The project area is classified into Class A and the surrounding neighborhoods and commercial areas are classified into Class B zoning districts. HAR §11-46-4d explains that "the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level." Table 3-1 illustrates the maximum permissible sound levels (HAR §11-46-4) in dBA (decibels adjusted) according to the zoning districts.

Table 3-1: Maximum Permissible Sound Levels in dBA

Zoning Districts	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Class A	55	45
Class B	60	50

[22] State of Hawai'i. 1996. *Hawai'i Administrative Rules, Title 11, Chapter 46, Community Noise Control*

Table 3-1: Maximum Permissible Sound Levels in dBA

Zoning Districts	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Class C	70	70

Ambient Noise

Ambient noise is generally known as "background noise" which can be described as sounds that are existing in the area. Traffic noise, car alarms, nearby conversation, birds, waves, etc. can be described as background noise. Traffic and recreational noises are most likely the largest contributors to the ambient noise levels in the project area. Ala Moana Boulevard is a major roadway that passes along on the mauka side of the AMRP and connects downtown Honolulu to Waikīkī. Ala Moana Park Drive which is a highly-used roadway passes through the Park. Parking along Ala Moana Park Drive is popular for visitors who go to the beach or have picnics on the AMRP lawn. The Parks' wide-open spaces, however, do allow park users to find quieter areas even during busier weekends. It is possible that the ambient noise could muffle some of the construction noise. Ambient noise is oftentimes used to calculate acceptable levels of noise for specific areas.

3.3.2 Potential Impacts and Mitigation Measures

Land Construction: No adverse noise impacts are anticipated during land construction activities. Construction is expected to be done in phases which will leave ample space for park users to avoid work areas. Once construction is completed, noise will return to ambient levels.

HAR §11-46-7 states that "a permit may be granted by the director to operate any excessive noise source which emits or may emit noise levels in excess of the maximum permissible sound levels." The project may obtain a noise permit which will allow the use of construction equipment and machines that would exceed the maximum permissible sound level for a prolonged period of time.

A noise permit may require action by the contractor to incorporate noise mitigation into the construction activities. The contractor should use BMPs to mitigate noise, such as using mufflers on diesel and gasoline engines, maintaining properly tuned and balanced machines, and scheduling etc. The DOH noise permit does not regulate the noise levels that are excessive from the construction site, but rather limits the time for excessive construction noise. Specifically, HAR §11-46-7 states that:

1. No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels for the hours before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday;

2. No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels for the hours before 9:00 a.m. and after 6:00 p.m. on Saturday; and

3. No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays.

3.4 INFRASTRUCTURE

The majority of the project area is open space that is heavily used for recreational purposes. Infrastructure at the Parks includes water supply for irrigation and potable use, wastewater collection, storm drainage, electricity, telecommunications, and solid waste collection. Existing utilities within the proposed area of work are shown in Figure 3-11- Figure 3-14.

3.4.1 Water

There are existing water mains owned by the City Board of Water Supply (BWS) within Ala Moana Boulevard. The Parks are served from the BWS system through a master meter connection, that branches off to provide potable water and fire protection to AMRP and Magic Island. A secondary meter is also in place, but has not been in service since 2013. The network of water lines within the Parks, as shown in Figure 3-11, is owned and maintained by DPR. There are only two fire hydrants within the Parks; one is located at the ʻEwa concession stand and the other at the Canoe Hālau. Both hydrants are connected into the potable system.

Based on interviews and discussions with DPR staff during the master plan process, no issues with cross-connection, pressure, metering, or line breaks with the existing potable water system were reported by the park staff.[23] In contrast, "frequent line failures" were reported for the irrigation system at the time, which have been addressed with the new systems being installed. The AMRP irrigation system installation is scheduled to be complete by July 2018, with installation of a new irrigation system for Magic Island scheduled to be completed by the end of 2018.

3.4.2 Sewer

There are existing sewer mains owned by the City's Department of Environmental Services (ENV) within the adjacent public roadway ROW. City-owned force mains and several gravity lines are located in the mauka portion of AMRP, including a 69-inch diameter gravity sewer trunk main extending through the middle of AMRP from the Diamond Head to ʻEwa direction (Figure 3-12). This main conveys regional

[23] Meeting Memorandum, subject City and County of Honolulu Ala Moana Park Master Plan, Cheryl Palesh, Belt Collins Hawaii, January 8, 2016, and Meeting Memorandum, subject Ala Moana Regional Park Master Plan, Jordan Stewart, Belt Collins Hawaii, April 27, 2017.

wastewater flows to the Sand Island Treatment Plant for treatment and discharge through a deep ocean outfall. The 69-inch diameter trunk main originates at the sewer manhole near the Moana Park Wastewater Pumping Station (WWPS), located along Ala Moana Boulevard northeast of AMPR; this WWPS is on separate parcel, TMK: 2-3-037:010.

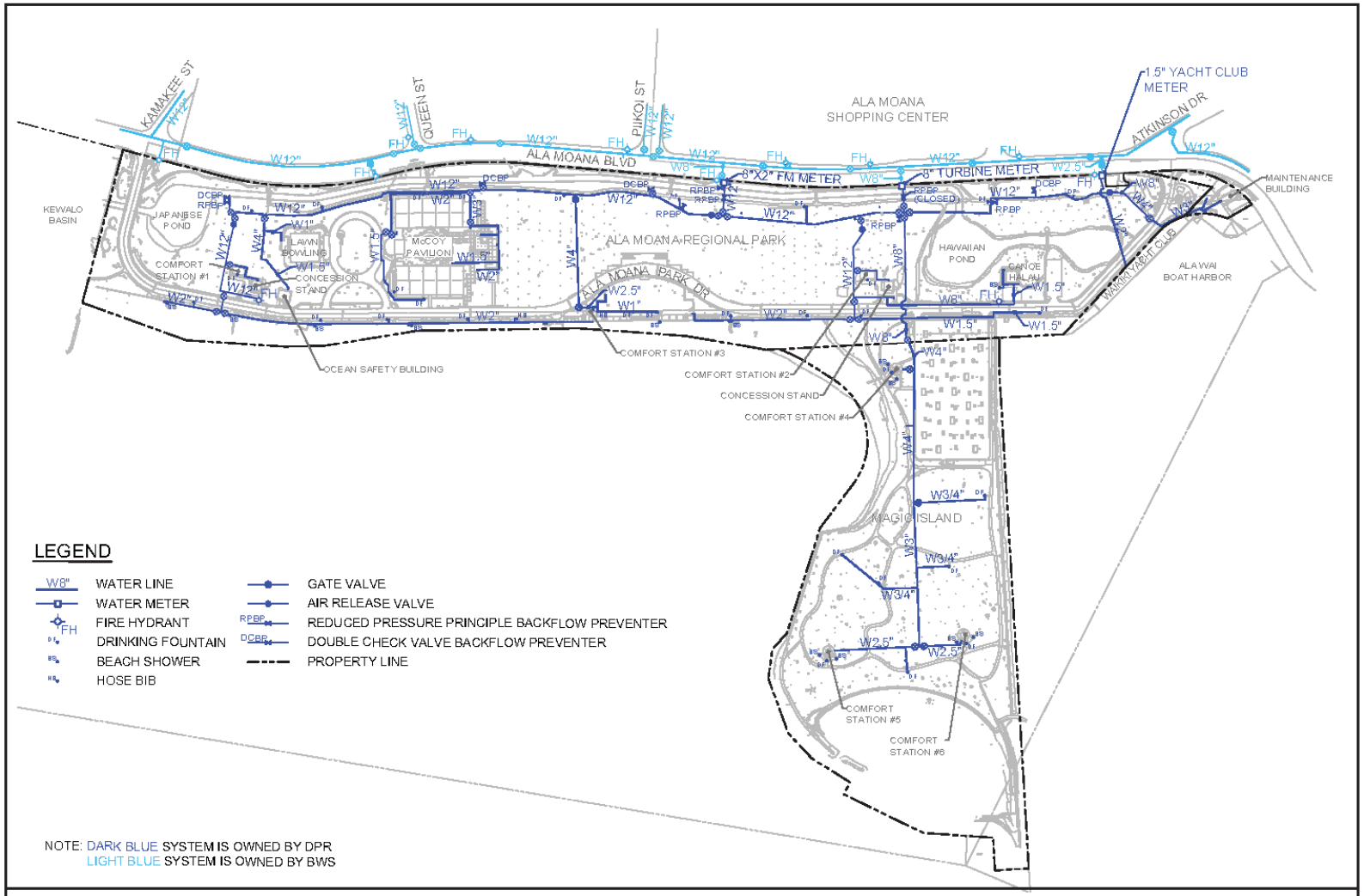
The Beachwalk WWPS buffer zone (Figure 3-13) is centered on the original force main, the line labeled FM42" in Figure 3-12. Per the City DPP Waste Water Branch (WWB), any project that is within this zone will be sent by them to Department of Design and Construction (DDC) for review that the proposed alignment, profile and construction method would not cause undue vibration or disruption of the force main.

The DPR staff did not note any sewer system deficiencies.[24] Grease interceptors are in-place at both concession stands and McCoy Pavilion. The units at the concession stands are routinely serviced. The unit at McCoy Pavilion has not been in use and will need to be inspected and possibly replaced as part of the facility renovations.

The showers in the bathhouses at the comfort stations discharge to the building sewer system. Outdoor showers drain to the storm drainage system or surrounding area. Improvements to collect the outdoor shower runoff which may contain soap and shampoo used by bathers were the subject of a separate assessment,[25] the recommendations from which are being reviewed and implemented by the City individual projects. Drinking fountain is disposed through seepage wells, designed in accordance with the Parks Standard Details. These seepage wells are manhole cone sections, intended to only serve the drinking fountains and are not part of the park's storm drainage system.

[24] Ibid, Meeting Memorandum April 27, 2017.

[25] Fukunaga & Associates, Inc., Amended Pre Final Report, January 2012, *Outdoor Shower Assessment Engineering Report*.



©2018 Belt Collins Hawaii LLC P:\Ala Moana Park\2015\71010\0037a\A 12June2018\1

Figure 3-11
EXISTING WATER SYSTEM
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

1

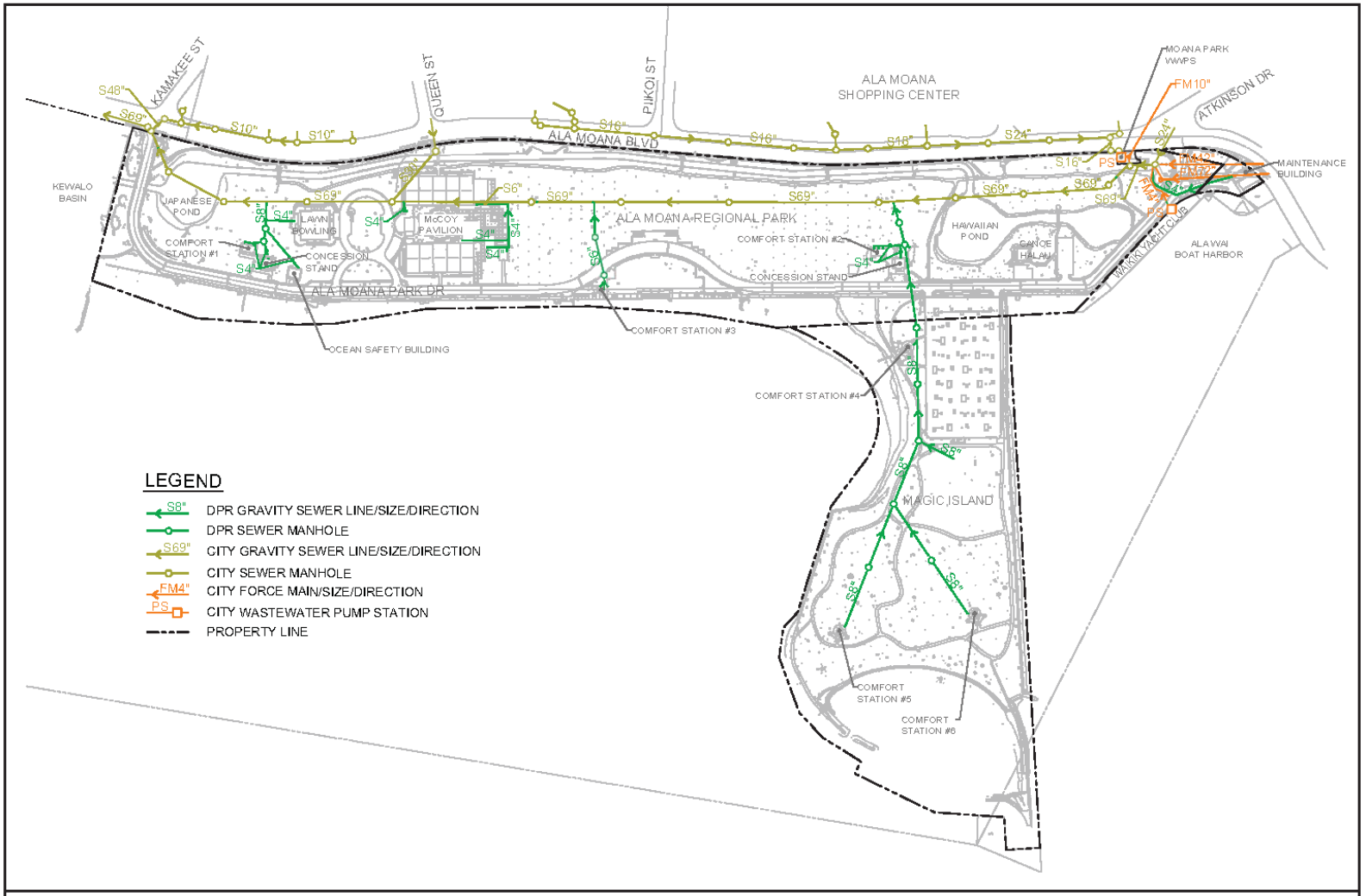


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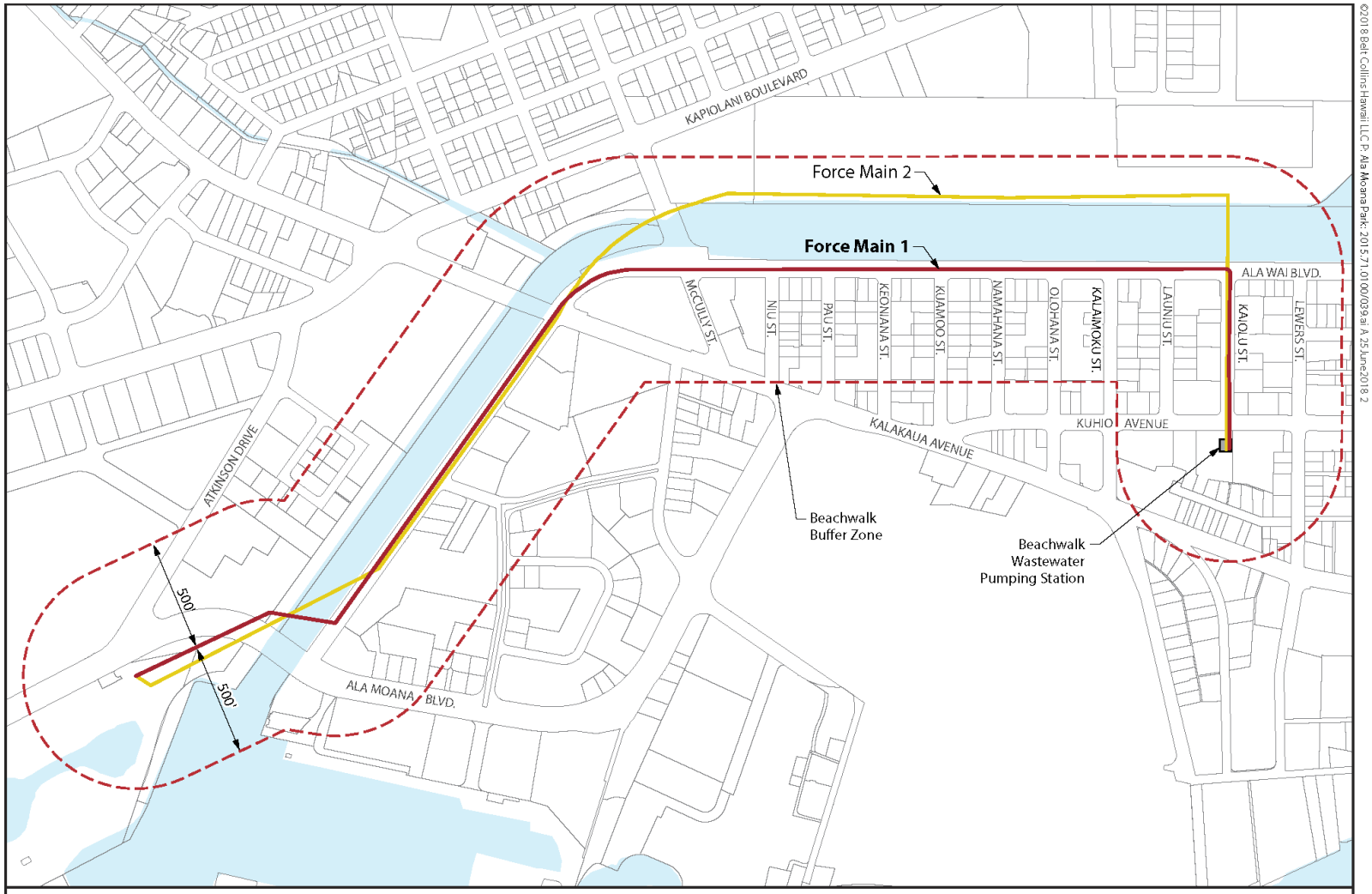
Figure 3-12
EXISTING SEWER SYSTEM
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement



BELT COLLINS

NORTH

0 150 300 600
SCALE IN FEET

Figure 3-13
BEACHWALK BUFFER ZONE
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

3.4.3 Drainage

DOT maintains the drainage pipes and inlets within Ala Moana Boulevard shown in Figure 3-14. The Kamakee Street drain box is part of the Hawai‘i Community Development Authority (HCDA) system. The drainage structures and pipelines within AMRP are owned and maintained by DPR. Magic Island has no drainage facilities beyond the parking lot.

The Parks have relatively flat pervious grassy surfaces and stormwater primarily infiltrates into the ground. During heavy rainfall events, based on the current topographic survey information, stormwater can flow from the central grassy areas towards Ala Moana Park Drive, the drainage canal, or one of the two ponds. Only the beach area, makai of the wall, in AMRP slopes toward to ocean. The portion of Magic Island makai of the parking lot drains towards the lagoon or westerly to the ocean. The only drainage concerns noted by DPR staff were clogged drains at the McCoy Pavilion loading dock and courtyard at due to tree roots. The flooding of Ala Moana Park Drive experience in March 2017 was reportedly due to lack of filter fabric maintenance.[26] No mention of the canal overflowing or lack or areas drying out after heavy rains were reported.

The Parks have a Storm Water Pollution Control Plan (SWPCP), which was prepared and implemented in compliance with City’s NPDES permit for its Municipal Separate Storm Sewer System (MS4). There are no structural stormwater quality control devices, such as drain inlet filters or hydrodynamic separators in the AMRP. An assessment of physical improvements to reduce contamination or potential contamination from the park’s stormwater runoff was completed in compliance with City’s subsequent NPDES MS4 permit.[27] The City’s NPDES Permit No. is HI S000002. The City is addressing the recommendations in the assessment as improvements in the Parks are undertaken and there are no specific stormwater quality projects included in the master plan.

[26] Meeting Memorandums, January 8, 2016 and April 27, 2017.

[27] Fukunaga & Associates, Inc., Preliminary Report January 2012, *Storm Water Assessment Engineering Report Department of Parks & Recreation Sites – District 2*.

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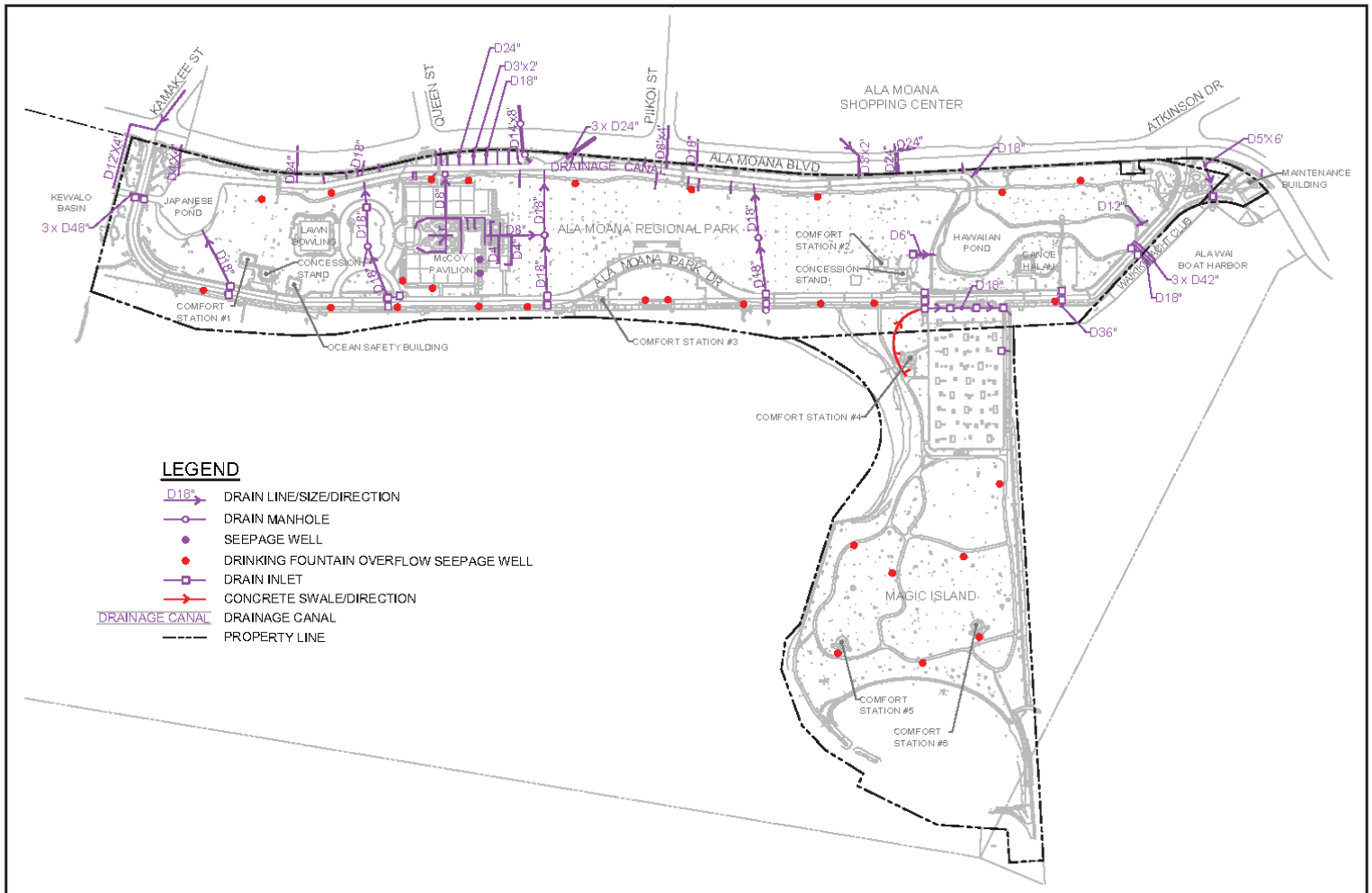

©2018 Belt Collins Hawaii LLC P:\Ala Moana Park\2015\71010\X\040ai A12 June2018 1

Figure 3-14
EXISTING DRAINAGE SYSTEM
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

3.4.4 Electricity, Telephone, and Cable TV

Hawaiian Electric, Hawaiian Telecom, and Spectrum have sub-surface duct banks for electrical power, telephone, cable TV and internet communications within Ala Moana Boulevard. Electric power and telephone are brought into AMRP on overhead lines. The lines extended from the public grid on Ala Mona Boulevard near the Roosevelt Arch, across the canal for the ʻEwa comfort station and concession, and across the canal for the tennis courts.

3.4.5 Fuel and Utility Gas Lines

Hawaiʻi Gas has utility distribution lines for synthetic natural gas within the public roadway ROW. There are no gas lines within the Parks. Hawaiʻi Gas provides propane gas to the concession stands, with each served by a 499-gallon propane tank. Each tank is screened by a walled enclosure on the Diamond Head side of the buildings. McCoy Pavilion originally had a gas tank in the service court near the loading dock, however, it has since been removed and there is no existing gas service to the facility.

3.4.6 Potential Impacts and Mitigation Measures

The proposed project is not anticipated to have any long-term or short-term impacts to existing infrastructure utilities. Excavation within the Parks will require coordination with DPR to ensure adequate clearance from trees and other utilities as identified from record drawings or determined by construction contractor toning.

3.5 PUBLIC SERVICES AND FACILITIES

3.5.1 Ocean Safety

Ocean Safety is governed by the Honolulu Emergency Services Department (HESD). This Department acts as the primary medical and ocean rescue responder to all emergencies occurring in the AMRP and Magic Island as mandated by the Revised Charter of the City and County of Honolulu 1973 (2017 Edition)[28]:

> CHAPTER 6 - DEPARTMENT OF EMERGENCY SERVICES
> **Section 6-601. Organization --**
> There shall be a department of emergency services headed by a director of emergency services who shall be appointed and may be removed by the mayor.
> (1992 General Election Charter Amendment Question No. 16; 1998 Reorganization)

[28] City and County of Honolulu. 1973 (2017 Edition). Chapter 6 Department of Emergency Services. Section 6-601. Organization.

Section 6-603. Powers, Duties and Functions --
The director of emergency services shall:
(a) As to medical services:
(1) Be the primary provider of emergency medical care;
(2) Develop programs and provide training and educational programs related to emergency medical services and injury prevention;
(3) Be responsible for medical matters relating to public health and welfare.
(4) Be responsible for the administration of the city's health services programs and medical evaluations of current and prospective city employees.
(b) As to ocean safety:
(1) Be the primary responder to emergencies arising on the beach and in the near shore waters;
(2) Be responsible for ocean safety training, educational, and risk reduction programs relating to ocean safety.
(c) Perform such duties as may be required by law.
(1992 General Election Charter Amendment Question No. 16; 1998 Reorganization; 2006 General Election Charter Amendment Question No. 10; Reorganization 2007; Reorganization 2012)

The AMRP is in the South Shore operational district of the Ocean Safety and Lifeguard Services (OSLS) of HESD. Beach attendance has remained relatively stable at the Parks indicating that it is reaching full carrying capacity. [29] The AMRP contains 5 Stations, lifeguard towers, 1B-1G, because there is no 1F; there is one Ocean Safety substation.

3.5.2 Police, Fire, and Emergency Services

Police services on the island of O'ahu are provided by the Honolulu Police Department (HPD). HPD's headquarters are located in downtown Honolulu, at 801 South Beretania Street. The island is divided into eight patrol districts; police response for the project area would come from District 1 (Honolulu). The administrative office for District 1 is located at the downtown HPD headquarters. After park closure, the project area is regularly patrolled by officers posted at the AMRP.

Fire protection services for the island of O'ahu are provided by the Honolulu Fire Department (HFD). The island is divided into five battalions containing 44 fire stations. The total number of companies in a platoon is 43 engine companies, 14 ladder or quint companies, 2 rescue companies, 2 hazardous materials companies, 2

[29] City and County of Honolulu. Ocean Safety and Lifeguard Services website https://www.honolulu.gov/esdosls.html

tower companies, 5 tankers, 2 helicopters, and 1 helicopter tender.[30] Also supporting the HFD's mission are several personal watercrafts and 3 rescue boats (2 of which are assigned to the search and rescue companies and 1 to the Waialua Fire Station). The HFD headquarters is located at 636 South Street. HFD would provide emergency fire service to the project area from its Pāwaʻa Fire Station (No. 2), located approximately 1.0 miles north of the project area. Support could also come from the Kakaʻako Fire Station (No. 9), which is located approximately 1.4 miles west of the project area on South Street.

Ambulance services are provided throughout Oʻahu by the City's Department of Emergency Medical Services (EMS). The City has 20 ambulance units and two Rapid Response Vehicles covering the island's two districts. The project area is located within Oʻahu's District 2. The nearest EMS ambulance unit is based at the Pāwaʻa Fire Station, approximately 1.0 miles away from the project area. HFD co-responds with first responder emergency services.

3.5.3 Medical Centers

Nearby emergency medical facilities include Kaiser Permanente Honolulu Medical Office, Straub Hospital, Queen Medical Center, and Kapi'olani Medical Center for Women and Children. Kaiser Permanente Honolulu Medical Office and Straub Hospital are full-service hospitals, located less than a mile from the project area, in the Ward/Kaka'ako neighborhood. Kapi'olani Medical Center for Women and Children is located in lower Makiki, approximately one mile from the project area. Kapiʻolani Medical Center specializes in care for women and children and offers a full array of medical services, including pediatric emergency services and intensive care facilities. Queen's Medical Center, considered to be the primary trauma hospital on the island, is approximately one mile from the project area.

3.5.4 Parks and Recreation Areas

The main focus of the Proposed Action at the project area is improvements for recreational usage. The AMRP and Magic Island offer large open spaces for land activities and beach access for water activities. There are water features located within the AMRP property which include a mile-long drainage canal that borders the majority of the mauka park boundary and empties into two ponds on the ʻEwa and Diamond Head ends of the Park. Recreational amenities on land include: ten tennis courts, a lawn bowling facility, exercise apparatuses, walk/run/jog paths, a canoe shelter, and large open lawn spaces (The Great Lawn) for field activities like soccer (Figure 3-1a and Figure 3-1b). There are over 1000 trees scattered throughout the project area providing ample shade for picnicking and gatherings, many of which are considered exceptional trees. Two concession stands that serve local food are located in the AMRP. A popular aspect of the project area is the mile-long beach that stretches from Magic Island to the Kewalo Basin. A lagoon surrounded by a seawall fronts Magic

[30] City and County of Honolulu. Honolulu Fire Department. Last updated February 2016. http://www.honolulu.gov/hfd/abouthfd.html

Island for more beach and water activities. The calm nearshore waters on the southern end of the Park attracts people from different levels of water experience making it suitable for ocean recreational activities, such as swimming and paddle boarding. Ocean waters beyond the reef that protects the nearshore waters are popular for surfing.

3.5.5 Schools

The project area is located within the Department of Education's (DOE) Honolulu District and the Kaimukī-McKinley-Roosevelt Complex. There are 28 schools in the complex. School age children residing near the project area attend:

- Kaʻahumanu Elementary School (0.87 miles);
- Stevenson Middle School (1.5 miles);
- Washington Middle School (0.80 miles); and
- McKinley High School (0.35 miles).

McKinley High School, which is the closest school to the project area, is a ninth to twelfth grade DOE school and there are 1583 students enrolled for the 2017/2018 school year. ʻIolani School is about one mile away and the closet private school to the project area. ʻIolani is a kindergarten to twelfth grade private college preparatory school with approximately 1,900 students total.

3.5.6 Solid Waste

Solid waste services for the island of O'ahu are provided by the City's Department of Environmental Services. Solid waste services include drop-off facilities, curbside collection, and recycling. Most residential and general commercial trash is disposed at H-POWER, the City's waste-to-energy plant, which is located at Campbell Industrial Park. H-POWER processes over 600,000 tons of waste annually, producing approximately 10 percent of Oʻahu's electricity.[31] The island's two landfills, Waimānalo Gulch Sanitary Landfill and PVT Landfill, are located on the Waiʻanae Coast, approximately 30 miles west of the project area. Noncombustible construction and demolition debris and industry waste go directly to the PVT Landfill. Solid waste at AMRP and Magic Island Parks is collected and managed by DPR staff.

3.5.7 Potential Impacts and Mitigation Measures

The Proposed Action is not expected to generate an increase in demand for police, fire, emergency response, medical services, schools, parks, or recreation areas. Special off-

[31] City and County of Honolulu Department of Environmental Services. 2005. *How the City Manages Our Waste.* Obtained from http://www.opala.org/solid_waste/archive/How_our_City_manages_our_waste.html

duty police officers may be hired if required by DPP to assist with traffic control during construction.

In the short-term, the Proposed Action would temporarily affect sections of the Parks and recreation areas and their users. Full use of AMRP and Magic may be temporarily hindered by construction staging, site preparation, trenching, stock piling, utility installation, back filling, site cleaning, and restoration.

During construction, solid waste generated from construction activities would be sent either to a recycler or to a licensed debris landfill, such as the PVT Landfill. Excavated soil will be tested for chemicals of potential concern using appropriate EPA SW-846 methods to determine if the soil is suitable for reuse.[32] Suitable soil will be reused to fill trenches of new utilities. Any remaining soil that cannot be reused will be characterized using the toxicity characteristic leaching procedure (TCLP) to determine if the soil is suitable for disposal as non-hazardous waste at PVT Landfill in Nanakuli. Any soil failing the TCLP testing will need to be handled as hazardous waste and disposed at a permitted facility on the U.S. mainland. The impact on the area's solid waste facilities is anticipated to be minor.

In the long-term, the proposed improvements would improve access by providing wider walkways and crossings over the drainage canal for pedestrians. Possible relocation of the Ocean Safety headquarters to a more strategic location is being discussed.

3.6 VISUAL AND AESTHETIC RESOURCES

3.6.1 Existing Conditions

Visual resources include scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value. Improvements to the Parks' visual and aesthetic resources are not expected to be impacted by the Proposed Action. The City proposes to remove diseased trees and plant more trees, as well as improve the irrigation system. The City also proposes to restore the historical elements on the AMRP to preserve them and improve their aesthetic condition.

3.6.2 Potential Impacts and Mitigation Measures

No long-term aesthetic or visual impacts will occur as a result of the Proposed Action, therefore no mitigation is recommended. Construction-related equipment and

[32] State of Hawai'i, Department of Health, Hazard Evaluation and Emergency Response Office. October 2011. *Guidance for the Evaluation of Imported and Exported Fill Material, Including Contaminant Characterization of Stockpile.* Pg. 3

structures are expected to be temporarily on the property during implementation of the improvements.

3.7 RECREATION

3.7.1 Existing Conditions

The Parks are used extensively for both ocean and land-based recreation. The beach and offshore waters are heavily used daily, and are the main attractions at the Parks. Magic Island beach includes a seawall enclosed lagoon area and the AMRP beach features about a mile-long stretch of white sand from Magic Island to Kewalo Basin. The reef protects the deeper swim channel and calm waters near the shoreline. The most common activities for the beach and ocean include: swimming, surfing, wading, bodyboarding, standup paddling, one-man or two-man canoe paddling, sunbathing, picnics, pole fishing, walking, running, metal detecting, and taking wedding photos. Group exercise activities are organized throughout the day for the beach areas and in the water. Parking along Ala Moana Park Drive makes the beach accessible and many who park along the road use the beach. The west end of the road is a popular parking area for the surfers to access highly used surf spots near Kewalo Basin. The most popular location on the AMRP beach is along the west side of the Magic Island parking lot. This area affords the opportunity to have large gatherings on the grass with closer access to the beach and water. People attending the gatherings may park close by in the open lot. The restrooms, showers and concession are also within short distances.

Recreation on site ranges from individual play and fitness activities to group events. The Park is much used for family and small group gatherings. Its protected waters, beach and extensive grassy areas provide space for play, picnics and relaxation for all ages. Figure 3-15 depicts some of the more popular recreational uses at the project area.

1

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Figure 3-15
WATER AND LAND RECREATION
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

Water Recreational Uses

AMRP is heavily used for water recreation. More than 3.3 million annual users were estimated as using the Park's ocean resources in 2016.[33] That count is 13.6 percent of the total beach goers for Oʻahu. (Waikīkī beaches accounted for 47.2 percent of the total count; no other counts are nearly as large as the Waikīkī and Ala Moana beaches.)

Swimming and wading

The beach was constructed in 1955; prior to this a seawall separated the ocean from the Park.[34] Lifeguard towers were added in the 1960s. Magic Island, and its lagoon, is a manmade peninsula constructed in 1964. The beach portion of the Park was an old boat channel which was later dredged and sand brought in to cover the coral fill. The beach's ocean floor has a gentle slope and an outer reef resulting in calm waters which makes it ideal for family swimming and lap swimmers.

The lagoon on Magic Island has a sandy bottom and slopes gently toward deeper areas. The main hazards are not swimming in the lagoon, but the surf that hits the rock wall which protect the lagoon.[35] The surf is unpredictable and could injury swimmers if they are near or on the wall.

Additionally, lifeguard towers enhance safety for swimmers and waders. Two existing dangers are water depth which becomes deep after a certain distance, posing risk to inexperienced and unknowing swimmers; and the current coral build-up on the beach and on the ocean floor, causing risk of injury to swimmers. There were at least 49 rescues and 3 drownings at the beach in 2016.[36]

Surfing

"Surf Oʻahu's" website[37] features a listing and a map of all the surf spots on Oʻahu. It also includes videos, surf news and updates, and logistics of the areas. The map found at least six surf locations fronting Ala Moana Beach including: Kewalos, Concessions, Tennis Courts, Big Rights, Baby Haleʻiwa's, and Bomboras. It is a long paddle out to the surf break which also includes a walk across the reef to reach the waves. There are three popular surf locations off to the east of Magic Island fronting the Ala Wai Boat Harbor that include: [Ala Moana] Bowls, Break and Kaisers. Popularity of these spots may vary due to season and quality of swells. The recommended season to surf the south shore is during the summer when the south swells can reach up to seven feet or higher.

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[33] Ibid. DBEDT, *State of Hawaiʻi Data Book 2016*, Table 7.48.

[34] Ibid. Weyeneth, Robert. *Ala Moana: The People's Park*

[35] Clark, John. 1977 The Beaches of Oʻahu. The University Press of Hawaiʻi

[36] Ibid. DBEDT, *State of Hawaiʻi Data Book 2016*, Table 7.48

[37] http://surf-oahu.com/map/

"Ala Moana Bowls" and "Kewalos" are the more popular surf spots near the Parks. Both locations tend to draw large crowds regardless of surf conditions since the conditions tend to be consistent. This is a result of the boat channel dredging through the reef to build Kewalo Basin and the Ala Wai Boat Harbor. "Kewalos" surf break starts to the east of the Kewalo Basin channel and stretches across the west end of the AMRP beach. Surfers can reach the surf break from the Kewalo Basin Park or from the AMRP beach. "Ala Moana Bowls" surf break is located to the east of Magic Island and fronts the Ala Wai Boat Harbor. Surfers will usually access the surf break from the Ala Wai Boat Harbor parking lot that is adjacent to the Hilton Hawaiian Village Hotel. Some may choose a route via Magic Island. Surf competitions are held at these surf breaks during the late Spring months. See "Surf Competition" section below for more information about the events.

Stand-up Paddle (SUP) Surfing

The placid nature of the water makes this beach an ideal location for SUP surfing. There are many companies which cater to SUP surfing at the Park.

Canoe Paddling

Like SUP surfing, the calm waters make the Parks an ideal location for canoe launching and practice. Several canoe clubs are located, or launch, from the Park's shores. Additionally, a Canoe Hale exists on the makai side of the AMRP creating easy canoe access.

Land Recreational Uses

Walking and Jogging

The Parks offers a 2+mile paved shared-use path that covers the entire perimeter. This path can be seen frequented by walkers and joggers. An internet search produces several websites listing the Parks as a running and walking route in the downtown area. Additionally, events such as fundraiser walks and runs occur here.

Biking

Like walking and jogging, the Parks offers a 2+ mile plus paved shared-use path that covers the perimeter. This path can be seen frequented by bicyclist. An internet search produces several websites listing the Parks as a bike path in the downtown area. Additionally, there are 3 Biki Bike stations in Ala Moana Park, which are located at: Ala Moana and Kamakee intersection, Ala Moana Concession #2, and Ala Moana and Atkinson intersection.

Lawn Bowling

The AMRP features the only lawn bowling facility in Hawai'i. The lawn bowl green and related facility was built sequentially with the AMRP in the 1930s and by Australian

servicemen.[38] The majority of the visitors come from countries where lawn bowling is popular like Canada, New Zealand and Australia. The bowling green overlays three feet of crushed coral to allow the grass to dry quicker during the wetter seasons.[39] It is located on the west side of the AMRP and can be accessed from Ala Moana Park Drive. The L&L Hawaiian Barbeque concession stand is southwest, the Ocean Safety Building is south, and the keyhole parking area is east of the facility. The green is surrounded by a five feet high white wall which helps preserve the facility. The bowling green had a brief lapse of time with no usage in the 1950s and the maintenance of the lawn was neglected. Then in 1956, the facility was restored and club members and volunteers have maintained it ever since.

Honolulu Lawn Bowls Club was formed in 1974 and is an active club today. According to their club website, the club bowls every Saturday at 10 am and may have games on Monday, Wednesday, and Friday mornings. The website suggests green maintenance donations in various amounts for visitors to use the facility. Club membership is offered for yearly renewal or lifetime purchase. The facility provides equipment for use and free lessons on Saturday mornings. The facility also hosts an annual tournament called "The Unofficial Barefoot Bowls World Championships." The last tournament was in February 2018.

Tennis

There are 10 tennis courts located at McCoy Pavilion. Public outreach comments, conducted for the Preferred Master Plan, suggested a desire for organized sports club teams and tennis tournaments. Currently, there are tennis tournaments that occur at these tennis courts.

Volleyball

At the end of 2017, the City presented two new sand volleyball courts. These courts are located adjacent to Kewalo Basin and at the 'Ewa end of the AMRP beach. Additionally, public outreach comments conducted for the Preferred Master Plan, suggested a desire for organized sports club teams such as volleyball.

Sunset/Firework Watching

The Hilton Hawaiian Village's Friday night fireworks can be best viewed from Magic Island. The Preferred Master Plan takes into consideration the viewing of these Friday night fireworks into consideration when designing the overall landscape approach. An

[38] Honolulu Lawn Bowls Club, Ala Moana Regional Park, Honolulu. 2018. http://honolululawnbowls.com/Mapsdirections.html

[39] Thompson, David. "Hit the Green at Ala Moana Beach Park with the Honolulu Lawn Bowls Club." Honolulu Magazine. October 16, 2014. http://www.honolulumagazine.com/Honolulu-Magazine/October-2014/Hit-the-Green-at-Ala-Moana-Beach-Park-with-Honolulu-Lawn-Bowls-Club/.

internet search reveals a high level of people and interest in viewing these fireworks from the Parks.

Large Events at the Park

4th of July Fireworks

The 4th of July Firework Spectacular is the most-attended and largest fireworks display on the island. At least 50,000 people are expected to attend the event each year. Spectators may set up tents for families the night before, and parking at both the Park and Ala Moana Center fills during the day. 2018 will mark the 27th year of the annual event.

Lantern Floating -Memorial Day

The Lantern Floating ceremony, held annually on Memorial Day by the Shinnyo-En Buddhist sect, includes ceremonies conducted by the sect's leaders along with the opportunity for participants to inscribe and launch their own lanterns with prayers. The ceremony represents elements that are inspired by the Buddhist ceremonial tradition and the Hawaiian culture. About 50,000 people attend this event that has been held at the AMRP since 2002. More than 6,000 lanterns are provided for the 2018 event and the public is reminded that availability of lanterns is on a first come, first serve basis. [40] Information about the event and how to participate is available on the "Lantern Floating Hawai'i" website at http://www.lanternfloatinghawaii.com/. The website accepts online message to include with the "Collective Remembrance Lantern" for those who are unable to attend the ceremony in person. Any donations received for the event is distributed between supporting the event and to the City's park maintenance fund for the AMRP and Magic Island.

Annual Greek Festival

2018 will mark the 37th year of the Greek Festival that will be held in August. The McCoy Pavilion has been hosting the festival every year. The two-day event charges a small fee for attendees to enjoy performing entertainment and authentic food. More information about the festival can be found on their website at http://greekfestivalhawaii.com/about-festival/.

Surf Competitions

Surf competitions are listed on the "Aloha Surf Guide" website.[41] The competitions hosted near the project area are held during the spring or summer. Some of the competitions that were hosted by "Ala Moana Bowls" and "Kewalos" include: the Hawaiian Amateur Surf Association (HASA) State Championships, the Oakley Surf

[40] Lantern Floating Hawai'i. 2018. http://lanternfloatinghawaii.com/page/faqs#cost.

[41] Aloha Surf Guide. http://www.alohasurfguide.com/events-contests/

Shop Challenge, the Local Motion Surf Into Summer, and the Hawai'i Surf Association Surf Series.

The Honolulu Triathlon

The Honolulu Triathlon involves a 1500-meter swim at the AMRP Beach, 25-mile bike along Ala Moana Boulevard and Nimitz Highway to the Arizona Memorial and back, and then a 6.2-mile run in the AMRP. The races are usually scheduled on a Sunday in mid-May. Other related events occur within the days leading up to the races. This event is advertised and hosted in both English and Japanese. It is notable as an international event based in AMRP. Updates about the races and events can be found on The Honolulu Triathlon website http://www.honolulutriathlon.com/.

Annual Parades and Activities

The City's Department of Transportation Services (DTS) website[42] shows a listing of parades and other activities that require a permit to temporarily close the streets. The activities listed below are ones that start at AMRP and Magic Island for 2018.

Dr. Martin Luther King Jr. Day Parade – starts at the AMRP, to Ala Moana Blvd., to Kalākaua Ave., to Monsarrat Ave., end at Waikīkī Shell Parking Lot in Queen Kapi'olani Park.

Tax March O'ahu – starts at Magic Island to Ala Moana Blvd., to Punchbowl St., to end at the Federal IRS Building.

Annual Visitor Industry Charity Walk – starts at the AMRP's McCoy Pavilion Key Hole, clockwise around AMRP, to Ala Moana Blvd., to Ala Wai Promenade area, to Kalākaua Ave., crossover to King Kalākaua Park, to Seaside Ave. via Kalākaua Ave., to turnaround at Ohua Ave., to Lewers St. via Kalākaua Ave., to Kalia Rd., to Ala Moana Blvd., to end at the AMRP McCoy Pavilion Key Hole area.

Aloha Festivals Floral Parade – starts at the AMRP 'Ewa Entrance and Exit, to Ala Moana Blvd., to Kalākaua Ave., to Monsarrat Ave., to end at the Waikīkī Shell Parking Lot in Queen Kapi'olani Park.

Peace in Asia – Unification of Korea 10K Run/Walk – Starts at Magic Island, to Ala Moana Blvd., to Kalākaua Ave., turnaround at Dillingham Fountain, return via the same route back to Magic Island.

Street Bikers United – Toys for Tots Caravan – starts at Magic Island, to Ala Moana Blvd., to Kalākaua Ave., to Monsarrat Ave., to Waikīkī Shell Lots 1 thru 4.

[42] City and County of Honolulu. Department of Transportation Services. http://www.honolulu.gov/cms-dts-menu/site-dts-sitearticles/983-site-dts-usage-cat/site-dts-usage-2017-cat/25868-jan.html

Yacht Racing

The Waikiki Yacht Club is on State land next to the eastern entrance of the Park, and not part of the Park. It is the sponsor of the Transpac Race, the leading long-distance yacht race in the Pacific. The yacht club also hosts at least one regatta a month from the Ala Wai Boat Harbor.

Ocean Paddle Sports Racing

The Kānaka Ikaika Racing Association (KIRA) hosts various races throughout the year. Racers are allowed to use Outrigger canoes, stand up paddleboards, surfskis, and prone paddleboards. There are 18 events planned for 2018 and a few of the races end at Magic Island.

3.7.2 Potential Impacts and Mitigation Measures

In the short-term, the Proposed Action would temporarily affect sections of the Parks and recreation areas and their users. Full use of AMRP and Magic Island may be temporarily hindered by construction staging, site preparation, trenching, stock piling, utility installation, back filling, site cleaning, and restoration.

In the long-term, the Proposed Action would improve recreation by improving access to the Parks and replenishing the sand on the beach. The number of visitors is anticipated to increase regardless if the improvements are completed or not. However, without the improvements, the more popular facilities may not be able to accommodate the rising population in the state.

3.8 CIRCULATION AND TRAFFIC

3.8.1 Existing Conditions

Ala Moana Boulevard is a major two-way arterial that connects downtown Honolulu to the Waikīkī district. The two main vehicular entrances to the project area are at the intersection of Kamakee Street and Ala Moana Boulevard on the west and the intersection of Atkinson Drive and Ala Moana Boulevard on the east. The project area receives a regular amount of vehicular and foot traffic every day. The weekends, school breaks, and big surf days usually attract more visitors to the Park.

A traffic study was conducted to assess whether or not the improvements within the Park will impact vehicular or pedestrian traffic (see Appendix B). This study projected out to year 2028, representing a 10-year horizon. Under the existing conditions the level of service (LOS) at the Ala Moana Boulevard and Kamakee intersection shows an LOS C (average traffic delays) for the AM and PM peak hours and the Saturday peak, with LOS A being the least congested with little or no delay to LOS F, where the volume exceeds capacity, resulting in extreme delays causing severe congestion. The AM peak hour is from 7:15 to 8:15 AM and the PM peak is from 4:15 to 5:15 PM during the week

days. On Saturday, the peak hour occurred from 2:00 to3:00 PM. At the Ala Moana Boulevard and Atkinson Drive, the AM and PM peak hours and on Saturday's Peak hour LOS D (long traffic delays) condition was determined. The Ala Moana Boulevard through movements also operate at an LOS D condition with the left turn movements operating at an LOS of E and F. Much of the delays at the Ala Moana Boulevard and Atkinson intersection are attributed to split phasing of the traffic signals. Pedestrian were also shown to trigger the signals regularly Approximately one-fourth of the pedestrian traffic crossing Ala Moana Boulevard were associated with the Park. On the Saturday mid-day peak, all vehicles were observed to clear within one cycle for all movements.

3.8.2 Future Conditions

Future traffic volumes were derived from historical DOT Highways Division data from between 2009 and 2016. This data showed that the traffic volumes on Ala Moana Boulevard were either stagnant or declining during this time period. Therefore, a conservative growth rate of 0.5% was applied to calculate future growth.

The Ward Villages Transportation Master Plan was used for the future traffic volumes at the Ala Moana Boulevard/Kamakee Street intersection. In addition the Kamehameha Schools Kaiāulu ʻo Kakaʻako Master Plan was consulted to generate the 2028 background traffic. The analysis showed that the Ala Moana Boulevard through movements will continue to operate at an LOS C or better condition during all AM, PM and Saturday peak hours. However, the left turn lanes from Ala Moana Boulevard is projected to operate at an LOS E-F. Mauka bound turning movements from Ala Moana Regional Park and makai bound from Kamakee Street is projected to operate at and LOS D-E

The Ala Moana Boulevard/Atkinson intersection is projected to operate at LOS D during the AM and Saturday mid-day peak hours and LOS E during the PM peak hour. Through movements on Ala Moana Boulevard is projected to operation at LOS D or better during all peak periods except for the westbound PM peak through. Ala Moana Boulevard left runs are projected to operate at LOS E-F. Mauka-bound from Ala Moana Park Drive and the ma kai-bound are projected to operate at LOS D-F.

Overall the intersection of Ala Moana Boulevard and Kamakee Street intersection is projected to continue to operate at an acceptable LOS during peak hours. At the Ala Moana/Atkinson intersection the LOS is projected to have a higher day, mainly due to regional growth.

To increase protection of pedestrians crossing from Kamakee Street into and out of the Park, it was recommended that the State DOT consider removing the left turn movement from Kamakee to Ala Moana Boulevard. This could encourage vehicles to use the Queen Street left turn movement onto Ala Moana Boulevard. At the Atkinson Drive pedestrian crossing to and from Ala Moana Shopping Center and AMRP could expand the pedestrian island at the AMRP side of the crossing to comfortably hold

more pedestrians compared to the Ala Moana Shopping Center pedestrian island. Pedestrian facilities should also be ADA compliant.

3.8.3 Potential Impacts and Mitigation Measures

The improvements at Ala Moana Regional Park is not projected to have a significant impact on the overall delays at the intersections of Ala Moana Boulevard and the Kamakee Street and Atkinson Drive. Delays are attributed mainly to regional growth. The park improvements and additional parking facilities will continue to accommodate the area roadway traffic to the year 2028. Improvements could be made at the AMRP pedestrian island crossing over to Ala Moana Shopping center for increased safety.

3.9 PARKING

A parking study (Appendix C) was done to identify if there is adequate parking and propose options for areas where additional parking is possible. It evaluated the parking reconfiguration and lane options and its impact to the current ambient traffic.

The parking study was conducted one weekday, July 13, 2017 and two consecutive weekends, July 15, and 16, 2017, from 8am to 6pm in AMRP and Magic Island. These days were chosen because they were projected to have higher than normal attendance levels due to projected events. Ultimately, no projected events occurred for any chosen days; thus, all surveys are based solely on recreation and visitor demand.

Parking spaces were broken into lots and segments for the study. There were three parking lots, Keyhole, Magic Island, and Canoe Hālau; and three parking segments along Ala Moana Park Drive, ʻEwa Parking, Central Parking, and Diamond Head Parking.

Current available parking within AMRP and Magic Island is 934 spaces, including 24 ADA designated spaces. Additionally, there are 64 on-street parking spaces on Ala Moana Boulevard which are available weekday late nights, starting at 10am, and all-day on weekends.

Peak hours for each day were calculated based on vehicle occupancy each hour divided by the capacity of each lot or study segment. When occupancy reached capacity, 100%, illegally parked vehicles were included; thus, some calculations reached over 100% vehicle occupancy.

The study defined effective maximum desirable occupancy (effective occupancy) for parking to be 90% with a 10% “cushion” of spaces for reasonable search times. Peak hour for Thursday was at 6pm ranging from 99% occupancy in the ʻEwa Parking segment to 102% occupancy in the Diamond Head Parking segment. Peak hour for Saturday was at 5pm ranging from 97% occupancy in the ʻEwa Parking segment to 168% occupancy in the Canoe Hālau Parking Lot. Peak hour for Sunday was at 2pm

ranging from 102% occupancy in the Central Parking to 115% occupancy in the Magic Island Parking Lot.

Parking demand exceeded effective occupancy for all parking lots and parking segments on Thursday between 4pm and 5pm. Parking demand exceeded effective occupancy for all parking lots and parking segments on Saturday between 10am and 11am. Parking demand exceeded effective occupancy, except for the Keyhole Parking Lot, for all parking lots and parking segments on Sunday by or before 11am.

The occupancy data from the study concludes that Thursday can be generally accommodated by the existing park parking. To accommodate peak Thursday demand, a total of 58 spaces are recommended. Saturday parking demand begins to exceed total parking supply, in most areas, between 9am-6pm. Sunday parking demand exceeds total parking supply, in most areas, between 11am to 5pm. For both Saturday and Sunday, no vehicles were observed parking in permitted street parking along Ala Moana Boulevard. To accommodate peak Saturday and Sunday demand, a total of 113 new spaces are recommended; this calculation assumes all 64 parking spaces along Ala Moana Boulevard are fully used before the new supply addition.

3.9.1 Potential Impact and Mitigation Measures

Based on the traffic and parking studies the additional parking stalls will not significantly impact traffic within the Parks. However, the additional parking could minimize the number is illegally parked cars in the parks. The additional stalls added will provide better parking accommodations for the growing population. No long-term impacts are expected with the increase in parking stalls.

3.10 SOCIO-ECONOMIC SETTING

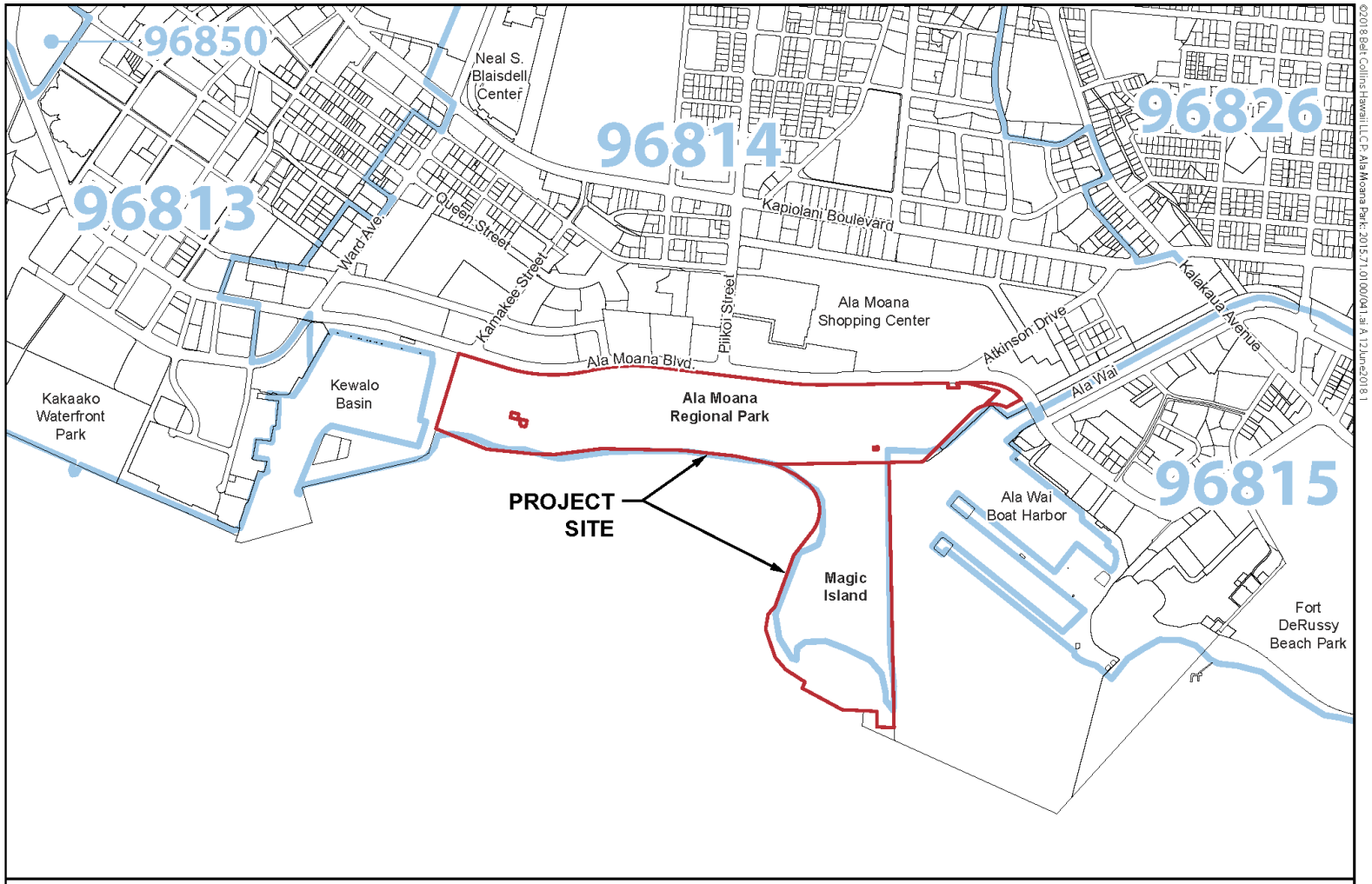
3.10.1 Existing Conditions

Demographics

AMRP serves residents of the entire City and County of Honolulu, since it is the base for family parties and island events. It also serves as a beach park and outdoor recreation area for residents of nearby neighborhoods. Figure 3-16 shows the nearby Zip Code Tabulation Areas (ZCTAs). Many regular users of the Park likely come from these areas. [43]

[43] ZCTAs are Zip Code areas, as recognized by the U.S. Census for the 2010 Census. In the present case, these correspond to Zip Code areas in everyday use.

1



BELT COLLINS

NORTH

0 300 600 1200
SCALE IN FEET

Figure 3-16
STATE ZIP CODE TABULATION AREAS
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

Waikiki beaches are enjoyed both by visitors staying in that area and by Honolulu residents living either in Waikiki or communities located farther from the ocean. AMRP, in contrast, is largely used by residents.

Residents of the area near the Park tend to be older than the population of the island as a whole (as shown by the median ages shown in Table 3-2). The Hawai'i-born share of the population is smaller than island-wide. The Asian "racial" population is larger than for the island average, while the share of people claiming more than one racial affiliation is slightly lower than the island average. Households tend to be small, and median household incomes are smaller than the island-wide median (Table 3-3).

Most residents of the area near the Park live in large multi-unit buildings, in contrast to the island population as a whole (Table 3-4). About a quarter of nearby households do not have an automobile (Table 3-5), and a large minority of the resident workforce commutes either by walking or by public transport (Table 3-6).

The share of the local population with incomes below the poverty line is higher in the Zip Codes near the Park than for the island population as a whole (Table 3-7).

Table 3-2: Resident Population, City and County of Honolulu and Zip Code Tabulation Areas (ZCTAs) near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
Population				
Total Population	975,690	18,846	50,656	31,346
Under 5 years	63,691	739	2,021	1,551
5 to 9 years	57,223	395	2,468	1,072
10 to 14 years	58,239	632	2,666	1,265
15 to 19 years	57,388	627	2,322	1,520
65 to 74 years	76,422	1,812	4,725	2,661
75 to 84 years	46,211	1,203	3,388	1,856
85 years and over	25,220	638	2,557	986
Median age (years)	37.2	45.5	45.1	39.9
Race (alone or in combination)				
White	37.9%	32.6%	32.2%	28.5%
Black or African American	4.0%	2.2%	1.8%	2.8%
American Indian and Alaska Native	2.1%	1.9%	1.8%	2.6%
Asian	60.9%	68.5%	71.4%	69.3%
Native Hawaiian and Other Pacific Islander	23.7%	11.4%	17.7%	21.4%
Some other race	2.5%	2.7%	1.6%	1.2%
Average Number of Race Identifications/Person	1.31	1.19	1.27	1.26
Hispanic (of any race)	8.9%	6.0%	6.3%	4.8%
Place of Birth				
Hawaiʻi	53.5%	37.9%	26.9%	49.6%
Other state	23.5%	22.8%	39.2%	18.0%
US Island	3.6%	4.0%	2.9%	2.5%
Foreign born	19.4%	35.3%	31.1%	29.9%

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

Table 3-3: Housing and Resident Households, City and County of Honolulu and ZCTAs near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
HOUSING AND HOUSEHOLDS				
Total housing units	339,830	11,481	22,250	16,022
Occupied housing units	310,141	9,592	15,035	14,719
Vacant housing units	29,689	1,889	7,215	1,303
HOUSEHOLDS BY TYPE				
Total households	310,141	9,592	15,035	14,719
Households with one or more people under 18 years	106,347	1,444	1,804	2,776
Households with one or more people 65 years and over	99,009	2,823	4,460	4,330
Average household size	3.03	1.95	1.89	2.06
Median household income (dollars)	73,581	57,946	50,832	44,946

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

Table 3-4: Units in Structure, City and County of Honolulu and ZCTAs near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
UNITS IN STRUCTURE				
Total housing units	339,830	11,481	22,250	16,022
1-unit, detached	45.5%	4.3%	9.9%	5.4%
1-unit, attached	10.4%	1.6%	1.6%	4.2%
2 units	2.2%	1.3%	1.0%	2.7%
3 or 4 units	4.8%	2.0%	1.0%	7.8%
5 to 9 units	6.9%	5.2%	2.6%	14.4%
10 to 19 units	5.3%	7.2%	8.1%	12.9%
20 or more units	24.6%	78.4%	75.5%	52.6%
Mobile home	0.1%	0.0%	0.1%	0.0%
Boat, RV, van, etc.	0.0%	0.0%	0.2%	0.0%

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

Table 3-5: Number of Vehicles per Household, City and County of Honolulu and ZCTAs near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
VEHICLES AVAILABLE				
Occupied housing units	310,141	9,592	15,035	14,719
No vehicles available	10.2%	24.8%	30.3%	25.4%
1 vehicle available	34.8%	51.3%	50.6%	50.7%
2 vehicles available	35.0%	20.6%	14.1%	21.4%
3 or more vehicles available	20.0%	3.3%	5.0%	2.5%

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

Table 3-6: Commuting by Resident Workers, City and County of Honolulu and ZCTAs near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
COMMUTING TO WORK				
Workers 16 years and over	480,392	10,502	15,911	17,165
Car, truck, or van -- drove alone	64.2%	50.5%	44.2%	52.9%
Car, truck, or van -- carpooled	14.7%	8.2%	8.1%	12.6%
Public transportation (excluding taxicab)	8.4%	12.7%	12.5%	13.3%
Walked	5.2%	18.4%	21.6%	10.0%
Other means	4.0%	7.3%	7.5%	8.4%
Worked at home	3.5%	2.8%	6.2%	2.8%
Mean travel time to work (minutes)	27.6	21.4	21.5	20.7

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

Table 3-7: Poverty Status of Residents, City and County of Honolulu and ZCTAs near AMRP

	City and County of Honolulu	ZCTA 96814 Ala Moana	ZCTA 96815 Waikīkī	ZCTA 96826 McCully Mōʻiliʻili
PERCENTAGE OF PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL				
All people	9.8%	10.3%	13.3%	16.0%
Under 18 years	13.0%	9.9%	10.1%	17.5%
18 to 64 years	9.3%	9.5%	15.1%	15.8%
65 years and over	7.0%	13.0%	8.0%	15.4%

SOURCE: U.S. Census, *American Community Survey*, Five Year Data for 2010-2014. Data profiles compiled at http://census.hawaii.gov/acs/acs-2014/.

The Homeless Population

Honolulu's parks serve all groups within the resident population. Persons without homes and often without employment have more time than many others to enjoy beach parks. In 2017, 639 unsheltered homeless persons were counted in the Downtown Honolulu region (including Ala Moana).[44] Islandwide, some 2,635 persons were counted as sheltered, many of whom were in facilities such as First Step (in Kakaʻako) and the Institute for Human Services (in Iwilei), in walking distance of AMRP.

Members of the homeless population have been seen as intruding on visitors' and residents' enjoyment of public spaces and businesses' ability to serve paying customers. The City has enacted "sit-lie" bans on public streets and sidewalks[45], while the HPD enforces park closure rules that ban overnight camping, notably in Kapiʻolani, Ala Moana and Kakaʻako Waterfront Parks. In Kakaʻako, the HCDA has found it necessary to close Kakaʻako Waterfront Park and Mother Waldron Park because of deteriorated infrastructure due to heavy use by homeless campers.

Economy

Waikīkī is the center of Hawaiʻi's tourism industry. Visitors outnumber residents, and some 44,000 jobs are located in Waikīkī. Visitor expenditures in Waikīkī amount to more than $7 billion, or 42 percent of total Statewide visitor spending.[46] However, the Ala Moana ZCTA, also has a large workforce.[47] Annual counts by the U.S. Census show that local employment in the Ala Moana ZCTA reached a high point in 2005. Meanwhile, the City and County of Honolulu workforce returned to pre-recession levels as of 2014.

The area nearest the Park has a diverse mix of businesses, as shown in Table 3-8. In addition to the retail and food service establishments at Ala Moana Center nearby, many other medical, other professional and business services are located in the area.

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44 Bridging the Gap and Partners in Care. *2017 Statewide Homeless Point in Time Count, January 22, 2017.* Posted at http://www.partnersincareoahu.org/sites/default/files/2017%20Statewide%20PIT%20Report%20-%20Full%20Report%20-%20FINAL.pdf ; viewed on January 12, 2018.

45 City and County of Honolulu. Revised Ordinances of Honolulu, Section 29.15 (Waikīkī) and 15B (other areas in Honolulu).

46 Ibid. DBEDT, *State of Hawaiʻi Data Book 2015*, Tables 1.20 and 7.33.

47 The Census count of employees in 2014 shows 39,887 workers in ZCTA 96814, as compared to 32,382 in ZCTA 96815: the Ala Moana workforce appears to be larger than the Waikiki workforce.. The only two ZCTAs with larger employment in Hawaiʻi are Downtown Honolulu (96813) and the Honolulu Airport area (96819).

Table 3-8: Business Establishments in ZCTA 96814, 2014, by Industry and Employment

		Number of Establishments by Employment-size class								
Industry	**Total Establishments**	**1 -4**	**5-9**	**10-19**	**20-49**	**50-99**	**100-249**	**250-499**	**500-999**	**1000 or more**
Total for all sectors	2,417	1,203	502	337	225	93	37	14	3	3
Agriculture, Forestry, Fishing and Hunting	2	2	0	0	0	0	0	0	0	0
Utilities	3	1	0	0	0	0	1	0	1	0
Construction	47	25	9	5	6	2	0	0	0	0
Manufacturing	40	16	10	4	8	0	0	2	0	0
Wholesale Trade	85	49	20	7	6	3	0	0	0	0
Retail Trade	427	130	105	94	61	23	8	4	2	0
Transportation and Warehousing	28	12	9	2	2	2	1	0	0	0
Information	32	16	3	6	4	1	2	0	0	0
Finance and Insurance	153	86	30	15	13	6	1	1	0	1
Real Estate and Rental and Leasing	156	121	19	10	5	1	0	0	0	0
Professional, Scientific, and Technical Services	266	169	43	36	10	7	1	0	0	0
Management of Companies and Enterprises	20	11	5	0	3	1	0	0	0	0
Administrative and Support and Waste Management and Remediation Services	110	58	20	6	9	7	7	2	0	1
Educational Services	38	17	7	7	5	1	1	0	0	0
Health Care and Social Assistance	370	194	114	37	13	5	4	3	0	0
Arts, Entertainment, and Recreation	25	9	5	4	2	3	1	1	0	0
Accommodation and Food Services	348	111	56	85	60	25	9	1	0	1
Other Services (except Public Administration)	265	174	47	19	18	6	1	0	0	0
Industries not classified	2	2	0	0	0	0	0	0	0	0

SOURCE: https://censtats.census.gov/cgi-bin/zbpnaic/zbpdetl.pl

Emerging Trends in the Surrounding Area

While Honolulu has settled into a pattern of slow population growth, the Kakaʻako and Ala Moana area population is expected to grow more rapidly, with new development of condominiums and apartments. The Ala Moana-Kakaʻako area population is estimated as increasing by some 22,000 between 2005 and 2035, to reach 36,913 persons. The annual average growth rate over that period would be 3.1 per cent, as

opposed to 0.5 per cent for the island as a whole.[48] The Ala Moana-Kakaʻako area population is likely to supply a large share of regular Park users.

The Honolulu Rapid Transit project involves construction of a rail line from Leeward Oʻahu to a terminus at Ala Moana. While the project has been delayed, and financing of the entire line remains to be secured, operations of part of the line will occur by 2020, and completion of the planned segment seems likely in the next few years. The rail line will bring more residents to Ala Moana. It is likely to increase user numbers at AMRP, notably for special events such as the Greek Festival.

3.10.2 Potential Impacts and Mitigation Measures

The proposed improvements at the Parks are not excepted to have a social effect on the park users. All the planned projects are beneficial to the park users because the improvements are expected to enhance the experience by increasing parking space, wider egress and ingress access along Ala Moana Boulevard, control erosion around the two ponds and restoring the historic features in the Park, such as the Bridle Bridge and the Roosevelt Portals.

The project will have a short term beneficial impact on the economy because of the various construction projects within the project area. The construction industry will gain short-term direct and indirect jobs. Direct impacts will come from the prime contractor who will then employ subconsultants for supplies required for the construction of the proposal improvements. The money gained will probably be spent on the local community via personal expenses that will add to the Hawaiʻi economy.

[48] City and County of Honolulu, Department of Planning and Permitting, Socioeconomic Projections to 2035, posted at http://www.honoluludpp.org/Portals/0/pdfs/planning/demographics2/Projections/2000-2035byDPSA.pdf.

CHAPTER 4

Natural Environment

CHAPTER 4
NATURAL ENVIRONMENT

This chapter reviews the natural environment and identifies potential impacts and mitigation measures. Sections included in this chapter are as follows:

- Geological, Soil and Topography
- Hydrology
- Air Quality
- Historical, Archaeological and Cultural Resources
- Flora, Fauna and Aquatic Biology
- Beach Nourishment

4.1 GEOLOGY, SOILS AND TOPOGRAPHY

4.1.1 Geology

There are eight major islands (Niʻihau, Kauaʻi, Oʻahu, Maui, Kahoʻolawe, Lānaʻi, Molokaʻi, and Hawaiʻi) in the state that comprises of 99% of the land area of the Hawaiʻi Archipelago. The remaining one percent are smaller volcanic atolls to the northwest of the main islands. The island of Oʻahu consists of two basaltic shield volcanoes: the Koʻolau volcano to the east and the Waiʻanae volcano to the west. Each volcano extends several thousand feet below the seafloor. Urban Honolulu's geological components are alluvium or late volcanic deposit from the Koʻolau range that extend seaward into elevated coral reefs.[1] Millions of years of erosion and sea level change have further shaped the island and its subsurface composition to the Oʻahu we are familiar with today.[2]

[1] Macdonald, G., Abbott, A., & Peterson, F. 1983. *Second Edition Volcanoes in the Sea*. University of Hawaiʻi Press. Pg. 420

[2] Stearns, H., & K. Vaksvik. 1935, Reprinted March 2001. *Geology and Ground-Water Resources of the Island of Oʻahu, Hawaiʻi*. Prepared for U.S. Geological Survey. Pg 98.

The geology of the Waikīkī and Kakaʻako area consists of marshy, swamp lands and sedimentary deposits. [3] The project area was part of a land reclamation event with Waikīkī and Kakaʻako in the early 20th century that created artificial dry land and a reconfigured shoreline. The project area sits atop the original 1817 reef that was filled in with marine dredge. This fill is described as "brown to white permeable marine mud containing shells, coral, and other calcareous marine organisms dredged from the ocean floor and used to fill up salt marshes and other low lands."[4] The alluvia plain of sedimentary deposits continues upland and stretches east (Waikīkī) and west (Kakaʻako) of the project area.

The beach section of the project area transitions from fill composed of marine deposits to unconsolidated marine calcareous sediments. The coastline of the manmade sections of the south shores is described as unconsolidated marine calcareous sediments. This material is "chiefly cream-colors and light-tan, very permeable beach sand consisting of grains of worn coral, coralline algae, and shells with appreciable amounts of foraminifers and other calcareous marine organisms." [5] The sand that formed the current shoreline from Waikīkī to Sand Island was imported from Waiʻanae or Bellows Field. Typically, ocean or brackish water is abundant in this sand.

4.1.2 Soils

The U.S. Department of Agriculture's Soil Conservation Service, now known as the Natural Resources Conservation Service, classifies the soil at the project area as mixed fill land (zero to three percent slope) and beaches (one to five percent slope).[6] Mixed fill land (FL) consists of materials dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources.[7] This soil type occurs in urban areas, near Pearl Harbor and in Honolulu adjacent to the ocean. Beaches (BS) occur as sandy, gravelly, or cobbly areas on all the islands. They are washed and rewashed by ocean waves. The beaches consist mainly of light colored sands derived from coral and seashells. Beaches are highly suitable for recreational uses and resort development. See Figure 4-1, Soils Map depicting the soil classification of the project area.

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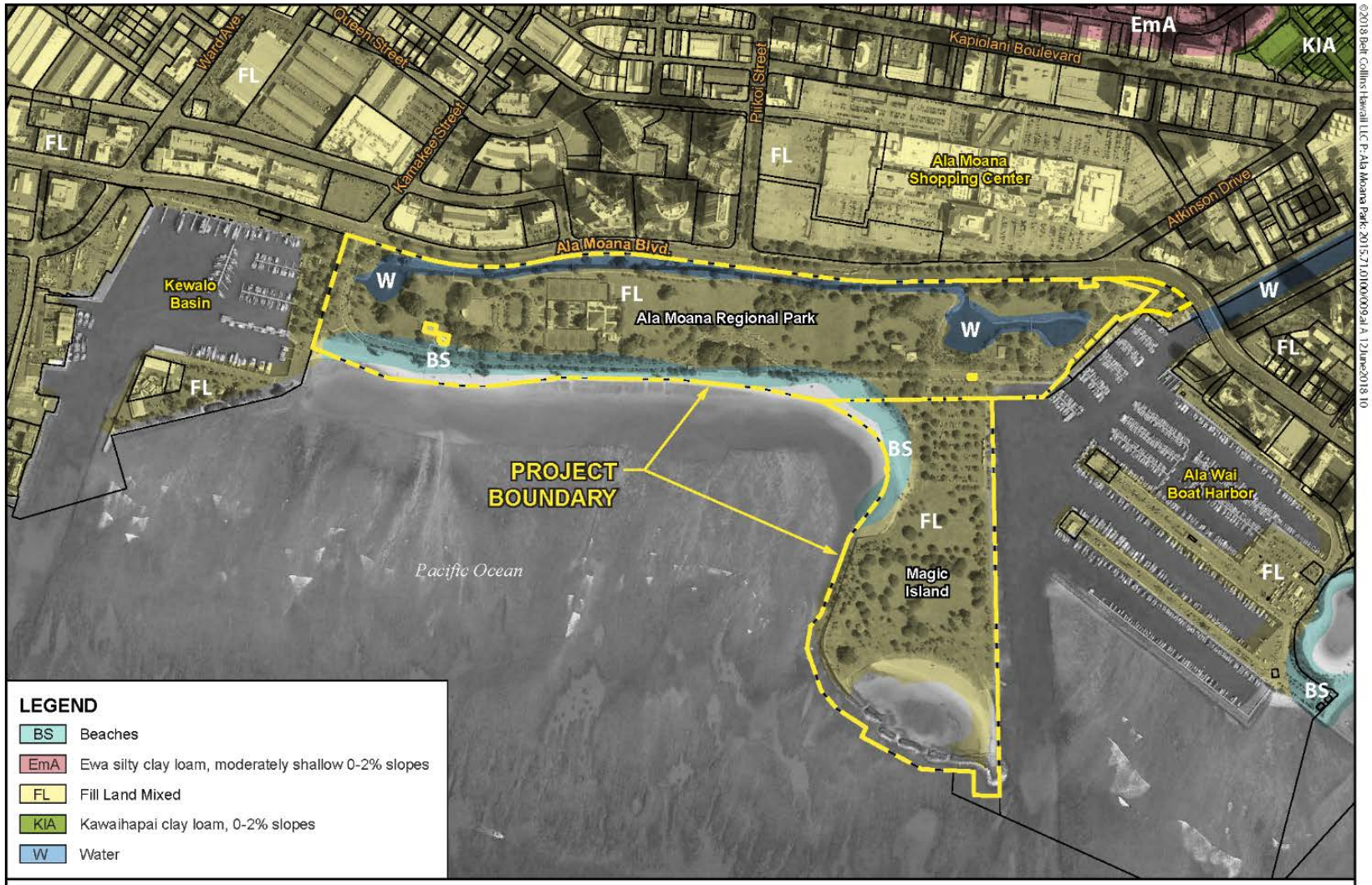
3 Stearns, H., & K. Vaksvik. 1938, Reprinted March 2001. *Geologic and Topographic Map of the Island of Oʻahu, Hawaiʻi* Bulletin 2, Plate 2. Prepared for U.S. Geological Survey.

4 Ibid.

5 Ibid

6 U.S. Department of Agriculture, Natural Resource Conservation Service, Survey Area Data: Version 9, September 25, 2014.

7 Foote et al. 1972. Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.



©2018 Belt Collins Hawaii LLC P:\Ala Moana Park\ 2015.71.01\0000009.ai A 12June2018 10

Figure 4-1
SOILS MAP
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

4.1.3 Topography

The project area is relatively level at an approximate elevation of 5.1 feet and 5.6 feet above msl. Over the project area's approximate 118 acres, the elevation ranges from zero feet above msl at the shoreline to about 5.0 feet above msl around the northern sections of the Parks. The AMRP contains a mile-long canal on the northern side of the park that empties into two ponds on the northeastern and northwestern sides. Ala Moana Park Drive bisects the AMRP from Magic Island and the beach through the middle of the project area. The elevation of Ala Moana Park Drive is approximately 4.3 feet above msl. The project area is drained through surface flow directly into the canal, ponds or Ala Moana Park Drive. Drainage into Ala Mona Park Drive is piped to the Ala Wai Harbor, canal or ponds.[8]

4.1.4 Potential Impacts and Mitigation Measures

The Proposed Action would not adversely impact the integrity of the project area's geology, soil, or topography. The Proposed Action will disturb the soil at the project area, but the disturbed locations will be restored to their original condition once construction is completed.

Construction activities would be conducted in compliance with the required project-specific BMP Plan to minimize the potential for erosion that could cause soil runoff into local waterways, drainage system or the ocean. Any sediment captured by the erosion protection devices would be dewatered and used for backfill or properly disposed, along with any excess material.

4.2 HYDROLOGY

This section describes site hydrology (surface water and groundwater) for the Proposed Action. Factors considered in the evaluation of hydrology include site changes that would affect surface water and groundwater.

4.2.1 Water Resources

The project area is located on the southeastern side of the island of O'ahu, where the climate is relatively dry, mild, and seasonably uniform. The AMRP receives about 26 inches of rainfall and Magic Island receives about 24 inches of rainfall per year.[9] Four sides of the project area are surrounded by water: a drainage canal and two ponds to the north, Kewalo Basin to the west, Ala Wai Boat Harbor to the east, and the Pacific Ocean directly south. Figure 4-2 shows the surrounding surface waters near or within the Parks.

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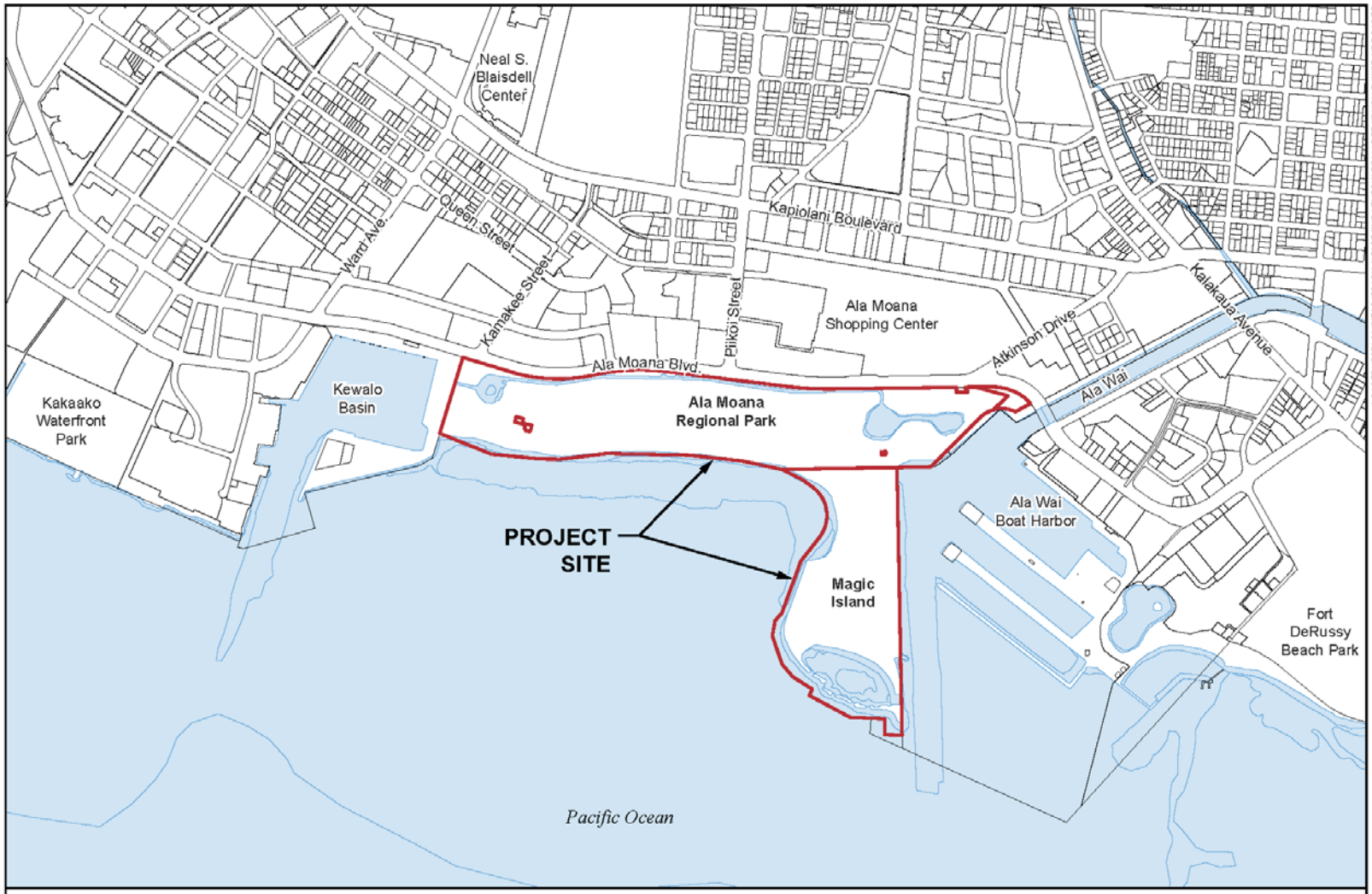
8 Belt Collins Hawaii LLC, 2018, *Preliminary Engineering Report Ala Moana Regional Park*. Pg. 8.

9 Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte, 2013: Online Rainfall Atlas of Hawai'i. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.



BELT COLLINS

NORTH

0 300 600 1200
SCALE IN FEET

Figure 4-2
SURFACE WATERS
Kalākaua Avenue Water System Improvements
Honolulu, O'ahu, Hawai'i
Environmental Assessment

4.2.2 Surface Water

DOH defines surface water in HAR §11-54-1[10], Definitions as "both contained surface water (that is, water upon the surface of the earth in well-defined basins created naturally or artificially including, but not limited to, streams, other watercourses, lakes, and reservoirs) and diffused surface water (that is, water occurring upon the surface on the ground other than in contained basins). Water from natural springs and seeps is surface water when it exits from a spring onto the earth's surface." According to the State Commission on Water Resource Management (CWRM), there are approximately 376 streams that flow continuously in Hawai'i. They are fed by rainfall (surface runoff) and underground sources of water (subsurface flow). The State Water Code, HRS Chapter 174C, authorizes the Commission to designate water management areas for surface water use. Individual surface water management areas are similar to the watershed designations. The project area is located within the Ala Wai watershed. The Ala Wai watershed encompasses approximately 10,378 acres.[11] There are at least 17 streams that occur within the Ala Wai watershed.[12] Storm water from five sub-watersheds (Makiki, Mānoa, Pālolo, Ala Wai Canal, and Waikīkī) feed into the Ala Wai Canal which empties into Māmala Bay at the Ala Wai Boat Harbor. The boat harbor connects to Māmala Bay via a channel that was dredged through the reef platform when the harbor was built in 1935.[13] However, storm water from the project area does not enter the Ala Wai Canal. Discharge from the Parks is directed toward the Ala Wai Boat Harbor and Kewalo Basin either via the AMRP canal and ponds or the drain inlets located in the parks' parking lots and roadway. Ala Wai Boat Harbor and Kewalo Basin adjoin to the Pacific Ocean.

4.2.2.1 *Project Area Surface Waters*

The surface water features located in the project area are a drainage canal and two ponds. They were manmade features dredged shortly after the AMRP was filled in during the early-1930s. Their main feature is storm water drainage for the local areas surrounding the project area. They also serve recreation and aesthetic purposes as part of the AMRP's amenities. Recent observation and feedback from park users note that the areas around the ponds are not popular for recreational or lounging use. Therefore, the City proposes to activate vacant park spaces around the ponds with improvements to the water edges. However, the public is advised to not enter the ponds or the canal because the water quality is not meant for swimming or wading. The ponds and canal receive urban storm runoff from outlets located in the canal. There are numerous drainage outlets that discharge local urban runoff from the Kaka'ako and Ala Moana areas, as well as Ala Moana Boulevard. The water features

[10] State of Hawai'i. 2014. *Hawaii Administrative Rules, Title 11, Chapter 54, Water Quality Standards.* Updated November 15, 2014.

[11] U.S. Army Corps of Engineers (USACE). August 2015. *Draft Ala Wai Canal Project, O'ahu, Hawai'i Feasibility Study with Integrated Environmental Impact Statement*. Pg. 6.

[12] Hawai'i Division of Aquatic Resources and Bishop Museum. 2008. *Atlas of Hawaiian Watersheds & Their Aquatic Resources.* http://www.hawaiiwatershedatlas.com/oa_honolulu.html

[13] Ibid. USACE. August 2015. Pg. 5-10.

are also tidally influenced and receive salt water from the box culverts located at each pond, along with groundwater intrusion.

The canal is about 3,400 feet long, 27 feet wide, and 4 feet deep, with an invert at mean sea level.[14]. Under the existing drainage conditions, about 465 acres drain to the canal and ponds; majority of this area is off-site with only 57 acres of the Parks land.[15] The remaining 45 acres discharges directly into the canal from Ala Moana Boulevard. The first storm drain to discharge into the canal was the Piʻikoi Street drain, which was constructed in the 1930s.[16] The Pensacola Street drain was later added in 1971 to reduce flooding in the areas near Piʻikoi Street. Plans to upgrade the AMRP canal were proposed since the 1950s, but those plans were met with objections from the public and various government agencies.

The Hawaiian Pond is located on the mauka/Diamond Head side of the AMRP. It discharges into the Ala Wai Boat Harbor via a box culvert under Ala Moana Park Drive. It is of irregular shape with a small channel connecting two ponds. The total surface area of the Japanese Pond is about 2.8 acres.[17] It is relatively shallow with a maximum depth of minus 5.0 feet msl at the center. The pond was also called "Diamond Head Lagoon" and later "Hawaiian Lagoon." A Hawaiian Village called "Ulu Mau" complete with grass huts was constructed near the Japanese Pond in the late 1940s. The village served as a learning center of Hawaiian crafts and occasionally as a backdrop for local pageants.[18] The Canoe Hālau built around 2007 and parking lot currently occupies the space of the former Hawaiian Village.

The Japanese Pond is located on the mauka/ʻEwa side of the AMRP. It discharges into Kewalo Basin via box culvert under Ala Moana Park Drive. The total surface area of the Japanese Pond is about 1.1 acres and has a circular shape. An islet with overgrown brush lies in the approximate center of the lagoon. It was remodeled in 1950. The Japanese Pond was also called the "Oriental Lagoon" and had a Japanese Village and teahouse. Landscaping and architectural features represented Chinese and Japanese characteristics.[19] The State DOH commits to water quality standards by assigning regulatory and administrative oversight of Hawaiʻi's waters to the Clean Water Branch (CWB) as derived from the federal law passing of the CWA in 1972 (P.L. 92-500).

4.2.3 Water Quality Standards

CWB protects Hawaiʻi's coastal and inland water resources for recreational use and restoration of the aquatic environment. The goal of the CWB is to continue monitoring coastal waters and the watershed-based environment through permitting, water

[14] VTN Pacific. 1981. *Ala Moana Canal Revised Environmental Impact Statement.* Pg. iv.

[15] Ibid. Belt Collins Hawaii LLC, 2018. Pg. 9

[16] Ibid. VTN Pacific. 1981. Pg. 1.

[17] Ibid. VTN Pacific. 1981. Pg. 30.

[18] O'Hare, C.R., Shideler, D.W., & Hammatt, H.H. January 2017. *Draft Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan, Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu, TMKs: (1)2-3-037:001, 022, 023, 025.* Pg. 115

[19] Ibid. Weyeneth, Robert. 1987. Pg. 27

quality monitoring, enforcement, sponsorship of polluted runoff control projects, and public education. One of its main functions is issuing the NPDES permit. An NPDES permit must be obtained for the discharge of any pollutants by a point source into waters of the U.S./State waters. Point sources include construction sites, industrial facilities, and municipal systems. Most commonly, NPDES permits are obtained for construction activities resulting in discharges to water bodies (e.g., disturbance of 1 acre or more of total land area during construction activities resulting in discharges composed entirely of storm water runoff, discharges of construction dewatering effluent, or discharges of hydrotesting waters).

4.2.3.1 *Surrounding Waters*

Māmala Bay stretches from Diamond Head to Barber's Point. Most of the major harbors on the south shore discharge directly into the bay. Water quality samples of the bay have been taken often to ensure the well-being of the near shore aquatic environment. Māmala Bay is, therefore, classified as a Class A marine water based on the State DOH Water Quality Standards, HAR §11-54-3, "Classification of water uses." Specifically, the standard states that "…their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class." Discharge may be allowable if the NPDES general permit is obtained and approved.

The DOH classifies the Ala Wai Boat Harbor as a Class A embayment that should be protected "for recreational purposes and aesthetic enjoyment."[20] The embayment category is further defined by inclusion of a wet or dry criterion, depending on the level of freshwater input. The Ala Wai Canal is classified as Class 2 waters. Class 2 waters are protected "for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping and navigation."[21] Water quality in the Ala Wai Canal is determined by its source waters (nearshore ocean water, groundwater, streams), mixing, and tidal exchange, and input from the accumulated sediment via resuspension and regeneration.[22] As the collecting point for the Makiki, Mānoa, Pālolo and Kapahulu sub-watersheds, the Canal accumulates sediments, nutrients, some heavy metal contamination, and solid waste trash. The results of this contamination is reflected in discoloration of the water due to phytoplankton growth, suspended sediments and trash. In addition, some incidence

[20] Ibid. State of Hawai'i. 2014.

[21] Ibid.

[22] Edward K. Noda and Associates. 1992. *A Management Plan for the Ala Wai Canal Watershed.* For the Department of Land and Natural Resources. Honolulu.

Edward K. Noda and Associates, and KRP Information Services. April 1993. *Ala Wai Canal Improvement Environmental Assessment.* For the Department of Land and Natural Resources. Honolulu. Pg. 2-10

of bacterial infections has been reported.[23] The Ala Wai Boat Harbor's water quality is also affected since the Ala Wai Canal discharges into it.

Like the Ala Wai Boat Harbor, Kewalo Basin is also classified by DOH as a Class A embayment that should be protected "for recreational purposes and aesthetic enjoyment." Since the late 1960s, plans to direct runoff in Kewalo Basin from the project area were met with objection from the government agencies due to the potential impact of the aquatic environment. The 1981 EIS that studied improvement needs for the AMRP canal chose an alternative that would divert runoff into the Ala Wai Boat Harbor.

The Ala Moana Beach is considered a "coastal water" which is classified as "all waters surrounding the islands of the State from the coast of any island to a point three miles seaward from the coast, and, in the case of streams, rivers, and drainage ditches, to a point three miles seaward from their point of discharge into the sea and includes those brackish waters, fresh waters and salt waters that are subject to the ebb and flow of the tide."[24] Water quality along the shoreline and swim channel is characterized by the manmade events of the AMRP development and later the beach installation. The swim channel was originally dredged in 1928 for the AMRP development and to allow boats to travel between Ala Wai Boat Harbor and Kewalo Basin. This dredging created a protected area behind the reef that prevents the open ocean waters from circulating with near shore waters. As a result, higher levels of nutrients and turbidity are found near the shoreline. In January 2018, the DOH issued a high bacteria advisory for the beach and reported higher levels of enterococci.[25] Warning signs were posted to alert swimmers and beach users of the hazards in the water. Exposure to polluted water could make a person ill or develop an infection.

4.2.3.2 *Water Quality Monitoring*

The DOH is required by §305(b) of theCWA to biennially submit a list of impaired waters defined by CWA §303(d) to Congress. The U.S. EPA may approve Total Maximum Daily Load (TMDL) for specific receiving waters that does not meet water quality standards due to specific pollutants. The TMDL process implements a plan to restore the water quality of the water bodies that are identified by the State of Hawai'i Water Quality Monitoring and Assessment Report. The TMDL identifies the maximum amount of a pollutant that a water body can receive and remain within the water quality standards, and by what method of discharge. Non-point source and point source, for example, determines the indirect or direct method of discharge. The list is updated when new data justifies additional TMDL or delisting of specific receiving water segments or pollutants.

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23 Ibid., *Ala Wai Canal Improvements.* Pg 2-6.

24 Ibid. State of Hawai'i. 2014. *Hawaii Administrative Rules, Title 11, Chapter 54, Water Quality Standards.* Updated November 15, 2014.

25 Honolulu Star Advertiser staff. January 10, 2018. High bacteria levels detected in water at Ala Moana Beach Park. http://www.staradvertiser.com/2018/01/10/breaking-news/high-bacteria-levels-detected-in-water-at-ala-moana-beach-park/

A TMDL was assigned to the Ala Wai Boat Harbor in 1996 for pathogens, metals, total suspended solids and pesticides. As of the date of the 2014 annual report to the EPA, no other TMDLs have been established for the Ala Wai Boat Harbor tributary area. The 2008/2010 Integrated Report listed Ala Moana Beach (Diamond Head) as impaired for one or more pollutants that include Total Nitrogen, Nitrate + Nitrite Nitrogen, Chlorophyll a, and/or Ammonium Nitrogen. The 2014 annual report listed Magic Island due to turbidity. Turbidity is the most common pollutant to trigger a marine water listing for impairment. A TMDL was assigned to both bodies of water. Magic Island previously had no determination due to insufficient available data or support. Kewalo Basin was also listed in the 2014 report as an impaired water body for having traces of Total Nitrogen, Total Phosphorus, turbidity, and Chlorophyll a. The basin has not been assigned a TMDL and has been listed as a low priority.

4.2.4 Groundwater

Groundwater accounts for almost 99 percent of Hawaii's domestic water and about 50 percent of all freshwater used in the state. [26] The Ala Wai watershed area contributes to the Nuʻuanu Aquifer (30102). The Nuʻuanu Aquifer is one of six aquifer systems that form the Honolulu Groundwater Management Area. According to the State CWRM, the Nuʻuanu Aquifer generates a groundwater sustainable yield of 14 million gallons per day (MGD). The larger Honolulu (301) groundwater system generates a sustainable yield of 50 MGD. [27]

BWS has established a No-Pass Line on Oʻahu to demarcate the boundary between non-potable brackish and potable fresh groundwater. Groundwater beneath areas that are seaward of the line are not considered to be a drinking water source. After DOH was assigned primacy by EPA for Underground Injection Control (UIC) regulations, DOH also accepted responsibility to control activities that could impact potable aquifers landward of the No Pass Line. The project area is below the UIC Line. Underground Injection Wells are wells used for injecting water or other fluids into a groundwater aquifer. Department of Health Administrative Rules, Title 11, Chapter 23 provides conditions governing the location, construction, and operation of injection wells so that injected fluids do not migrate and pollute underground sources of drinking water.[28] The main functions of the UIC are[29]:

- To protect the quality of Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination that could originate from injection well activity.

26 Gingerich, Stephen B. and Delwyn S. Oki. 2000. Ground Water in Hawaiʻi. Obtained from http://www.higp.hawaii.edu/~scott/GG104/Readings/Gingerich_Oki_2000.pdf.

27 State of Hawaiʻi Commission on Water Resource Management. 2016. dlnr.hawaii.gov/cwrm/groundwater/

28 State of Hawaiʻi Department of Health, Safe Drinking Water Branch. 2017. Underground Injection Control Program. http://health.hawaii.gov/sdwb/underground-injection-control-program/

29 State of Hawaiʻi Department of Health, Safe Drinking Water Branch. 2017. Groundwater Pollution Control Section. http://health.hawaii.gov/sdwb/groundwater/

- Process permits and project reviews for new and renewal permits, modifications, and abandonment of injection wells.
- Evaluate geologic logs of soil and rock, injectivity tests, geologic maps, and groundwater quality profiles to determine the viability of subsurface injection.
- Maintain inventory and database of all injection well files.
- Organize and conduct site inspections to verify the location and performance of injection wells and to verify compliance with all testing or well closure plans.
- Conduct site investigations to identify problems such as unpermitted facilities and correction of deficiencies.
- Enforce Underground Injection Control rules and permit conditions.
- Serve the public by providing information and technical assistance.

4.2.5 Potential Impacts and Mitigation Measures

On Land

Project design provisions and compliance with NPDES permit requirements would control storm water runoff impacts during construction. A Storm Water Quality Strategic Plan will be prepared for the initial grouping of projects which is programmed to include the Japanese and Hawaiian pond edge improvements, Bridle Bridge repairs, keyhole parking reconfiguration, widening of the beachfront shared use path along Ala Moana Park Drive, and adding perpendicular parking along its mauka side. The Strategic Plan will be prepared in accordance with the City's Rules Relating to Water Quality effective August 16, 2017. The project is also expected to meet LID standards. These standards set requirements for implementation of BMPs that infiltrate, treat, or propose off-site mitigation measures. Due to the close proximity to the water table, many retention and biofiltration treatment control BMPs would be infeasible. However, filter media installed in trench drains and drain inlets could provide some filtration before entering the storm drain. An ESCP prepared in accordance with the Rules will also be completed for each project. The ESCP is required to contain pre-construction, during construction and post-construction BMPs. The Strategic Plan will address the activities common to all the projects including post-construction BMPs, with the ESCP containing project-specific requirements.

The initial grouping will constitute a Category 5 project under the Rules, and all requirements for plan preparation, content and BMPs will be addressed, along with BMP inspections at least once every 7 days by ESCP Coordinator during, and certification upon completion of, construction. Subsequent master plan projects will follow similar procedures complying with the Rules, and obtaining a NPDES permit when the project or group of projects involves ground disturbance of one acre or more. Implementation of BMPs to control, treat, or reduce runoff (before entering nearby surface waters via drain inlets or sheet flow) would occur before construction begins and remain until permanent BMPs are in place.

Provided that the master plan project will follow the standards noted above, and with implementation of BMPs and other measures required under the NPDES permit program, it is anticipated there will be no substantial impacts on surface water quality. No impacts on potable groundwater resources are anticipated.

Beach Nourishment

Placement of sand onto the beach will result in some turbidity and may temporarily increase resuspended sediment in the water. Large amounts of sand are not expected to reach the water and cause a higher increase in turbidity that could affect marine life. Care should be taken during placement to avoid having large amounts of sand enter the water. BMPs such as silt curtains should be used to prevent turbidity caused by the project.

4.3 AIR QUALITY

4.3.1 Existing Conditions

As required by the Clean Air Act (CAA), the EPA has established the National Ambient Air Quality Standards (NAAQS) for the following pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), lead (Pb), and particulate matter (PM). The NAAQS are described in Title 42 of the U.S. Code (USC) §7409 and Title 40 of the Code of Federal Regulations (CFR), Part 50.

Table 4-1: Air Quality Standards

Standards				
Air Pollutant	Averaging Time	Hawai'i State Standard	Federal Primary Standard	Federal Secondary Standard
Carbon Monoxide (CO)	1-hour	9 ppm	35 ppm	-
	8-hour	4.4 ppm	9 ppm	-
Lead (Pb)[1]	3-months	1.5 μg/m^3	0.15 μg/m^3	0.15 μg/m^3
Nitrogen Dioxide (NO_2)	1-hour[2]	-	100 ppb	-
	Annual	0.04 ppm	53 ppb	53 ppb
Ozone (O_3)	8-hour	0.08 ppm	0.070 ppm	0.070 ppm

Table 4-1: Air Quality Standards

Standards				
Air Pollutant	Averaging Time	Hawai'i State Standard	Federal Primary Standard	Federal Secondary Standard
$PM_{2.5}$	24-hour	-	35 µg/m³	35 µg/m³
	Annual		12 µg/m³	15 µg/m³
PM_{10}	24-hour	150 µg/m³	150 µg/m³	150 µg/m³
	Annual[3]	50 µg/m³	-	-
Sulfur Dioxide (SO_2)	1-hour[4]	-	75 ppb	-
	3-hour	0.5 ppm	-	0.5 ppm
	24-hour	0.14 ppm	-	-
	Annual	0.03 ppm	-	-
Hydrogen Sulfide (H_2S)	1-hour	0.025 ppm	-	-

Notes:

Source: Clean Air Branch, Department of Health, State of Hawai'i. Updated November 19, 2015. *Federal and State Ambient Air Quality Standards.* Available at: health.hawaii.gov/cab/files/2013/05/naaqs_nov_2015.pdf

ppb = parts per billion by volume

ppm = parts per million by volume

µg/m3 = micrograms per cubic meter of air

1 Due to almost non-detectable levels, ambient air monitoring for lead was discontinued in October 1997 with EPA approval. However, since 2003 lead continues to be measured as part of the Air Toxics monitoring program.

2 Effective January 22, 2010.

3 Due to lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM10 standard effective December 17, 2006. However, the State still has an annual standard.

4 Effective June 2, 2010.

The NAAQS includes primary and secondary standards for ambient air quality. Primary standards set limits to protect public health. This includes protecting "sensitive" populations such as asthmatics, children, and the elderly.[30] Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The secondary standards for lead and ozone are the same as the primary standards.

In Hawai'i, the Clean Air Branch (CAB) of the DOH is responsible for air pollution control. CAB conducts engineering analysis and permitting, performs monitoring and investigations, and enforces the federal and state air pollution control laws and

30 U.S. Environmental Protection Agency (EPA). *NAAQS Table*. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed 3.17.17.

regulations. Hawai'i has an ambient air standard for hydrogen sulfide (H_2S), in addition to the pollutants identified above. Relative to the project area, the nearest air quality monitoring station is located on the roof of the DOH building, Kīna'u Hale. This station monitors for CO, SO_2, PM_{10} and, $PM_{2.5}$. Kīna'u Hale is on Punchbowl Street, approximately 1.8 miles northwest of the project area.[31]

The State's Annual Summary: 2014 Air Quality Data Summary, released in September 2015, confirms the State was in attainment of almost all the NAAQS. Exceptions include exceedances of the NAAQS for SO_2 and PM_{10} due to volcanic events on Hawai'i Island. The 2014 report notes the EPA considers the volcano a natural, uncontrollable event. The State is requesting exclusion of these NAAQS exceedances from their attainment/non-attainment determination. Between 2010 to 2014, readings taken at Kīna'u Hale did not exceed Federal and State standards for CO, SO_2, PM_{10} or, $PM_{2.5}$.[32]

There are no major air pollution generators in the vicinity of the project area. Air pollution generated by existing uses at the project area is limited to vehicles accessing the area and the moderate use of motorized vessels in the Ala Wai Boat Harbor and Kewalo Basin.

4.3.2 Potential Impacts and Mitigation Measures

Short-term air quality impacts would occur as part of the proposed project's construction activities. BMPs will be employed to minimize air emissions from equipment and dust during construction activities, such as frequent watering to control dust. No adverse air impacts are anticipated during construction activities. After construction is complete, the project area will return to its existing conditions with no long-term impacts. No further mitigation is needed.

4.4 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

4.4.1 Historical Background

The project area fronts a traditional Hawaiian trail known before as "Beach Road" which was within an area known as Kālia during Pre-Contact.[33] It was a walking path during the Pre-Contact period and then later developed into a horse path and then a cart path. It was a coastal trail during Pre-Contact times that appeared to follow the natural shoreline in historic maps. Further inland from the Beach Road were

[31] State of Hawai'i, Department of Health, Air Quality Monitoring Sites Mapping Tool. Available at: http://emdweb.doh.hawaii.gov/air-quality/. Accessed 3.17.17.

[32] State of Hawai'i Department of Health. 2016. *Annual Summary: 2015 Air Quality Data Summary.* Available at: https://health.hawaii.gov/cab/files/2016/12/aqbook_2015.pdf. Pages 18-26.

[33] O'Hare, C.R., Shideler, D.W., & Hammatt, H.H. January 2017. *Draft Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan, Waikīkī Ahupua'a, Honolulu (Kona) District, O'ahu, TMKs: (1)2-3-037:001, 022, 023, 025.* Pg. 15

marshlands filled with taro fields, saltpans, and fishponds. Early maps depict an abundance of wetland food sources suggesting a highly populated area during pre-Contact times. The trail was a demarcation that separated the wetlands from the shoreline. Today, the traditional Hawaiian trail is a major thoroughfare known as Ala Moana Boulevard.

The shoreline morphed into harbors once Western Contact was established in the early-1800s. The area that would be the future AMRP and Magic Island was within the offshore fisheries of Kukuluāeʻo and Kālia.[34] The project area is located within the shallow reef of the fisheries.

Historical reviews of the project area reveal a significant past from the time of its inception. Figure 4-3 shows a timeline and some historic photographs of AMRP during its development. The plan for AMRP was associated with the City's public works overall agenda to incorporate open spaces in the populated areas on Oʻahu. The majority of the area surrounding the project was swampy marshlands and ponds. The ponds and marshlands served as agricultural lands until they became more of a health concern with a mosquito epidemic. For about 20 years prior to the land acquisition for AMRP, portions of the project area were used as a garbage and refuse site.[35] A transformation of Waikīkī began by accommodating the new tourism industry with the reclamation of swampy land space to repurpose for urban needs. The Territory's agricultural resources could no longer sustain the population due to the growing curiosity of visitors and foreign settlement.

1920 - 1930

AMRP was built on swampy marshlands and the Ala Moana reef as reclaimed land. The City saw an opportunity to develop a large area of open space that was needed during the Depression-era. Construction to fill in the marshland began in the late 1920s with dredging of the nearby channel leading to the Kewalo Basin. Sand from offsite beaches was brought in to fill the swampy areas, too. In the 1930s structural construction on the new land began with the Sports Pavilion and Banyan Court, a lawn bowling green, the Bridle Path Bridge, and the Roosevelt Portals. The two ponds and drainage canal were dredged around 1932 for both aesthetic and local run-off control purposes. These earlier structures remain today and are considered for preservation in this EIS. The main goal for AMRP during its conception in the 1920s was to have a place with lots of green open space that was accessible to all communities and recreational activities.

World War II

AMRP carries a significant historical past through World War II (WWII) for the United States US military. The military began to establish roots within the harbors and other strategic areas around Oʻahu. AMRP was used as a temporary staging area for the

[34] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 25

[35] Weyeneth, Robert. Ala Moana:ThePeople's Park. Honolulu: Department of Parks and Recreation, City and County of Honolulu,1987. Pg. 5

military during WWII. A gun battery was built, but was later destroyed shortly after a brief post-war extension in military jurisdiction. AMRP was given back to the people in poor condition and restoration of the area took time. The City announced a new "re-opening" of AMRP after post-war restoration was completed with the Hawaiian Village of 'Ulu Mau in 1948 as a new feature.[36]

1950 – 1960

During post-war, AMRP restoration efforts served as a symbol of the growing tourism economy in Hawai'i. O'ahu in particular began to expand rapidly due to tourism and real estate development. This development triggered the need for a beach expansion as Waikīkī beaches rose in popularity. About 55,000 cubic yards of sand were brought in from the west side of the island to create the beach.[37] The beach was a major post-war improvement even though AMRP was not meant to be a beach park. Today, the mile-long beach requires periodic replenishment from erosion and a sand replenishment study is reviewed in this EIS. Another post-war addition to AMRP was the 47-acre Magic Island Peninsula. Developers wanted to capitalize on Waikīkī's popularity by creating a resort expansion that included at least five resorts, entertainment and activity areas, beaches, and park space. The idea for Magic Island was first conceptualized in the late-1950s. Belt Collins and Associates completed an engineering report in 1961 that weighed the possibilities for development of the resort area and offshore island through reef reclamation. The plans for the resort area and island did not develop due to overwhelming public opposition to the proposal. As it is true today, the people wanted AMRP to remain localized for the residents and the hotel expansions contained in Waikīkī. As a result, Magic Island was added to the AMRP as additional open space.

1970 – 1980

The development of a new park master plan began in the 1970s. Wilson, Okamoto & Associates produced the Ala Moana Beach Park Master Plan Report.[38]. Amidst the backdrop of the 1970s energy crisis, the report proposed a "fresh approach" to the Parks. Specifically, evicting cars from them, proposing to convert Ala Moana Park Drive into a pedestrian and bicycle promenade, and constructing three multi-story parking structures. The proposed parking structures were to house automobile parking, restrooms, food concessions, and maintenance sheds. Ultimately, the fresh approach and visionary idea of automobile deemphasis did not come to fruition and the cash strapped governments of the 1980's had to scale down the proposals of the 1975 master plan.

[36] Ibid. Weyeneth, Robert. Ala Moana:ThePeople's Park. Pg 30

[37] Ibid. Weyeneth, Robert. Ala Moana:ThePeople's Park. Pg. 32

[38] Ibid. Weyeneth, Robert. Ala Moana:ThePeople's Park. Pg. 37

In the 1980s, AMRP became eligible for historic designation by the National Register of Historic Places (NRHP). Historic designation brought with it a stronger protection mechanism from proposed changes.

1990s - Present Day

In 1991, an application was submitted for a project consisting of grading and/or redistributing existing sand, removing exposed coral chunks and importing additional sand within a portion of Ala Moana Beach to restore the shoreline. In 1992, an Environmental Assessment was completed for a project proposal that contained five phases. The Environmental Assessment described the plans as a "facilities and landscape improvement plan," leaving the entire park layout "intact."

Today, the heavy usage of the Parks by the public and exposure to moisture warrant repairs to its facilities and improvements to restore its historical landscape.

1

1930	AMRP site filled in with 400,000 cubic yards of fill
1932	Canal and lagoons dredged
1934	Bridle Bridge completed
1934	Entrance portals dedicated and named Roosevelt Portals
1937	Sports Pavilion, Banyan Garden, Eskridge murals completed
1939	Bowling green completed
1941-1946	World War II and military constructs battery and staging areas
1954	Children's Center opens in Pavilion
1954-1955	Sandy beach fronting the AMRP constructed
1957	Diamond Head concession stand constructed
1959	Diamond Head bathhouse constructed
1961	'Ewa bathhouse and concession constructed
1962	Magic Island constructed
1966-1967	Bowling green renovated
1969	Lifeguard towers constructed
1975	McCoy Pavilion completed

Ala Moana 1931-1933

Ala Moana 1931-1933

Ala Moana Park 1934

Atkinson Entrance 1934 Opening

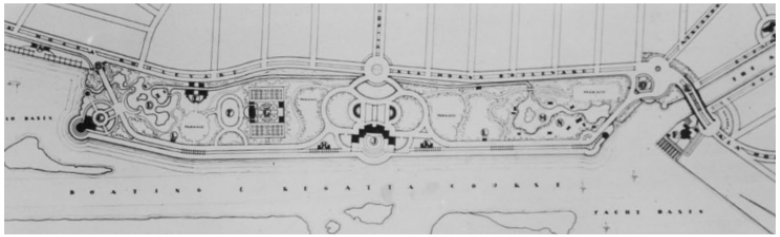
Ala Moana Bridge 1935-1940

Promenade 1934-1938

Banyan Court Construction 1935

Banyan Courtyard 1940s

Ala Moana Beach 1935-1939



Thompson and Thompson Plan 1932

Ala Wai Boat Harbor 1954

Honolulu Harbor to Waikiki 1959

Honolulu Harbor to Waikiki 1978

©2018 Belt Collins Hawaii LLC P:\Ala Moana Park\2015.71.0100\016.ai A 12 June 2018 8

BELT COLLINS

Source: Weyeneth, Robert. 1987. *Ala Moana: The People's Park*. Prepared for the City and County of Honolulu Department of Parks and Recreation. Pg. 48

Figure 4-3
HISTORIC TIMELINE AND PHOTOS
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

4.4.2 Archaeological Resources

An archaeological literature review and field inspection was completed by Cultural Surveys Hawai‘i, Inc. (CSH) and is included as Appendix D-2 of this document. The Proposed Action is subject to a historic preservation review pursuant to HRS Chapter 6E-8 and Chapter 13-275, HAR because it is a public project that may affect historic properties. The entire AMRP is a historic site and on the Hawai‘i Register of Historic Places (HRHP) as SIHP # 50-80-14-1388. The archaeological literature review provides general historical background ranging from Pre-Contact to historic periods. A search consisting of any archaeological fieldwork conducted in or around the project area was completed and summarized in CSH's review. The review document was prepared to advise the SHPD of any known archaeological sites or human burials on or near the project area and if further mitigation is warranted.

CSH provided summaries of 63 archaeological studies in or around the project area. The limits of the studies were just ‘Ewa of Kewalo Basin and from the makai side of Kapi‘olani Boulevard. Of the 63 studies, one study was conducted in AMRP and six studies were conducted immediately mauka of AMRP and in Ala Moana Boulevard. The seven studies are tabulated below:[39]

Table 4-2: Archaeological Resources

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Studies Within Project Area			
Ah Sam and Cleghorn 2003	Archaeological Assessment	Proposed Canoe Hālau, Ala Moana Regional Park, TMK: (1) 2-3-037	No archaeological or historic features identified
Studies for Ala Moana Boulevard			
Souza et al 2002	Archaeological monitoring	Kaka‘ako Improvement District 7, Kamakee Street	Three disturbed pre-Contact burials recorded (SIHP #s -6376, -6377, -6378; location of -6378 unknown); old A horizon in seven of ten profiles
Tulchin and Hammatt 2004	Literature review and field inspection	Kapi‘olani area, bounded by Ala Moana Regional Park, Ward Ave, Kalākaua Ave, and King Street, TMKs: (1)2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, and 038	No archaeological or historic features identified
Petrey et al. 2009	Archaeological monitoring	Nimitz Hwy and Ala Moana Blvd, TMKs (1) 2-1-014 and 027	No cultural deposits identified

[39] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 81-90

Table 4-2: Archaeological Resources

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Altizer et al. 2011	Archaeological monitoring	Kapiʻolani Area Revised Sewer System, TMKs: (1) 2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, 038, and 041	One site documented: previously identified SIHP # -6636, a wetland deposit with signs of historic modification for rice cultivation
Tome and Spear 2011	Archaeological monitoring	Ala Moana, TMKs: (1) -2-3-006 and 038	No cultural materials or subsurface features identified
Enanoria et al. 2015	Archaeological monitoring	Ala Moana Blvd/Nimitz Hwy Resurfacing and Lighting project	Identified three historic properties, only one near project area, SIHP # -7435, four sets of human skeletal remains within sand deposits near Ala Moana Blvd and Queen Street.

Source: O'Hare, C.R., Shideler, D.W., & Hammatt, H.H. January 2017. *Draft Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan, Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu, TMKs: (1)2-3-037:001, 022, 023, 025.*

As noted above in Section 4.1.2, Soils, and in the Historical Background (Section 4.4.1), the project area was once a composition of coral reef or marshlands. The land present today was artificially constructed from dredged material and other fill soils. Background research from Weyeneth (1987), O'Hare et. al (2017), and Ah Sam and Cleghorn (2003), supports the theory that there are no localized, subsurface archaeological resources within the project area. CSH does note the possible presence of imported archaeological remains from the dryland soils that were used to fill the Parks.

There were two burial sites recorded on Ala Moana Boulevard near the project area (Souza et al 2002; Enanoria et. al 2015). Souza et. al (2002) recorded three disturbed Pre-Contact burials near the Ala Moana Boulevard and Kamakee Street intersection (SIHP# 50-80-14-6376).[40] Enanoria et. al (2015) recorded four sets of human skeletal remains (SIHP # 50-80-14-7435) near the Ala Moana Boulevard and Queen Street intersection.[41]

As mentioned in Section 4.4.1, portions of the project area were used as a trash dump site before it was acquired for park space. Possible remnants of historical trash such as glass bottles and ceramics could be present within the subsurface. Neighboring Kakaʻako Waterfront Park was a large trash site prior to becoming a park, as well.

[40] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 95

[41] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 106

4.4.3 Architectural Resources

The original architectural features in AMRP are included with its historic property designation (SIHP #-1388). The City proposes to restore some of the features that are deteriorating as part of the proposed project (see Chapter 2, Section 2.3 and Appendix E). Some of the other features are proposed to be slightly altered to better serve the community, while also preserving the characteristics of the features. Like the archaeological review above, the architectural features of AMRP are reviewable under HRS Chapter 6E-8 and Chapter 13-275, HAR. There are 14 features on the property that consist of buildings, road, landscaped arrangements and trees, entryways, waterways, and a bridge. Each feature was evaluated based on its significance per Chapter 13-275-6, HAR, Evaluation of significance. The features were assessed and deemed significant under the following Criterion:

- Criterion A – Be associated with events that have made an important contribution to the broad patterns of our history;

- Criterion C – Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value.

Below is the tabulated evaluation, prepared by Mason Architect, Inc., of the proposed improvements and their effect to the historic features. Proposed mitigation for these features is also provided.

Table 4-3: Architectural Resources

Building/ Feature Name	Year Built	Significance Evaluation	Proposed Work	Evaluation of Effect	Proposed Mitigation
Thoroughfare/ Looped Drive	1932	Eligible, Criterion A&C	-Remove grass and trees at makai walkway to widen makai walkway into shared-use path -Add drop-off areas to makai side -Add perpendicular parking to mauka side -Remove trees lining mauka side	Effect, with proposed mitigation commitments	*Architectural Recordation:* Addendum to HALS HI-21 (5 large-format shots)
Hawaiian Lagoon (pond)	1932	Eligible, Criterion A&C	-Improve edges and hardscaping -Add viewing area	Effect, with proposed mitigation commitments	*Architectural Recordation:* Addendum to HALS HI-21 (4 large-format shots) -Plant Hawaiian plant specimens / landscaping
Japanese Lagoon (pond)	1932	Eligible, Criterion A&C	-Add walkway leading to a seating area	Effect, with proposed mitigation commitments	*Architectural Recordation:* Addendum to HALS HI-21 (4 large-format shots) -Plant Japanese specimens / landscaping
Drainage Canal	1932	Eligible, Criterion A&C	-Add new canal crossings -Repair canal walls	Effect, with proposed mitigation commitments	*Architectural Recordation:* -Addendum to HALS HI-21 (5 large-format shots) *Preservation*: City will remove two existing non-historic pedestrian bridges (built ca. 1994); City will ensure that repairs are done in an historically appropriate manner

Table 4-3: Architectural Resources

Building/ Feature Name	Year Built	Significance Evaluation	Proposed Work	Evaluation of Effect	Proposed Mitigation
Central Terraces, Pergolas	1932	Eligible, Criterion A&C	No work	N/A	N/A
Landscaping and Vegetation: Open lawns, palm trees, banyans, flowering tropical trees. Some are Exceptional Trees)	ca. 1932	Eligible, Criterion A&C	*See Banyan Court, Looped Drive, and Keyhole Parking for information*	*See Banyan Court, Looped Drive, and Keyhole Parking for information*	*See Banyan Court, Looped Drive, and Keyhole Parking for information*
Spatial arrange-ment; alternating areas of foliage and open space	ca. 1932	Eligible, Criterion A&C	No work	N/A	N/A
Entry Portals / scalloped walls	1934	Eligible, Criterion A&C	-Repairs to portals	Effect, with proposed mitigation commitments	*Preservation*: City will ensure that repairs are done in an historically appropriate manner
Equestrian (bridle) canal bridge	1934	Eligible, Criterion A&C	-Repairs to underside of bridge	Effect, with proposed mitigation commitments	*Preservation*: City will ensure that repairs are done in an historically appropriate manner
"Keyhole" Parking area	ca. 1935	Eligible, Criterion A&C	-Change configuration of the historic keyhole layout; remove grassy open area and convert to formal parking lot. This parking area contains two exceptional trees.	Effect, with proposed mitigation commitments	*Architectural Recordation:* -Addendum to HALS HI-21 (4 large-format shots) *Preservation*: - Exceptional trees will be avoided. Layout along 'Ewa side revised from original proposal to avoid work within tree driplines; stall count reduced by 27.

Table 4-3: Architectural Resources

Building/ Feature Name	Year Built	Significance Evaluation	Proposed Work	Evaluation of Effect	Proposed Mitigation
Sports Pavilion	1937	Eligible, Criterion A&C	No work	N/A	N/A
Banyan Courtyard	1937	Eligible, Criterion A&C	Remove four historic exceptional banyan trees from the banyan planters in the courtyard.	Effect, with proposed mitigation commitments	*Architectural Recordation:* -Addendum to HALS HI-21 (6 large-format shots) -Plant four new banyans where four large Exceptional banyans will be removed.
Tennis Courts	1937	Eligible, Criterion A&C	N/A	N/A	N/A
Lawn Bowling Green	1939 (renovated 1966-7)	Eligible, Criterion A&C	N/A	N/A	N/A

Source: Mason Architects, Inc. for letter from Robert Kroning (DDC, Director) to Kaiwi Yoon (SHPD – Architecture Branch, Branch Chief) requesting a determination letter per HRS Chapter 6E-8 and Chapter 13-275-3, HAR.

4.4.4 Cultural Resources

CSH included a cultural impact evaluation section in the archaeological literature review report. As mentioned, the land occupied by the present-day Parks was shallow ocean waters and the coral reef. It is possible for the area to have been used for gathering marine resources by Native Hawaiian during Pre-Contact times. During the western contact period, the area was converted to fisheries which means the area was preferable for fishing during Pre-Contact as well. According to O'Hare et. al (2017)[42], Kālia's shallow waters were known for having an abundance of mollusks, crabs, and a specific edible seaweed. Large net fishing was a technique used to catch schools of mullet most notably in the Kālia area.[43]

Today, fishing is a continued practice and popular locations are off the 'Ewa side ledge of Magic Island and along the walkway fronting the canoe launch ramp. Fishermen are seen at these locations early in the morning and early to late evenings. Large nets are not observed as practiced very often today and most fishermen at the Parks are seen using fishing poles connected to lines. The Magic Island peninsula extends into the deep waters which makes the location attractive for fishing. The area fronting the canoe launch ramp is an ideal location because a deep channel was dredged when the boat harbor was constructed.

4.4.5 Potential Impacts and Mitigation Measures

4.4.5.1 *Archaeology*

Through background research, CSH found no archaeological resources related to the Pre-Contact period within the project area which concurs with the conclusion made by Weyeneth. The inadvertent discoveries found through archaeological monitoring were adjacent to the Parks and on Ala Moana Boulevard. The expansion of the pedestrian walkways (at Queen Street and Kamakee Street) over the drainage canal, however, should not impact those burials because the work should not exceed the limits of the property boundary.

Building contractors should be aware of the specific areas where human remains were identified and use caution if work should be done near burials. Caution should be taken if the contractors need to excavate within the imported beach sand on the property since fragmented human remains could be present. According to HAR §13-280-3,[44] groundwork activities should stop and SHPD should be informed if historic properties, other than human remains, are discovered during the project's construction. If human remains are discovered, all groundwork activities will stop and

[42] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 12

[43] Ibid. O'Hare, C.R., Shideler, D.W., & Hammatt. Pg. 115

[44] State of Hawai'i. 2002. *Hawaii Administrative Rules, Title 13, Chapter 280, Rules Governing General Procedures for Inadvertent Discoveries of Historic Properties During a Project Covered by the Historic Preservation Review Process. Section 3, Procedures for inadvertent discoveries.*

the area quarantined until further notice. HAR §13-300-40[45] states that the SHPD, Police Department and medical examiner's office should be notified. If the remains are historic, cultural and lineal descendants of the area should be consulted for preservation efforts and proper protocol to mitigate the disturbance.

4.4.5.2 *Architecture*

Some of the architectural features as noted above will be impacted by the Proposed Action (Table 4-3 above) and appropriate mitigation was proposed for each impact. Based on a pre-consultation meeting with SHPD, the City is proposing both Preservation and Architectural Recordation as mitigation for the proposed work. The mitigation proposal under review per Chapter 13-375-8, HAR was accepted by SHPD[46].

The City will ensure that repairs are made in an historically appropriate manner at the portals, underside of the Bridle Bridge, and the drainage canal walls.[47] Further, two pedestrian bridges (built ca. 1994) across the drainage canal will be removed. This work should be monitored by a historical architect who meets the Secretary of the Interior's (SOI) Professional Qualification Standards for historic architecture.

Preparation of a large-format photos-only addendum to the existing Ala Moana Park HALS No. HI-21 is proposed for the Ala Moana Park Drive, Hawaiian Pond, Japanese Pond, Drainage Canal, Keyhole parking lot, and Banyan Court. This will include 28 photographs.

4.4.5.3 *Cultural*

There are no known cultural practices that are currently being performed at the Parks. Therefore, there are no impacts to cultural use and no mitigation is proposed.

4.5 FLORA, FAUNA AND AQUATIC BIOLOGY

A terrestrial and aquatic biological resources survey within the land areas of the Parks was completed by SWCA Environmental Consultants (SWCA). The findings of this survey are summarized below. The SWCA report is included as Appendix E.

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45 State of Hawai'i. 1996. Hawaii Administrative Rules, Title 13, Chapter 300, Rules of Practice and Procedure Relating to Burial Sites and Human Remains. Section 40, Inadvertent discovery of human remains.

46 Letter from Alan Downer, PhD (Deputy State Historic Preservation Officer, Administrator, State Historic Preservation Division) to Robert Kroning (City Department of Design and Construction, Director) historic preservation review pursuant to Hawaii Revised Statutes Chapter 6E-8 and Hawaii Administrative Rules Chapter 13-275-3. June 18, 2018.

47 Letter from Robert Kroning (City Department of Design and Construction, Director) to Kaiwi Yoon (State Historic Preservation Division, Architecture Branch Chief) requesting a determination letter pursuant to Hawaii Revised Statutes Chapter 6E-8 and Hawaii Administrative Rules Chapter 13-275-3. June 5, 2018.

A survey of the marine environment consisting of the shoreline, swim channel, and coral reef was completed by Marine Research Consultants, Inc (MRCI). The findings are summarized in Section 4.5.4 and the report is included in Appendix F.

4.5.1 Flora

The pedestrian survey examined (more intensely) areas likely to support native plants. The survey results found no naturally occurring, state or federally listed threatened, endangered, proposed listed, or candidate plant species, or rare native Hawaiian plant species. Eleven native Hawaiian species were found. One of the observed native Hawaiian species, Polyscias racemose, is critically endangered, but occurs in the survey as a cultivated plant only. All other native plant species observed are not rare.

The landscaped vegetation contains a diverse mix of ornamental trees and shrubs. The ornamental trees are diverse. At least 25 ornamental trees are designated as exceptional trees. The remainder of the landscaped areas consist of a mixture of introduced lawn grasses and herbaceous weeds.

The ruderal vegetation exists at the margins of maintained areas in the survey area such as the pond and canal edges. Most of the plant species found are herbaceous species adapted to colonizing disturbed areas

4.5.2 Exceptional Trees

The Exceptional Tree Act (Act 105) was passed in 1975. The Hawaiʻi State Legislature saw the need to preserve the trees after so many were destroyed due to urban development. The Act authorized a County Arborist Advisory Committee and programs to provide rules and guidelines for protecting trees of exceptional nature. The Arborist Advisory Committee, managed by the City's Department of Parks and Recreation's Division of Urban Forestry, meets monthly. The County Arborist Advisory Committees are mandated by the following powers and duties:[48]

- Research, prepare and recommend to the City Council exceptional trees to be protected by City ordinance or regulation.
- Advise property owners relative to the preservation and enhancement of exceptional trees.
- Recommend to the City Council appropriate protective ordinances, regulations and procedures.
- Review all actions deemed by the City Council to endanger exceptional trees.

[48] City and County of Honolulu, Department of Parks and Recreation. June 2018. http://www.honolulu.gov/parks/hbg/exceptional-tree-program.html

A tree may be deemed "exceptional" based on seven criteria: Historic or cultural value, age, rarity, location, size, esthetic quality, and endemic status.[49] If a tree is deemed "exceptional" based on one or more of the above criteria then it could be nominated and recommended to the City Council for review. Once approved for protection under law, the tree will be added to the Revised Ordinance of Honolulu (ROH) Section 41-13.7, Register of exceptional trees. Below is the list of exceptional trees in the Parks as listed in the ordinance.

Table 4-4: Exceptional Trees

Name of Tree and/or Scientific Name	Description of Location (if available)	TMK (if available)
Adansonia digitata, Baobab Tree	Grove of 11 trees – Ala Moana Regional Park	2-3-037:001
Bucida buceras, Geometry Tree	Ala Moana Regional Park	2-3-037:001
Ficus spp., Banyan Trees	45 trees that comprise 4 groves and 6 single trees at Ala Moana Regional Park; 1 Ficus religiosa near the McCoy Pavilion roundabout, 4 Ficus spp. within McCoy Pavilion Courtyard, and 1 large Ficus benghalensis near the Ewa lagoon	2-3-037:001
Ficus benghalensis, Indian Banyan Tree	End of Magic Island	2-3-037:025
Sterculia apetala, Panama Trees	4 trees – Ala Moana Regional Park	2-3-037:001

Source: Revised Ordinance of Honolulu, Chapter 41, Regulated Activities Within the City, Article 13, Protective Regulations for Exceptional Trees, Section 41-13.7, Register of exceptional trees.

The actual count within the Parks at the time of this EIS is: 11 Adansonia digitata (Baobab Tree), 1 Bucida buceras (Geometry Tree), 45 Ficus spp. (Banyan Trees) including the one at Magic Island, and 4 Sterculia apetala (Panama Trees).[50]

4.5.3 Fauna

The pedestrian survey, for terrestrial fauna, examined (more intensely) areas likely to support native wildlife. All terrestrial fauna observed (birds, mammals, reptiles, amphibians, and invertebrate species) were noted.

[49] Ibid

[50] Email from Joshlyn D. Sand, (City Department of Parks and Recreation, Division of Urban Forestry, Director, Honolulu Botanical Gardens) to Elaine H. Morisato (City Department of Design and Construction, Facilities Division, Civil Engineer) Ala Moana Regional Park - Exceptional Tree list. May 18, 2018.

The observed terrestrial fauna included twenty bird species, including seven birds protected by the Migratory Bird Treaty Act (MBTA). The white tern, one of the seven protected by MBTA, is also listed as threatened on O'ahu by the State of Hawai'i. For terrestrial mammals, favorable habitat for roosting and foraging was observed for the Hawaiian hoary bat; no hoary bats were directly observed. No other terrestrial mammals were observed at the time of the survey. No terrestrial reptiles or amphibians were detected by the survey. The non-native carpenter bee was the only observed insect/invertebrate.

4.5.4 Aquatic Biology (AMRP Ponds and Drainage Canal)

The aquatic fauna survey focused on fish and large aquatic invertebrates. Benthic grab samples were taken from the two ponds as well as visual surveys conducted for the aquatic fauna in the canals and ponds.

Three species of marine algae were observed in the canal system and western pond. Sediments in all three grab samples in the eastern pond comprised dense sticky mud; no infauna were found. Also observed in the canal were abundant schools of cichlids (i.e. tilapia). In the ponds, tilapia and peociliid fish were observed.

4.5.5 Marine Environment

The marine environment around the near shore waters of the AMRP beach have developed from the arrangement of the swim channel and shallow reef. The shoreline has smaller species of coral (*Leptastrea purpurea* and *Pocillopora damicornis*) attached to the rocky areas of the beach.[51] Coral coverage in the area was less than one percent. Within the swim channel bottom copious amounts of Hawaiian seagrass (*Halophila hawaiiana*) were observed in all sections of the survey.[52] Hawaiian seagrass is commonly found in waters that are protected and near a calm, sandy shoreline. Green sea turtles are known to feed on Hawaiian seagrass and are also attracted to protected areas that are away from predators. Other common plants within the survey area were red algae (*Gracilaria Salicornia*), brown algae (*Padina sp.* and *Lyngbya sp.*).[53]

Larger coral that are normally found on the reef were observed along the Magic Island side of the open channel. The water flow is different from the swim channel and the area operates in a more natural ocean environment. This condition allows reef coral to colonize and grow. Coral species found here are *Pocillopora meandrina*, *Porites lobata*, *Montipora patula* and *Montipora capitata*.[54] A species that was commonly

[51] Marine Research Consultants, Inc. June 2018. *Baseline Assessment of the Marine Environment Ala Moana Regional Park Beach Replenishment Honolulu, HI*. Prepared for Sea Engineering, Inc. Pg. 7

[52] Ibid

[53] Ibid. Marine Research Consultants, Inc. June 2018. Pg. 8

[54] Ibid

observed but is not commonly observed on exposed coastal reefs is *Pocillopora damicornis.* [55]

During the swim survey, several species of fish were observed including surgeonfish *Acanthurus triostegus* and *A. leucoparius*, damselfish *Dascyllus albisella*, the tetradonts *Canthigastor jactator, Diodon holocanthus* and *Ostracion meleagris*, the trumpetfish *Aulostomus chinensis*, triggerfish *Rhinecanthus rectangulus*, and the Moorish idol *Zanclus cornutus*.[56] None of the fish observed were considered rare and are typical species that are seen on the reef.

Threaten or endangered species in the marine environment could consist of the endangered humpback whale (*Megatera novaeangliae*) and the endangered Hawaiian monk seal (*Monachus schauinslandi*). Both mammals were not observed during the survey, but are known to occur in Hawaiian waters, and on the shore for the Hawaiian monk seal. Several threatened green sea turtles (*Chelonia mydas*) were observed during the survey and are commonly found in south shore waters. The calm water protected by the coral reef is a preferred habitat for the green sea turtle because there is an abundance of food source and they are sheltered from predators. The endangered hawksbill turtle (*Eretmochelys imbricata*) was not observed and they are not commonly found in Hawaiian waters.

4.5.6 Potential Impacts and Mitigation Measures

4.5.6.1 *Flora*

In regard to flora, some of the non-native species are designated as exceptional trees and are protected under the Exceptional Tree Act. Any action that may endanger these trees is to be reviewed by the City's Arborist Advisory Committee. The City proposes to remove four banyan trees that are undermining the foundation of Banyan Courtyard and McCoy Pavilion. Removing these trees may cause temporary construction impacts such as temporary closure of the courtyard, noise and, dust. Proposed mitigation is to replace the banyans with a species that is more conducive to areas near buildings. The removal of the existing trees will allow for renovations and restoration of the courtyard area and the pavilion. The contractor overseeing the removal should exercise caution by not causing damage to the surrounding buildings or their foundation.

Additionally, non-native species are common in the survey area. The following recommendations are to minimize invasive species introduction: all construction equipment/vehicles arriving from outside O'ahu should be washed and inspected; all construction material arriving outside of O'ahu should be washed and/or visually inspected; inspection and cleaning activities should be conducted at a designated location prior to entry to the project site; raw materials should be purchased from a

[55] Ibid

[56] Ibid. Marine Research Consultants, Inc. June 2018. Pg. 8-9

local supplier; if landscaping occurs, native Hawaiian plants or non-invasive plants should be used.

New plantings within the Parks will be consistent with Chapter 46 HRS §103D-408[57] which requires incorporation Hawaiian plants into landscaping of public building, facilities and housing, subject to the conditions noted therein.

4.5.6.2 *Terrestrial Fauna*

In regard to terrestrial fauna, avoidance and mitigation measures for the white tern include the following: tree removal and trimming should be conducted in the fall and early winter; inspection of trees prior to any tree removals; if a chick is found nesting that tree should not be trimmed or removed until the chick has fledged. While the Hawaiian hoary bat was not directly observed, suitable habitat was. The following measures are recommended: no trees taller than 15 feet should be trimmed or removed between June 1 and September 15; and any erected fences for the project should be barbless top strand wire.

4.5.6.3 *Marine Life*

Potential impacts are evaluated based on: potential impacts on threatened and endangered marine species listed under the Endangered Species Act of 1973 (ESA), as amended; impacts on marine habitats, specifically coral reefs; impacts on Essential Fish Habitats (EFH) managed and protected under 1996 amendments to the Magnusson-Stevens Fishery Conservation and Management Act; impacts on marine species regulated by the State, Department of Land and Natural Resources (DLNR), Division of Aquatic Resources (DAR); impacts due to alien marine species; and existing management measures designed to avoid, minimize, or prevent such impacts.

Sand Placement/Beach Nourishment

Placement of sand onto the beach will result in some turbidity and may temporarily increase resuspended sediment in the water. Large amounts of sand are not expected to reach the water causing a higher increase in turbidity that could affect the Hawaiian seagrass, the reef coral along Magic Island, and the green sea turtles. Care should be taken during placement to avoid having large amounts of sand enter the water. BMPs such as silt curtains should be used to prevent turbidity caused by the project.

The new sand may cover some of the smaller coral that are attached to the rocky areas of the shoreline. Mitigation options for the shoreline coral includes: relocation to the reef, relocation to a similar rocky area that is not proposed for beach nourishment, or donate the coral to the State DAR Coral Nursery on Sand Island.[58]

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57 State of Hawai'i. 2015. *Hawaii Revised Statutes, Chapter 103D, Hawaii Public Procurement Code, 103D-408, Hawaiian plants; use in public landscaping.*

58 Ibid. Marine Research Consultants, Inc. June 2018. Pg. 11

The threatened green sea turtle is known to occur in the swim channel and mitigation measures and BMPs should be performed to avoid impact. As mentioned in Section 4.5.4, other endangered species may also occur in the area. Further mitigation and BMPs are recommended by the National Marine Fisheries Service (NMFS) to protect endangered species:[59]

1. Conduct a survey for marine protected species before any work in the water starts, and if a marine protected species is in the area a 150-foot buffer must be observed between the protected species and the work zone.

2. Establish a safety zone around the project area whereby observers will visually monitor this zone for marine protected species 30 minutes prior to, during, and 30 minutes post project in-water activity. Record information on the species, numbers, behavior, time of observation, location, start and end times of project activity, sex or age class (when possible) and any other disturbances (visual or acoustic).

3. Conduct activities only if the safety zone is clear of turtles.

4. Upon sighting of a turtle within the safety zone during project activity, immediately halt the activity until the animal has left the zone. In the event a marine protected species enters the safety zone and the project activity cannot be halted, conduct observations and immediately contact NMFS staff in Honolulu to facilitate agency assessment of collected data.

5. For on-site project personnel that may interact with a protected species potentially present in the project area, provide education on the status of any listed species and the protections afforded to those species under Federal laws.

Offshore Sand Recovery

In-water construction activities at the sand recovery site would have varying impacts on biotic communities. Specific species, quantities, and species locations affected by the project construction will require a benthic survey to identify marine life at the sand recovery, such as coral, fish or endangered marine life. A U.S. Army Corps of Engineers (USACE) permit application will be required when construction and dredging plans are completed and submitted for agency review. The application will include a BMP plan to mitigate impacts on marine life. During the review process for the application, appropriate mitigation measures may be modified as needed to minimize impacts on marine life. Significant impacts on the marine environment would be averted because sediment testing, water quality monitoring, and evaluation of construction methods will be conducted to obtain permits and approvals required under the CWA Section

[59] Sea Engineering, Inc. June 2018. *Costal Assessment and Design Report Ala Moana Regional Park Beach Nourishment Project Honolulu, O'ahu, Hawai'i*. Prepared for Belt Collins Hawaii LLC. Pg 114

404. The USACE, with the EPA's concurrence, is responsible for authorizing these permits and approvals.

4.6 BEACH NOURISHMENT

4.6.1 Introduction/Existing Conditions

The AMRP beach (Beach) was developed in 1955 as additional space for other water recreation such as swimming even though the area was not originally intended for swimming. Prior to the development of the Beach, water recreation was related more to boating and fishing. Boats from Ala Wai Boat Harbor passed in front of AMRP via the original channel that was dredged in 1928. The crossing channel was not needed by the 1950s because a new channel was dredged directly from the Ala Wai Boat Harbor to the open ocean.[60] About 55,000 cubic yards of sand was imported from the north and west shores of Oʻahu to create the Beach. After the new Beach was installed, the crossing channel became the swim channel which is popular for calm water activities.

The urban landscape continued to develop around the Beach and Parks because beachfront property is a coveted commodity. Today, beachfront property is becoming vulnerable to sea level rise, inundation, flooding, erosion, and drainage issues. Shoreline assessment studies have been conducted by various Federal and State agencies to address the erosion rates at the beaches and to ascertain the impact on the economy, natural resources, and society.[61] Beach nourishment and groin structures have been used to mitigate shoreline erosion in areas where erosion is most critical. These measures have been temporary solutions especially for artificial beaches like Waikīkī and Ala Moana. However, without beach nourishment these beaches will continue to erode and eventually return to their natural state.

The Beach is absent of a natural method for replenishing the sand because of the topography between the shore and the reef. The deep swim channel prevents sand movement from the reef to the shore. The widest point of the swim channel is approximately 300 ft. across.[62] As discussed in Chapter 2, Section 2.3, the Beach needs mechanical replenishment every 20-35 years and three options were provided by Sea Engineering, Inc. (SEI). These options were based on the estimated time between replenishment and approximately how much sand would be needed for that time period. The section that is critical for beach nourishment is the section fronting the AMRP tennis courts which is the Station (Sta.) 15+00 location on SEI's profiles (Figure 4-4). During high tide and King Tide, the water reaches the retaining wall and the area is inundated for that period (Figure 4-5). Short-term solutions included sand pushing

60 Ibid. Weyeneth, Robert. Ala Moana:ThePeople's Park. Pg 31

61 Fletcher, C.H., Romine, B.M., Genz, A.S., Barbee, M.M., Dyer, Matthew, Anderson, T.R., Lim, S.C., Vitousek, Sean, Bochicchio, Christopher, and Richmond, B.M., 2012, National assessment of shoreline change: Historical shoreline change in the Hawaiian Islands: U.S. Geological Survey Open-File Report 2011–1051, 55 p.

62 Ibid. Sea Engineering, Inc. June 2018. Pg. 2

and relocating the rocks from the shoreline were completed in 2016, but those improvements did not sustain for very long. A long-term solution is desired and the City is tasked with finding options that would align with the purpose and objectives of the Purposed Action and have the least impact on the environment.

4.6.1.1 *Study Results Beach Nourishment*

SEI completed an investigative study (Appendix G) for the existing conditions of the Beach, developed a beach nourishment plan, provided options for sand placement and, identified offshore sand source locations. The surveys and analyses reported in their assessment included: a shoreline survey to determine width and elevation of the Beach, topographic and bathymetric surveys for the Beach and swim channel, historic shoreline analysis through Google aerial images, and background research to create the three options for beach nourishment.

Shoreline Survey

The shoreline survey noted the various widths of the beach and its elevation above sea level. Figure 4-4 shows the locations of the recorded profiles from the survey. This survey helped determine the locations that needed replenishment and the locations were carried forward to create the three options outlined in Section 2.4 of Chapter 2. SEI also noted areas of inundation during periods of high tides and King Tides (near Magic Island, near Lifeguard Tower 1C, near Lifeguard Tower 1B, and near the new volleyball courts). The highest water level was recorded in June 2017 at +3.2 ft. mean lower low water (mllw).[63] Figure 4-5 shows an example of inundation during King Tide fronting the Keyhole parking lot and tennis courts.

Topographic and Bathymetric Survey

In December of 2017 SEI performed a topographic survey of the Beach from the retaining wall to the shoreline and a bathymetric survey within the swim channel from the shoreline to the reef. The purpose of these surveys was to collect feedback that would establish the design.

The results of the topographic survey showed a lower elevation for the backshore that was between three and five feet above msl.[64] A lower elevation is related to the cause of inundation at higher tides, even during less wave action. The shoreline reef was about one to three feet below msl.[65] The swimming channel depths were between 10 feet and 23 feet deep.[66]

63 Ibid. Sea Engineering, Inc. June 2018. Pg. 13
64 Ibid. Sea Engineering, Inc. June 2018. Pg. 16
65 Ibid
66 Ibid

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Sea Engineering, Inc.

Figure 4-4
SHORELINE SURVEY AREA
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

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Figure 4-5
KING TIDE
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

Sand samples were collected from the swim channel at eight different locations to analyze the grain size and to determine if the beach sand was appropriate for reuse. The swim channel sand was considered "muddy."[67] The grain size analysis results showed the sand that could be used as too fine and scattered. The sand within the near shore waters was, therefore, not considered further as a beach sand source.

Shoreline Aerial Photograph Analysis

A shoreline analysis through aerial images provide by Google was also completed. Available images from 1927, 1949, 1956, 1975, 1982, and 2005 were compared to the construction events of AMRP and the Beach. The 1927 shoreline was the area before any development of the AMRP and would be considered as the natural condition. By 1949 AMRP was constructed and the Beach was installed by the time the 1956 photograph was taken (Figure 4-6). The 1956 photograph shows erosion over time that is from the original installment of the Beach and the 2005 shoreline. It should be noted that the Beach was nourished in 1976 with 30,000 cubic yards of sand from a land source.[68] The University of Hawaii Coastal Geology Group (UH-CGG) also studied the erosion pattern of the Beach through historic photographs. The study concluded that the shoreline has patterns of erosion at the middle and end sections of the Beach with the Magic Island end having been affected the most.

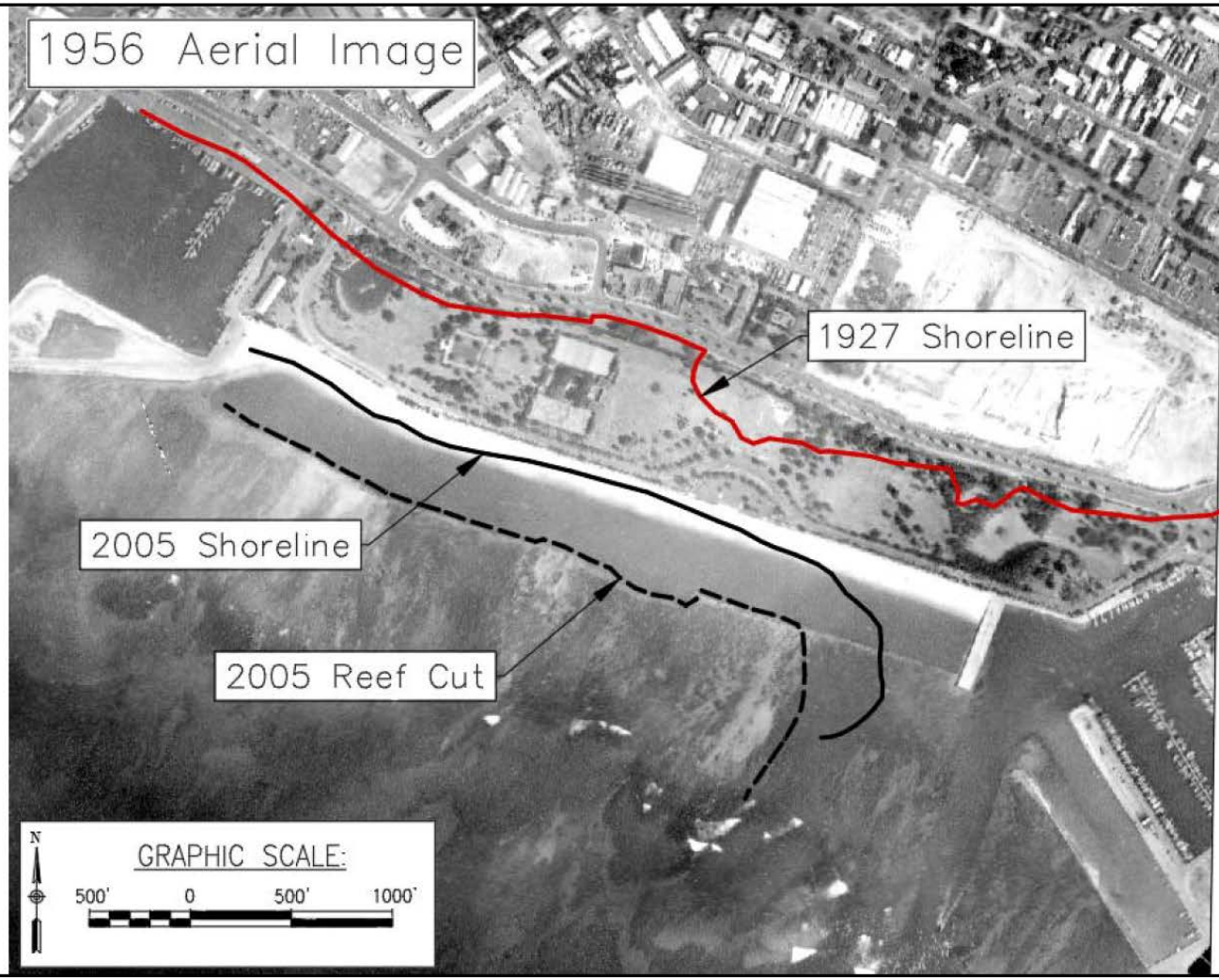
Recent Google aerial images from 2004 – 2014 show the rate of erosion in a different pattern than what the study done by UH-CGG found. Based on the ten-year trend from 2004 – 2014, erosion at the central section of the Beach averaged about -2.9 ft./yr.[69] The erosion rate is factored into the estimation of the shoreline response and timeframe between each nourishment.

Wave Pattern

The shoreline is fronted by a 300-foot wide swimming channel with depths up to 23 feet.[70] The reef extends the entire shoreline from Kewalo Basin to Magic Island. It is shallow at a depth of about 5 ft. and extends about 1,000 ft. to the surf break. The surf break depth is about 10 ft. and the ocean floor gradually slopes to lower depths. Bathymetry becomes a factor on wave patterns as the waves move closer to shore. More energy is released when waves connect with the ocean bottom. BOUSS-2D is a wave model used to describe nearshore wave patterns. Figure 4-7 shows a BOUSS-2D model image of the wave patterns interaction with the "Courts" surf break. The wave crest transforms into two curved-shape patterns as it moves over the reef. These curved waves disseminate over the reef and toward the middle section of the Beach. When the wave breaks onto the Beach, the curved crests of the waves push the sand along the beach in opposite directions from the middle. The wave heights at the shore

67 Ibid. Sea Engineering, Inc. June 2018. Pg. 18
68 Ibid. Sea Engineering, Inc. June 2018. Pg. 20
69 Ibid. Sea Engineering, Inc. June 2018. Pg. 27
70 Ibid. Sea Engineering, Inc. June 2018. Pg. 28

break are usually small but, the regular wave action onto the Beach causes enough movement to steadily erode the area.



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SE Sea Engineering, Inc.

Figure 4-6
1956 HISTORIC SHORELINE
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

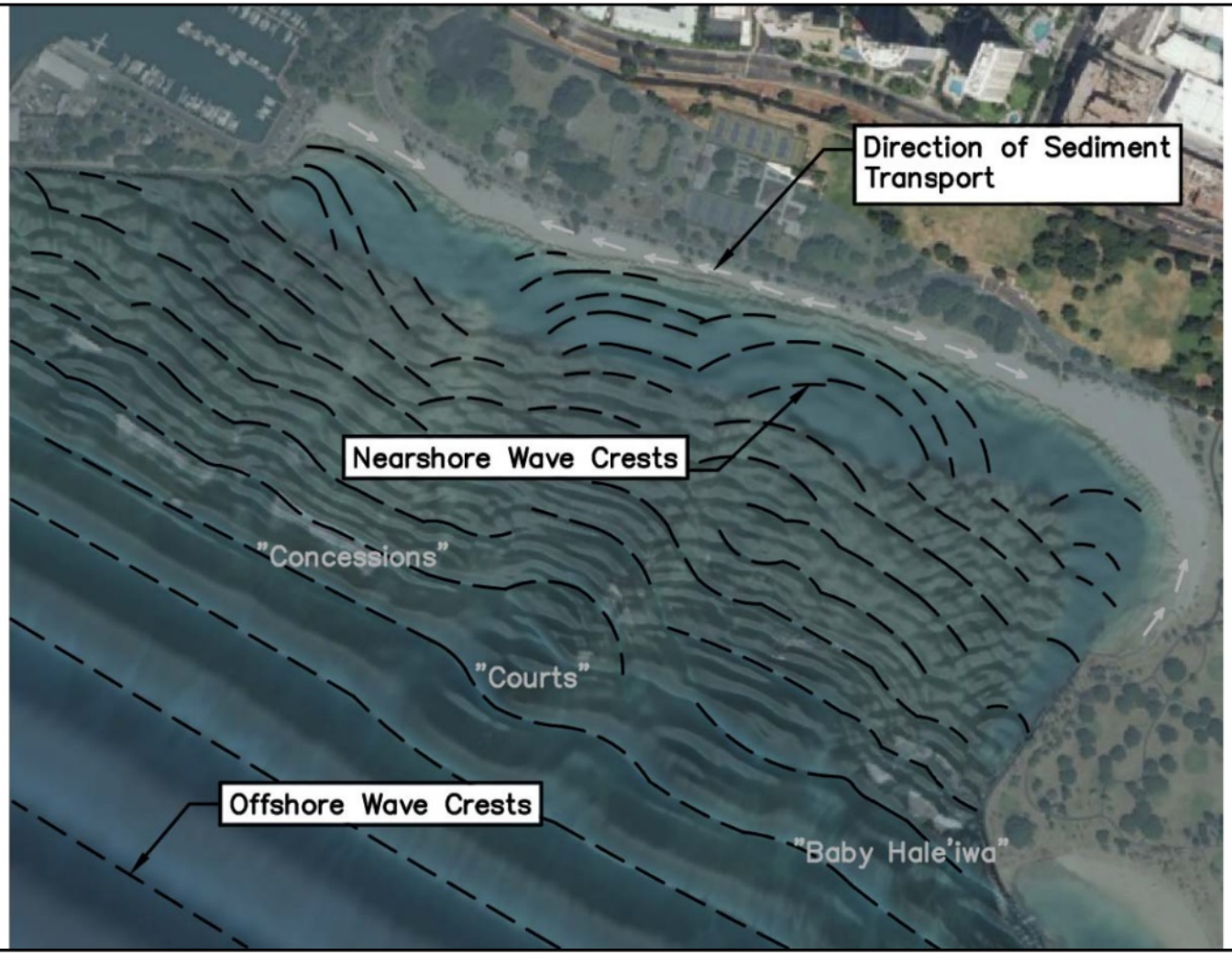

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Figure 4-7
BOUSS-2D WAVE PATTERN
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
Draft Environmental Impact Statement

4.6.2 Introduction Sand Source Investigation

SEI conducted a sand source investigation that included six offshore locations and one location on land to determine availability, quality, quantity, cost, and general feasibility. As mentioned above in Section 4.1.2, Soils, Hawaii beaches are characterized as calcareous (calcium carbonate) sand, and comprised of various skeletal fragments of marine organisms. The general components of sand are related to location because of varying species.

Until recent years, sand for beach nourishment was mined from other beaches on Oʻahu or from a manufactured source on land. Hawaiian Cement had a commercial source located inland of Mokulēʻiʻa beach. This sand has been used for beach maintenance projects at the Hilton Hawaiian Village, Kuhio Beach, and Makaha Surfside.[71] This sand, however, is no longer available.

Offshore sand deposits have been the preferred alternative because they do not deplete sand sources on land and do not contribute to erosion of natural beaches. Offshore sources would need to be dredged and transported to shore which trigger many environmental permits on the Federal and State level. Offshore sand deposits present more options in location and can be a cost-effective alternative. Sand deposits found offshore are also mostly likely to meet the criteria for use on land. SEI used the following guidelines from the State DLNR during their sand source investigation:[72]

- The sand shall contain no more than six percent fine material (sand grain size smaller than 0.074 mm)
- The sand shall contain no more than ten percent coarse material (sand grain size greater than 4.76 mm)
- The grain size distribution will fall within 20% of the existing beach grain size distribution
- The overfill ratio of the fill sand to existing sand shall not exceed 1.5
- The sand will be free of contaminants such as silt, clay, sludge, organic matter, turbidity, grease, pollutants, and others
- The sand will be primarily composed of naturally occurring carbonate beach or dune sand

4.6.2.1 *Sand Source Investigation Locations*

SEI surveyed for available quantity and collected sand samples from six offshore sites that included: Kūhiō Beach, Halekūlani Channel, Hilton, Diamond Head, and the Reef Runway. One inland source was investigated at a quarry in Waiʻanae that is operated

[71] Ibid. Sea Engineering, Inc. June 2018. Pg. 60

[72] Ibid.

by Pacific Aggregate. SEI conducted seafloor investigations that consisted of: sub-bottom profiling, side scan sonar surveys, towed camera surveys, diver reconnaissance and sampling, jet probing, and vibracoring.[73] These methods were used to analyze the thickness of the sand layer at each potential source location and to extract core samples from the seafloor for analysis.

Kūhiō Beach

SEI recovered two vibracore samples from offshore of Kūhiō Beach in Waikīkī. The site (Site A) was previously dredged for the beach nourishment project for Kūhiō Beach in 2012. About 46,000 cubic yards of sand was estimated to be available at Site A prior to the Waikīkī project. The Waikīkī project dredged approximately 24,000 cubic yards. Vibracore "Waikiki 1.1" was recovered along the western edge of Site A and Waikiki 2.1 was recovered from a middle section of the site. Grain size was similar to the sand used in 2012.

Halekūlani Channel

The Halekūlani sand channel ranges to about 4,000 feet seaward to where it spreads into a large sand field in approximately 120 feet of water.[74] It was recorded to have between 80,000 cubic yards and 500,000 cubic yards of sand in water depths of 40 ft.-100 ft.[75] SEI did previous investigations of the Halekūlani Channel in 2011 and returned in March of 2017 and May 2018. They collected two vibracore samples in March 2017. "Halekulani 1.1" was collected in water depths of 55 ft. The sample was measured is characterized in the moderately sorted category. Results of the 2017 sample for grain size is consistent with the 2011 results. "Halekulani 2.2" was collected in water depths of 86 feet and was measured as poorly sorted. SEI collected four additional vibracores in May 2018 ("HK 3.1" through "HK 3.4").

Hilton

In 2004, SEI investigated an area offshore from the Hilton Hawaiian Village Lagoon that was approximately 850 ft. by 620 ft. in dimension. The area was located in water depths of 40 to 55 feet. Results from 2004 reported an estimated volume of sand to be approximately 40,500 cubic yards. SEI returned to the Hilton site to verify the 2004 findings and discovered the area increased in volume to about 45,400 cubic yards of sand. Five vibracore samples were collected from the Hilton site.

Diamond Head

SEI conducted several surveys in 2011 of a widespread sand field that stretches from the Natatorium to the Diamond Head lookout. SEI returned in 2018 to conduct further investigation of the sand deposit identified in 2011. Jet probes could only penetrate between three and six feet within the sand deposit before reaching a hard substrate.

[73] Ibid. Sea Engineering, Inc. June 2018. Pg. 63

[74] Ibid. Sea Engineering, Inc. June 2018. Pg. 70

[75] Ibid.

The probe depths validated the results from 2011. The sand samples were light brown at the sand surface, and mixed brown and gray below the surface. The grain size was considered well sorted.

Reef Runway

In March and May of 2017, SEI conducted investigations on the Reef Runway sand deposits that is known to stretch several hundred acres. The outer sand fields were within areas of reef. The vibracore collected five samples from an area of sand with a profile that was at least 40 ft. thick.

Further investigation near the Reef Runway found an area of sand that measured 2,000 ft. across and located inshore of the areas investigated in 2017. Jet probes were able to penetrate two to four ft. into the sand. The volume of the deposit is estimated to have about 200,000 cubic yards of sand.

Inland Sand – Pacific Aggregate

Pacific Aggregate operates a 200-acre quarry and processing operation in Waianae that manufactures sand from coral. Their product is mostly used for mixture in concrete. There is buried "natural/inland" sand located on their property that is about 10 ft. thick. Pacific Aggregate excavates from the natural source and keeps it separate from other sediments. Blended products are also available and could contain various sediments from the around the natural area. There is no certainty of how much of the natural sediment is contained in a blended product.

Sand samples were taken of the natural sand had a high quantity of fine material, and was poorly sorted. SEI requested additional processing of the sand, to remove fine material through reducing the speed of the rinsing augers and increasing the water flow.

4.6.2.2 *Sand Investigation Results*

The sand samples were analyzed by geologists and grain size analyses were performed by a professional laboratory. The "Reef Runway—Inner", "Waikiki Maintenance", and "Diamond Head" sand samples are within the DLNR guidelines. "Hilton" sand is coarser than the Ala Moana beach sand, which provides more stability and should be considered. The sand found below the surface at the Diamond Head site closely matches the sand that was imported to Ala Moana from West Oʻahu. Below are some of the revealing factors of the studies to consider from the locations:[76]

[76] Ibid. Sea Engineering, Inc. June 2018. Pg. 91-93

"Reef Runway—Inner"

- Located near the 'Ewa end of the Daniel K. Inouye Honolulu International Airport Reef Runway.
- The deposit is in 60 to 100 ft. of water and could contain up to 200,000 cubic yards of sand.
- The measured median grain size is slightly finer than the Beach sand.
- The offshore sand contains a significant amount of fine material which is expected to produce noticeable turbidity, even though the fines are less than the limit set forth by DLNR.
- Oceanographic conditions are not expected to be a concern, though waves and weather will have to be monitored.
- The site is not near to any surf sites or other recreational activities.
- The site is near the Pearl Harbor channel and may require coordination with the military.

"Hilton"

- Located in nearshore waters off Waikiki near the Hilton Hawaiian Village resort.
- Oceanographic conditions are not expected to be a concern.
- The area is a popular recreational spot that includes swimmers, kayakers, and stand-up paddleboarders. Ala Moana Bowls, Rockpiles, In Betweens, and Kaisers are popular surf spots. The Atlantis Submarine tour boats pass this area several times per day.
- The "Hilton" sand deposit contains an estimated 45,000 cubic yards of sand. The sand is slightly coarser than the Beach sand.
- The State of Hawaii is drafting an EIS for maintenance of Waikiki Beach. The "Hilton" sand deposit has been considered for the nourishment project for at least part of the beach. The sand deposits are within the State's Conservation District which will trigger a permitting process from the State.

"Waikiki Maintenance"

- Located in the nearshore waters off Waikiki.

- Popular "Queens" and "Canoes" surf sites are nearby. The area is also popular for swimmers, kayakers, and stand-up paddleboarders.
- The "Waikiki Maintenance" sand deposit may contain up to 46,000 cubic yards of sand. The sand is slightly finer than the Beach sand.
- During the 2012 Waikiki Maintenance project, south swells affected the stability of the dredge barge and the barge had to move offshore three times. Waves would have to be monitored carefully if this site is selected for dredging.
- As with the "Hilton" deposit, the Waikiki Maintenance sand may be used for the Waikiki project.

"Diamond Head"

- The sand deposit matches the closest to the Beach sand, but recovering this sand may have the most constraints.
- The sand deposit contains an estimated 110,000 cy of sand, with more available in the eastern half.
- The deposit is located in 25 to 40 feet of water and the popular "Cliffs" surf site is nearby which may present difficulty in obtaining a permit.
- The area is shallow and exposed to tradewinds and waves, which could destabilize dredging operations. The main concern would be wave impacts while the machine is excavating the sand from the water and into the transport boat.

4.6.3 Potential Impacts and Mitigation Measures

Turbidity

Sand recovered from the ocean can be compacted with the dry beach sand, but would still contain fine grains that could be resuspended in the ocean environment. Dredging, transport, and placement of the imported sand can also increase the percent of the finer sediment through the mechanical movement from one place to the other.

Turbidity is caused by fine sediment particles suspension in the water column. Turbidity is usually a temporary construction impact, and would naturally settle out of the water column. Shoreline turbidity is anticipated during sand placement. Silt curtains and containment barriers would be placed along the shoreline during beach maintenance. There may be a period of turbidity after sand placement as finer

sediment moves across the shoreline. The finer sediment is expected to disperse and move offshore.

Turbidity is also expected at the offshore dredge site. Fine sand could be disturbed during the recovery from the seafloor. Impacts of turbidity could be minimized at the dredge site by using an environmental clamshell bucket, which is recommended as an industry best practice. Environmental clamshell buckets are designed to have tighter seals and overlapping sides which retains the sediment within the bucket and results in less turbidity at the dredge site. Turbidity caused by the sand recovery work may move with the inbound waves towards the shore.

Sand Compaction

Compaction occurs when grains harden by being compressed. During the 2012 Waikiki Beach Maintenance project, compaction occurred while the loading truck was transporting the sand to the sand placement area. The activities during transport created a hardened berm along the seaward edge of the truck's path.

The road should be used during transportation of sand to the sand placement sites to minimize sand compaction. The combination of weight, suspension of calcium carbonate matter from fresh water, and the presence of finer sediment could increase hardening of the new sand. To minimize the impact of hardening, bulldozers could be used to disseminate the sand. Additional monitoring of sand could be done after sand placement and the sand can be mechanically loosened where needed.

Coral Rubble

Coral cobbles and rubble left on the beach can be a hazard for walking and deterrents for beach users. Most of the rubble are found near the shoreline which creates a hazard when entering the water. There is potential for larger pieces of cobbles to be present in hidden portions of the dredged sand. Coral rubble was observed periodically during the sand source investigations offshore. The contractor may need to remove coral rubble by hand after placement.

There is a high probability of encountering rubble if clamshell dredging is chosen as the preferred construction method. There is no method to separate the coral rubble from the sand at the recovery site. The clamshell bucket should be monitored by the contractor as it empties the sand onto the barge. The sand recovery operation could move to an alternate location if excessive coral rubble is encountered.

Screening the sand at the offloading site from the barge could be considered, but it would delay the construction schedule and would not guarantee sterile sand from coral cobbles. Monitoring the sand during recovery may be more efficient and a way to identify if the sand is appropriate for use.

Erosion

Beach nourishment is not a permanent solution and will not prevent chronic erosion. Erosion would continue to affect the full length of the shoreline. The Beach may also be impacted by other natural occurrences such as strong Kona storms, hurricanes, tsunamis, king tides, and other oceanographic and atmospheric events. These events could cause significant impacts to the Beach and could result in large volumes of sand loss from the Beach.

Design Life

Current options presented by SEI recommend regular maintenance of the Beach every 20 years for the Option 1 nourishment and every 35 years for the Option 2 and Option 3 nourishments. Sea level rise is predicted to increase and could increase erosion rates. Studies have predicted sea levels to rise as much as 3.2 feet by the year 2100.

Regular maintenance of the Beach is recommended to keep it operational. The additional sand on the Diamond Head side could be available for use when needed for sand pushing.

Anoxic Content

Some of the recovered sand may be anoxic and could be grayish in color with an odor. The condition of the sand is expected as part of the beach nourishment process. The color and odor is temporary and will dissolve once the sand is exposed to drier conditions.

Marine Activities

Offshore operations of the sand recovery may impact ocean recreational users, but the impact is expected to be temporary. The barges used to recover and transport the sand would be anchored in place and the anchor lines would be marked with floats and lights where needed. Scheduling may be an option to minimize impacts to recreational users which could include longer work days and working seven days a week to reduce the overall duration of the project.

The public should be notified of the construction schedule and pertinent details of the project through public notices and media. A Notice to Mariners should be issued through the United States Coast Guard prior to the start of construction. DPR will coordinate awareness efforts at the Parks. All onshore and offshore hazards should be clearly labeled with signage, safety devices, and/or marker floats. Detours to avoid certain areas, both on land and in the water, will be clearly identified. Flag persons will be provided as needed.

Beach Activities

Sand placement onto the Beach would require sections of the Beach to be confined during mobilization. Construction personnel would be available at specific locations

to assist beach users to alternate areas. Noise, dust, and fumes from the exhaust may be temporary impacts during operation of the heavy machinery. Scheduling may be an option to reduce these impacts. The City operated the sand pushing project during off-peak hours with less beach users and reduced the impact to recreational use.

Surf Activities

Many surf breaks are located along the reef that stretch the length of AMRP. South swells are produced during the summer months, but surfing is popular year-round. Access route to the surf breaks may be temporarily hindered since surfers enter the water from the Beach. The Beach will be closed in sections to keep access open to other areas during construction.

Recreational Hazards

Users currently experience recreational hazards on the Beach or in the water. These hazards include but not limited to: swimming accidents such as drowning and collisions, trips and falls, sharp objects, and poor water quality. These hazards exist at the Beach and will continue to exist after the project is completed.

CHAPTER 5

Federal, State, and County Land Use,
and Environmental Policies

CHAPTER 5 FEDERAL, STATE, AND COUNTY LAND USE, AND ENVIRONMENTAL POLICIES

This EIS satisfies the requirements of Chapter 343, HRS, and Title 11, DOH, Chapter 200 (EIS Rules), HAR because City funds and lands will be used. In addition, several additional federal and state laws, Executive Orders (EO), permits and consultations, identified during the scoping/pre-consultation process and in preparation of this document, are described in this section. The EISPN was published on December 23, 2017. Comments received on the EISPN during the public comment period and the responses are incorporated throughout this EIS.

5.1 FEDERAL LAWS

While the EIS is written according to HRS Chapter 343 and its implementing rules, it is also intended to provide preliminary information to USACE for a DA permit. For the AMRP and Magic Island project, the Chapter 343 law is triggered by the use of City land and funds.

In-water construction for sand replenishment, drainage canal bridge replacement, repair of the Bridal Bridge and hardening of the Japanese and Hawaiian pond edges will require a USACE Permit in accordance with the federal CWA, Section 404; the State of Hawaiʻi, Department of Health, Water Quality Certification (WQC), Section 401; and compliance with the State DBEDT, Office of Planning (OP), Coastal Zone Management (CZM) Act, Endangered Species Act, and other applicable laws and regulations. A major part of the in-water construction will involve offshore sand dredging to restore the sandy beach. Improvements to the canal along the northern border of the AMRP will also require these permits, including review by the SHPD.

5.1.1 Rivers and Harbors Act of 1899, Section 10

The Rivers and Harbors Act is the oldest federal environmental law in the U.S. This Act makes it illegal to discharge refuse matter of any kind into the navigable waters of the U.S. without a permit. Section 10 of the Rivers and Harbors Act makes it illegal to excavate, fill, or alter the course, condition, or capacity of any port, harbor, channel, or other navigable water without a permit. Although many activities covered by the

Rivers and Harbor Act are regulated under the CWA, the Rivers and Harbors Act retains independent vitality. The Act is administered by USACE.

The proposed project will involve activities within navigable waters of the U.S., namely the AMRP ponds and canal, and the neighboring water bodies (see Section 4.2.3).

Relationship of the Proposed Action to this Act. This project proposes to widen the bridges over the canal at Pi‘ikoi and Queen Street; enhance the edges of the two existing ponds; repair the Bridal Bridge and locate sand offshore for beach nourishment. Therefore, a DA Permit from the USACE will be required for this project to adhere to Section 10 of the Rivers and Harbors Act.

5.1.2 Migratory Bird Treaty Act (MBTA) of 1918

The purpose of the MBTA is to protect migratory birds and birds native to the U.S. The MBTA prohibits the unregulated “taking” of covered species, which is defined as “hunting, pursuing, killing, possessing or transporting any migratory bird, nest, egg or part thereof.” The MBTA extends to all bird species native to the U.S., even those that are not migratory. Over 1,000 species are currently protected. The MBTA is administered by the U.S. Fish and Wildlife Service (USFWS).

Relationship of the Proposed Action to this Act. A biological resource survey was conducted and seven birds protected by the MBTA were observed. The white tern, one of the seven protected birds, is also listed as threatened on O‘ahu by the State of Hawai‘i. See 5.1.4 for further details regarding the white tern. The survey concluded that construction may temporary displace the observed migratory birds, but long-term effects are not expected. It is not expected to affect individual survival or the overall observed species population.

5.1.3 Coastal Zone Management Act of 1972

The federal CZM Act of 1972 establishes a program for management, development, and protection of the nation’s coastal zone. The program is administered by the NOAA Office of Ocean and Coastal Resource Management. States are authorized to develop and implement their own CZM Programs.

The Hawai‘i CZM Program is administered by the Office of Planning, under the DBEDT. HRS Chapter 205A-1 establishes that all lands within the State are within the CZM area. The individual counties of the State are responsible for identifying and establishing the SMA and shoreline setback areas of their jurisdiction.

Relationship of the Proposed Action to this Act. All of O‘ahu is within the coastal zone. The CZM consistency determination is undertaken on the basis of permit requests, and would be issued only after this EIS is accepted and a permit request is made.

5.1.4 Endangered Species Act of 1973

USFWS enacted the ESA of 1973 to protect critically imperiled species and the ecosystems upon which they depend from extinction. The ESA's provisions encompass plants and invertebrates as well as vertebrates. The USFWS and the NOAA administer the ESA.

Section 7 of the ESA requires that federally-funded projects not jeopardize species listed as threatened or endangered, or adversely modify designated critical habitats.

Relationship of the Proposed Action to this Act: While this project is not federally funded, State regulations protecting endangered and threatened species (HRS Chapter 195D) do apply. A biological resource survey was conducted for the EIS and one state listed species, the white tern, was observed in the survey area. Additionally, based on the current distribution and habitat requirements, it was also noted that the endangered Hawaiian hoary bat may forage or roost in the survey area.

White tern avoidance and mitigation measures:

1. Tree removal and trimming should be conducted in the fall and early winter when breeding is at its lowest.
2. Inspection of trees for birds prior to removal.
3. If a nest or chick is found, the tree should not be trimmed or removed prior to chick fledging.

Hawaiian hoary bat recommended measures:

1. Trees taller than 15 feet, in the survey area, should not be trimmed or removed between June 1and September 15.
2. Any erected fences should be barbless top-strand wire to prevent entanglements.

Threaten or endangered species in the marine environment could consist of the endangered humpback whale (*Megatera novaeangliae*) and the endangered Hawaiian monk seal (*Monachus schauinslandi*). Both mammals were not observed during the survey, but are known to occur in Hawaiian waters, and on the shore for the Hawaiian monk seal. Several threatened green sea turtles (*Chelonia mydas*) were observed during the survey and are commonly found in south shore waters. The calm water protected by the coral reef is a preferred habitat for the green sea turtle because there is an abundance of food source and they are sheltered from predators. The endangered hawksbill turtle (*Eretmochelys imbricata*) was not observed and they are not commonly found in Hawaiian waters.

5.2 STATE POLICIES AND STATUTES

The following is a brief summary of the various state policies and statutes that exist in Hawai'i. Compatibility with components of these policies and statutes are addressed

below. This Draft EIS was preceded by an EISPN which was prepared in compliance with Chapter 343, HRS and under authority of Act 172-12.

5.2.1 State Land Use Law

The State Legislature adopted the State Land Use Law in 1961 to protect Hawai'i's valuable lands from development that resulted in only short-term gains for a few and long-term losses to the income and growth potential of the State's economy. The State Land Use Law (HRS Chapter 205) established the Land Use Commission and placed all lands in one of four land use districts: Urban, Agricultural, Conservation, or Rural. The AMRP is in the Urban district. According to HRS Chapter 205-2(b),[1] "Urban districts shall include activities or uses as provided by the ordinances or regulations of the county within which the urban district is situated." The parks in Hawai'i are both State and County operated.

For the circumstance of the AMRP, the City has jurisdiction. The existing and proposed uses for the project area are permitted in the designated Urban District. As such, the proposed action would take place in an urban environment where development and foreseeable growth are anticipated and planned.

Hawai'i State Plan

In 1978, the State Legislature adopted the Hawai'i State Planning Act (Planning Act) as HRS Chapter 226 to establish direction and provide long-range planning for the State. The Planning Act consists of a series of broad goals, objectives, and policies that serve as guidelines for the State's future long-term growth and development. The Planning Act provides a basis for determining priorities and allocating limited resources. It also seeks to improve coordination of federal, state, and county plans, policies, programs, projects, and regulatory activities. Furthermore, the Planning Act establishes a system for plan formulation and program coordination to provide for an integration of all major State and County activities.

The Planning Act is divided into three sections: Part I—Overall Theme, Goals, Objectives and Policies; Part II—Planning Coordination and Implementation; and Part III—Priority Guidelines. Part I of the Planning Act consists of three overall themes: (1) individual and family self-sufficiency; (2) social and economic mobility; and (3) community or social well-being. These themes are considered "basic functions of society" and goals toward which government must strive (HRS §226-3). Objectives and policies focus on general topic areas, including population, economy, physical environment, facility systems, and socio-cultural advancement.[2]

Part II of the Planning Act primarily addresses internal government policies to help streamline, coordinate, and implement various plans and processes between governmental agencies. It seeks to eliminate or consolidate burdensome or

[1] State of Hawai'i. 2007. *Hawai'i Revised Statues, Chapter 205-2(b), Districting and classification of lands.*

[2] Objectives and policies of the State Plan are listed in HRS Chapter 226-5 through 226-27.

duplicative governmental requirements imposed on business, where public health, safety, and welfare would not be adversely affected.

Part III of the Planning Act establishes overall priority guidelines to address areas of statewide concern (HRS §226-101). The overall direction and focus are on improving the quality of life for Hawai‘i’s present and future population through the pursuit of desirable courses of action (HRS §226-102).

Table 5-1 evaluates the proposed action alternatives conformance with the State’s goals and objectives of Part I of the Planning Act. Parts II and III are not presented as those sections pertain to internal government affairs and statewide concerns.

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
226-3	OVERALL THEME	
226-4	STATE GOALS. In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:	
(1)	A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i's present and future generations.	C
(2)	A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.	A
(3)	Physical, social, and economic well-being, for individuals and families in Hawai‘i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	A
CONFORMANCE DETERMINATION: The proposed park actions support HRS Section 226-4 since it would revitalize a unique and an historic park. It would encourage responsibility in community life and pride in a local community park through proposed park improvements and enhancements.		
226-5	**OBJECTIVE AND POLICIES FOR POPULATION**	NA
226-6	**OBJECTIVE AND POLICIES FOR THE ECONOMY – IN GENERAL**	NA
226-7	**OBJECTIVE AND POLICIES FOR THE ECONOMY --AGRICULTURE**	NA
226-8	**OBJECTIVE AND POLICIES FOR THE ECONOMY – VISITOR INDUSTRY**	
(a)	Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.	
(b)	To achieve the visitor industry objective, it shall be the policy of this State to:	

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I		
SECTION	**CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES**	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
(1)	Support and assist in the promotion of Hawaii's visitor attractions and facilities.	A
(2)	Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.	A
(3)	Improve the quality of existing visitor destination areas by utilizing Hawaii's strengths in science and technology.	NA
(4)	Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.	A
(5)	Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.	C
(6)	Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.	NA
(7)	Foster a recognition of the contribution of the visitor industry to Hawaii's economy and the need to perpetuate the aloha spirit.	NA
(8)	Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.	C
CONFORMANCE DETERMINATION: The Proposed Actions would increase visitor use of an historic park via restoring existing features; activating and improving underutilized park areas; and enhancing and expanding upon used areas. Thus, proposed improvements would contribute to the visitor industry by encouraging increased visitation as a result of proposed park improvements.		
226-9	**OBJECTIVE AND POLICIES FOR THE ECONOMY – FEDERAL EXPENDITURES**	NA
226-10	**OBJECTIVE AND POLICIES FOR THE ECONOMY – POTENTIAL GROWTH AND INNOVATIVE ACTIVITIES**	NA
226-10,5	**OBJECTIVE AND POLICIES FOR THE ECONOMY – INFORMATION INDUSTRY**	NA
226-11	**OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LAND BASED, SHORELINE, AND MARINE RESOURCES.**	
(a)	Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:	
(1)	Prudent use of Hawai'i's land-based, shoreline, and marine resources.	C
(2)	Effective protection of Hawai'i's unique and fragile environmental resources.	C
(b)	To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:	

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I		
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(1)	Exercise an overall conservation ethic in the use of Hawaiʻi's natural resources.	C
(2)	Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	A
(3)	Take into account the physical attributes of areas when planning and designing activities and facilities.	A
(4)	Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	A
(5)	Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	NA
(6)	Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaiʻi.	A
(7)	Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.	C
(8)	Pursue compatible relationships among activities, facilities, and natural resources.	A
(9)	Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.	A
CONFORMANCE DETERMINATION: The Master Plan goals support the sustainable use of shoreline and marine resources. The stated goals encourage a harmonious interaction of public recreation with the park's natural resources.		
226-12	**OBJECTIVE AND POLICIES FOR THE PHYSICAL ENVIRONMENT--SCENIC, NATURAL BEAUTY, AND HISTORIC RESOURCES**	
(a)	Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.	
(b)	To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:	
(1)	Promote the preservation and restoration of significant natural and historic resources.	A
(2)	Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	C
(3)	Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	A
(4)	Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.	A

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(5)	Encourage the design of developments and activities that complement the natural beauty of the islands	A
CONFORMANCE DETERMINATION: The Proposed Actions would preserve and enhance important natural, historic, cultural and scenic resources. More specifically, it would restore, improve, and expand upon the park's natural and scenic beauty as well as its historical structures and significance.		
226-13	**OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LAND, AIR, AND WATER QUALITY.**	
(a)	Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:	
(1)	Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.	C
(2)	Greater public awareness and appreciation of Hawai'i's environmental resources.	C
(b)	To achieve the land, air, and water quality objectives, it shall be the policy of this State to:	
(1)	Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.	C
(2)	Promote the proper management of Hawai'i's land and water resources.	C
(3)	Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.	C
(4)	Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.	NA
(5)	Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.	NA
(6)	Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.	NA
(7)	Encourage urban developments in close proximity to existing services and facilities.	NA
(8)	Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.	NA
CONFORMANCE DETERMINATION: Restoration, improvement, and enhancement for the proposed park action would follow best management practices to minimize impacts on the environment.		
226-14	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – IN GENERAL**	
226-15	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – SOLID AND LIQUID WASTES**	
226-16	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – WATER**	

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I		
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226-17	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – TRANSPORTATION**	
226-18	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – ENERGY**	
226-18,5	**OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – TELECOMMUNICATIONS**	
226-19	**OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT--HOUSING**	
226-20	**OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT—HEALTH**	
226-21	**OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT--EDUCATION**	
226-22	**OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT—SOCIAL SERVICES**	
226-23	**OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT--LEISURE.**	
(a)	Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.	
(b)	To achieve the leisure objective, it shall be the policy of this State to:	
(1)	Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.	C
(2)	Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.	A
(3)	Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.	A
(4)	Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	A
(5)	Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.	A
(6)	Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.	A
(7)	Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.	C
(8)	Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.	NA

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I		
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(9)	Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.	NA
(10)	Assure adequate access to significant natural and cultural resources in public ownership.	C
CONFORMANCE DETERMINATION: Proposed Actions would enhance and add to the Park's recreational opportunities and needs of present and future generations.		
226-24	**OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT – INDIVIDUAL RIGHTS AND PERSONAL WELL BEING**	
226-25	**OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT--CULTURE.**	
(a)	Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.	
(b)	To achieve the culture objective, it shall be the policy of this State to:	
(1)	Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.	C
(2)	Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.	C
(3)	Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.	C
(4)	Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.	C
CONFORMANCE DETERMINATION: The AMPR is historic and includes significant historic sites. Its respectful interpretation would promote knowledge of Hawaiʻi's history and heritage.		
226-26	**OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT – PUBLIC SAFETY**	
226-27	**OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT -- GOVERNMENT**	
226-108	**SUSTAINABILITY PRIORITY GUIDELINES**	
(1)	Encouraging balanced economic, social, community, and environmental priorities;	NA
(2)	Encouraging planning that respects and promotes living within the natural resources and limits of the State;	A
(3)	Promoting a diversified and dynamic economy	NA
(4)	Encouraging respect for the host culture;	C
(5)	Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;	C

Table 5-1: Hawaii State Plan–HRS Chapter 226, Part I		
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(6)	Considering the principles of the ahupuaa system; and	C
(7)	Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawaii	NA
CONFORMANCE DETERMINATION: The Master Plan addresses the long-term improvements to the Park in support of sustaining and enhancing scenery, activities, and role as a recreational resource for a growing city.		
226-109	**CLIMATE CHANGE ADAPTATION PRIORITY GUIDELINES**	
(1)	Ensure that Hawaii's people are educated, informed, and aware of the impacts climate change may have on their communities;	NA
(2)	Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;	NA
(3)	Invest in continued monitoring and research of Hawaii's climate and the impacts of climate change on the State;	NA
(4)	Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;	NA
(5)	Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change	C
(6)	Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments	NA
(7)	Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;	NA
(8)	Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;	C
(9)	Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans	NA
(10)	Encourage planning and management of the natural and built environments that effectively integrate climate change policy.	NA
CONFORMANCE DETERMINATION: The master plan proposes actions via sustainable methods whereby preservation of structures and natural environment are restored or kept intact.		

5.2.2 Hawai'i Climate Change Initiative: Act 286 of 2012

The State of Hawai'i recognizes the importance of climate change. Act 286 of 2012 amended the State Planning Law (HRS Chapter 226) to include climate change adaptation as one of seven areas of statewide concern crucial to the quality of life. Ten priority guidelines were adopted. The guidelines oversee outreach, stewardship, monitoring and the development of knowledge and strategies that integrate climate change adaptation into state activities.

Chapter 226-109 of the Hawai'i State Plan is outlined in the above referenced Table 5-1. The proposed actions for the AMRP conform to objectives of the Climate Change guidelines, as noted above, while others are not applicable. The project plans will conduct proposed improvements with sustainable methods which will support actions related to climate change mitigation.

5.2.3 State Functional Plan

The purpose of the State Functional Plans is to supplement the policies and procedures of the Hawai'i State Plan in further detail. The State Functional Plans were designed in the early 1980s and adopted by the Hawai'i State Legislature. Committees were developed for each functional plan that involve community leaders who are appointed by the governor. These committees hold a forum to discuss the matters within their functional plan that relates to budget, executing actions and implementing a timeframe. The functional plans include: Agriculture, Conservation Lands, Employment, Energy, Health, Higher Education, Historic Preservation, Housing, Recreation, Tourism, Transportation, and Human Services. This project coincides with the polices of the State Functional Plans. The project will revitalize one of the few large open park spaces on O'ahu and ensure its reliability for recreational use. State of Hawai'i Functional Plans combine statements of long-term objectives and near-term actions and projects to address those objectives. Table 5-2 lists the functional plans and applicability to this project.

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II

PLAN YEAR	PART II. PLANNING COORDINATION AND IMPLEMENTATION: FUNCTIONAL PLANS	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
1991	**AGRICULTURE FUNCTIONAL PLAN**	NA
1991	**CONSERVATION LANDS STATE FUNCTIONAL PLAN**	A
	I. ISSUE AREA: INVENTORIES OF RESOURCES AND BACKGROUND INFORMATION AND BASIC RESEARCH	
	OBJECTIVE I.A. ESTABLISHMENT OF DATA BASES FOR INVENTORIES OF EXISTING LANDS AND RESOURCES.	

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
PLAN YEAR	**PART II. PLANNING COORDINATION AND IMPLEMENTATION: FUNCTIONAL PLANS**	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
	Policy I.A.1. Develop and maintain a centralized statewide data base of conservation areas and natural resources.	NA
	Policy I.A.2.Develop and maintain a centralized statewide data base of all permits/actions relative to land usage within the Conservation District.	NA
	Policy I.A.3.Locate, preserve and encourage the availability of site suitable for commercial aquaculture by both private and public-sector landowners.	NA
	Policy I.A.4. Identify appropriate lands for commercial forest production.	NA
	Policy I.A.5. Conduct inventories of aquatic and terrestrial resources.	A
	Policy I.A.6. Survey important native aquatic and terrestrial ecosystems and species.	NA
	OBECTIVE I.B. ESTABLISHMENT OF CRITERIA FOR MANAGEMENT OF LAND AND NATURAL RESOURCES	
	Policy I.B.1. Develop and institute new controls in regions where necessary to ensure equitable sharing of water use commensurate with replenishment, and long-term availability.	NA
	Policy I.B.2. Develop regulatory criteria for stream channel alterations to protect instream uses.	NA
	Policy I.B.3. Identify and assess high quality and other streams for preservation.	NA
	Policy I.B.4. Study movement and behavior of fish in local waters.	NA
	Policy I.B.5. Establish standards and feasibility of alternate uses of public lands.	NA
	OBJECTIVE II.A. Establishment of plans for natural resources and land management.	
	Policy II.A.1. Formulate and maintain a management plan for resources and lands having significant conservation value.	NA
	Policy II.A.2. Identify and enhance appropriate lands for commercial forest production and sustained-yield hunting.	NA
	Policy II.A.3. Identify and enhance appropriate areas for wildlife sanctuaries.	NA
	OBJECTIVE II.B. PROTECTION OF FRAGILE OR RARE NATURAL RESOURCES	
	Policy II.A.1. Develop protection and preservation of habitats of rare and endangered wildlife and native ecosystems in Hawaii.	NA
	Policy II.A.2. Intensify protection of important native aquatic ecosystems and species.	NA
	Policy II.B.3 Develop a coordinated approach to wetlands protection, acquisition, and management.	NA

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
PLAN YEAR	**PART II. PLANNING COORDINATION AND IMPLEMENTATION: FUNCTIONAL PLANS**	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
	Policy II.A.4. Continue aggressive management to protect Hawaii's intact forested ecosystem.	NA
	OBJECTIVE II.C. ENHANCEMENT OF NATURAL RESOURCES	
	Policy II.C.1. Expand marine and fresh water fishing areas and promote fishing opportunities.	NA
	Policy II.C.2. Expand and enhance outdoor recreation opportunities and other resource uses.	A
	OBJECTIVE II.D. Appropriate development of natural resources.	
	Policy. II.D. 1. Develop and expand resources to protect natural shoreline and wilderness recreation areas.	NA
	Policy. II.D. 2. Develop aquatic resources	NA
	Policy. II.D. 3. Develop recreational and archaeological resources on the shoreline and mauka areas.	A
	Policy. II.D. 4. Expand the forest reserve system and game management area.	NA
	Policy. II.D. 5. Determine feasibility of product development for commercially viable natural resources and assist in initial steps necessary for such determination.	NA
	OBJECTIVE II.E. PROMOTION AND MARKETING OF APPRORIATE NATURAL RESOURCES DESIGNATED FOR COMMERICAL DEVELOPMENT.	
	Policy II.E.1. Establish broader project applicability, easier availability and realistic loan limits in public and private sector aquaculture loan programs.	NA
	Policy II.E.2. Expand aquaculture business assistance and investment incentives in the public sector to increase Hawaii's attractiveness as a location for aquaculture.	NA
	Policy II.E.3. Increase demand for Hawaii's aquaculture products and services in local, national and international markets.	NA
	Policy II.E.4. Assist the fishing industry to develop new markets and improve production and processing of fishery products.	NA
CONFORMANCE DETERMINATION: The proposed project actions' goals are to restore, activate, and enhance park features such as historic structures and utilized park areas. This project actively supports this functional plan because it proposed to expand and enhance outdoor recreation and resources.		
1989	**EDUCATION STATE FUNCTIONAL PLAN**	NA
1989	**EMPLOYMENT STATE FUNCTIONAL PLAN**	NA
1991	**ENERGY STATE FUNTIONAL PLAN**	NA
1989	**HEALTH STATE FUNCTIONAL PLAN**	NA
1984	**HIGHER EDUCATION FUNTIONAL PLAN**	NA

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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1984	**HISTORIC PRESERVATION STATE FUNCTIONAL PLAN**	A
	I. ISSUE AREA: PRESERVATION OF HISTORIC SITES	
	OBJECTIVE A: IDENTIFICATION OF HISTORIC PROPERTIES	
	Policy A.1: Expand statewide historic sites inventory program	NA
	OBJECTIVE B: PROTECTION OF HISTORIC PROPERTIES	
	Policy B.1: Provide timely historic property reviews which are integrated effectively into the land use regulatory system.	NA
	Policy B.2: Establish and make available a variety of mechanisms to better protect historic properties	C
	OBJECTIVE C: MANAGEMENT AND TREATMENT OF HISTORIC PROPERTIES	
	Policy C.1: Evaluate and designate significant historic properties for legal recognition in a timely manner	NA
	Policy C.2: Encourage the preservation and maintenance of historic properties through economic incentives and support.	A
	Policy C.3: Explore innovative means to better manage historic properties	A
	Policy C.4: Encourage proper preservation techniques	C
	II. ISSUE AREA: COLLECTION AND PRESEVATION OF HISTORIC RECORDS, ARTIFACTS AND ORAL HISTORIES AND PERPETUATION OF TRADITIONAL SKILLS	
	OBJECTIVE D: PROVISION OF ADEQUATE FACILITIES TO PRESERVE HISTORIC RESOURCES	
	Policy D.1: Provide adequate facilities to preserve historic resources	NA
	OBJECTIVE E: THE ESTABLISHMENT OF PROGRAMS TO COLLECT AND CONSERVE HISTORIC RECORDS, ARTIFACTS, AND ORAL HISTORIES AND TO DOCUMENT AND PERPETUATE TRADITIONAL ARTS, SKILLS AND CULTURE	
	Policy E.1: Provide support and coordination to activities involved with collection and conservation of historic records and materials.	A
	III. PUBLIC INFORMATION AND EDUCATION ON THE ETHNIC AND CULTURAL HERITAGES AND HISTORY OF HAWAII	
	OBJECTIVE F: PROVISION OF BETTER ACCESS TO HISTORIC INFORMATION	
	Policy F.1: Support programs to facilitate the public's gathering of historic information.	NA

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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	Policy F.2.: Coordinate and support programs to disseminate information to the public.	NA
	OBJECTIVE G: ENHANCMENT OF SKILLS AND KNOWLEDGE NEEDED TO PRESERVE HISTORICAL RESOURCES	
	Policy G.1: Provide opportunities for continuing education for persons involved with collecting and preserving historic resources.	NA
CONFORMANCE DETERMINATION: The Operational Plan of the Master Plan states that the City should consider alternative methods and strategies for park maintenance and security. A robust management strategy would be able to monitor historic structures as they are used through time in the Park.		
2017	**HOUSING STATE FUNCTIONAL PLAN**	NA
1991	**HUMAN SERVICES STATE FUNCTIONAL PLAN**	NA
1991	**RECREATION STATE FUNCTIONAL PLAN**	A
	I. ISSUE AREA: OCEAN AND SHORELINE RECREATION	
	OBJECTIVE I.A.: ADDRESS THE PROBLEM OF SATURATION OF THE CAPACITY OF BEACH PARKS AND NEARSHORE WATERS	
	Policy I.A.1: Acquire additional beach parkland and rights-of-way to remaining undeveloped shorelines to provide increased capacity for future public recreational use.	NA
	Policy I.A.2. Acquire or obtain use of Federal lands and waters for ocean recreation and public access to the shoreline.	NA
	Policy I.A.3. More aggressively manage and control the use of existing beach parks.	A
	Policy I.A.4. Develop areas mauka of existing parks to increase their capacities and to diversify and encourage activities away from the shoreline.	NA
	OBJECTIVE I.B: REDUCE THE INDIDENCE OF OCEAN RECREATION ACCIDENTS	
	Policy I.B.1: Increase support for water safety programs	C
	OBJECTIVE I.C. RESOLVE CONFLICTS BETWEEN DIFFERENT ACTIVITIES AT HEAVILY USED OCEAN RECREATION	
	Policy I.C.1. Promote implementation and enforcement of an effective Ocean Recreation Management Plan	NA
	Policy I.C.2. Develop an approach to resolve conflicts relating to commercial use of popular ocean recreation areas.	NA
	Policy I.C.3. Mitigate the impact of increased use of popular ocean recreation areas by visitors.	NA
	Policy I.C.4. Take action to minimize or alleviate potentially dangerous user conflicts	C

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	OBJECTIVE I.D. PROVIDE ADEQUATE BOATING FACILTIES	
	Policy I.D.1. Provide moorings and boat launching facilities for recreational boats	NA
	Policy I.D.2. Implement programs for private sector participation in the developing and managing of slips, moorings, and boating support facilities for public use	NA
	Policy I.D.3. Provide facilities for outrigger canoe and kayak activities	A
	II. ISSUE AREA: MAUKA, URBAN, AND OTHER RECREATION OPPORTUNITIES	
	OBJECTIVE II.A. PLAN, DEVELOP, AND PROMOTE RECREATIONAL ACTIVITIES AND FACILITIES IN MAUKA AND OTHER AREAS TO PROVIDE A WIDE RANGE OF ALTERNATIVE ACTIVITIES	
	Policy II.A.1. Plan and develop facilities and areas that feature the natural and historic/cultural resources of Hawaii.	A
	Policy II.A.2. Plan and develop camp sites and other recreational amenities in mauka areas.	NA
	Policy II.A.3. Proceed with planning, acquisition, and development of trails.	NA
	Policy II.A.4 Implement a bikeway system based on the statewide bikeways master plan.	NA
	Policy II.A.5 Plan and develop facilities and programs to increase freshwater recreational fishing opportunities.	NA
	OBJECTIVE II.B. MEET SPECIAL RECREATION NEEDS OF THE ELDERLY, THE DISABLED, WOMEN, SINGLE-PARENT FAMILIES, IMMIGRANTS, AND OTHE GROUPS	
	Policy II.B.1. Involve the public in the planning, development, and operation of recreational facilities and programs.	A
	Policy II.B.2 Give higher priority to providing physical access to the disabled	A
	OBJECTIVE II.C IMPROVE AND EXPAND THE PROVISION OF RECREATION FACILITIES IN URBAN AREAS AND LOCAL COMMUNITIES	
	Policy II.C.1 Meet the demand for recreational opportunities in local communities.	A
	III. ISSUE AREA: PUBLIC ACCESS TO THE SHORELINE AND UPLAND RECREATION AREAS	
	OBJECTIVE III.A: PREVENT THE LOSS OF ACCESS TO SHORELINE AND UPLAND RECREATION AREAS DUE TO NEW DEVELOPMENTS.	
	Policy III.A.1. Require land use permit applicants to fully address the impact of their projects on trails and public access.	NA
	OBJECTIVE III.B. RESOLVE THE PROBLEM OF LANDOWNER LIABILITY THAT SERIOUSLY HAMPERS PUBLIC ACCESS OVER PRIVATE LANDS.	

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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	Policy III.B.1: Seek legislative reform of landowner liability laws to expand the provision of public access over private roads.	NA
	OBJECTIVE III.C. INCREASE ACCESS TO STATE FOREST RESERVE LANDS OVER FEDERAL PROPERTY, LEASE STATE LANDS, AND OTHER GOVERNMENT LANDS.	
	Policy III.C.1. Assure access to recreational areas in Forest Reserve Lands	NA
	OBJECTIVE III.D. ACQUIRE, DEVELOP, AND MANAGE ADDITIONAL PUBLIC **ACCESSWAYS**	
	Policy III.D.1. Give priority to acquiring public access to selected shoreline and mauka recreation.	NA
	Policy III.D.2 Provide adequate improvements at public accessways	A
	Policy III.D.3Effectively manage and maintain existing public accessways	A
	IV. ISSUE AREA IV: RESOURCE CONSERVATION AND MANAGEMENT	
	OBJECTIVE IV.A: PROMOTE A CONSERVATION ETHIC IN THE USE OF HAWAII'S RECREATIONAL RESOURCES	
	Policy IV.A.1. Emphasize and educational approach, in coordination with enforcement efforts, to promote environmental awareness.	NA
	OBJECTIVE IV.B. PREVENT DEGREDATION OF THE MARINE ENVIRONMENT	
	Policy IV.B.1. Enhance water quality to provide high-quality ocean recreation opportunities.	NA
	Policy IV.B.2. Protect, preserve, restore, and enhance recreational fishery resources.	NA
	Policy IV.B.3. Protect surfing sites	NA
	OBJECTIVE IV.C IMPROVE THE STATE'S ENFORCEMENT CAPABILITES	
	Policy IV.C.1 Develop a coordinated approach to enforcement	NA
	Policy IV.C.2. Increase funding support for enforcement	NA
	OBJECTIVE IV.D. MITIGATE ADVERSE IMPACTS OF TOUR HELICOPTERS ON THE QUALITY OF RECREATIONAL EXPERIENCES IN WILDERNESS AREAS.	
	Policy IV.D.1 Facilitate interagency cooperation to address the tour helicopter problem	NA
	V. MANAGEMENT OF RECREATION PROGRAMS, FACILITIES, AND AREAS	
	OBJECTIVE V.A. PROPERLY MAINTAIN EXISTING PARKS AND RECREATION AREAS	
	Policy V.A.1. Improve the maintenance of existing parks.	A
	OBJECTIVE V.B. PROMOTE INTERAGENCY COORDINATION AND COOPERATION TO FACILITATE SHARING OF RESOURCES, JOINT DEVELOPMENT EFFORTS, CLARIFICATION OF RESPONSIBILITIES AND JURISDICAITONS, AND IMPROVEMENTS IN ENFORCEMENT CAPABILITIES.	

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	Policy V.B.1 Foster closer relationships between recreation agencies	NA
	OBJECTIVE V.C. ASSURE ADEQUATE SUPPORT FOR PRIORITY OUTDOOR RECREATION PROGRAMS AND FACILITIES	
	PolicyV.C.1 Explore alternative funding strategies and sources	NA
	Policy V.C.2 Explore alternative land acquisition strategies	NA
	Policy V.C.3 Explore innovative ways to manage and maintain recreation resources.	NA
	ISSUE AREA VI: WETLANDS PROTECTION AND MANAGEMENT	
	OBJECTIVE VI.A. INCREASE RECREATIONAL ACCESS AND OPPORTUNITIES IN HAWAII'S WETLANDS.	
	Policy VI.A.1. Identify existing wetlands with the potential for recreational development	NA
	OBJECTIVE VI.B. DEVELOP AN ADEQUATE INFORMATION BASE TO ASSIST THE COUNTY PLANNING DEPARTMENTS AND OTHER REGULATORY AGENCIES IN MAKING DECISIONS REGARDING WETLANDS	
	Policy VI.B.1 Expand the wetlands information base	NA
	OBJECTIVE VI.C. ASSURE THE PROTECTION OF THE MOST VALUABLE WETLANDS IN THE STATE	
	Policy VI.C.1 Develop a coordinated approach to wetlands protection, acquisition, and management, as well as to the provision of public school education.	NA
CONFORMANCE DETERMINATION: The master plan is a result of intensive public involvement. An aspect of the proposed plan is to enhance management of the park for long-term sustainability; a more aggressive approach to park monitoring in order to keep up with park needs such as maintenance of park spaces and historic structures and operations.		
1991	**TOURISM STATE FUNCTIONAL PLAN**	A
	I. GROWTH	
	OBJECTIVE I.A: DEVELOPMENT, IMPLENTATION, AND MAINTENANCE OF POLICIES AND ACTIONS WHICH SUPPORT THE STEADY AND BALANCED GROWTH OF THE VISITOR INDUSTRY	
	Policy I.A.1: Identify and ensure a rate of industry growth that is consistent with the social, physical and economic needs of the residents and the preservation of Hawaii's natural environment.	NA
	Policy I.A.2. Ensure that visitor industry growth maximizes benefits to the residents of the State in general and revenues to State and County governments specifically.	NA

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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	Policy I.A.3 Provide opportunities for the visitor industry to grow keeping in mind the effects of the importation of labor	NA
	Policy I.A.4. Ensure that the growth of the visitor industry assists in the overall State goal of expansion and diversification of the economy.	NA
	Policy I.A.5. Ensure that the benefits of tourism development are spread evenly throughout the State, to the extent desired by the counties, by making special efforts to distribute growth to the Neighbor islands.	NA
	Policy I.A.6. Identify, support, and coordinate priority statistical and research activities in tourism needed to support optimum tourism growth.	NA
	II. PHYSICAL ENVIRONMENT	
	OBJECTIVE II. A: DEVELOPMENT AND MAINTENANCE OF WELL-DESIGNED VISITOR FACILITIES AND RELATED DEVELOPMENTS WHICH ARE ASENSITIVE TO THE ENVIRONMENT, SENSITIVE TO NEIGHBORHING COMMUNITIES AND ACTIVITIES, AND ADEQUATELY SERVICES BY INFRASTRUCTURE AND SUPPORT SERVICES.	
	Policy II.A.1: Maintain high standards of overall quality of existing visitor destination and attraction areas.	A
	Policy II.A.2: Enhance tourism product and encourage continued development of a diverse range of tourism products.	NA
	Policy II.A.3: Facilitate the reasonable distribution of financial responsibilities between government and private parties to fund tourism-related capital improvements and related infrastructure requirements.	A
	Policy II.A.4: Coordinate tourism development planning with human resource planning.	NA
	Policy II.A.5: Improve the availability of affordable housing for those employed in the visitor industry.	NA
	Policy II.A.6: Improve accessibility and arrival conditions at ports of entry	NA
	Policy II.A.7: Improve the quality of existing parks and recreational areas, and ensure that sufficient recreational areas are available for future use.	A
	Policy II.A.8: Encourage the development of hotels and related facilities within designated visitor destination areas with adequate infrastructure and support services before the development of other possible visitor destinations.	NA
	III. ENVIRONMENTAL RESOURCES AND CULTURAL HERITAGE	
	OBJECTIVE III. A: ENCHANCEMENT OF RESPECT AND REGARD FOR THE FRAGILE RESOURCES WHICH COMPRISE HAWAII'S NATURAL AND CULTURAL ENVIRONMENT. INCREASED PRESERVATION AND MAINTENANCE EFFORTS.	

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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	Policy III.A.1: Assist in preserving and maintaining recreational resources	A
	Policy III.A.2: Assist in preserving, perpetuating, and interpreting cultural, historic and archaeological resources. Preserve cultural authenticity as much as possible in commercialized and tourist-oriented presentations.	A
	Policy III.A.3: Assist in keeping Hawaii clean, beautiful and safe	A
	IV. COMMUNITY, VISITOR AND INDUSTRY RELATIONS	
	OBJECTIVE IV. A: SUPPORT OF HAWAII'S DIVERSE RANGE OF LIFESTYLES AND NATURAL ENVIRONMENT,	
	Policy IV.A.1: Maintain a Visitor Impact Management System	NA
	Policy IV.A.2: Make recommendations and disseminate information as needed to address impacts including those identified in the Visitor Impact Management System	NA
	OBJECTIVE IV. B: ACHIEVEMENT OF MUTUAL APPRECIATION AMONG RESIDENTS, VISITORS, AND THE VISITOR INDUSTRY	
	Policy IV.B. 1. Expand and improve programs designed to inform residents about the contributions of the visitor industry and the role residents play in making the industry successful.	NA
	Policy IV.B. 2. Expand and improve programs designed to inform visitors about: what to expect when visiting Hawaii, what is expected of them, water safety procedures, and safety procedures in the event of emergencies.	NA
	Policy IV.B. 3. Develop, maintain, and encourage corporate citizenship programs which monitor and disseminate information.	NA
	V. EMPLOYMENT AND CAREER DEVELOPMENT	
	OBJECTIVE V.A. DEVELOPMENT OF A PRODUCTIVE WORKFORCE TO MAINTAIN A HIGH-QUALITY VISITOR INDUSTRY.	
	Policy V.A.1. Development of a productive workforce to maintain a high quality of visitor industry	NA
	Policy V.A.2 Encourage development of training programs which improve the quality of services provided at tourism-related facilities.	NA
	OBJECTIVE V.B. ENCHANCEMENT OF CAREER AND EMPLOYMENT OPPORTUNITIES IN THE VISITOR INDUSTRY	
	Policy V.B.1. Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.	NA

Table 5-2: Hawaii State Plan–HRS Chapter 226, Part II		
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A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
	Policy V.B.2. Encourage the visitor industry to consider Hawaii residents first when hiring and to provide opportunities for upward mobility.	NA
	VI. MARKETING	
	OBJECTIVE VI.A. MAINTENANCE OF A HIGH CUSTOMER AWARENESS OF HAWAII AS A VISITOR DESTINATION IN SPECIFIC DESIRED MARKET SEGMENTS	
	Policy VI.A.1 Diversify pleasure markets geographically and by market segment.	NA
	Policy VI.B.2. Ensure that the business segment increases as a percentage of overall visitors	NA
	Policy VI.B.3. Provide adequate backup and support to maintain marketing campaigns.	NA
CONFORMANCE DETERMINATION: The proposed actions are meant to enhance, improve, and restore well utilized structures, areas, and activities of the park as well as ensure sustainable park upkeep. Through these actions, the AMRP will garner an increased reputation amongst tourist as a safe, secure, and an historic park that is a "must-see" tourist destination.		
1991	**TRANSPORTATION STATE FUNCTIONAL PLAN**	NA

5.2.4 State Environmental Policy

The State Environmental Policy under HRS Chapter 344 establishes an environmental policy that: (1) encourages productive and enjoyable harmony between people and their environment; (2) promotes efforts that will prevent or eliminate damage to the environment and biosphere; (3) stimulates the health and welfare of humanity; and (4) enriches the understanding of the ecological systems and natural resources important to the people of Hawai'i. Table 5-3 outlines related policy to the proposed project actions.

Table 5-3: Hawaii State Environmental Policy and Guidelines–HRS Chapter 344-3 & 344-4	
HRS CHAPTER 344-3 & 344-4	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
§344-3 Environmental Policy. It shall be the policy of the State, through its programs, authorities, and resources to:	

Table 5-3: Hawaii State Environmental Policy and Guidelines–HRS Chapter 344-3 & 344-4	
HRS CHAPTER 344-3 & 344-4	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
1. Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.	A
2. Enhance the quality of life by:	
A. Setting population limits so that interaction between the natural and artificial environments and the population is mutually beneficial;	NA
B. Creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;	NA
C. Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and	A
D. Establishing a commitment on the part of each person to protect and enhance Hawaii's environment and reduce the drain on nonrenewable resources.	NA
CONFORMANCE DETERMINATION: Proposed plans preserve, restore, and expand upon the historic structures and used amenities of the Park. The plans will create a preserved and enhanced environment for public recreational use; establish a deeper sense of identity for the community to the Park.	
§344-4 Guidelines. In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:	
1. Population.	
A. Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;	NA
B. Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined	NA
2. Land, water, mineral, visual, air, and other natural resources.	
A. Encourage management practices which conserve and fully utilize all-natural resources;	A

Table 5-3: Hawaii State Environmental Policy and Guidelines–HRS Chapter 344-3 & 344-4	
HRS CHAPTER 344-3 & 344-4	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
B. Promote irrigation and waste water management practices which conserve and fully utilize vital water resources;	A
C. Promote the recycling of waste water;	NA
D. Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;	NA
E. Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;	NA
F. Maintain an integrated system of state land use planning which coordinates the state and county general plans;	A
G. Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.	NA
3. Flora and fauna.	
A. Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;	A
B. Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.	A
4. Parks, recreation, and open space.	
A. Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, education, and scientific uses;	A
B. Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;	C
C. Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.	A
5. Economic Development.	
A. Encourage industries in Hawaii which would be in harmony with our environment;	C
B. Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;	NA
C. Encourage federal activities in Hawaii to protect the environment;	NA
D. Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;	NA

Table 5-3: Hawaii State Environmental Policy and Guidelines–HRS Chapter 344-3 & 344-4	
HRS CHAPTER 344-3 & 344-4	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
E. Establish visitor destination areas with planning controls which shall include but not be limited to number of rooms;	NA
F. Promote and foster the aquaculture industry of the State; and preserve and conserve productive aqua cultural lands.	NA
6. Transportation	
A. Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;	NA
B. Adopt guidelines to alleviate environmental degradation caused by motor vehicles;	NA
C. Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.	NA
7. Energy	
A. Encourage the efficient use of energy resources	NA
8. Community life and housing.	
A. Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods which reflect the culture and mores of the community;	A
B. Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;	A
C. Encourage the reduction of environmental pollution which may degrade a community;	C
D. Foster safe, sanitary, and decent homes;	NA
E. Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape and designs in urban areas; and preserve and promote mountain-to-ocean vistas.	A
9. Education and culture	
A. Foster culture and the arts and promote their linkage to the enhancement of the environment;	NA
B. Encourage both formal and informal environmental education to all age groups.	NA
10. Citizen participation	

Table 5-3: Hawaii State Environmental Policy and Guidelines–HRS Chapter 344-3 & 344-4	
HRS CHAPTER 344-3 & 344-4	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
A. Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and	C
B. Provide for expanding citizen participation in the decision-making process so it continually embraces more citizens and more issues	A
CONFORMANCE DETERMINATION: The Proposed Actions include projects related to physical design (restoring historic features, improving underutilized park areas, and expanding upon well-used areas) as well as developing additional programming opportunities for the Parks. Additionally, one of the Proposed Actions examines proper investment, organization, and alternative methods and strategies for sustainable park management. The proposed irrigation system will offer water conserving and maintenance reduction benefits. Lawns and trees will be sufficiently irrigated and areas receiving salt spray will be replaced with salt tolerant groundcover. Proposed plantings are to be native flora. The results of the biological resource study noted one state threatened species, the white tern, and habitat suitable for one federally endangered species, the Hawaiian hoary bat. The Report outlines avoidance and mitigation measures for the white tern and recommended measures for the potential habitation of the Hawaiian hoary bat. Throughout the process of project plan formulation, a public outreach plan was created and intensive public involvement was engaged via public meetings and an interactive website for citizens to post comments. The Ala Moana Regional Park Master Plan has been developed to preserve, restore, and expand upon the historic amenities and structures of the Park. It will create a preserved and enhanced environment for public recreational use.	

5.2.5 Section 401 Water Quality Certification (WQC)

A Section 401 WQC is a statement which asserts that a proposed discharge resulting from an activity will not violate applicable water quality standards. Under Section 401 of the CWA, the DOH CWB is responsible for issuing or denying Section 401 WQCs for any project that requires a federal license or permit that may result in a water pollutant discharge to State surface waters. Since the proposed project will involve navigable waters of the U.S. and requires a DA permit from USACE, a Section 401 WQC will also be required. Section 401 WQC is regulated under HAR Chapter 11-54, Water Quality Standards.

The Master Plan outlines changes to the canoe ramp, and the two pond edges, drainage canal, and beach nourishment, restoration and enhancement; these activities involve navigable waters of the US. Thus, this project will require a WQC asserting that the proposed discharge resulting from aforementioned activities will not violate applicable water quality standards.

5.2.6 Stream Channel Alteration Permit

The Stream Channel Alteration Permit (SCAP) is administered by the DLNR, CWRM. As outlined in HAR Chapter 13-169-50, no stream channel shall be altered until a SCAP is issued by the commission. In this context, channel alteration means to "obstruct, diminish, destroy, modify, or relocate a stream channel; to change the direction of flow of water in a stream channel; to place any material or structures in a stream channel; or to remove any material or structures from a stream channel.

The Master Plan proposes remediation and restoration of the drainage canal walls as well as enlargement of pedestrian bridges at Pi'ikoi and Queen Streets. These proposed actions require a SCAP due to canal alterations. Any alterations will not be commenced until the SCAP application is approved by CWRM.

5.2.7 Hawai'i Water Pollution Law

The Hawai'i Water Pollution Law,[3] which provides a comprehensive regulatory program for discharges[4] of pollution to the waters of Hawai'i, establishes the National Pollutant Discharge Elimination System (NPDES) permit program required under the CWA, as amended. Permits covered under this program are issued by DOH CWB. The CWB is responsible for reviewing and approving project compliance with HRS Chapter 342D (Water Pollution), HAR Chapter 11-55 (Water Pollution Control), and HAR Chapter 11-54 (Water Quality Standards). Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

This project could generate discharges of stormwater runoff from its construction site to State surface waters and as a result would require a NPDES permit for construction activity. All necessary permits will be obtained from CWB prior to any construction which could generate discharge to State waters.

5.2.8 HRS Chapter 6E, Historic Preservation

The Ala Moana Park (SIHP # 50-80-14-1388) was listed on the Hawai'i Register of Historic Places in 1988 and is designated as a "significant historic property" under

[3] State of Hawai'i. 2010. *Hawai'i Revised Statues, Chapter 342D, Water Pollution.*

[4] Discharge definition: It includes, but is not limited to, allowing the following pollutants to enter State waters: solid waste, sewage, chemicals, biological material, rock/sand/dirt, construction debris, fugitive dust, spray paint, industrial wastes, concrete, sealant, epoxy, heat, agricultural waste, and washing/cleaning effluent.

HAR Title 13. The project is required to comply with a review and consultation with the SHPD pursuant of HRS Chapter 6E. Specifically, Chapter 6E-8[5] (Review of effect proposed state projects) states "Before any agency or officer of the State or its political subdivisions commences any project which may affect historic property, aviation artifact, or a burial site, the agency or officer shall advise the department and allow the department an opportunity for review of the effect of the proposed project on historic properties, aviation artifacts, or burial sites, consistent with section 6E-43, especially those listed on the Hawaii register of historic places. The proposed project shall not be commenced, or, in the event it has already begun, continued, until the department shall have given its written concurrence."

A (Draft) Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu was submitted to the SHPD along with a letter from the City seeking concurrence for the proposed improvements and mitigation associated with the historic features on the AMRP. The mitigation proposal under review per Chapter 13-375-8, HAR was accepted by SHPD[6] in a letter dated June 18, 2018.

5.3 COUNTY POLICIES AND STATUTES

County polices and statutes are summarized below and the compatibility with the components will be addressed in the DEIS.

5.3.1 Oʻahu General Plan

The City's General Plan, which was last amended in 2002, is comprised of 11 sections relating to: Population; Economic Activity; Natural Environment; Housing; Transportation and Utilities; Energy; Physical Development and Urban Design; Public Safety; Health and Education; Culture and Recreation; and Government Operations and Fiscal Management.

Table 5-4: Oʻahu General Plan

Objectives and Policies		RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
I.	**POPULATION**	NA
II.	**ECONOMIC ACTIVITY**	NA

5 State of Hawaiʻi. 1998. *Hawaiʻi Revised Statues, Chapter 6E-8, Review of effect of proposed state projects.*

6 Letter from Alan Downer, PhD (Deputy State Historic Preservation Officer, Administrator, State Historic Preservation Division) to Robert Kroning (City Department of Design and Construction, Director) historic preservation review pursuant to Hawaii Revised Statutes Chapter 6E-8 and Hawaii Administrative Rules Chapter 13-275-3. June 18, 2018.

Table 5-4: O'ahu General Plan		
Objectives and Policies		RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
III.	**NATURAL ENVIRONMENT**	
	Objective A: To protect and preserve the natural environment	
	Policy 1: Protect O'ahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development.	C
	Policy 2: Seek restoration of environmentally damaged areas and natural resources.	NA
	Policy 3: Retain the Island's streams as scenic, aquatic, and recreation resources.	A
	Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation.	NA
	Policy 5: Require sufficient setbacks of improvements in unstable shoreline areas to avoid the future need for protective structures.	A
	Policy 6: Design surface drainage and flood-control systems in a manner which will help preserve their natural settings.	NA
	Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.	C
	Policy 8: Protect plants, birds, and other animals that are unique to the State of Hawai'i and the Island of O'ahu.	A
	Policy 9: Protect mature trees on public and private lands and encourage their integration into new developments.	A
	Policy 10: Increase public awareness and appreciation of O'ahu's land, air, and water resources.	NA
	Policy 11: Encourage the State and Federal governments to protect the unique environmental, marine, and wildlife assets of the Northwestern Hawaiian Islands.	NA
	OBJECTIVE B: To preserve and enhance the natural monuments and scenic views of O'ahu for the benefit of residents and visitors.	
	Policy 1: Protect the Island's well-known resources: its mountains and craters; forests and watershed areas; marshes, rivers, and streams; shoreline, fishponds, and bays; and reefs and offshore islands.	C
	Policy 2: Protect O'ahu's scenic views, especially those seen from highly developed and heavily traveled areas.	C
	Policy 3 Locate roads, highways, and other public facilities and utilities in areas where they will least obstruct important views of the mountains and sea.	NA
	Policy 4 Provide opportunities for recreational and educational use and physical contact with Oahu's natural environment.	A

Table 5-4: O'ahu General Plan		
Objectives and Policies		RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
CONFORMANCE DETERMINATION: The Proposed Actions will retain recreation resources for this urban area which provides recreational activities in the natural environment. Additionally, a biological and marine resources survey was conducted and a report generated; the report outlines flora and fauna and mitigation for endangered species in the Park and waters.		
IV.	**HOUSING**	NA
V.	**TRANSPORTATION AND UTILITIES**	NA
VI.	**ENERGY**	NA
VII.	**PHYSICAL DEVELOPMENT AND URBAN DESIGN**	
	OBJECTIVE A: To coordinate changes in the physical environment of O'ahu to ensure that all new developments are timely, well designed, and appropriate for the areas in which they will be located.	NA
	OBJECTIVE B: To develop Honolulu, 'Aiea, and Pearl City as the Island's primary urban center.	NA
	OBJECTIVE C: To develop a secondary urban center in 'Ewa with its nucleus in the Kapolei area.	NA
	OBJECTIVE D: To maintain those development characteristics in the urban-fringe and rural areas which make them desirable places to live.	NA
	OBJECTIVE E: To create and maintain attractive, meaningful, and stimulating environments throughout O'ahu.	A
	Policy 1: Prepare and maintain a comprehensive urban-design plan for the Island of O'ahu.	NA
	Policy 2: Integrate the City and County's urban- design plan into all levels of physical planning and developmental controls.	NA
	Policy 3: Encourage distinctive community identities for both new and existing districts and neighborhoods.	NA
	Policy 4: Require the consideration of urban-design principles in all development projects.	NA
	Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.	NA
	Policy 6: Provide special design standards and controls that will allow more compact development and intensive use of lands in the primary urban center.	NA
	Policy 7: Promote public and private programs to beautify the urban and rural environments.	C
	Policy 8: Preserve and maintain beneficial open space in urbanized areas,	A
	Policy 9: Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.	A

Table 5-4: O'ahu General Plan		
Objectives and Policies		RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
	Policy 10: Establish a review process to evaluate the design of major development projects.	NA
	OBJECTIVE F: To promote and enhance the social and physical character of O'ahu's older towns and neighborhoods.	A
	Policy 1: Encourage new construction to complement the ethnic qualities of the older communities of O'ahu.	NA
	Policy 2: Encourage, wherever desirable, the rehabilitation of existing substandard structures.	A
	Policy 3: Provide and maintain roads, public facilities, and utilities without damaging the character of older communities.	A
	Policy 4: Seek satisfactory relocation before permitting their displacement by new development, redevelopment, or neighborhood rehabilitation.	NA
CONFORMANCE DETERMINATION: The Proposed Actions are to build upon existing activities and refurbish existing historic structures and buildings. All actions will respect the character and history of the park while creating opportunities for new programs which are meaningful and stimulating for both tourists and residents.		
VIII.	**PUBLIC SAFETY**	NA
IX.	**HEALTH AND EDUCATION**	NA
X.	**CULTURE AND RECREATION**	A
	OBJECTIVE A: To foster the multiethnic culture of Hawaii	A
	Policy 1: Encourage the preservation and enhancement of Hawaii's diverse cultures.	NA
	Policy 2: Encourage greater public awareness, understanding, and appreciation of cultural heritage and contributions to Hawai'i made by the City's various ethnic groups.	NA
	Policy 3: Encourage opportunities for better interaction among people with different ethnic, social, and cultural backgrounds.	C
	Policy 4: Encourage the protection of the ethnic identities of the older communities of O'ahu.	NA
	OBJECTIVE B: To protect O'ahu's cultural, historic, architectural, and archaeological resources.	A
	Policy 1: Encourage restoration and preservation of early Hawaiian structures, artifacts, and landmarks.	NA
	Policy 2: Identify, and to the extent possible, pre-serve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.	A

Table 5-4: O'ahu General Plan	
Objectives and Policies	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
Policy 3: Cooperate with State and Federal governments in developing and implementing a comprehensive preservation program for social, cultural, historic, architectural, and archaeological resources.	NA
Policy 4: Promote the interpretive and educational use of cultural, historic, architectural, and archaeological sites, buildings, and artifacts.	NA
Policy 5: Seek public and private funds, and public participation and support, to protect social, cultural, historic, architectural, and archaeological resources.	NA
Policy 6: Provide incentives for the restoration, preservation, and maintenance of social, cultural, historic, architectural, and archaeological resources.	NA
OBJECTIVE C: To foster the visual and performing arts.	NA
OBJECTIVE D: To provide a wide range of recreational facilities and services that are readily available to all residents of O'ahu.	A
Policy 1: Develop and maintain community-based parks to meet the needs of the different communities on O'ahu.	A
Policy 2: Develop and maintain a system of regional parks and specialized recreation facilities.	C
Policy 3: Develop and maintain urban parks, square, and beautification areas in high density urban places.	A
Policy 4: Encourage public and private botanic and zoological parks on O'ahu to foster an awareness and appreciation of the natural environment.	NA
Policy 5: Encourage the State to develop and maintain a system of natural resource-based parks, such as beach, shoreline, and mountain parks.	A
Policy 6: Provide convenient access to all beaches and inland recreation areas.	A
Policy 7: Provide for recreation programs which serve a broad spectrum of the population.	C
Policy 8: Encourage ocean and water-oriented recreation activities that do not adversely impact on the natural environment.	C
Policy 9: Require all new developments to provide their residents with adequate recreation space.	NA
Policy 10: Encourage the private provision of recreation and leisure-time facilities and services,	C
Policy 11: Encourage the after-hours, weekend, and summertime use of public school facilities for recreation.	NA
Policy 12: Provide for safe and secure use of public parks, beaches, and recreation facilities.	A
Policy 13: Encourage the safe use of O'ahu's ocean environments.	NA
Policy 14: Encourage the State and Federal governments to transfer excess and underutilized land to the City and County for public recreation use.	NA

Table 5-4: O'ahu General Plan	
Objectives and Policies	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
CONFORMANCE DETERMINATION: The Proposed Actions include refurbishing historic structures; building off existing activities in order to create the right mix of new and old activities for a wide range of the public; and improving management which would assist in the safe and secure use of Parks.	
XI. GOVERNMENT OPERATIONS AND FISCAL MANAGEMENT	NA

5.3.2 Primary Urban Center Development Plan (PUC DP)

The PUC DP (2004), which encompasses the proposed project area, is one of eight regional plans based on the O'ahu General Plan that establish more detailed policies to shape growth in the urban core of the island. The Development Plan identifies five major vision elements; Table 5-5 below specifically outlines its relation to this project.

Table 5-5: Primary Urban Center Development Plan	
Objectives and Policies	RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE	
I. PROTECT AND ENCHANCE NATURAL, CULTURAL, AND SCENIC RESOURCES	A
Objective: addresses the natural and cultural setting, the need for natural areas and open spaces, and the concept of an open space network that pervades urbanized areas and links them to the mountains and the shoreline. That culturally and historically important sites, landforms, and structures be preserved and enhanced.	A
CONFORMANCE DETERMINATION: The AMRP and Magic Island are an urban parks and offers open space in an urbanized area; the Proposed Actions, outlined in the Master Plan, are to improve and enhance upon the Parks features It specifically outlines preserving and enhancing the important historic sites.	
II. NEIGHBORHOOD PLANNING AND DEVELOPMENT	A
Objective: that livable neighborhoods have business districts, parks, plazas, and walkable streets. It is deemed key to livability that convenient access to work and to the many services and attractions be found in the urban area.	A

Table 5-5: Primary Urban Center Development Plan		
Objectives and Policies		RATING
A = ACTIVELY SUPPORTS C= CONFORMS F = FAILS TO MEET PLAN GOAL NA = GOAL IS NOT APPLICABLE		
CONFORMANCE DETERMINATION: The intent of proposed actions is to restore existing features, improve upon underutilized park areas and expand upon well-used elements. The proposed actions would improve upon the goal of livable neighborhoods by improving existing structures and utilized spaces as well as implementing projects that expand upon existing utilized park areas.		
III.	**IN-TOWN HOUSING CHOICES FOR PEOPLE OF ALL AGES AND INCOMES**	NA
IV.	**HONOLULU IS THE PACIFIC'S LEADING CITY AND TRAVEL DESTINATION**	A
	Objective: One aspect of this goal is the urban waterfront, more specifically recapturing visual and physical access to the urban waterfront with the intent to stimulate economic renewal and create a source of civil pride.	A
CONFORMANCE DETERMINATION: The Master Plan outlines short and long-term plans to revitalize this historic park. The Proposed Actions would complement the downtown area as a travel destination because it would revitalize the park and garner increased visitation.		
V.	**A BALANCED TRANSPORTATION SYSTEM THAT PROVIDES EXCELLENT MOBILITY**	NA

5.3.3 City Land Use Ordinance

The City's *Land Use Ordinance (LUO)* establishes zoning regulations, which regulate the use of land and provide for appropriate controls and review of proposed land uses. The LUO is designed to accomplish the goals and objectives in the O'ahu General Plan and PUC DP.

The project area involves work in public lands in zone P-2 General Preservation District. Preservation districts are intended to preserve and manage major open space lands and lands of scenic and other natural resource value.

The intent of P-2 "…is to preserve and manage major open space and recreation lands and lands of scenic and other natural resource value. It is also the intent that lands designated urban by the state, but well-suited to the functions of providing visual relief and contrast to the city's built environment or serving as outdoor space for the public's use and enjoyment be zoned P-2 general preservation district. Areas unsuitable for other uses because of topographical considerations related to public health, safety and welfare concerns shall also be placed in this district."[7]

[7] City and County of Honolulu. Chapter 21 Land Use Ordinance [LUO] 99-12. Section 21-3.40. Preservation districts – Purpose and intent.

The proposed action follows with the intent of this zoning district as outlined in Sections 21-3.4 and 21-3.40-1.

5.3.4 Special Management Area (SMA)

Although the SMAs originated under the federal CZM and Hawaiʻi CZM Programs, the counties in Hawaiʻi regulate and administer the SMAs in their respective jurisdictions. On Oʻahu, the SMA is administered by Department of Planning and Permitting(DPP), City and County of Honolulu. The proposed project area is within the SMA boundary and would be subject to the City's SMA rules and regulations.

Pursuant to HRS Section 205A-22, "development" within the SMA means any uses, activities, or operations on land or in the water; more specifically, for proposed actions of the AMRP Master Plan, construction, reconstruction, demolition, or alteration of the size of any structure. The project would require an SMA major permit because the proposed actions surpass the cost threshold of $500,000. The SMA permit is the first step prior to obtaining any other required permits; the SMA permit will be obtained first in the chain of any other required permits.

5.4 LIST OF PERMITS REQUIRED

The following is a list of permits that will be required to construct the improvements identified in this document.

- US Army Corps of Engineers (USACE), Clean Water Act (CWA), Section 404 permit
- USACE, Rivers and Harbors Act, Section 10 permit
- National Marine Fisheries Service (NMFS), Endangered Species Act (ESA), Section 7 consultation and possibly U.S. Fish and Wildlife Service (USFWS)
- NMFS, Essential Fish Habitat (EFH) consultation (possible)
- State Department of Health (DOH), Clean Water Branch, Section 401 Water Quality Certification
- CWA, Section 402, National Pollutant Discharge Elimination System (NPDES) permit (DOH)
- DOH, Noise Permit/Variance
- State Office of Planning, Hawaiʻi Coastal Zone Management Federal Consistency Review

- State Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL), Conservation District Use Permit
- Office of Environmental Quality Control (OEQC) Chapter 343, Hawai‘i Revised Statutes (HRS), Environmental Review
- City Department of Planning and Permitting (DPP), Special Management Area Permit

CHAPTER 6

Cumulative Impacts

CHAPTER 6
CUMULATIVE IMPACTS

6.1 INTRODUCTION

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. They can result from individually minor but collectively significant actions taking place over a period of time.[1] Because the proposed improvements at AMRP and Magic Island are for existing City parks and do not change the existing use, the improvements do not change the overall purpose and use of the Parks. The proposed actions at AMRP are to enhance the existing Parks and conduct some needed maintenance to the park facilities to bring them up to current standards. Therefore, there are no long-term cumulative impacts that will be created as a result of implementing the various improvements at the Parks.

[1] Hawai'i Administrative Rules (HAR) §11-200.

CHAPTER 7

Summary of Impacts

CHAPTER 7
SUMMARY OF IMPACTS

7.1 INTRODUCTION

This chapter summarizes the potential impacts of the Proposed Action (including Alternative Action and No Action Alternative), and possible mitigation measures, if needed, as disclosed in this Environmental Impact Statement (EIS).

7.1.1 Impacts on the Built Environment

The proposed improvements at AMRP includes some positive, negative and in some cases, no impacts on the built environment. These impacts are described below:

- Land Use – There will be no impacts to land use at AMRP. The Parks will continue to be for recreational activities.
- Land Ownership – No change in land ownership is being proposed.
- Public Health and Safety – The City is currently upgrading the restrooms and installing security cameras. Two pedestrian access points over the canal along Ala Moana Boulevard is also being widened in the event of an emergency, such as an imminent tsunami, flooding or hurricane. These are positive impacts on the environment.
- Noise – During construction there is a potential for adverse noise impacts from construction equipment. These impacts are short term and can be mitigated by use of mufflers on equipment and using machines that exceed noise levels for a shorter duration. Curfew times will also be in place for hours of construction activities.
- Circulation and Traffic – The traffic study indicated that by year 2028, the traffic volumes in the vicinity of AMRP will not significantly increase. Past traffic volumes records indicate that increase in traffic from 2009 to 2016 was either stagnant or declining along the Ala Moana Boulevard corridor.
- Infrastructure – No long-term impacts on the infrastructure servicing the Parks are anticipated. Any upgrades to the infrastructure may have short-term construction noise and access impacts.

- Public Services and Facilities – No impacts on public services and facilities are anticipated. The proposed improvements will not cause an increase in population growth that will contribute a higher demand for these services.

- Visual and Aesthetic Resources – The improvements in the Parks have a positive impact on the appearance of the park facilities by repairing some of the historic character of the park property.

- Recreation – There will be no change in the recreational uses of the Parks, therefore no adverse impacts on recreation is expected.

- Socio-Economic Setting – The project will have a short-term positive impact on the economy during construction by creating direct construction employment and indirect funds to their subcontractors and suppliers.

7.1.2 Impacts on the Natural Environment

Similar to the built environment, the impacts on the natural environment are described below:

- Geology, Soil, Topography – Some excavation may be required for certain improvements such as the reconfigured parking along Ala Moana Park Drive, erosion control around the ponds, providing ADA access to the highpoint in the middle of the park, and the new Keyhole parking lot. These improvements will change the topography of the park lands, but most of the excavated soils will be reused. If the soil cannot be reused, it will be hauled away to a landfill. The underlying geology should not change since most of the park are in fill condition. The exception will be the beach nourishment activity, which will restore the beach to the original condition. Years of erosion from wave action and wind has cause the beach sand to be eroded. The topography of the beach will increase in height. Sand used for the beach nourishment will be of similar grain size as the existing sand. Beach nourishment is considered a positive impact because it will cover the rocks that have been exposed from erosion.

- Hydrology – The surface and ground water will be adversely impacted during the construction of the new pedestrian walkways, erosion control around the ponds, and restoration of the Bridle Bridge. BMPs will be used to mitigate any impact on receiving waters in these locations to prevent pollution. Once completed there will be no impacts these water bodies.

- Air Quality – During construction there may be short-term adverse impacts on air quality from dust and emissions from construction equipment. However, after construction is completed, no long-term adverse impacts are anticipated on air quality.

- Historical, Archaeological, and Cultural Resources – The AMRP is on the register of historic places and some of the features within the park will be impacted by the park improvements, both positive and negative. The positive impacts include the restoration of the Roosevelt Portals at the Atkinson Drive entrance to the park and the Bridal Bridge. The stucco exterior of both historic features within the park will be restored. Through the aging process some of the exterior façade has been damaged and will be restored. The existing character of these features will not change. This restoration will have a positive impact on these historic features.

  The widening of two, 20- to 25-feet wide pedestrian bridges will remove small sections of the drainage canal along Ala Moana Boulevard and be replaced with box culverts. The location of these new bridges over the canal will be at Piʻikoi Street and Queen Street. These new bridges will be place the existing narrow bridges to allow for more pedestrians to enter and exit the Park, especially during large events, like the Lantern Floating. Once completed the bridges will have a positive impact on the egress and ingress for the Park.

  The remaining sections of the canal walls will be untouched except for the section of the makai canal wall that has fallen into the canal. A 700-foot section of the wall has collapsed into the canal because the existing wall does not have a footing and was not built to current standards. The collapsed wall is on the mauka side of the tennis courts. The wall will be reconstructed with a footing to prevent future collapse. The surfaces of the exposed section of the wall will mimic the existing wall appearance. This is a positive impact in terms of health and safety because the new section of the wall will be built to current standards to prevent future collapses. However, it does replace a historic feature of the Park that was built in the 1930s.

  At the middle of the Ala Moana Park Drive where the road curves around the "high spot" will involve the repair of the beach side access to allow for ADA access. The existing stairs in that area are deteriorated and unsafe. Therefore, a ramp will replace the stairs to allow ADA access. The pergola that used to cover the area will be replaced.

  Although the "Keyhole" parking area between the lawn bowling and McCoy pavilion has been modified over time, a new parking lot will be installed in the current location. The original design of the keyhole area did not have any parking. However, because of the demand for parking on the ʻEwa side of the AMRP, a new parking lot will be developed to increase the parking stalls. The egress and ingress of the parking lot along Ala Moana Park Drive will be similar in design to the current condition with curved entry/exit. The parking stalls will increase from the 77 stalls to 180 stalls.

McCoy Pavilion and Banyan Court Plaza will be renovated to the original condition. The Banyan tree root within the courtyard has caused major structural damage to the ponds and to the McCoy Pavilion building. Both the courtyard and the McCoy Pavilion floors are uneven and unsafe to walk on, posing a safety hazard. Therefore, the McCoy Pavilion and courtyard will be repaired and renovated to the original condition.

- Flora, Fauna and Aquatic Biology – A Baseline Assessment of the Marine Environment was prepared for the AMRP by Marine Research Consultants, Inc. The study included water quality measurements and biological assessment of the marine habitat. Because the nearshore area contains a reef that hinders flushing of the ocean waters, certain water quality measurements are above the DOH standards, such as turbidity. However, these standards are specific criteria for open coastal waters. The swim channel has patchy meadows of Hawaiian seagrass, which is a food source for juvenile Green Sea Turtles. The beach nourishment activity is not expected to impact the Hawaiian seagrass, but care should be taken to minimize suspended solids migrating into the swim channel.

  On the inland rubble face of the swim channel, there are small corals attached to the rubble. These small corals will likely be buried during the beach nourishment process. The rubble face can easily be broken, therefore, if required, the small coral could be harvested and taken to the ʻĀnuenue Fisheries Research Center prior to beach nourishment. On the outer channel of Magic Island, there are large, healthy corals. Beach nourishment will temporarily increase turbidity in the area, but should not be of a magnitude beyond the tolerance of these species. In addition, this area has more rapid flushing to prevent sediment depositing on the coral. This area near Magic Island is more characteristic of an open ocean setting.

- Beach Nourishment – Three options for beach nourishment were prepared and are discussed in Chapter 2.4. All three options can be implemented at AMRP. The difference in the three options is the volume of sand that is placed on the beach. Option 1 could last as long as 20 years before returning to the shorelines current location. Options 2 and 3 could last a long as 35 years before returning to current conditions. The only difference is that Option 3 includes nourishing ʻEwa side of the beach, therefore the quantity of sand required is the greatest. There is a "berm" option that could be used for any of the three options. This would be a berm of one to three feet high of sand that could be used for maintenance, such sand pushing to the central area of the beach. The use of a clamshell excavator is the recommended method for recovery of the sand offshore at four possible locations: 1) Reef Runway (Inner), 2) Diamond Head, 3) Hilton, and 4) Waikīkī Maintenance. Grain size and color of the sand are similar to AMRP beach sand. Because of the distance

from AMRP to the sand recovery site, pumping was not the recommended construction method.

CHAPTER 8

Other Considerations

CHAPTER 8
OTHER CONSIDERATIONS

8.1 RELATIONSHIPS BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Section 11-200-17, Hawai'i Administrative Rules (HAR) requires discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. Short-term and long-term do not necessarily refer to fixed time periods but are viewed relative to environmentally significant consequences of the Proposed Action. This section discusses the extent to which the Proposed Action involves trade-offs among short-term and long-term gains and losses, as well as the extent to which the Proposed Action forecloses future options and/or narrows the range of beneficial uses of the environment.

Short-term impacts would result from construction activities for the various projects in the Parks and in the waters at AMRP during the beach nourishment operation. Short-term construction-related activities would not be significant given implementation of required BMPs to avoid or minimize impacts. In addition, there is a potential for short-term impacts on ESA during the breeding season of the Hawaiian Hoary Bat and the State-threatened White Tern. Although no Hawaiian Hoary Bats were seen at AMRP, there is potential habitat for bat roosting or nesting. No trees can be trimmed or removed between June 1 and September 15 when flightless juvenile bats may be roosting in the trees.

The White Tern is a State listed threatened species that was observed at the AMRP. It is recommended that the trees be inspected before trimming or cutting down trees. Trees should be inspected for eggs or chicks before trees are trimmed or removed. Although the white tern breeds throughout the year, breeding is lowest in the fall and early winter. If any chicks or eggs are found in the trees, the tree should not be trimmed or removed until the chick has fledged.

There were seven bird species federally protected under the Migratory Bird Treaty Act (MBTA). However, during construction these birds may be temporarily displaced, but long-term effects are not expected.

Threaten or endangered species in the marine environment could consist of the endangered humpback whale (*Megatera novaeangliae*) and the endangered Hawaiian

monk seal (*Monachus schauinslandi*). Both mammals were not observed during the survey, but are known to occur in Hawaiian waters, and on the shore for the Hawaiian monk seal. Several threatened green sea turtles (*Chelonia mydas*) were observed during the survey and are commonly found in south shore waters. The calm water protected by the coral reef is a preferred habitat for the green sea turtle because there is an abundance of food source and they are sheltered from predators. The endangered hawksbill turtle (*Eretmochelys imbricata*) was not observed and they are not commonly found in Hawaiian waters.

8.2 IRREVERSBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES BY THE PROPOSED ACTION

A commitment of resources is considered irreversible when it precludes restoration of those resources to their pre-project condition. Use, consumption, destruction, or degradation of resources resulting from implementation of the Proposed Action, such that those resources cannot be retrieved or replaced in any form, is considered an irretrievable commitment of resources. One issue to be addressed is the use of non-renewable resources during the construction and operational phases of the Proposed Action.

Irreversible and irretrievable commitments of resources during construction include:

- Use of construction materials;
- Excavation and disposal of soil and sediment;
- Use of available space in the construction and demolition landfill;
- Expenditure of funds to finance construction;
- Construction manpower; and
- Use of energy in the form of direct consumption of fossil fuel for vehicles and equipment.

Fossil fuel would be irreversibly and irretrievably committed during operations to provide electrical power to the Parks.

8.3 PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED

The Proposed Action, will not have any impacts which cannot be avoided. Measures are available to mitigate these impacts to levels that are not significant.

Construction associated with the Proposed Action would generate short-term impacts such as turbidity, noise, fugitive dust, emissions from vehicles and equipment, traffic congestion, and sedimentation. These impacts cannot be avoided but would be limited to the immediate construction vicinity and managed through implementations of BMPs in accordance with applicable regulations.

8.4 UNRESOLVED ISSUES

No unresolved issues have been identified.

CHAPTER 9

References

CHAPTER 9 REFERENCES

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City and County of Honolulu, Department of Budget and Fiscal Services Real Property Assessment Division. http://qpublic9.qpublic.net/hi_honolulu_display.php?county=hi_honolulu&KEY=230370230000

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Ala Moana Regional Park and Magic Island Improvements Draft Environmental Impact Statement

July 2018

Volume 2 of 2

BELT COLLINS

BRV BIEDERMAN REDEVELOPMENT VENTURES

WCITARCHITECTURE

APPENDICES

APPENDIX A
Comments and Responses on the EISPN/Copy of EISPN Distribution Letter: State of Hawaiʻi, City And County Of Honolulu, Organizations, Individual Stakeholders And Park Users

APPENDIX B
Traffic Evaluation Ala Moana Regional Park
Honolulu, Oʻahu, Hawaiʻi June 2018

APPENDIX C
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Parking Occupancy Study

APPENDIX D-1
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APPENDIX D-2
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the Ala Moana Regional Park Master Plan
Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu
TMKs: [1] 2-3-037:001, 022, 023 and 025

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APPENDIX E
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Coastal Assessment and Design Report Ala Moana Regional Park Beach Nourishment Project
Honolulu, Oʻahu, Hawaiʻi

APPENDIX A

Comments and Responses on the EISPN/Copy of EISPN Distribution Letter

STATE OF HAWAIʻI

DAVID Y. IGE
GOVERNOR

RODERICK K. BECKER
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

DEC 29 2017

(P)1398.7

Ms. Joanne E. Hiramatsu, Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Dear Ms. Hiramatsu:

Subject: Environmental Impact Statement Preparation Notice for
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Oahu, Hawaii
TMK: (1) 2-3-037:001, 002, 022, 023, and 025

Thank you for the opportunity to comment on the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities and we have no comments to offer at this time.

If you have any questions, your staff may please contact Ms. Dora Choy of the Planning Branch at 586-0488.

Sincerely,

KEITH S. KOGACHI
Acting Public Works Administrator

DC:lnn
c: Mr. Cory Shibata, DAGS-CSD

RECEIVED
2018 JAN -3 PM 3:32
BELT COLLINS HAWAII

BELT COLLINS

May 7, 2018
2015-71-0100/18P-017

Mr. Keith S. Kogachi
Department of Accounting and General Services
State of Hawai'i
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Dear Mr. Kogachi:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your reviewing the EISPN. Your response dated December 29, 2017, indicated that the Department of Accounting and General Services, has no comments at this time.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,
BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

RECEIVED
2018 JAN 15 AM 8:14
BELT COLLINS HAWAII

January 09, 2018

Belt Collins Hawaii LLC
Attn: Ms. Joann Hiramatsu
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

Subject: Environmental Impact Statement Preparation Notice (EISPN) Ala Moana Reginal Park and Magic Island Improvements Tax Map Key: (1) 2-3-37:001, 002, 022, 023, 025 Honolulu, O'ahu, Hawai'i

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the proposed project.

Should you have any questions or concerns, please have your staff contact Ms. Shao Yu Lee, our Land Manager on Oahu, at (808) 733-4222.

Sincerely,

NEAL S. MITSUYOSHI, P.E.
Colonel, Hawaii National Guard
Chief Engineering Officer

c: Ms. Elaine Morisato, City & County of Honolulu
Ms. Havinne Okamura, HI-EMA
Mr. Albert Chong, HI-EMA
Mr. Karl Motoyama, Hawaii Army National Guard Environmental (HIARNG-ENV)
Maj Nhut Dao, 154th Civil Engineer Squadron (154th CES)

BELT COLLINS

May 7, 2018
2015-71-0100 / 18P-030

Colonel Neal S. Mitsuyoshi, Chief Engineering Officer
Hawai'i National Guard
Department of Defense
Office of the Adjutant General
State of Hawai'i
3949 Diamond Head Road
Honolulu, HI 96816-4495

Dear Colonel Mitsuyoshi:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN. Your response dated January 9, 2018 indicated that the Department of Defense has no comment to offer relative to the proposed project.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
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DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

January 11, 2018

Attention: Joanne E. Hiramatsu, Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawai`i 96819

Dear Ms. Hiramatsu:

Subject: Environmental Impact Statement Preparation Notice (EISPN) Ala Moana Regional Park and Magic Island Improvements, TMK: (1) 2-3-37:001, 002, 023,025 Honolulu, O'ahu

The Department of Hawaiian Home Lands acknowledges receiving the request for comments on the above-cited project. After reviewing the materials submitted, due to its lack of proximity to Hawaiian Home Lands, we do not anticipate any impacts to our lands or beneficiaries from the project.

However, we highly encourage all agencies to consult with Hawaiian Homestead community associations and other (N)native Hawaiian organizations when preparing environmental assessments in order to better assess potential impacts to cultural and natural resources, access and other rights of Native Hawaiians.

Mahalo for the opportunity to provide comments. If you have any questions, please call Rae Ann Hyatt, at 620-9480 or contact via email at raeann.p.hyatt@hawaii.gov.

Sincerely,

M. Kaleo Manuel
Acting Planning Program Manager

RECEIVED
2018 JAN 16 PM 4:09
BELT COLLINS HAWAII

BELT COLLINS

May 7, 2018
2015-71-0100 / 18P-022

M. Kaleo Manuel
Acting Planning Program Manager
Department of Hawaiian Homelands
State of Hawai'i
P.O. Box 1879
Honolulu, HI 96805

Dear Mr. Manuel:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN. Your comment, dated January 11, 2018, indicated that the Department of Hawaiian Home Lands does not anticipate any impacts to its lands or beneficiaries at this time, however, you encourage consultation with Hawaiian Homestead community associations and other Native Hawaiian organizations. As part of the Chapter 343 environmental review process, the proposing agency shares plans and encourages input from all residents and community groups.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

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DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 17-332

January 19, 2018

Ms. Joanne Hiramatsu
Director of Planning
Belt Collins Hawaii, LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554
Email: jhiramatsu@bchdesign.com

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Regional Park and Magic Island Improvements
TMK: 2-3-37:001, 002 022, 023, 025

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EISPN to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

We understand from the OEQC publication form project summary that *"The city is proposing to restore, revitalize, enhance, and improve the Ala Moana Regional Park and the Magic Island peninsula (Magic Island) grounds and facilities as a result of a recent master plan process that outlined both long-term and short-term improvement plans. The project area receives the most usage of any other park in the State and is also one of the oldest. Many park users visit daily or several times during the week. The City wishes to extend the Parks' longevity as a gradual increase in visits is forecasted for the foreseeable future. Some of the major improvements include sand replenishment, renovations to existing structures, improving pond edges, widening access over the drainage canal along Ala Moana Boulevard, create a wider promenade along Ala Moana Park Drive and reconfiguring the parking."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

We advocate that you consider health from a broad perspective; one that accounts for the social, economic, and environmental determinants of health and wellbeing. Community well-being can be impacted by access to physical activity, health care, feelings of social connectedness and safety. Design solutions that take these factors into consideration positively contribute to the social determinants of health in a community, improving the well-being of those who live there by influencing health promoting behaviors. Social determinants contribute to preventable chronic diseases such as asthma, diabetes, obesity, and cardiovascular disease.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules (HAR), Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

The *Final Report: Oahu Inactive Landfills Relative Risk Investigation*, dated 2006, prepared by URS Corporation for Board of Water Supply, lists an Ala Moana Dump that was operated between 1926 and 1930 on TMK: (1) 2-3-037:001. The Department of Health, Solid and Hazardous Waste Branch does not have any specific information regarding the specific location of the landfill, other than as described in the subject report. Any environmental investigation, and/or design and construction plans should accommodate the possibility of encountering waste, ash, and/or contaminated soil. Assessment, management, and disposal of any waste shall be in accordance with applicable federal, state, and local laws and regulations.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

The Hawaii Disability and Communication Access Board (DCAB) recommends the inclusion of access for persons with disabilities through all phases of design and construction. New construction and alteration work shall comply with all applicable accessibility requirements. Projects covered by §103-50, Hawaii Revised Statutes, and Hawaii Administrative Rules Title 11 Chapter 216 shall seek advice and recommendations from DCAB on any construction plans prior to commencing with construction. If you have any questions please contact DCAB at (808) 586-8121 or dcab@doh.hawaii.gov.

In 2015, Hawaii passed Act 97 which amended Hawaii's Renewable Portfolio Standards by setting a goal for Hawaii to become one hundred percent renewable by the year 2045. To reach this goal Hawaii should transform its transportation sector from the use of fossil fuels to renewable fuel, electric vehicles (EV)s, and public transit systems including bikeshare programs. To address "range anxiety" and facilitate the adoption of EVs, it is essential that EV charging stations be added to any planned parking areas open to the EV driving public. All future plans should strive to encourage the use of personal bicycles though the development of designated bike lanes and class A bike trails. All efforts should be made to reduce harmful vehicle emissions, reduce vehicle miles travelled (VMT's), encourage alternative modes of transport and increase physical activity.

Hawaii's climate is changing. Sea level rise and the associated coastal impacts have the potential to harm an array of natural and built environments in Hawaii. For additional information on projected sea level rise in Hawaii, EPO recommends that you visit the State of Hawaii Climate Adaptation Portal: http://climateadaptation.hawaii.gov

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office

LM:nn

c: Robert Kroning, Director, C&C Dept. of Design & Construction (via email: rkroning@honolulu.gov)
DOH: DDEH, EMD, CWB, WWB, SHWB, CAB, HEER, IRHB, PHP, DCAB {via email only}

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 2: U.S. EPA EJSCREEN Report for Project Area

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)

Attachment 2: U.S. EPA EJSCREEN Report for Project Area

EJSCREEN Report (Version 2017)

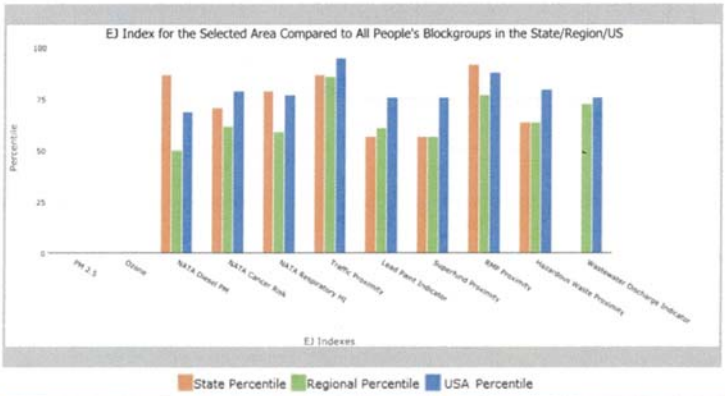
1 mile Ring Centered at 21.288956,-157.846550, HAWAII, EPA Region 9

Approximate Population: 33,144

Input Area (sq. miles): 3.14

(The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	87	50	69
EJ Index for NATA* Air Toxics Cancer Risk	71	62	79
EJ Index for NATA* Respiratory Hazard Index	79	59	77
EJ Index for Traffic Proximity and Volume	87	86	95
EJ Index for Lead Paint Indicator	57	61	76
EJ Index for Superfund Proximity	57	57	76
EJ Index for RMP Proximity	92	77	88
EJ Index for Hazardous Waste Proximity	64	64	80
EJ Index for Wastewater Discharge Indicator	N/A	73	76



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

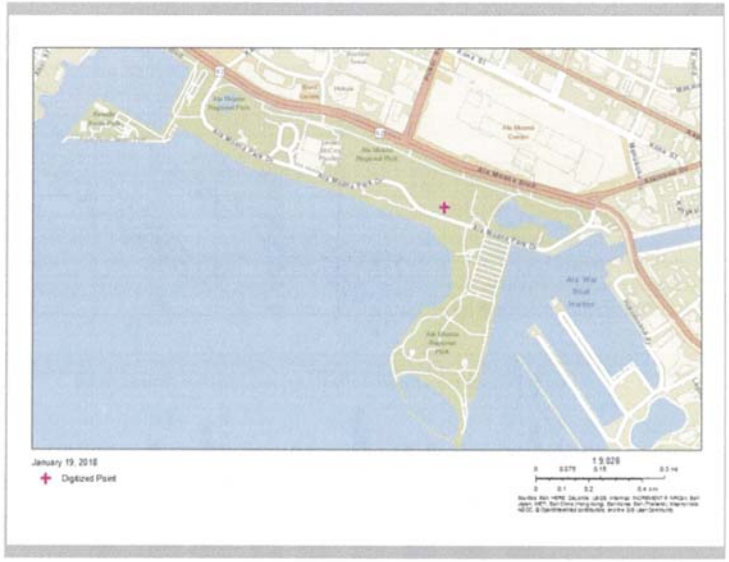
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.288956,-157.846550, HAWAII, EPA Region 9

Approximate Population: 33,144

Input Area (sq. miles): 3.14

(The study area contains 1 blockgroup(s) with zero population.)



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 21.288956,-157.846550, HAWAII, EPA Region 9

Approximate Population: 33,144

Input Area (sq. miles): 3.14

(The study area contains 1 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.433	0.149	93	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	57	34	97	43	90-95th	40	90-95th
NATA* Respiratory Hazard Index	2.3	1	98	2	60-70th	1.8	70-80th
Traffic Proximity and Volume (daily traffic count/distance to road)	2900	1000	90	1100	89	590	95
Lead Paint Indicator (% Pre-1960 Housing)	0.094	0.16	46	0.24	44	0.29	35
Superfund Proximity (site count/km distance)	0.055	0.1	50	0.15	40	0.13	46
RMP Proximity (facility count/km distance)	1.4	0.39	94	0.98	79	0.73	84
Hazardous Waste Proximity (facility count/km distance)	0.081	0.1	66	0.12	59	0.093	67
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	13	59	30	40
Demographic Indicators							
Demographic Index	53%	51%	55	47%	59	36%	75
Minority Population	75%	77%	36	59%	64	38%	82
Low Income Population	31%	26%	66	36%	46	34%	48
Linguistically Isolated Population	18%	6%	91	9%	82	5%	91
Population With Less Than High School Education	9%	9%	63	17%	40	13%	46
Population Under 5 years of age	4%	6%	27	7%	27	6%	29
Population over 64 years of age	22%	16%	79	13%	87	14%	85

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

May 7, 2018
2015-71-0100 / 18P-031

Ms. Laura Leialoha Philips McIntyre, AICP
Environmental Planning Office
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, HI 96801

Dear Ms. McIntyre:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your letter of January 19, 2018. The responses to your comments below follow in the order of topics in your letter.

- **Review of State and Federal environmental health land use guidance:** The Draft Environmental Impact Statement (DEIS) will address all applicable State and Federal guidelines while considering health and well-being from a broad perspective.

- **Clean Water Branch Review and/or National Pollutant Discharge Elimination System (NPDES):** Section 401 Water Quality Certification (WQC) will be required and addressed in the DEIS. Requirements for the NPDES permits will also be addressed.

- **Wastewater:** The Parks are served by the City and County's wastewater system. No new wastewater facilities will be needed for improved public facilities.

- **Air pollution control measures:** Best Management Practices (BMPs) will be identified to control air quality impacts during construction. There are no stationary sources generating emissions in the Parks.

- **Generated or found waste:** Any waste found as a remnant of the Ala Moana Dump, which operated between 1926 and 1930, or generated waste, will be assessed, managed, and disposed in accordance with applicable federal, state, and local laws and regulations. Any hazardous waste/materials will be disposed of following appropriate procedures.

- **Generation of Noise:** The property is zoned Preservation which falls under the Class A district for noise. No adverse noise impacts are anticipated during land

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
Belt Collins Hawaii is an Equal Opportunity Employer

construction activities. If deemed above allowed Class A noise levels, the project will obtain a noise permit.

- **Hawai'i Environmental Portal and The Office of Environmental Quality Control viewer:** Thank you for providing links to both sites; they will be utilized in completion of the DEIS.

- **Hawai'i Disabilities and Communication Access Board (DCAB), inclusion of access for persons with disabilities through all phases of design and construction:** The DEIS will include an assessment of the conformance of the proposed actions to regulations and guidelines for accessibility for persons with disabilities.

- **Transportation sector's role in Hawaii's Renewable Portfolio Standards:** Charging stations and alternative forms of transportation will be addressed in the DEIS.

- **Climate change:** The DEIS will address climate change and impacts to the proposed actions.

- **Environmental Justice (EJ) mapping and screening tool (EJSCREEN):** Thank you for providing information to the EJSCREEN website; its tools will be used when considering aspects of public health and environment.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 19, 2018

Belt Collins Hawaii LLC
Attention: Ms. Joanne E. Hiramatsu
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

via email: jhiramatsu@beltcollins.com

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (a) Division of State Parks, (b) Land Division – Oahu District, (c) Division of Boating & Ocean Recreation, (d) Office of Conservation & Coastal Lands, and (e) Division of Aquatic Resources on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

57505

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
STATE PARKS DIV
JAN -2 A10:23
DEPT OF LAND & NATURAL RESOURCES

RECEIVED
LAND DIVISION
JAN -3 AM 10:38

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**
LOCATION: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025
APPLICANT: City and County of Honolulu, Department of Design and Construction

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **January 18, 2018.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Print Name: CURT A COTTRELL
Date: 1.2.18

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2018 JAN -9 AM 6:41
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

December 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**
LOCATION: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025
APPLICANT: City and County of Honolulu, Department of Design and Construction

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If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

Any improvements on lands, including submerged lands under the Land Board jurisdiction needs a land disposition from the Board.

( ) We have no objections.
( ) We have no comments.
(x) Comments are attached.

Signed: Darlene Bryant-Takamatsu
Print Name: Darlene Bryant-Takamatsu
Date: 1/8/18

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2018 JAN 11 AM 10:55
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

December 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**
LOCATION: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025
APPLICANT: City and County of Honolulu, Department of Design and Construction

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **January 18, 2018.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: Edward R. Underwood
Print Name: Edward R. Underwood
Date: 12/29/17

cc: Central Files

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2018 JAN 19 P 6:18
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DLNR:OCCL:.SL

Correspondence OA-18-128

JAN 18 2018

MEMORANDUM:

TO: Russel Tsuji, Land Administrator

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: Reply to Request for Comments on the Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Regional Park and Magic Island Improvements

The Office of Conservation and Coastal Lands (OCCL) has reviewed the Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Regional Park (AMRP) and Magic Island Peninsula Improvements from Belt Collins Hawaii LLC on behalf of the City and County of Honolulu, Department of Design and Construction (the City) and offers the following comments.

The OCCL commends the City's efforts to improve this important public park and beach resource. Please consider the OCCL, including our Hawaii Sea Grant coastal geologist, a resource for assistance related to beach restoration or management at AMRP and Magic Island.

The OCCL suggests that the City and its representatives consider sea level rise carefully in the Draft EIS. As you probably are aware, the State released its Sea Level Rise Vulnerability and Adaptation Report and companion Hawaii Sea Level Rise Viewer recently (both available at climateadaptation.hawaii.gov). The data indicates significant flooding of the beach and backshore occurs at AMRP with as little as 1 foot of sea level rise. In fact, beach flooding and overwash was a significant problem at AMRP during elevated tides this summer. This type of repeat flooding will occur more frequently and with more severity over the coming decades. Maps of sea level rise exposure areas at AMRP from the Hawaii Sea Level Rise Viewer and the Hawaii Sea Level Rise Vulnerability and Adaptation Report are enclosed for your reference.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2017 DEC 29 P 1:33
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**
LOCATION: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025
APPLICANT: City and County of Honolulu, Department of Design and Construction

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **January 18, 2018.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: _____
Date: _____

cc: Central Files

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 1/17/2018
DAR # 5669

MEMORANDUM

TO: Bruce S. Anderson, PhD
DAR Administrator

FROM: Justin Goggins JG, Aquatic Biologist

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Regional Park and Magic Island Improvements

Request Submitted by: Russell Y. Tsuji, Land Admistrator

Location of Project: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025

Brief Description of Project:

The City and County, Department of Design and Construction is proposing park and facilities improvements at Ala Moana Regional Park and Magic Island. The new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

Comments:
☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: Bruce S. Anderson Date: 1/18/18
Bruce S. Anderson, PhD
DAR Administrator

DAR# 5669

Brief Description of Project

The Division of Aquatic Resources (DAR) is in general support of improving the Ala Moana Regional Park and Magic Island. The project is appreciated as it will be a benefit to the local community.

DAR would like to request:
- Emphasis placed on the use of Best Management Practices to contain sediment run-off into the ponds, drainage ditches and ocean.
- Scheduling beach re-nourishment operations to avoid Sea Turtle nesting season
- A detailed outline of sand transport from offshore to the park

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes, amendments or modifications to the current plans, DAR requests the opportunity to review and comment on those changes.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
JAN - 5 2018
Division of Aquatic Resources
DAR 5069

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 28, 2017

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for **Ala Moana Regional Park and Magic Island Improvements**
LOCATION: Honolulu, Island of Oahu; TMK No. (1) 2-3-037:001, 002, 022, 023, 025
APPLICANT: City and County of Honolulu, Department of Design and Construction

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **January 18, 2018.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
( ) Comments are attached.

Signed: Bruce S. Anderson

Print Name: Bruce S. Anderson, PhD, DAR Administrator
Date: 1/18/18

cc: Central Files

May 7, 2018
2015-71-0100/18P-024

Mr. Russell Y. Tsuji
Land Use Administrator
Department of Land and Natural Resources
Commission on Water Resource Management
State of Hawai'i
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Dear Mr. Tsuji:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and for forwarding the response dated January 19, 2018 from the Commission on Water Resource Management (CWRM). A follow-up email with Lydia Morikawa indicated that the "Comments are attached" box on the memorandum cover sheet from your office was marked in error and CWRM has no comments on this subject property.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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May 7, 2018
2015-71-0100/18P-025

Dr. Bruce S. Anderson, PhD
Administrator
Division of Aquatic Resources
Department of Land and Natural Resources
State of Hawai'i
PO Box 621
Honolulu, HI 96813

Dear Dr. Anderson:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your comments of January 17, 2018. The responses to your comments below follow in the order of topics in your letter.

- **Use Best Management Practices (BMP) to control sediment into ponds, ditches and the ocean:** BMP will be used for sediment control.
- **Avoid sea turtle nesting season for scheduling beach re-nourishment operations**: The Draft Environmental Impact Statement (DEIS) will include operational guidelines to mitigate harm to the existing ecosystem including, but not limited to, sea turtles.
- **Provide a detailed outline of the sand transport plans:** A beach nourishment concept design will be prepared for the DEIS and will evaluate sand recovery methods.

Thank you for your comment and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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May 7, 2018
2015-71-0100 / 18P-023

Mr. Edward R. Underwood
Administrator
Department of Land and Natural Resources
Division of Boating and Ocean Recreation
Post Office Box 621
Honolulu, Hawai'i 96809

Dear Mr. Underwood:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your review of the EISPN. Your response, dated December 29, 2017, indicated that the Division of Boating and Ocean Recreation has no comment to offer relative to the proposed project.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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May 7, 2018
2015-71-0100/18P-026

Mr. Curt A. Cottrell, Administrator
Department of Land and Natural Resources
Division of State Parks
Post Office Box 621
Honolulu, Hawai'i 96809

Dear Mr. Cottrell:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your response dated January 2, 2018. Your response indicated that the Division of State Parks has no comment at this time.

We appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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DAVID Y. IGE
GOVERNOR

RECEIVED
2018 FEB -7 PM 1:06
BELT COLLINS HAWAII

JADE T. BUTAY
INTERIM DIRECTOR

Deputy Directors
ROY CATALANI
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
STP 18-006
STP 8.2298

January 31, 2018

Ms. Joanne E. Hiramatsu
Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Hiramatsu:

Subject: Ala Moana Regional Park and Magic Island Improvements
Environmental Impact Statement Preparation Notice
Honolulu, Oahu, Hawaii
TMK: (1) 2-3-037:001, 002, 022, 023 and 025

The City is proposing to restore, revitalize, enhance, and improve the Ala Moana Regional Park and the Magic Island peninsula grounds and facilities as a result of a recent master plan process that outlined both long-term and short-term improvement plans. Some of the major improvements include sand replenishment, renovations to existing structures, improving pond edges, widening access over the drainage canal along Ala Moana Boulevard, create a wider promenade along Ala Moana Park Drive and reconfiguring the parking.

Our Department of Transportation (DOT) comments on the subject project are as follows:

Airports Division

1. The nearest portion of the site is located approximately 3.75 miles from the planned extension of Runway 26L of the Daniel K. Inouye International Airport. The Applicant and/or Contractors need to be aware of the duties of the state and county agencies to implement the State of Hawaii Office of Planning Technical Assistance Memorandum related to this project and all projects within 5 miles of an airport: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports 08-0l-2016.pdf.

If any of the project features attract hazardous wildlife, create glint and glare hazard, or create an aerial obstruction hazard to flight operations, the Applicant/Contractor must coordinate with proper officials and agencies and must implement appropriate mitigation to address the hazards.

2. The project improvements are located within the 55-65 Day-Night Average Night Sound Level noise contours on the 2008 Noise Exposure Map, and the Applicant and future park users should be aware of the proximity of the airport and potential single event noise from aircraft operations.

Highways Division

The Environmental Impact Statement should include an analysis of the project's impact to users of Ala Moana Boulevard including cars, bicyclists, and pedestrians. It should provide detailed information regarding proposed improvements at Piikoi Street and Kamakee Street and identify whether any of the proposed work is within the State highway right-of-way. Please note that a permit from the Department of Transportation, Highways Division, would be required for work within the State highway right-of-way.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

JADE T. BUTAY
Interim Director of Transportation

May 7, 2018
2015-71-0100 / 18P-032

Mr. Jade T. Butay
Interim Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Mr. Butay:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and your response dated January 31, 2018. The responses to your comments below follow in the order of topics in your letter.

Airports Division: All applicable duties of The State of Hawai'i Office of Planning Technical Assistance Memorandum that relate to this project will be followed. Appropriate mitigation will be taken for any potential hazards created for air travel. Information concerning the location of the airport in relation to the project will be disseminated to the public as appropriate.

Highways Division: The Draft Environmental Impact Statement (DEIS) will include an analysis of impacts of the project for park users and others on the nearby roadways. All required permits will be obtained if any work is within the State highway right-of-way.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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CITY AND COUNTY OF HONOLULU

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

RECEIVED
2018 JAN 30 AM 11: 53
BELT COLLINS HAWAII

KIRK CALDWELL, MAYOR

BRYAN P. ANDAYA, Chair
KAPUA SPROAT, Vice Chair
DAVID C. HULIHEE
KAY C. MATSUI
RAY C. SOON

ROSS S. SASAMURA, Ex-Officio
JADE T. BUTAY, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

January 24, 2018

Ms. Joanne E. Hiramatsu
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Hiramatsu:

Subject: Your Letter Dated December 20, 2017 Requesting Comments on the Environmental Impact Statement Preparation Notice for Ala Moana Regional Park and Magic Island Improvements Project off Ala Moana Boulevard
Tax Map Key: 2-3-037: 001, 002, 022, 023, and 025

Thank you for the opportunity to comment on the proposed regional park improvement project.

The existing water system is adequate to accommodate the proposed improvements. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and storage.

Water conservation measures are recommended for all proposed developments. These measures include utilization of nonpotable water for irrigation using rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of Water Sense labeled ultra-low flow water fixtures and toilets.

Sub-meters are recommended for large diameter irrigation circuits to detect leaks during periods of non-use. The irrigation system should include copper trace wire or marker ball technology to facilitate future leak detection and irrigation pipeline repair.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

Attached is water use data for the park. The park's highest water use occurred in 2015 and 2016 reaching as high as about 348,000 gallons/day.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

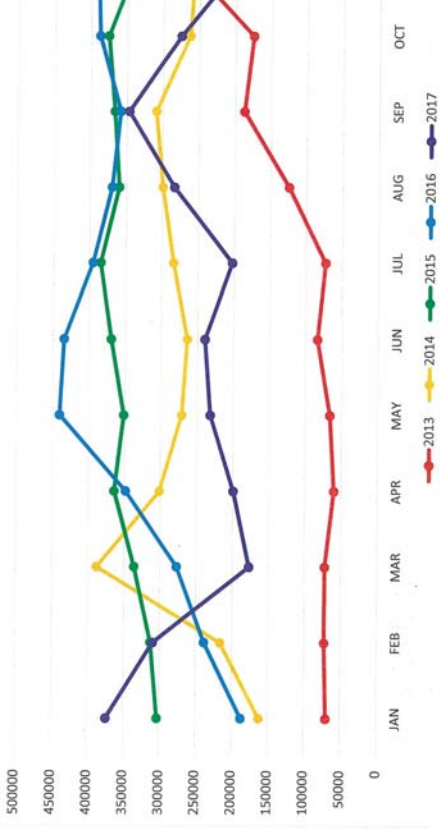
Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

Attachment

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
	MONTH												
2013	69199	72031	71630	59654	65776	83281	72623	124233	186857	174513	272063	220018	122657
2014	162002	216011	387763	300985	270767	263684	283594	299102	308714	262601	255119	283035	274448
2015	302853	312484	335670	364151	351225	369300	384632	359704	366453	375554	335235	220125	339782
2016	187050	238436	276711	348278	440322	434683	395095	369608	358448	387442	390226	344387	347557
2017	373935	309241	176684	199045	231604	239478	202460	282935	346397	274633	189509	91492	243118

5-YEAR AVG.= 265512 GPD



BELT COLLINS

May 7, 2018
2015-71-0100/18P-016

Ernest Y.W. Lau, P.E.
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96819-4554

Dear Mr. Lau:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and your comments dated January 24, 2018. Brief responses to your comments bellow follow in the order of topics in your letter.

Existing water system: It is noted that the existing water system is adequate but that the final decision on the availability of water will be confirmed when the building permit is submitted for approval.

Utilization of water: When water is made available, the requirement to pay your Water System Facilities Charges is noted. The Draft Environmental Impact Statement (DEIS) will outline sustainable measures for conservation of water, including the irrigation system. All coordination with related departments, such as the Honolulu Fire Department, will be initiated as applicable.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
925 DILLINGHAM BOULEVARD, SUITE 200 • HONOLULU, HAWAII 96817
PHONE: (808) 768-7762 • FAX: (808) 768-7792
www.honolulu.gov/dcs

RECEIVED
2018 JAN 24 PM 12: 08
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

PAMELA A. WITTY-OAKLAND
DIRECTOR

SUSAN L. FERNANDEZ
DEPUTY DIRECTOR

January 22, 2018

Ms. Joanne E. Hiramatsu
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 1-3-37:001, 002, 022, 023, and 025

Thank you for the opportunity to review the request regarding the Environmental Impact Statement Preparation Notice for the Ala Moana Regional Park and Magic Island Improvements project.

Our review of the provided document indicates that the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Sincerely,

Pamela A. Witty-Oakland
Director

PAW:ta

cc: Ms. Elaine Morisato
Department of Design and Construction

BELT COLLINS

May 7, 2018
2015-71-0100/18P-018

Ms. Pamela A. Witty-Oakland
Director
Department of Community Services
City and County of Honolulu
925 Dillingham Boulevard, Suite 200
Honolulu, Hawai'i 96817

Dear Ms. Witty-Oakland:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and your comment dated January 22, 2018. You indicate that the proposed project has no adverse impacts on the Department of Community Services at this time.

Thank you for your comment and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,
BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
Belt Collins Hawaii is an Equal Opportunity Employer

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

RECEIVED
2018 JAN 26 PM 2:07
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

January 24, 2018

Belt Collins Hawaii LLC
ATTN: Joanne Hiramatsu
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu,

Subject: Environmental Impact Statement Preparation Notice
Ala Moana Regional Park and Magic Island Improvements
TMK: (1)2-3-37:001,002,022,023,025 Oahu, Hawaii

Thank you for the opportunity to review and comment. The Department of Design and Construction does not have any comments at this time.

Should you have any further questions please call me at 768-8480.

Sincerely,

Robert J. Kroning
Director

RJK:ms(713728)

BELT COLLINS

May 7, 2018
2015-71-0100/18P-019

Mr. Robert J. Kroning, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

Dear Mr. Kroning:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN. Your comment, dated January 24, 2018, indicated that the Department of Design and Construction, has no comments at this time.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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DEPARTMENT OF EMERGENCY MANAGEMENT
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
PHONE: (808) 723-8960 • FAX: (808) 524-3439

RECEIVED
2018 JAN -8 PM 12: 26
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

MELVIN N. KAKU
DIRECTOR

HIROKAZU TOIYA
DEPUTY DIRECTOR

January 2, 2018

Joanne E. Hiramatsu, Director of Planning
Belt Collins Hawaii, LLC
2153 North King Street, Suite 200
Honolulu, HI 96819

Dear Ms. Hiramatsu:

After reviewing the compact disk on the Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Beach Park and Magic Island, I have the following areas of concern:

1. Under Section 4 Project Description, subsection 4.3 Proposed Action, my concern is there is no discussion of large scale events such as the Memorial Evening Lantern Festival, the annual July 4th Fireworks event, and the most recently completed special "Return of Hokulea". These unique large scale events take a heavy toll on both man-made and natural/environmental resources which I feel should be considered. What are the short/long term impacts and how/what mitigative measures do we need to implement/plan for to minimize or eliminate the unintended impacts to the environment and ensure the park sustainment.

2. There should be coverage of City/DPR policy regarding a no-fly zone over large gatherings to prevent or control drones or unmanned aerial vehicles (UAS) systems. Believe there needs to be a plan that addresses air space management/envelope over park events and the unintended consequences of these systems on our community and the public's safety.

3. Address potential mitigative measures that should be planned/implemented to address "sea-level rise" and tidal events (aka King Tides) impacts to the Park facilities including the existing/planned facilities, grassed areas, and roadway inundation as these natural occurrences will be happening continually over time.

4. Consider hardening McCoy Pavilion and other covered facilities (i.e. public bathrooms, concessions, etc.) to be able to serve as general shelters for any man-made disaster type incident (aka Ballistic Missile Attack or Active Shooter).

5. Take suggestions proposed in the Honolulu Age-Friendly City's Action Plan in the Outdoor Spaces and Buildings section. There were many "Gaps" identified in our public spaces such as:
   a. Shortage of clean, accessible restrooms
   b. Shortage of amenities such as benches, shaded rest areas, drinking fountains and food concessions
   c. Concerns about crime and vandalism
   d. Spaces are not easily accessible for those with limited mobility
   e. Many outdoor space and buildings are not friendly to those with physical, cognitive, and/or mental disabilities
   f. Lack of awareness among the general public about what constitutes an age-friendly built environment

Appreciate the opportunity to provide feedback on this important improvement project. Should you have any questions, feel free to contact me at 808-723-8960 or at mkaku@honolulu.gov.

Sincerely,

FOR

Melvin N. Kaku
Director

cc: Michele Nekota, Director, Department of Parks & Recreation
Jeanne Ishikawa, Deputy Director, Department of Parks & Recreation

May 7, 2018
2015-71-0100/18P-020

Mr. Melvin N. Kaku
Department of Emergency Management
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Kaku:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for letter of January 2, 2018 commenting on the EISPN. The responses to your comments below follow the order of topics in your letter.

1. The Draft Environmental Impact Statement (DEIS) will include discussion of both short and long-term impacts of large scale events and their effect on the man-made environment and natural resources. However, these events are intermittent, occurring several times a year, so impacts are short term to allow the parks to recover between events.

2. The small Unmanned Aerial Systems (UAS) rule (Part 107) of the Federal Aviation Administration (FAA) outlines operating rules and came into effect on August 29, 2016. Congress defines a "model aircraft" as a UAS if it meets the following: capable of sustained flight in the atmosphere; flown within visual line-of-sight of the person operating it; and is flown for hobby or recreational purposes. Section 10-1.2.d.3 of the Revised Ordinance of Honolulu (ROH) states, except in park areas specifically designated for such purposes, it is unlawful for any person to: engage in model airplane flying. The AMRP is governed by the Department of Parks and Recreation; all rules regarding UAS will be governed by established rules described herein.

3. Climate change impacts and sea water rise are of concern with regard to this coastal area. The DEIS will explicitly consider climate change impacts.

4. Hardening of facilities such as McCoy Pavilion and other covered facilities to serve as general shelters will be considered in the DEIS and the design process.

5. The AMRP Master Plan does cover many of the Goals and Recommendations for Outdoor Spaces and Buildings of the Honolulu Age-Friendly City's Action Plan. The DEIS will address creating clean and attractive spaces, ones which are American with Disabilities Act compliant that offer accessible restrooms with enhanced amenities for accessible use by all populations, and which are expected to have reduced criminal activity and vandalism.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

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HONOLULU EMERGENCY SERVICES DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H-450 • HONOLULU, HAWAII 96819-1814
Phone: (808) 723-7800 • Fax: (808) 723-7836

RECEIVED
2018 JAN -8 PM 2:17
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

JAMES D. HOWE, JR.
DIRECTOR

IAN T.T. SANTEE
DEPUTY DIRECTOR

January 4, 2018

Ms. Joanne E. Hiramatsu
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice
Ala Moana Regional Park and Magic Island Improvements

Thank you for the opportunity to comment regarding the Environmental Impact Statement Preparation Notice for Ala Moana Beach Park and Magic Island Improvements.

We have noted the following as areas in need of clarification:

Section 5.13 Public Health, Safety and Service:

Please note that the Honolulu Emergency Services Department (HESD) Charter is as follows:

REVISED CHARTER OF THE CITY & COUNTY OF HONOLULU 1973 (2017 EDITION) Kirk Caldwell, Mayor June 30, 2017

Chapter 6 – Department of Emergency Services Section 6-601. Organization – Powers, Duties and Functions – The director of emergency services shall:

(a) As to medical services:
  (1) Be the primary provider of emergency medical care;
  (2) Develop programs and provide training and educational programs related to emergency medical services and injury prevention;
  (3) Be responsible for medical matters relating to public health and welfare;

  (4) Be responsible for the administration of the city's health services programs and medical evaluations of current and prospective city employees.

(b) As to ocean safety:
  (1) Be the primary responder to emergencies arising on the beach and in the near shore waters;
  (2) Be responsible for ocean safety training, educational, and risk reduction programs relating to ocean safety.

c) Perform such duties as may be required by law. (1992 General Election Charter Amendment Question No. 16; 1998 Reorganization; 2006 General Election Charter Amendment Question No. 10; Reorganization 2007; Reorganization 2012)

Your report noted that the Honolulu Fire Department would normally provide emergency response and rescue relating to water accidents and distress. This is not accurate.

Your report failed to note that HESD will act as the primary medical and ocean rescue responder to all emergencies occurring in Ala Moana Beach Park and Magic Island.

The mention of Kaiser Permanente as an emergency medical facility within a mile of the parks is not accurate.

We noted that the EIS will assess impacts on public services, including police and fire protection, but did not include HESD (EMS or Ocean Safety services) which are primary agencies responsible for Public Health and Safety in the project area.

Section 5.1 Existing Land Use:

This section does not include the current land use within the project area utilized by HESD (Ocean Safety and Lifeguard Services Division) to support the ocean safety operations and training functions of the Department.

Section 5.8 Natural Hazards:

The preparation notes do not address the impacts of tsunami and/or hurricane events.

Section 5.11 Recreation:

We noted that ocean recreation and safety are concerns in the project area. This is an area that we would request be addressed in the EIS. There are a range of ocean safety and user conflict issues that are of concern:

An increase in the number of people utilizing the ocean waters will lead to a higher risk level for mortality and morbidity.

The ocean bottom structure in the inner park area is the most significant hazard to the public, in particular infants, children, and adults with no or limited swimming ability.

Any changes to the ocean bottom inclination will have an impact on public safety. We believe this issue should be noted as an environmental impact.

If you have any questions, please contact me at 723-7800.

Sincerely,

James D. Howe, Jr.
Director

BELT COLLINS

May 7, 2018
2015-71-0100/18P-036

Mr. James D. Howe, Jr.
Honolulu Emergency Services Department
City and County of Honolulu
3375 Koapaka Street, Suite H-450
Honolulu, HI 96819

Dear Mr. Howe:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your letter of January 4, 2018. The responses to your comments below follow in the order of topics in your letter.

- **Emergency Response and Ocean Safety:** The Draft Environmental Impact Statement (DEIS) will state that the Honolulu Emergency Services Department (HESD) is the primary medical and ocean responder to all emergencies in Ala Moana Regional Park (AMRP) and Magic Island per Section 6-601 of the Revised Charter of the City and County of Honolulu 1973 (2017 Edition).

- **Kaiser Permanente:** The DEIS will clarify the statement regarding Kaiser Permanente's distance from the AMRP, noting that the Kaiser Honolulu Clinic is within a mile's distance, but its emergency room and hospital facilities are in Moanalua.

- **Impact on Public Services:** The DEIS will include assessment of impacts on public services, and will address impacts on HESD's ocean safety and emergency medical services.

- **Existing Land Use:** The DEIS will include a comprehensive account of existing land use, including the areas used by HESD.

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- **Natural Hazards:** The impacts of tsunami and hurricane events will be addressed in the DEIS. The document will include the warning systems and zones in place, along with the extent to which AMRP facilities are expected to be affected by such events.

- **Recreation:** As you note, ocean safety is a significant concern with regard to AMRP. On-going work and future plans for sand replenishment are intended to make the shore area and ocean bottom nearby safer and more enjoyable for ocean recreational users. The DEIS will address the question of anticipated changes in the numbers of people enjoying ocean recreation at the Parks.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 Ulu'ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

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BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 18-7

January 4, 2018

Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
Attn: Ms. Joanne E. Hiramatsu

Dear Ms. Hiramatsu

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) Ala Moana Regional Park and Magic Island Improvements

Thank you for the opportunity to review and comment on the subject project.

We have no comments at this time, as we do not have any facilities or easements on the subject property.

If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P. E.
Director and Chief Engineer

BELT COLLINS

May 7, 2018
2015-71-0100/18P-021

Mr. Ross S. Sasamura
Department of Facility Maintenance
City and County of Honolulu
1000 'Ulu'ōhi'a Street, Suite 215
Kapolei, HI 96707

Dear Mr. Sasamura:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN. Your comments, dated January 4, 2018, indicated that the Department of Facility Maintenance has no comments at this time.

Thank you for your response and we appreciate your participation in the Chapter 343 environmental review process. A copy of the Draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

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DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
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BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

February 5, 2018

Ms. Joanne E. Hiramatsu, Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022, 023, and 025

Thank you for the opportunity to review and comment on the subject Draft Environmental Impact Statement Preparation Notice.

The Department of Parks and Recreation's Division of Urban Forestry would like to provide review comments on the Arborist Tree Inventory Plan and requests that a Tree Replacement Beautification Plan be included in the EIS to replace the trees that were removed as a result of the Sand Volleyball and Bath House projects, as well as any future projects that will require tree removals.

Should you have any questions, please contact John Reid, Planner at 768-3017.

Sincerely,

Michele K. Nekota
Director

MKN:jr
(713798)

cc: David Kumasaka-DUF
Terry-Ann Koike-DUF
Brandon Au-DUF
Rosalind Young-DPR District 2

BELT COLLINS

May 7, 2018
2015-71-0100 / 18P-034

Ms. Michele K. Nekota, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, HI 96707

Dear Ms. Nekota:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your reviewing the EISPN and your response dated February 5, 2018. The response to your comment is below.

- **Tree Inventory:** The Ala Moana Regional Park Master Plan addresses horticulture, including trees within the Park. A tree inventory was conducted at the Parks by a licensed arborist. The results of the inventory will be included in the Draft Environmental Impact Statement. The DEIS will assess the extent to which the project replaces trees removed for recent and proposed improvements.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

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CITY AND COUNTY OF HONOLULU
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MAYOR

KATHY K. SOKUGAWA
ACTING DIRECTOR
TIMOTHY F. T. HIU
DEPUTY DIRECTOR
EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

2017/ELOG-2636(AB)

January 22, 2017

Joanne E. Hiramatsu
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Keys 2-3-037: 001, 002, 022, 023, and 025

Thank you for the opportunity to review the EISPN for the subject project, which includes widening park entrances, walkways, and promenades; rearranging, expanding, and reconfiguring parking lots and parking areas; improvements to the ponds; sand replenishment; playground construction; and a variety of other improvements within the parks and on nearby rights-of-ways. The Draft Environmental Impact Statement (DEIS) should include the following:

1. A discussion on how the proposed project meets the planning principles and guidelines for the Primary Urban Center Development Plan, the Oahu General Plan, and the Ala Moana Neighborhood TOD Plan.

2. An analysis of the possible impact of Sea Level Rise (SLR) on the project. If it is likely that SLR will increase the risk of flooding during the life of the project structures, the DEIS should discuss how the design of the project and proposed operations at the site will address that risk and provide resilience in recovering from flooding.

   The national standard for making such an assessment has been developed by the U.S. Army Corps of Engineers (USACE). The USACE issued an Engineering Regulation 9ER 1100-2-8162) on December 13, 2013, which provides "guidance for incorporating the direct and indirect physical effects of the projected future sea level change across the project life cycle in managing, planning, engineering, designing, constructing, operating, and maintaining USACE projects." The guidance in the regulation can be used as the basis for assessing the "potential relative sea level change" that might be experienced by projects in shoreline areas, such as this one.

   See www.corpsclimate.us/rccslca.cfm for more details, including use of an online SLR calculator which can be used to produce Oahu specific projections through 2100.

3. A preliminary construction management plan (CMP), traffic demand management plan (TMP), and Traffic Study should be included with the DEIS documents. The Traffic Study should include a robust analysis of compliance with complete streets concepts and alternative transportation access (such as rail, bicycles, pedestrians, and The Bus). The final CMP should be submitted at the time of the issuance of the building permit and the TMP should be submitted at the time of the certificate of occupancy of the buildings.

4. A discussion of compliance with the Land Use Ordinance (LUO). The discussion should specify if a Waiver is required for any proposed developments that exceed the development standards for the P-2 General Preservation Districts, or if any other sections of the LUO need to be waived.

5. A discussion of compliance with Chapter 25, Revised Ordinances of Honolulu (ROH), related to development within the Special Management Area (SMA). An SMA Major Permit is likely required; therefore, to conserve resources and in the interest of efficiency, the DEIS and SMP should include all known and planned improvements for the parks.

6. A discussion of compliance with Chapter 23, ROH, related to shoreline setbacks. Plans and drawings indicating actions near the shoreline should indicate the assumed or certified shoreline, 40-foot setback line, and 55-foot waiver line. If any actions are proposed within the shoreline setback, a Shoreline Setback Variance (SVV) may be required.

7. A discussion of how the project will comply with the new Rules Relating to Water Quality.

Should you have any questions regarding these comments, please contact Alex Beatty of our staff, at 768-8032.

Very truly yours,

for Kathy K. Sokugawa
Acting Director

May 7, 2018
2015-71-0100 / 18P-033

Ms. Kathy K. Sokugawa, Acting Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Dear Ms. Sokugawa:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN. We received your letter on January 26, 2018. The responses to your comments below follow in the order of topics in your letter.

1. All applicable planning principles and guidelines will be addressed in the Draft Environmental Impact Statement (DEIS).

2. Sea Level Rise and its impacts on the project will be addressed in the DEIS.

3. The DEIS will include a traffic study. Traffic management plans will be developed for review before construction.

4. The DEIS will discuss land use of the Parks and their compliance with the Land Use Ordinance. Any required waivers will be discussed at the time of the DEIS.

5. The DEIS and Special Management Area permit will include all known and planned improvements for the Parks.

6. Required shoreline setbacks will be discussed and noted.

7. All water quality rules and regulations, as they relate to this project, will be discussed in the DEIS.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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HONOLULU, HAWAII 96813
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KIRK CALDWELL
MAYOR

WES FRYSZTACKI
DIRECTOR

JON Y. NOUCHI
DEPUTY DIRECTOR

716634

TP12/17-713631R

January 17, 2018

2018 JAN 24 PM 2:53

Ms. Joanne E. Hiramatsu
Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Ala Moana Regional Park and Magic Island Improvements

Thank you for the opportunity to provide comments on the EISPN for Ala Moana Regional Park and Magic Island Improvements. In response to your letter dated December 20, 2017 we have the following comments:

1. **Traffic Impact Analysis Report (TIAR).** We have the following comments on the TIAR:

   a. The TIAR should be replaced with a Transportation Impact Assessment (TIA) that analyzes the multi-modal nature of all alternatives, the improvements needed, and recognizes the need for traffic control devices that encourage walking, bicycling, and transit use as the primary access modes for the proposed project. The TIA should identify parking management strategies that will support sustainable mobility. The TIA should identify the locations of all nearby bus stops that residents, employees, and visitors are likely to use.

   b. Provide a map illustrating any nearby Transit Oriented Development (TOD) station area relative to the proposed alternatives, including ¼ mile and ½ mile walkable radii. Include a map of the proposed TOD station access improvements.

   c. Use person trips instead of vehicle trip rates from the Institute of Traffic Engineer's Trip Generation Manual and assign these trips to the transportation system. This will require analysis of crossing treatments using National Cooperative Highway Research Program 562 methodology for pedestrian measures. Any increase in parking shall be justified through trip generation.

   d. In addition to the calculated Level of Service (LOS), the observational LOS should be provided.

   e. Define performance measures for use in the study:
      a. V/C ratio targets that are >1 for 1st and/or 2nd highest peak hours;
      b. Identify where vehicle LOS will not be used;
      c. Pedestrian LOS;
      d. Bicycle Level of Traffic Stress (LTS);
      e. Transit Capacity and Quality of Service.

   f. Define the specific transit, pedestrian, and bicycle improvements necessary where assessment reveals deficient conditions.

   g. The TIA shall analyze the impacts an increase in traffic will have on Makai-bound city streets at all park entrances.

2. **Parking.** We have the following comments related to parking:

   a. **Pay Parking.** All parking for park visitors shall be metered to promote frequent turnover. Provide the number of parking stalls that will be added and the justification.

   b. **Electric Vehicle Parking.** Places of public accommodation with at least 100 parking spaces available for use by the general public shall have at least one parking space exclusively for electric vehicles and equipped with an electric vehicle charging system located anywhere in the parking structure, as per HRS §291-71.

   c. **Bicycle Parking.** Short-term bicycle parking shall be provided whenever new floor area or when a new parking structure is proposed and is also available for public and/or visitor access and shall be located as close as possible to the entrances to the principal uses.

3. **Complete Streets**. The following comments are related to Complete Streets:

   a. The Draft Environmental Impact Statement (DEIS) should contain further discussion of compliance with County and State Complete Streets policies, pursuant to Act 54, Session Laws of Hawaii 2009, HRS §264-20.5 and ROH 12-15. The proposed alternatives and final preferred alternative should describe how they will comply with Complete Streets policies, including specific adherence to the following key Complete Streets principles: 1) safety; 2) Context Sensitive Solutions; 3) accessibility and mobility for all; 4) use and comfort of all users; 5) consistency of design guidelines and standards; 6) energy efficiency; 7) health; and 8) green infrastructure.

   b. Discussion of the existing pedestrian and bike infrastructure for existing and future travel is not sufficient. Specific impacts to transit users, pedestrians and bicyclists, and the corresponding improvements are not addressed in the EISPN. Specify the impacts and the proposed Complete Streets (transit, bicycle and pedestrian) improvements.

   c. Bike Network 2020 requires that a new bike path connection be made on the ewa side of Ala Moana Beach Park that will continue around Kewalo basin. Please identify the ewa-side bike path improvements that will be made within the park.

   d. Figure 3-10 of the Draft Ala Moana TOD Plan (page 57) requires a future bike lane extension of Piikoi through Ala Moana Park. Please identify how this requirement will be fulfilled.

   e. Figure 3-11 of the Draft Ala Moana TOD Plan (page 59) requires intersection improvements and reconfiguration at the intersection of Ala Moana Boulevard and Piikoi Street, and Ala Moana Boulevard and Atkinson Drive. Please identify how this requirement will be fulfilled.

   f. Figure 3-11 of the Draft Ala Moana TOD plan (page 59) requires that elevated pedestrian crossings be implemented at Ala Moana Boulevard and Atkinson Drive, and also at a new Station Mauka-Makai Connection aligned with Kona Iki Street. The Draft TOD

   Plan also requires a new Center Stage Mauka-Makai Connection aligned with Keeaumoku Street. Please identify how these pedestrian improvements will be fulfilled.

   g. The Oahu Bike Plan (page 4-2) states that Regional Parks shall have 10 public bicycle racks, each with a minimum capacity of four bicycles per rack. Include a count of current bicycle racks in the park and any needed bicycle rack improvements to meet the standard.

4. **Traffic Management Plan (TMP).** Prepare a TMP which:

   a. Is jointly reviewed and accepted by the Department of Transportation Services (DTS) and the Department of Planning and Permitting (DPP).

   b. Provides a discussion of the traffic impacts that the project may have on any surrounding City roadways, including short-term impacts during construction and long-term impacts after construction with corresponding measures to mitigate these impacts by applying Complete Streets principles.

   c. Include a description of how the project will: promote, encourage, and monitor transit use by its residents, and inform employees, residents and visitors.

   d. Construction materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to pedestrians and traffic on the local streets and project driveways.

   e. Best practice TMPs provide the City with information by which to monitor construction areas. The City will require cameras where sidewalks are closed to help assess effectiveness of management.

   f. Construction schedules should be coordinated with other nearby properties that have planned developments to ensure minimal impacts on City streets.

5. **Public Transit Service.** Existing transit service is not adequately depicted. Please contact Public Transit Division to ensure that transit routes are accurately depicted on maps in the DEIS, and that the project development does not adversely affect public transit services (bus operations, bus routes, bus stops and para-transit operations); submit project plans to DTS - Public Transit Division (PTD) for review and approval. Contact DTS-PTD at 768-8396, 768-8370, 768-8374 or TheBusStop@honolulu.gov.

6. **Sea Level Rise and Resilience**. Infrastructure improvements located within areas potentially exposed to chronic flooding with sea level rise shall be subject to an in-depth analysis of the potential impacts of sea level rise on elevation, tolerance for risk, and the lifetime of the proposed structure or infrastructure. Any significant improvements within existing footprints should be dependent on established, resilient design guidelines, or otherwise be subject to relocation to a more suitable area.

   The potential for chronic flooding with 3.2 feet of sea level rise (SLR-XA) shall be used as the vulnerability zone for planning purposes. Maps of the project area shall be provided for both the SLR-XA and flooded highways. The applicant shall recommend strategies and designs that increase the flood resiliency for new development or improvements within the SLR-XA that cannot be relocated, or seek opportunities to plan new development or projects well landward of the SLR-XA. See the following to determine vulnerability: http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/

7. **Driveway Design.** All alternatives should have driveways that are designed with the highest pedestrian and bicycle safety measures, have adequate sight distances and supplementary safety measures such as electronic devices at the driveways to warn pedestrians of vehicles moving in and out of driveways, and constructed to current City standards.

8. **Vehicle Ramps.** Any vehicle parking ramps should be designed to accommodate demands so that vehicles will not queue onto public streets and block the roadways.

9. **Loading and Unloading.** All loading and unloading needs, including refuse and service delivery vehicles should be handled on-site, rather than on City roadways. In addition, the project should be designed to accommodate TheHandi-Van para-transit vehicles on-site, which require a minimum 31-foot turning radius, a 10-foot, 6-inch height clearance, and the ability to exit the site without reversing onto public roadways.

10. **Neighborhood Impacts**. The area Neighborhood Board, as well as the area residents, businesses, emergency personnel (fire, ambulance and police), Oahu Transit Services, Inc. (TheBus and TheHandi-Van), etc., should be kept apprised of the details of the proposed project and the impacts that the project may have on the adjoining local street area network.

11. **Street Usage Permit.** A street usage permit from the DTS should be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

12. **Americans with Disabilities Act (ADA) Requirements**. In accordance with the requirements of Ordinance No. 2412, as amended, the proposed sidewalk areas on and adjacent to the property shall meet City and County of Honolulu standards and ADA requirements. Pavement materials shall be chosen to withstand the uplifting and fracturing that may occur from any large trees. Any damage to the existing roadway and sidewalk area caused by the project should be repaired to current City standards as well as meet ADA requirements.

13. **Best Management Practice Controls.** Best Management Practice controls should be included at construction site to prevent trailing of dirt and debris on City roadways.

14. **Disability and Communication Access Board (DCAB).** Project plans (interior and exterior layouts, vehicular and pedestrian circulation, sidewalks, parking and pedestrian pathways, vehicular ingress/egress, etc.) should be reviewed and approved by the DCAB to ensure full compliance with the ADA.

Thank you for the opportunity to review this matter. Should you have any questions, please contact Nicola Szibbo of my staff at 768-8359.

Very truly yours,

Wes Frysztacki
Director

cc: Ms. Elaine Morisato, Department of Design and Construction

May 7, 2018
2015-71-0100/18P-035

Mr. Wes Frysztacki
Director
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

Dear Mr. Frysztacki:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and your response dated January 17, 2018. The responses to your comments below follow in the order of topics in your letter.

1. **Traffic:** A traffic study will assess baseline traffic conditions in and around the project area. The Draft Environmental Impact Statement (DEIS) will contain an assessment of impacts on traffic as related to trip rates and Level of Service and will identify improvements where needed. A map showing the nearest TOD will be provided in the DEIS

2. **Parking:** Please note that any proposed parking structure is an alternative action in the Ala Moana Regional Park Master Plan, and not the proposed action. Based on community comments metered parking is not being planned. Parking design plans will consider electric vehicle and bicycle parking.

3. **Complete Streets:** The DEIS will examine its compliance with the City and State Complete Streets policies. The DEIS will examine the impacts of proposed actions on sustainable transportation, including bike lanes, bike racks, intersections, or elevated pedestrian crossings. A shared use path will be expanded on the existing ma kai shared-use path.

4. **Traffic Management Plan (TMP):** A TMP will be produced assessing traffic impacts and analyzing for minimal traffic impact.

5. **Public Transit Service:** Thank you for your response regarding the depiction of transit services. The DEIS will ensure that all transit routes are shown accurately and it will ensure that proposed project actions do not adversely affect public transit services.

6. **Sea Level Rise and Resilience:** Impacts of climate change will be addressed in the DEIS.

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
Belt Collins Hawaii is an Equal Opportunity Employer

7. **Driveway Design**: All proposed parking reconfiguration will consider designs with the highest level of pedestrian and bicycle safety.

8. **Vehicle Ramps:** No parking ramps are part of the proposed actions.

9. **Loading and Unloading:** Roadway design will take into account location of loading and unloading as well as accommodation for larger vehicles' turning radii and clearance.

10. **Neighborhood Impacts:** All affected groups and organizations will be kept apprised of proposed project details.

11. **Street Usage Permit:** As needed, street usage permits will be obtained from the DTS.

12. **Americans with Disabilities Act (ADA) Requirements:** All proposed actions will comply with ADA requirements.

13. **Best Management Practice (BMP) Control:** BMPs will be observed for all project construction and related activities.

14. **Disability and Communication Access Board (DCAB):** Project plans will be submitted to DCAB to ensure ADA compliance.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

RECEIVED
2018 JAN 24 PM 12: 08
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

January 12, 2018

Ms. Joanne Hiramatsu
Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Hiramatsu:

Subject: Environmental Impact Statement Preparation Notice
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Hawaii
Tax Map Keys: 2-3-037: 001, 002, 022, 023, and 025

In response to your letter dated December 20, 2017, regarding the abovementioned subject, the Honolulu Fire Department (HFD) reviewed the material provided and requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; Uniform Fire Code [UFC]™, 2012 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1.)

   A fire department access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; UFC™, 2012 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter

constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1; UFC™, 2012 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1; UFC™, 2012 Edition, Section 18.2.3.4.1.1 and 18.2.3.4.1.2, as amended.)

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Wayne Masuda of our Fire Prevention Bureau at 723-7151 or wmasuda@honolulu.gov.

Sincerely,

SOCRATES D. BRATAKOS
Assistant Chief

SDB/TC:bh

May 7, 2018
2015-71-0100/18P-037

Mr. Socrates D. Bratakos
Assistant Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, HI 96813-5007

Dear Mr. Bratakos:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and providing your comments dated January 12, 2018. The responses to your comments below follow in the order of topics in your letter.

1. Any new development will meet requirements for distance from fire department access roads.

2. All facilities and buildings will either be within the required distance from a water supply for fire protection or, if in excess of 150 feet, an on-site fire hydrant and mains will be provided.

3. All fire apparatus access roads will meet county requirements for unobstructed width and unobstructed vertical clearance.

4. Once completed, civil drawings will be submitted to the Honolulu Fire Department for review and approval.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the draft Environmental Impact Statement will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

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POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

RECEIVED
2018 JAN 25 PM 2:16
BELT COLLINS HAWAII

KIRK CALDWELL
MAYOR

SUSAN BALLARD
CHIEF

JOHN D. McCARTHY
JONATHON GREMS
DEPUTY CHIEFS

OUR REFERENCE MT-AL

January 22, 2018

Ms. Joanne E. Hiramatsu
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Hiramatsu:

This is in response to your letter dated December 20, 2017, requesting comments on an Environmental Impact Statement Preparation Notice for the Ala Moana Regional Park and Magic Island Improvements project.

The Honolulu Police Department (HPD) has reviewed this project and has concerns regarding park signage and the expansion of a facility located in the park.

The park should have visible signage posted at the perimeters, entrances, and interior of the park, which clearly identify the boundaries and park rules and regulations governing Ala Moana Regional Park and Magic Island. Visible signage will assist the HPD with police enforcement in and around the park area.

We would also like to request the possibility of including improvements to the building, which houses HPD and the Department of Ocean Safety, to expand this facility for housing additional All Terrain Vehicles (ATV) and a trailer to transport the ATVs used to patrol the park. This facility can also serve as a command post for large events, such as the Shinnyo-en Latern Festival.

If there are any questions, please call Major Roy Sugimoto of District 1 (Central Honolulu) at 723-3327.

Thank you for the opportunity to review this project.

Sincerely,

MARK TSUYEMURA
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

BELT COLLINS

May 7, 2018
2015-71-0100/18P-039

Mr. Mark Tsuyemura, Management Analyst VI
Office of the Chief
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, HI 96813

Dear Mr. Tsuyemura:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for reviewing the EISPN and your response dated January 22, 2018. The responses to your comments below follow in the order of topics in your letter.

- **Park Signage:** Public safety is identified as a concern at the project area. The Draft Environmental Impact Statement (DEIS) will assess impacts on police protection. Visible signage is included with proposed improvements to public safety.

- **Facility expansion:** Thank you for your request to include improvements to the Ocean Safety building. Plans to move the Ocean Safety offices to a more strategic location for emergencies and large events are being considered.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
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ORGANIZATIONS

HISTORIC HAWAI'I FOUNDATION

January 22, 2018

Joanne E. Hiramatsu
Belt Collins Hawai'i LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Re: Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Honolulu, Island of Oahu
TMK: 2-3-037:001, 002, 022, 023, 025

Dear Ms. Hiramatsu:

Historic Hawai'i Foundation received notice and request for comments from Belt Collins on behalf of the City & County of Honolulu as it prepares an Environmental Impact Statement (EIS) for the proposed Master Plan for park and facilities improvements of Ala Moana Regional Park. Thank you for the opportunity to comment.

Interests of Historic Hawai'i Foundation
Historic Hawai'i Foundation (HHF) is a statewide organization established in 1974 to encourage the preservation of sites, buildings, structures, objects and districts that are significant to the history of Hawai'i. As an organization that is concerned with the effect of the project on historic properties, HHF confirms our intention to participate in the EIS consultation process in accordance with Hawai'i Revised Statutes (HRS) Chapter 343.

Ala Moana Park was listed on the Hawai'i Register of Historic Places in 1988 as part of the multiple property listing of the "City and County of Honolulu Art Deco Parks and Playgrounds." As a property listed on the historic register, the park is designated as a "significant historic property" under HAR Title 13.

Project Scope: The project is to prepare a master plan for improvements within the boundary of Ala Moana Regional Park, including landscaping, building and structure modifications and alterations, roadway realignment, revisions to parking locations and the creation of a Pi'ikoi Street entrance.

Draft Master Plan proposals were presented for comment in 2015 and 2016. HHF provided comments to the Department of Parks and Recreation on August 8, 2016. On March 28, 2017 we were advised that our comments had been forwarded to the Department of Design and Construction for consideration in preparation of the Master Plan.

Project Area: The Area of Potential Effect (APE) includes the entire Park and Magic Island (Tax Map Keys 2-3-37:001, 002, 022, 023 & 0025). Of the planning area, the historic Ala Moana Park (TMK 2-3-37:001) is the portion listed on the Register of Historic Places. Additional historic properties may be present in the other parcels.

680 Iwilei Road, Suite 690 Honolulu, Hawai'i 96817 Tel (808)523-2900 Fax (808)523-0800
Email preservation@historichawaii.org Web www.historichawaii.org

Proposed Action (Section 4.3 of EISPN): The proposed park and facility improvements in the proposed action to be reviewed in the EIS include:

- Pi'ikoi Street entrance expansion and plaza;
- Widening the promenade along the makai side of Ala Moana Park Drive;
- Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;
- Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;
- Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;
- Keyhole parking lot expansion;
- Elongating Magic Island parking lot;
- Improve the pond edges;
- Improve McCoy Pavilion to include a dining facility;
- Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;
- Sand replenishment and long-term beach nourishment;
- Build a Playground;
- Relocate the Maintenance Yard;
- Drainage canal covering;
- Create a multiuse facility at the Lawn Bowling area;
- Relocate the Ocean Safety's Honolulu Headquarters;
- Improve the entrance at the Kamakee Street entrance.

Identification of Historic Resources:
Any project with potential to affect historic properties must first include identification of the historic resources, evaluation of their significance, evaluation of the proposed project's potential effect on those features, and commitments to avoid, minimize and mitigate any potential adverse effect.. HHF recommends that the Ala Moana Master Plan include a specific description of the historic features and characteristics that contribute to the historic significance of the park as a whole.

EISPN Section 5.9 states that an "architectural survey" will be developed. The survey should be of a quality and contain enough information about each feature to provide an adequate basis for making historic preservation decisions. The survey will need to include:

- Description of character-defining features and contributing elements
- Assessment of historic integrity for the features, including materials, design, workmanship, location, setting, association and feeling

We also recommend that the survey include a discussion about the period of significance, and whether later additions to the park have attained historic significance in their own right, even if designed and built later than 1934 (the significant date listed in the historic register nomination form).

A short list of historic properties should include, but may not be limited to:

- Landscape Features
  - Canal and lagoons
  - Significant trees (including those on the O'ahu "Exceptional Tree List")
  - Review of Original Plans of 1931 and 1933
- Garden Features
  - Banyan Court, including sculptures
- Site Features
  - Roosevelt Entrance Portals
  - Bridle Path Bridge (and later companion bridges)
  - Lawn Bowling Center including walls, gates and significant materials
  - Central Makai Terrace and pergolas
- Buildings Structures
  - McCoy Pavilion
  - Sports Pavilion including gates and artwork
- Related Properties
  - Boat Harbor
  - Pedestrian and Bridle Path link between Ala Moana Park and Kapi'olani Park along the Ala Wai (per original master plan)

Determination of Effect:
Once the significant historic properties/features have been identified and evaluated, potential effects of the project need to be determined, along with measures to avoid, minimize and/or mitigate adverse effects to the historic properties.

"Effects" include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the property's surrounding environment, and neglect resulting in deterioration or destruction (HAR §13-275-7(b)).

The description of character-defining features and elements of Ala Moana Regional Park will assist with the evaluation of alternatives, as each option can then be compared to a specific benchmark to assess effects.

HHF is particularly concerned about the potential effect on significant historic resources from specific elements in the proposed action, including:

1. McCoy Pavilion Dining Facility
2. Drainage Canal Covering
3. Multiuse Facility at the Lawn Bowling Area
4. Keyhole Parking Lot Expansion
5. Improvements to Pond Edges

Coordination with Federal Permits and NHPA Section 106
The Army Corps of Engineers (ACOE) Permits trigger Section 106 of the National Historic Preservation Act (NHPA). Under the Section 106 procedures, the federal agency needs to coordinate reviews, complete Section 106 agreements and include results in the Final EIS. The EISPN Section 6.1 fails to include Section 106 compliance.

HHF believes that the ACOE needs to complete its Section 106 process and then the final agreement on the treatment of historic properties needs to be integrated into the Master Plan and the EIS.

HHF notes it is necessary to comply with Section 106 *before* final decisions are made in order to avoid foreclosure of options as described in 36 CFR §800.02(c) & 800.16(j). HHF believes that the Master Plan approval sequence may be out of order, as the ACOE is prohibited from taking "an action that effectively precludes the [Advisory Council on Historic Preservation] from providing comments which the agency official can *meaningfully consider* prior to the approval of the undertaking" (emphasis added).

If the EIS finding is issued before that process is complete, it forecloses options. Either the ACOE would not be in compliance with Section 106, or the eventual resolution reached through the Section 106 process could result in an amendment to the EIS.

Historic Hawai'i Foundation looks forward to participating in consultation to resolve the potential outstanding issues and adverse effects on the historic Ala Moana Regional Park. We look forward to working with you and your staff on this project.

Very truly yours,

Kiersten Faulkner

Kiersten Faulkner, AICP
Executive Director

May 7, 2018
2015-71-0100 / 18P-038

Ms. Kiersten Faulkner, AICP
Executive Director
Historic Hawai'i Foundation
680 Iwilei Road, Suite 690
Honolulu, HI 96817

Dear Ms. Faulkner:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Thank you for your reviewing the EISPN and for your letter dated January 22, 2018. The responses to your comments below follow in the order of topics in your letter.

Identification of Historic Resources: The Draft Environmental Impact Statement (DEIS) for this project will identify all historic structures and their historic relationship to the Ala Moana Regional Park. An architectural survey will identify and evaluate historic structures to inform decisions concerning those structures.

Determination of Effect: Effects of this project on identified historic structures will be evaluated in the DEIS.

Section 106 of the National Historic Preservation Act (NHPA): Thank you for your input regarding coordination with Federal Permits and NHPA Section 106. We will evaluate all applicable options and we will coordinate with all appropriate agencies to determine all required rules and regulations.

Thank you for your comments and we appreciate your participation in the Chapter 343 environmental review process. A copy of the DEIS will be sent to you at the time of publication.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

JEH:ajk

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
Belt Collins Hawaii is an Equal Opportunity Employer

INDIVIDUAL STAKEHOLDERS AND PARK USERS

Joanne Hiramatsu

From: Ai Oyama <aioyama@hawaii.edu>
Sent: Saturday, January 20, 2018 2:26 PM
To: Joanne Hiramatsu
Cc: S. Sakai
Subject: Regarding Ala Moana Park

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Joanne Hiramatsu,

I agree with the comments made by Stan Sakai. I'd like you to keep the parallel parking on the makai side of Ala Moana Park Drive. There is enough of an ocean view even with the parked vehicles and eliminating this parking will create many problems for park users, including public safety issues.

I also think there's a nice spacious grassy area where everyone can enjoy picnicking and running around already, so no need to build a playground.

Thank you!
Ai Oyama

Joanne Hiramatsu

From: Ai Oyama <aioyama@hawaii.edu>
Sent: Saturday, January 27, 2018 7:23 PM
To: Joanne Hiramatsu
Cc: S. Sakai
Subject: Fwd: EISPN for Ala Moana Park and Magic Island Improvements - Comments on proposed parking

Hello Joanne,

I am sending this email to you to support Stan Sakai's comments below. He points out critical issues about the proposed actions.

Thank you!
Ai Oyama

---------- Forwarded message ----------
From: **S. Sakai** <stansakai154@gmail.com>
Date: Sat, Jan 27, 2018 at 5:46 PM
Subject: EISPN for Ala Moana Park and Magic Island Improvements - Comments on proposed parking
To:

Following is an email I just sent to Joanne (Belt Collins).
Hope she accepts it.

stan

Hi Joanne,

I know the deadline for responding to the EISPN was January 22nd, but when we first talked you mentioned that there might be some flexibility on this date. Having had more time to think through the proposed actions, I now have a better understanding of the important issues so I hope you'll include my comments from this email.

My first criticism is the proposed action "Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones." I am 100% against removing the parallel parking along the makai side of Ala Moana Park Drive and replacing them with loading/unloading zones. Secondly, I also have serious public safety concerns on the implementation of perpendicular or diagonal parking stalls on the mauka side.

The only argument in favor of removing the makai parking is to create an 'open ocean view,' but the list of negatives is considerably longer and includes serious public safety risks.

1. The current ocean views, even with the cars parked along the makai side, are more than adequate. People walking on the promenade, sitting on the low concrete wall that travels along the beach, or sitting on the beach already have 100% 'open ocean views.' People who are picnicking, playing ball sports on the Great Lawn, or playing tennis are not interested in an 'open ocean view.' They're involved in their activities.

2. Creating an 'open ocean view' will essentially create a 'scenic drive' that will encourage more people to drive through the park including tour vans and buses. In recent times, more tour vans and even double decker buses, have been coming into the park. All this extra traffic poses risks for pedestrians, impedes the park traffic, and increases the

frustration of people trying to enjoy the park. The city should seriously consider banning "ALL" tour vans and especially buses from driving through the park as part of a scenic tour because there are no limits on how many businesses can drive through the park. Without some kind of control, in time, potentially all tours could include a drive through the park.

3. Eliminating the makai side parking will increase the risk of an accident because more people will be crossing the street to get to the beach from the mauka side. Many of these will be carrying beach supplies and equipment, including large paddle boards and surfboards. On windy days, it can get really difficult handling these while crossing the street. And, they'll be making the trip twice during their day at the beach, first toward beach and later back to their cars.

4. Drivers sightseeing through the park will be distracted by views of the ocean, beach, and 'beach bodies' rather that looking out for pedestrians crossing from the mauka side. Kids bolting across the street to get to the beach faster and moving cars with inattentive drivers are a bad mix.

5. Like the situation in Laniakea on Oahu's North Shore, the constant flow of people crossing the highway to look at the turtles brings traffic to a crawl. The situation could be worse at Ala Moana because beach goers will be carrying their beach supplies, paddle boards, surfboards, picnic supplies, beach equipment, etc., etc., etc. And, they'll have to do this at least twice, once heading toward the beach and later heading back to their cars.

6. Reversing out of diagonal or perpendicular parking stalling into oncoming traffic is much more dangerous than pulling out from a parallel stall. From a diagonal or perpendicular stall you have to creep out, literally 'praying' that no one is cruising by, especially a driver who's distracted, perhaps by looking at the 'open ocean view.' For trucks with paddle boards or surfboards sticking out of their beds by a few feet, this gets even more risky.

7. Unloading and loading from the backs of cars, vans, and trucks is much more dangerous with perpendicular and diagonal stalls than from parallel ones. With parallel stalls, one just unloads unto the curb. With perpendicular or diagonal stalls, you'll have to stand in the flow of traffic. And, at least for a moment, if you are unloading or loading a paddle board or surfboard the board will extend even further into the flow of traffic.

8. Loading/unloading zones on the makai side is impractical and will create problems for beach users. It's a nice conceptual idea, but uninformed and not well thought out. Here are some scenarios which could play out:

> Cars will be lining up waiting to load/unload. This will be worse at those times when most people are packing up and leaving and also on days when people are trying to escape a sudden downpour.
>
> People bring tents and all kinds of things for their day at Ala Moana. Some will take longer to load and unload. Who will police this? Will this frustrate beachgoers enough that some kind of confrontation ensues?
>
> After unloading, someone needs to watch the supplies while the driver leaves to look for parking. On a busy day, the only available parking could be at a far end of the park. This whole process, in reverse, will play out again when the group leaves the park; so much time wasted, so much unnecessary traffic.
>
> From the loading/unloading area, all the supplies will then have to be carried to a beach location. Many will probably setup close to the loading/unloading area rather than haul everything farther away. So, instead of spreading people across the beach, people will tend to be clustered around the loading/unloading zones.

9. Almost all cars these days are wider than previous models. The one shining feature of parallel parking is that it can accommodate wider vehicles. And, people can unload their supplies from the back of their vehicles without having to walk into traffic, as would be the case with diagonal or perpendicular parking stalls.

Lastly, Ala Moana Park has a long history for generations of residents who have fond memories and still cherish the park. That's why it's still so heavily used. All proposed improvements to the park should not destroy this history and the local park culture. From years of experience, the frequent and long-time park users have a very good understanding of how the park functions, more so than designers and planners, especially those from out of state who don’t use the park and don't understand the culture of Ala Moana. As such, the opinions of the people should have a significant and dominant bearing on the proposed actions. They know what they want and they know what works for them.

Stan Sakai

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Oyama:

Thank you for your email dated January 20 and January 27, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN. You state your agreement with Stan Sakai's comments. Responses to those comments are below.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the playground, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

January 21, 2018

In response to the 17 proposed elements reviewed in the EISPN under the Enhance Alternative, there is unanimous opposition to:

- the taking away of makai parking,
- widening of the promenade along the makai side of Ala Moana Park drive,
- rearranging the parking to open views to the ocean and adding loading and unloading zones,
- one way traffic in any area of the park,
- and vehicle entrance at Piikoi Street.

There are many questions due to the lack of any detail for most of the items, but with the above concerns, there is only consensus.

We ask Belt Collins and the City and County of Honolulu to please listen to the people who use the park. We have been active in giving feedback since the beginning of this project and we are passionate about Ala Moana Beach Park.

Thank you,

Malama Moana

Audrey Lee

Jupiter Kajiwara

Reid Inouye

Robert Stehlik

Bruce Lum

Shar Chun-Lum

Dean Nakamaru

Miles Keone

Namah Grace

Gary Lack

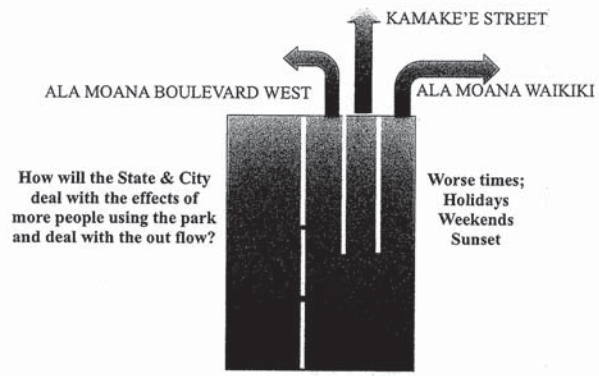
Eugene Lee

Craig Sako

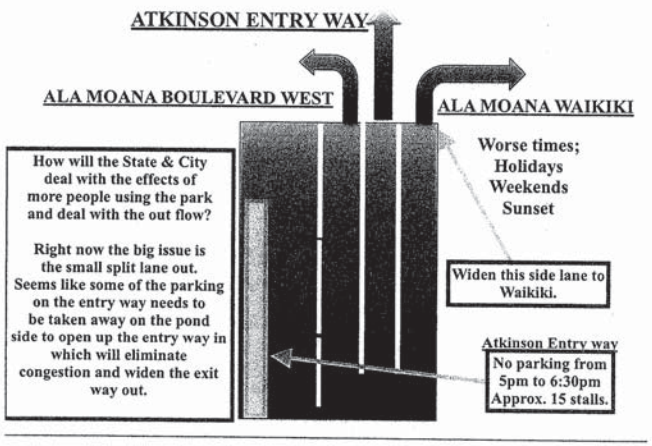
EISPN

A. Entrance Ways

1. KAMAKE"E STREET ENTRY



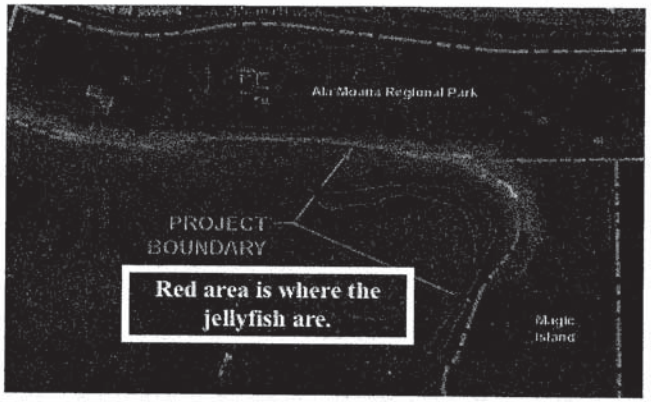
2. ATKINSON ENTRY WAY



B. Water Quality

How will they control water quality when there is a backflow during flooding and Kona winds?

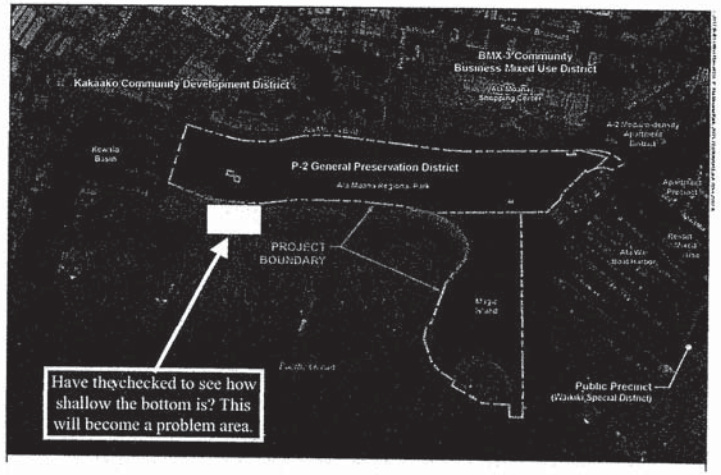
How will they control the invasion of jellyfish and turtle which has grown in population 50-75% over the last 10 years?



The jellyfish population has moved to the deepest part of the park over the last 4 years causing the turtles to feast on the jellyfish in one small area.

C. Sand Replenishment

1. What will they do to replenish sand?
2. What are they doing to undo the sand build-up already existing at the Kewalo end of the park waterway?



D. Adopt A Park (No the builders concern, but a good concern we need to discuss with the mayor and potential future mayor.

Why hasn't the City and County implemented an Adopt A Park Program at Ala Moana Beach Park?

Volunteers to help enforcers the rules and regulations for the park as well as the well being and beautification.

Thank you for sending out the EISPN.
Thank you for accepting public comments.

Ala Moana Park truly is a precious place for many people living here and I'm pleased to see the effort made to listen to the public opinion. I hope the decisions made will benefit those using the park now AND for our children in the future.

Reading through the proposed changes, i feel it is lacking details.
Is there any way you could provide more details?

For example:
1) Piikoi street entrance expansion
QUESTION: Is this entrance for pedestrians or vehicles?

2) Widening of the makai side promenade
QUESTION: Will the widening be on the beach side OR the Ala Moana park drive side?

3) Rearranging parking on the makai side
QUESTION: Will this eliminate all parking on that side?

4) Keyhole expansion
QUESTION: What does that mean? Need details?

5) Will Ala Moana park drive remain 2 ways OR will it become 2 way?

6) Multi Level parking structure
QUESTION: Where will this be located?

There are many good ideas but without details it is difficult to comment.
Please provide more details if possible.

Mahalo,
Dean Nakamaru

Below is what Stan Sakai emailed me.

FEEDBACK FROM BELT COLLINS:

I spoke to Joanne Hiramatsu, Director of Planning for Belt Collins Hawaii, the company which did the EISPN (preparatory note). Here's what Joanne mentioned:

1. The deadline for providing feedback on the EISPN is January 22nd. However, if they get late replies they'll look at them as well, up to a point.

2. There will be one more public meeting on January 29 and most likely at 6 pm at McCoy Pavilion. The meeting hasn't been announced yet, so look out for more details.

3. A preliminary master plan, lead by Biderman Corp, has been completed.

4. Belt Collins sent out of about 600 requests for comments on the EISPN and have received about 20 responses so far.

5. A parking study has been completed and it was concluded that more parking is needed.

6. The promenade will be widened and they'll try to keep as many trees as possible.

7. The parking on the makai side of Ala Moanda Park Drive will be removed but loading/unloading areas will created.

8. Crosswalks will painted. These probably won't be used by most people, but it's one way that the City will protect itself if someone gets injured crossing the street.

9. Traffic through the park will flow in both directions, not in one direction as some have speculated. Some work will be done on the Atkinson exit. But they need to keep some of the historical features.

10. The Piikoi entrance will only be for foot traffic.

Hi Audrey,
Thanks for getting involved in this. I will not be able to make it to the meeting at 4 pm today. One comment I would make is that there is a lot of demand for public surf and SUP board storage racks, so if they could offer that I think it would be a hit with all the apartment dwellers in town.

Aloha,
Robert Stehlik

Where is the EIS for the current use of the plan?

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM. The 17 proposed elements reviewed in the EIS under the Enhance Alternative include: ?

- Pi'ikoi Street entrance expansion and plaza;

Vehicle NO

- Widening the promenade along the makai side of Ala Moana Park Drive; No

Signs Individual problem — Tour buses — Segway, bikes, skateboards will be more dangerous

- Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

- Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones; Unanimous NO

- Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls; size of stalls

Massive traffic — angled traffic will be worse, but there will be more parking

- Keyhole parking lot expansion;

How much green will be left? — NO detail, depends on detail

- Elongating Magic Island parking lot;

NO ONE WAY!

- Improve the pond edges; ?

back to environment plug pipes

Air Quality

Who are the people of the People's Park?

- Improve McCoy Pavilion to include a dining facility; ?

- Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access; What do you mean redesign?

- Sand replenishment and long-term beach nourishment; sand destroys reefs and fish food

- Build a Playground;

- Relocate the Maintenance Yard; ?

- Drainage canal covering; cover it up

- Create a multiuse facility at the Lawn Bowling area; ?

- Relocate the Ocean Safety's Honolulu Headquarters; ?

- Improve the entrance at the Kamakee Street entrance. ?

These are my comments. Audrey Lee

January 21, 2018 (Print/sign name)

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM. The 17 proposed elements reviewed in the EIS under the Enhance Alternative include:

- Pi'ikoi Street entrance expansion and plaza;

  Depends on traffic impact and safety

- Widening the promenade along the makai side of Ala Moana Park Drive;

  ~~Depends~~ Depends on what is taken away.

- Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

  Yes, Depends on impact to traffic flow

- Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

  The issue is not loading & unloading but parking and access.

- Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;

  Trade stalls for traffic flow?

- Keyhole parking lot expansion;

  Yes, more stalls?

- Elongating Magic Island parking lot;

  which direction

- Improve the pond edges;

  Yes, how about drainage?

- Improve McCoy Pavilion to ~~include a dining facility~~;

  Yes exact?

  improve access for use

• Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

Yes –

• Sand replenishment and long-term beach nourishment;

IMPACT ON ENVIRONMENT? –

• Build a Playground;

NO – THE BEACH AND OPEN AREAS ARE THE PLAYGROUND –

• Relocate the Maintenance Yard;

CONSOLIDATE AND IMPROVE SPACE FOR CREW

• Drainage canal covering;

CAPACITY ISSUES

• Create a multiuse facility at the Lawn Bowling area;

INCREASE SPACE FOR USE VS. MAINTENANCE

• Relocate the Ocean Safety's Honolulu Headquarters;

CONSOLIDATE & IMPROVE SPACE FOR CREW –

• Improve the entrance at the Kamakee Street entrance.

YES, DEPENDS ON IMPACT TO SPACE AND TRAFFIC FLOW

These are my comments. Eugene

January 21, 2018 (Print/sign name)

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM.
The 17 proposed elements reviewed in the EIS under the Enhance Alternative include:

• Pi'ikoi Street entrance expansion and plaza;

Creating an entrance through the park would take away from the charm of the park.

• Widening the promenade along the makai side of Ala Moana Park Drive;

Bad planning regarding traffic flowing entrance and exit one way will create major problems if emergency occurs.

• Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

• Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

Against the chances of emergencies from being accomplished with one way traffic

• Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;

Parking is the perpendicular most to attempt to justify the elimination of makai side parking.

• Keyhole parking lot expansion;

• Elongating Magic Island parking lot;

• Improve the pond edges;

• Improve McCoy Pavilion to include a dining facility;

• Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

• Sand replenishment and long-term beach nourishment;

• Build a Playground;

• Relocate the Maintenance Yard;

• Drainage canal covering;

• Create a multiuse facility at the Lawn Bowling area;

• Relocate the Ocean Safety's Honolulu Headquarters;

• Improve the entrance at the Kamakee Street entrance.

These are my comments. _____

January 21, 2018 (Print/sign name)

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM. The 17 proposed elements reviewed in the EIS under the Enhance Alternative include:

• Pi'ikoi Street entrance expansion and plaza;

NO!

• Widening the promenade along the makai side of Ala Moana Park Drive;

DRAWINGS ?

• Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

DRAWINGS ?

• Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

DRAWINGS (opposed)

• Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;

DRAWINGS

• Keyhole parking lot expansion;

IS THERE DRAWINGS?

• Elongating Magic Island parking lot;

IS THERE DRAWINGS?

• Improve the pond edges;

• Improve McCoy Pavilion to include a dining facility;

• Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

Just cut A Ramp

• Sand replenishment and long-term beach nourishment;

NO – DREDGE BY Kewalo Bay

• Build a Playground;

NO

• Relocate the Maintenance Yard;

Yes

• Drainage canal covering;

• Create a multiuse facility at the Lawn Bowling area;

NO

• Relocate the Ocean Safety's Honolulu Headquarters;

Yes

• Improve the entrance at the Kamakee Street entrance.

Yes

These are my comments. _____

January 21, 2018 (Print/sign name)

RED

MAJOR ISSUE: SAFETY FOR PEDESTRIANS.

Namah Grace

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM.
The 17 proposed elements reviewed in the EIS under the Enhance Alternative include:

• Pi'ikoi Street entrance expansion and plaza;

only the bridge – maybe + keep design same

• Widening the promenade along the makai side of Ala Moana Park Drive;

• Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

• Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

• Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;

what happens to mature trees!

• Keyhole parking lot expansion;

• Elongating Magic Island parking lot; preserve green areas.

• Improve the pond edges;

• Improve McCoy Pavilion to include a dining facility;

• Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

• Sand replenishment and long-term beach nourishment;

• Build a Playground;

• Relocate the Maintenance Yard;

• Drainage canal covering;

• Create a multiuse facility at the Lawn Bowling area;

• Relocate the Ocean Safety's Honolulu Headquarters;

• Improve the entrance at the Kamakee Street entrance.

These are my comments. Namah Grace

January 21, 2018 (Print/sign name)

Stan

PLEASE ADD YOUR COMMENTS (PRO AND/OR CON) UNDER EACH ITEM. The 17 proposed elements reviewed in the EIS under the Enhance Alternative include:

• Pi'ikoi Street entrance expansion and plaza;

no vehicle entrance to park

• Widening the promenade along the makai side of Ala Moana Park Drive;

Increasing view plane for whom / Widening would encourage more segway traffic Bikers -

• Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

• Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

Keep Makai parking for the people

• Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;

Hard to open doors with strollers -

Ambiguous, Perpendicular parking increase chances of cars being damaged.

• Keyhole parking lot expansion;

• Elongating Magic Island parking lot;

• Improve the pond edges;

• Improve McCoy Pavilion to include a dining facility;

• Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

• Sand replenishment and long-term beach nourishment;

• Build a Playground;

• Relocate the Maintenance Yard;

• Drainage canal covering;

• Create a multiuse facility at the Lawn Bowling area;

• Relocate the Ocean Safety's Honolulu Headquarters;

• Improve the entrance at the Kamakee Street entrance.

These are my comments. _____

January 21, 2018 (Print/sign name)

BELT COLLINS

June 6, 2018
2015-71-0100/18P-044

Ms. Audrey Lee
321 N. Kuakini Street #305
Honolulu, HI 96817

Dear Ms. Lee et al. (Mālama Moana),

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Thank you for your correspondence dated January 21, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN. Responses to the comments are below.

<u>One-Way Traffic and Vehicle Entrance at Piʻikoi Street</u>

Please note that some of the "proposed elements" you are opposing are not considered in the Master Plan. Ala Moana Park Drive will remain as a two-way road and there is no proposal for a vehicle entrance at Piʻikoi Street.

<u>Beach Promenade, Parking Reconfiguration</u>

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Belt Collins Hawaii LLC | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@bchdesign.com
Belt Collins Hawaii is an Equal Opportunity Employer

Park Entrance Ways

As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities, such as speed bumps, and overall traffic efficiency including at the main entrance ways. Results are expected to determine the baseline traffic conditions and evaluate the proposed options of the project. The Draft Environmental Impact Statement (DEIS) appendices will include the results of the traffic study for public review.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies to help determine viable options and permits will be needed for this work.

Water Quality

While the City is concerned about water quality, sampling of the offshore waters is the responsibility of the State of Hawai'i Department of Health (DOH). The City follows the lead of DOH when questions of water quality arise.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS, and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Bradley Ebisuya <EbisuyaB001@hawaiiantel.net>
Sent: Saturday, January 20, 2018 5:14 PM
To: Joanne Hiramatsu
Subject: Ala Moana Park Improvements

Follow Up Flag: Follow up
Flag Status: Flagged

I am a retiree that utilizes the park daily from 4:00 to 8:00 a.m. I am happy the way the park is but it could use a lot of repair and maintenance. I feel the improvement plan should be cancelled. The proposed improvements will beautify the park but it will be only a temporary solution to the ongoing problem of vandalism, aging, and neglect. Instead, the money for the project should be used for the following and any remaining funds should be kept for ongoing maintenance and repairs:

1) Repair/repaving of the bike path on Magic Island, and the concrete walls/walkways throughout the park.

2) Clean out all the plumbing in the bathrooms. They are constantly getting clogged due to users flushing items that are not degradable.

3) Install locking gates for all bathrooms and they should be locked from 10:00 p.m. to 4:00 p.m. Much of the vandalism occurs during the park closure hours.

4) Replant grass that will grow with little or no sunlight and will not get muddy when it rains. Continue to maintain the grass so that fewer weeds grow.

5) Clean/dredge the ponds and the canal next to Ala Moana Blvd. They're filthy and smelly.

6) Restore the sand on the beach, especially in the area between the lifeguard office and the "high rise" portion of the beach. It was a very wide area and it was popular with beach users. It has eroded to where there is no room for users to enjoy.

7) Hire full-time security with the authority to enforce the rules of the park. Listed below are some of rules that are being abused:

a. No animals allowed in the park. The people walking their dogs have grown the past few years. Although majority of them pick up after their dog, there are a few that does not. Even when they do, the residue smell and attracts flies.

b. No feeding of animals. There are a few groups of people that feed the feral cats in the early morning. The cat population has increased throughout the park, especially on Magic Island. Magic Island really smells awful and feels dirty. Hire someone to trap the feral cats and have them neutered/spayed or turned in to the Human Society for adoption.

c. No smoking. The cigarette butts are thrown on the ground and in the sand.

Thank you.
Bradley Ebisuya

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:30 PM
To: 'EbisuyaB001@hawaiiantel.net'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Ebisuya,

Thank you for your email dated January 20, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comment on the EISPN regarding the following request:

- Cancel all improvements and focus on repair and maintenance

Additionally, you list the following for repair and maintenance:

- Repair/repave Magic Island bike path and concrete walls/walkways
- Clean bathroom plumbing
- Install locking gates on bathroom, lock from 10 PM to 4 AM
- Replant grass with low-sun requirement variety, and maintain
- Clean/dredge ponds/canals
- Restore beach sand
- Hire full-time security
- Consider enforcing rules: no animals permitted; no feeding animals; no smoking.

The Draft Environmental Impact Statement (DEIS) will explain proposed repair and maintenance of the parks in more detail. Some of that maintenance is already being implemented through increased staffing for maintenance and security. Beach replenishment is part of the Master Plan improvements. It will demand studies and permits in addition to those needed for work on land. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for park improvements; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized.

Your concerns over the park improvements and your proposals will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Brandon Yoza <byoza@hawaii.edu>
Sent: Thursday, January 11, 2018 4:20 PM
To: Joanne Hiramatsu
Cc: 'Dean Nakamaru'; 'Tony Ng'; scoleman34@gmail.com
Subject: RE: Considerations for the EIS at Ala Moana Park
Attachments: EIS preparation notice.docx

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Hi Joanne!

I am not sure if the issue of near shore sand dredging and the impact that it could have on the surf breaks at Ala Moana have been considered. If it hasn't I do feel that it is an important consideration for the EIS.

Please see the attached letter.

Thank you!
Brandon

1

Joanne Hiramatsu
Belt Collins, Hawaii LLC
Director of Planning

Brandon Yoza
Providing individual input for the City and County of Honolulu project; Ala Moana Regional Park and Magic Island Improvements.
Ph. 808 956-6137; email, byoza@hawaii.edu

In specific regard to the EIS preparation notice, a necessary consideration needs inclusion before proceeding with the formal evaluation.

The EIS statement fails to adequately describe how the proposed action under section 4.3, element number 11 - Sand replenishment and long-term beach nourishment, will impact the many surfing spots that are located just outside the Ala Moana beach park reef. Without due consideration, this can have negative impacts on a significant portion of the demographic that recreationally utilize this park.

Coastal engineering projects can have a significant impact on surf breaks (Scarfe *et al.* 2009). Of particular concern for this project are bathymetric changes that could result from dredging, especially for areas near or around the surfing breaks outside of the Ala Moana reef. "Surf is formed as swells move into shallow water near shore: the bottom portion of a swell drags on the sea floor and is slowed when the top portion continues up and forward resulting in a steepening, rising wave." (Oram and Valdverde, 1994). Dredging can change the sea floor profile resulting in potentially unintended results that could damage the surf breaks.

From section 5.6; "Sand replenishment work is proposed for the beach and *will require offshore dredging in the nearby ocean*. Sand replenishment was done recently for two projects at Waikīkī Beach and Kūhiō Beach. *Both projects recovered sand directly offshore or adjacent to the project areas.* A sand source investigation will be done to determine a suitable site to dredge the sand for Ala Moana Beach."

While the act of sand replenishment along the shoreline is likely to have minimal effect on the offshore surf spots*, it is the dredging in areas proximate to the reef or the surfing breaks that have the potential for substantive results upon them.* Similar projects performed at Waikīkī and Kūhiō Beach have different considerations and are not directly comparable to Ala Moana Beach Park.

An objective under the Local Coastal Zone Management program (HRS-205A-2), is the protection of beaches for public use and recreation. While the maintenance of surfing as a recreational activity is potentially covered under this piece of legislation, it would be a travesty to many park users if overlooked. Ala Moana Beach Park and the surf break that are accessible are unique coastal resources and provide an experience there that cannot be found elsewhere on Oahu.

I would like to request that within the EIS, an assessment of improvement activities that might have a lasting impact upon the surf breaks at Ala Moana Beach Park be included.

Thank you.

References

Dean C. 2009. Surfers deal a blow to a beach dredging project. The New York Times. http://www.nytimes.com/2009/03/09/science/earth/09surfers.html

Hawaii Revised Statutes, Chapter 205A coastal zone management https://dlnr.hawaii.gov/occl/files/2013/07/205a.pdf

Oram W., Valverde C. 1994. Legal protection of surf breaks: Putting the brakes on destruction of surf. Stanford Environmental Law Journal. 401-448

Scarfe B.E., Healy T.R., Rennie H.G., Mead S.T. 2009. Sustainable management of surfing breaks: case studies and recommendations. Journal of Coastal Research. 25(3); 684-703

Surfer. 2010. Mundaka Es Muerta, Surfer Magazine. https://www.surfer.com/features/mundaka-gone/

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:31 PM
To: 'byoza@hawaii.edu'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Yoza:

Thank you for your email dated January 11, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comment regarding proximity of the potential dredging sites to the Ala Moana reef for sand replenishment and long-term beach nourishment, and your concern that potential proximity of the dredging site may adversely impact nearby surfing sites.

A beach nourishment study will be conducted with several sand recovery sites being considered. Sand recovery site options will be evaluated for many factors, such as adverse impacts to the surf break, marine life, and other recreational activities associated with the surf break and wave action. Results of those reports will be available for review with the Draft Environmental Impact Statement (DEIS) appendices.

Your concerns will be included in the DEIS and we will notify you when it is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: bdtravbrad@aol.com
Sent: Saturday, January 20, 2018 9:10 PM
To: Joanne Hiramatsu
Subject: Ala Moana Beach Park

Follow Up Flag: Follow up
Flag Status: Flagged

The city should leave the park just the way it is. I currently paddle at least once a week and don't want to see any major change made. The park should be left as the locals want it.....

Brian Furumoto

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:32 PM
To: 'bdtravbrad@aol.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Furumoto,

Thank you for your email dated January 20, 2018 commenting on the EISPN for the Ala Moana Regional Park (AMRP) and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your email, and offer a response to your comment that states "the City should leave the park just the way it is; the park should be left as the locals want it."

The City agrees with the aim of keeping the parks as the "People's Park," but views the option of leaving the parks as they are as unsustainable due to their age and many years of depreciation. The parks receive the most visitors of all the parks in the state and the number of visitors will increase because population growth is inevitable. Proposed improvements are meant to allow park goers to use the vacant areas of the parks and enhance the popular areas so they can sustain more use in the future.

To serve the public, the City is already increasing maintenance of the parks' facilities. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the parks; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Brian Walter <b21walt@yahoo.com>
Sent: Sunday, January 28, 2018 7:17 AM
To: Joanne Hiramatsu
Subject: Ala Moana Park

Good morning Joanne. Last week while surfing at Ala Moana park a friend , Stan Sakai, mentioned the changes taking place and the removal of parking on the makai side of the park. While I agree theirs are certainly changes and upgrades to the park that enhance its appeal. Removing makai side parking is not one I support.

We have a view of beautiful Ala Moana park from our condo building and visit the park upwards of 250 times a year. As a married father of four with our oldest being eight, Parking along the ocean side is very important to us as we need to take multiple trips from the car to the beach with our children and gear. Parking across the street will certain increase the dangers especially with the distracted drivers cruising through the park.

I read the letter Stan Sakai wrote and I equally agree with each of his points. The people who hang out there and walk, bike,skateboard, surf, paddle etc... enjoy the promenade and the beautiful ocean views daily. Why do we want to cater to those driving through just to admire the view for 5 minutes and be gone?

If makai parking Is removed I think it's time to put up flashing lights in the crosswalks making it safer for those crossing and getting the attention of potential distracted drivers.

As big as the park is. It seems like there is so much wasted space. I would personally support a playground or two for the kids to have fun. Multi purpose synthetic turf football fields for children and adult sporting events. A rubberized running track surface, which is a healthier alternative than running on asphalt or cement.

Thank you for your time and I hope you consider the concerns of those who visit the park on a daily basis.

The Walter family

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:33 PM
To: b21walt@yahoo.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Walter:

Thank you for your email dated January 28, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments. You state your agreement with Stan Sakai's comments. Responses to those comments are below.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and

endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the playground, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Bruce Lum <brlum@mac.com>
Sent: Monday, January 22, 2018 12:27 AM
To: Joanne Hiramatsu
Subject: AMRP & MI EISPN comments
Attachments: EISPN_Bruce Lum comments.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ms. Hiramatsu,
Attached is a PDF of my comments. Please acknowledge receipt.

Thank you,
Bruce Lum

Bruce G.S. Lum
99-546 Iwaiwa Street
Aiea, Hawaii 96701

January 21, 2018

Joanne Hiramatsu
Director of Planning
Belt Collins Hawaii LLC
2153 N. King Street, Suite 200
Honolulu, Hawaii 96819-4554

Re: EISPN for Ala Moana Regional Park and Magic Island Improvements

Dear Ms Hiramatsu,
Please find my comments below regarding the EISPN for the AMRP and MI project. I appreciate this opportunity to weigh-in on this important proposal to improve our beautiful, beloved and heavily used beach park. If you wish to contact me I can be reached at 808-237-9120 or brlum@mac.com. I can be reached at anytime.

The proposed elements provided in the EISPN and commented on by me follows:

Pi‘ikoi Street entrance expansion and plaza
This is very ambiguous and nebulous due to the lack of EISPN summary or detail. Is a summary or detail available for public reference? Without a summary or detail, I would strongly oppose any action on this element. The project already highlights that AMRP is the heaviest used park on Oahu, so why increase the flow of ambient traffic, in any form, into AMRP and further aggravate Ala Moana Blvd. and park traffic.

What does "plaza" provide, what will it involve and what need will it satisfy?

Atkinson Entrance Exit
Right turn lane going east on Ala Moana Blvd needs to have a longer queue lane to increase free flow against the red signal light to achieve minimal back-up and hold-up.

Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;
Eliminating makai curb side parking without a shake-out/trial period to capture public input and collect "hard data" about actual use is irresponsible. I am totally for a shake-out/trial period prior to AMRP & MI IP action. The project has not provided data to demonstrate that "open ocean views" are deficient. The project hasn't identified why increased "open ocean views" is important and who will it benefit.

Configure parking stalls on the mauka side of Ala Moana Park Drive to perpendicular and parallel stalls;
This is insufficient information and lacks detail as to locations, extent of reconfigurations, total gain in stalls to the total parking spaces, etc. Action on this aspect should not proceed without providing sufficient detail about configurations, placements and benefit justifications. The current curb parking is more traffic efficient. Perpendicular and parallel parking on the mauka side will slow down traffic significantly due to vehicles having to back in or back out of the stalls into the main lane of vehicular flow.

Keyhole parking lot expansion;
I could support this if the total additional spaces gained does not get earmark for new facilities or restaurants. AMRP is a "beach park" and that's its primary function in terms of water/beach-goer activity in its many forms. The keyhole flow pattern is very efficient in its present configuration, because vehicles entering and leaving stalls requires a shorter amount of time in its present configuration.

Elongating Magic Island parking lot;
More explicit detail is needed to provide the public with an accurate idea of the what, why and how this will increase park user value. If no added value, leave it as is. AMRP & MI parking should be park user focused. Parking for tour operations should not be given greater priority or bias.

Improve the pond edges;
Leave the pond edges alone. The pond is unclean and hazardous, so we should not encourage more interaction with the pond than is already going on. The nature and character of the pond actually self-regulates user traffic and it's a good thing. Having inexperienced or unsure users venture too boldly or recklessly would be a bad thing. I'm against any "easy access" improvements around the ponds, because it sends out too welcoming a message that could lead to costly liability suits. I do recommend that signage be placed around the ponds to warn frivolous and inexperienced users of the hazards and dangers.

Improve McCoy Pavilion to include a dining facility;
Absolutely NO! The next thing would be that allowing alcohol will be expected. NO, NO! We don't need another commercial Queens Surf abuse situation. I would support adding a large group kitchen facility for use by public, permitted, large groups to prepare and serve food to accommodate their invited gathering.

The majority of park users prefer to provide their own food when enjoying AMRP, so why does the project believe that a dinning facility would be feasible. The L&L on the Ewa end does very little business. I am at the park nearly every day and often twice a day, so I have witnessed that L&L's minimal business frequently.

Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;
Good idea if doesn't change the current use, look and character of what is presently there. Actually, I question why the project would want to increased disability access would be the right thing to do, but that area has many uneven elevations not cost effective or easy to reconfigure to meet compliance requirements. The restroom in that immediate area would require major ADA upgrading and outlay.

Sand replenishment and long-term beach nourishment;
This makes me very uneasy, because sand management around the State has failed in every instance that humans have tried to hold back or change the ocean's natural propensities. Waikiki is the most nearby example of man's good intentions back firing and failing regularly. Our State presently suffers the gross & bad assumptions, of past decisions to alter the natural ocean hydrology and the continuous migration of sand. At worst our leaders have ignored empirical data that said man is not capable of effectively and efficiently managing ocean hydrology.

Once more, not enough detail was provided for public input to make and informed and reliable recommendation. The extent of how AMRP's shoreline will be modified needs to be clarified to comment on potential impacts. I am very nervous about the irreversible damage that could be done to my shell and aquatic resource gathering areas along these shores. There is a plethora of very valuable and fragile aquatic ecosystems that presently depend on a balanced water temperature, water quality, currents, habitats, etc. Shoreline feature modifications of any kind will negatively disrupt these precious ecosystems.

Modifying the underwater features and character of AMRP's near shore sea bed should be avoided until a definitive understanding of the ecosystems residing there and how to prevent negative disruption to those ecosystems can be achieved... e.g the rocky areas are integral to the life cycles of many organisms the support life cycles of dozens of fish species that inhabit and frequent AMRP's waterways such as fry to adult fish like mullet, aholehole, ballyhoo, halalu, oio, manini, kumu, weke, oama, humuhumuapua'a, kala, nehu, popa'a papio, kahala, moi, moilii, lai, kupipi, uhu, sardines, flying gunards, hinalea lauwili, christmas wrasse, moorish idols, etc., etc., etc. The rocky areas all along AMRP's shoreline provide food, shelter and protection for all these young fishes. Removing or covering of the rocky areas would eliminate nutrients to the seaweed and crustaceans that thrive in and around those rocks and in turn the fishes that feed on them will loose that food source. If "don't use soap" signs at showers are integral to AMRP's protection and conservation of our precious aquatic ecosystems then if should naturally follow that AMRP's conservation protocol should include the food sources that the protected ecosystems depend on too.

Build a Playground;
Sorry, no info provided by the project to help the public know what this addition will include, why it's needed or where it will be located. Info please.

Relocate the Maintenance Yard;
Sorry, no info provided by the project to help the public know why this is propose or where the current yard is or where it will relocate to. info please.

Drainage canal covering;
Why? It's very interesting, teeming with ecosystems that provide positive benefits to other ecosystems around AMRP. It seems that the project views a number of characteristics of AMRP as unsightly and ghastly, but the local culture doesn't see it the same way. We like our park, because it's authentically outdoors and that's what we want from an outdoor park and beach park. To the local culture, the chaos of nature is elegant. Stop trying to redefine what we like.

Create a multi-use facility at the Lawn Bowling area;
Leave that entire area alone. The majority of park users do not desire a world class park at AMRP. It is exactly as we like and want AMRP to be. After decades of refinement most believe that it's perfect but lacking the right amount of love.

Improve the entrance at the Kamakee Street entrance.
Restrict those 20 bicyclist tourist contraptions from using that intersection. They aggravate our already gnarly traffic on Ala Moana Blvd. Tourism is great for Oahu, but common... not every where just to be every where. Restrict those traffic aggravators to Waikiki.

Sincerely,
Bruce G.S. Lum

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:34 PM
To: 'brlum@mac.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Lum:

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Piʻikoi Street entrance expansion and plaza, drainage canal covering

The goal is to create a third main entrance for pedestrians that is centrally located and closer to the proposed rail station. This entrance is meant to help with crowd circulation especially during large events and emergencies. Changes to existing structures and walls will be minimal, since this is a pedestrian access, not a vehicular one. A portion of the drainage canal will need to be covered to accomplish this. All such changes will need to be reviewed by the State Historic Preservation Division.

Atkinson entrance/exit

As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional road changes and traffic signal timing. Results are expected to determine the baseline traffic conditions and evaluate the proposed options of the project.

Reconfiguration of parking stalls

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

As for the issues of parking and circulation and as mentioned above– the Draft Environmental Impact Statement (DEIS) will include a parking study and a traffic study, detailed presentations of changes to parking areas, and the expected increase in parking stalls. Please keep in mind that the City does not plan to reconfigure Ala

Moana Park Drive into a one-way road and both vehicular entrances and exits would remain. Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution.

Parking lot expansions

The City is looking at the Keyhole parking area and Magic Island parking lot as possible areas of opportunity to create more parking stalls. The keyhole parking is being reviewed to balance out the number of stall on the 'Ewa side of the park with the Diamond Head side. As for Magic Island parking, it is being reviewed in an elongated configuration to give park users closer access to the picnic spots and the lagoon. This will also help emergency vehicle access in the event of an emergency on Magic Island.

Improvement on the pond edges

Improvements to the pond edges are not meant for people to enter the water. Some people, however, use the ponds for fishing or operating their remote-control boats. Improvements to the ponds could include walkways, overlook decks, and upgraded landscaping. The current conditions around the ponds could be safer and less hazardous with improvements that keep people along the outside. Your suggestion for signage is noted and could be a possible improvement to keep people out of the water.

Improvement of McCoy Pavilion

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and the Scottish Festival.

Redesigning the elevated area for Americans with Disabilities Act (ADA)

Improvements at this location are not meant to change the usage, but to make it more accessible to everyone by complying with the ADA laws.

Sand replenishment and long-term beach nourishment

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies to help determine viable options and permits will be needed for this work.

Building a playground

A site for the playground has been selected behind the Diamond Head concession area, but no immediate plans have been developed.

Relocate Maintenance Yard

The current maintenance yard is located near the Atkinson Street entrance. The City would like to move the maintenance yard to a more central location in the park.

Creating a multi-use facility at the Lawn Bowl area

The Master Plan identifies a multi-use area at or near the lawn bowling area. This concept has not been designed in detail and is viewed as a long-range improvement that may not be implemented immediately. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for added recreational uses; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized.

Improving the Kamakee Street entrance

Proposed improvements for this entrance is mostly related to landscaping and designing it with the art deco theme like the Atkinson entrance.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Channing Ching <channingyh@yahoo.com>
Sent: Saturday, January 27, 2018 11:29 PM
To: Joanne Hiramatsu
Subject: Ala Moana

I'm in agreement with Stan Sakai's comments.

Channing,
AlaMo Surfer

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Channing Ching,

Thank you for your email dated January 27, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we are responding to your input. You state your agreement with Stan Sakai's comments. Responses to those comments are below.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants,

significant trees, and endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the playground, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Charles Langlas <langlas@hawaii.edu>
Sent: Tuesday, December 26, 2017 8:52 PM
To: Rebecca Choi; Joanne Hiramatsu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Aloha Ms Choi and Ms Hiramatsu,
Thank you for the opportunity to comment on the EISPN for Ala Moana & Magic Island Parks. I am happy that you have chosen the Enhance Alternative, rather than the Restore or Evolve Alternatives. That choice aligns with my previous comments. My only disagreement is with the proposal to "elongate" the Magic Island Parking Lot. I feel that any increase in the length of that parking lot will result in unacceptable reduction in the lawn area of Magic Island. I think it would be better to limit the expansion of parking at the parks in order to prevent overcrowding, rather than providing space for cars at the expense of space for people.

Charles Langlas

On Tue, Dec 26, 2017 at 1:24 PM, Rebecca Choi <rchoi@bchdesign.com> wrote:

Environmental Impact Statement Preparation Notice (EISPN)

Ala Moana Regional Park and Magic Island Improvements

Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025

Honolulu, O'ahu, Hawai'i

Aloha Participant,

On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

On December 13, 2017, the EISPN was submitted to the Office of Quality Control (OEQC) under Chapter 343, Hawai'i Revised Statutes, requirements. By that submittal, a notice of the EISPN's availability was published in the OEQC's December 23, 2017 issue of *The Environmental Notice*. Publication of that notice initiates a public review period of 30 days. You may review the EISPN document on the OEQC's website:

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

1

We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:

Mailing Address: Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu
jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu

Director of Planning

2

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Langlas:

Thank you for your email dated December 26, 2017 commenting on the EISPN for the Ala Moana Regional Park (AMRP) and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following response.

General Support for Enhance Alternative

Your general support for the Enhance Alternative is noted. The goal of the project is developing a sustainable plan for the parks that will do more than maintain, but preserve the resource for many generations. Proposed improvements are meant to allow visitors to use the vacant areas of the parks and enhance the popular areas so they can withstand more use in the future.

Magic Island Parking Lot

The City is looking at several locations as parking opportunities to create additional parking stalls. The goal is to balance the number of stalls by adding more parking on the 'Ewa side of the AMRP and to create access for emergency vehicles. Also the beach on the 'Ewa side of the parking lot will be widened for access to areas closer to the beach. This location by the restrooms and showers is one of the more popular areas for park users. A traffic study and a parking study will be completed for the Draft Environmental Impact Statement (DEIS) and will help assess parking needs and traffic flow through the parks.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the parking; these options will be outlined in more detail in the DEIS. The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design & Construction

Joanne Hiramatsu

From: Charles Langlas <langlas@hawaii.edu>
Sent: Tuesday, December 26, 2017 8:52 PM
To: Rebecca Choi; Joanne Hiramatsu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Aloha Ms Choi and Ms Hiramatsu,
Thank you for the opportunity to comment on the EISPN for Ala Moana & Magic Island Parks. I am happy that you have chosen the Enhance Alternative, rather than the Restore or Evolve Alternatives. That choice aligns with my previous comments. My only disagreement is with the proposal to "elongate" the Magic Island Parking Lot. I feel that any increase in the length of that parking lot will result in unacceptable reduction in the lawn area of Magic Island. I think it would be better to limit the expansion of parking at the parks in order to prevent overcrowding, rather than providing space for cars at the expense of space for people.

Charles Langlas

On Tue, Dec 26, 2017 at 1:24 PM, Rebecca Choi <rchoi@bchdesign.com> wrote:

Environmental Impact Statement Preparation Notice (EISPN)

Ala Moana Regional Park and Magic Island Improvements

Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025

Honolulu, O'ahu, Hawai'i

Aloha Participant,

On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

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http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

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Mailing Address: Belt Collins Hawaii LLC

2153 North King Street, Suite 200

Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu

jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu

Director of Planning

Joanne Hiramatsu

From: Claude Takanishi <cktakanishi@gmail.com>
Sent: Saturday, January 20, 2018 9:52 AM
To: Joanne Hiramatsu
Subject: EISPN for Ala Moana Park and Magic Island Improvements - Comments

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Dear Joanne Hiramatsu,

I agree with the comments made by Stan Sakai and Raymond Madigan which I have copied below. I agree with their comments regarding the widening of the promenade. I am concerned about the possibility of beach erosion affecting the promenade and adversely affecting newly constructed widened promenade.

I strongly agree with Raymond Madigan comment - "Keep it simple." While improvements are good, my perception is that the existing facilities are sufficient. I think current improvement of the maintenance effort is good, and more attention should focus on this area.

Claude K. Takanishi

==========

from Raymond Madigan, R.N.

Dear Joanne Hiramatsu,

I agree with the comments made by Stan Sakai which I have copied below. I particularly agree with his comment regarding the widening of the promenade leading to hot feet!

Need more showers!

Keep it simple.

This is the "People's Park", not the the "Tourist's Park".

Forget beer gardens. We don't want any alcohol consumption.

Provide facilities for the families who come to BBQ and get out of their apartments to enjoy the simple natural environment.

Less concrete.

Do we really need restaurants in the park? It's a park not an extension of Waikiki.

Good clean toilets with shady trees.

No unnecessary buildings. Keep it as natural as possible. Plenty of trees, less concrete.

Better off site parking and public transport.

Do not take away green space! It's a precious resource. Don't pave paradise and put up a parking lot!

Raymond Madigan, R.N.

==========

from Stan Saiki

FOLLOWING ARE MY COMMENTS THAT I WILL FORWARD TO BELT COLLINS:

1. PROMENADE
a) The grassy areas along the promenade is used by many for setting
up picnics. Is the intention of the new design to eliminate this?
If not, then people will be hauling their picnic and BBQ supplies from their cars parked on the mauka side of Ala Moana Park Drive. This will impede traffic flow and make it more difficult to people to use the park.

b) If you widen the promenade, what will happen to the trees? If you keep the trees than the promenade will essentially be split into two lanes. This will not actually widen the existing promenade.

c) If the trees are to be kept, will widening the promenade injure or shorten the lives of the trees, which are 'historical' features of the park?

d) On hot days, the concrete and asphalt surfaces in the park can easily burn the feet of adults and kids walking bare footed. If you widen the promenade with more concrete, you're adding more of these 'hot' surfaces and there won't be any nearby cooler grass surfaces for people to escape to.

2. PARKING

a) One problem with removing the parking on the makai side of Ala Moana Drive is that many more pedestrians will be crossing the street. This will: (1)impede the flow of traffic and (2)increase the risk of a pedestrian getting hit by a car, more so after dark. The street lighting in the areas where pedestrians are expected to cross the street should be bright enough for drivers to easily see pedestrians.

b) Keep the parking on the makai side of Ala Moana Drive along the raised picnic area. These would provide convenient parking for those picnicking in the raised area and also for those using the Great Lawn. This wouldn't affect the 'open views of the ocean' because the ocean isn't visible from these parking stalls.

c) Keep the parking on the Ewa side of Ala Moana Drive just as
you enter the park. These stalls will provide parking for those using the Ewa end of the park and they do not affect the 'open views of the ocean.'

d) Design the perpendicular and diagonal parking stalls wide enough to
accommodate larger vehicles, which are common at the park, and also to give people enough room to easily unload their vehicles without hitting adjacent ones.

e) Perhaps, create additional parking on the Diamond Head side of McCoy pavilion. These would provide parking for the tennis courts, pavilion, and also for the Great Lawn.

3. BEACH EROSION

a) Efforts should be made to reduce the wave action along the sandy beach shoreline to minimize beach erosion. Otherwise, replenishing the sand might be just ongoing. There used to be large rocks outside of the swim channel. I was told that many of these fell into the channel after one of the hurricanes. Perhaps setting up structures along the reef edge of the channels, like the former rocks, might diminish the wave action at the beach.

b) Efforts should be made to address potential problems that might occur due to sea level rising.

4. INVASIVE PLANTS
The autograph trees in the center of the keyhole parking area are on the list of invasive trees. They and other invasive plants should be identified and removed. There might be some mangrove trees in the Ewa pond that need to evaluated.

http://hawaii-agriculture.com/autograph-trees-are-invading-hawaiis-forests/

http://www.hear.org/misc/pdfs/misc_invasiveplantexamples.pdf

5. PARK TRAFFIC
The park exit at the Atkinson Street side needs to be improved.
The right turn lane from Ala Moana Park Drive onto Ala Moana Blvd is too short. Cars that want to make this turn need to que with cars going straight into Atkinson. To lengthen this right turn lane the historic arch that spans the sidewalk will need to be relocated.

6.BEACH FACILITIES

a) More charcoal fire pits should be provided and these should be visible at dusk and into the early evening when picnickers are cleaning up.

b) A shower/wash station somewhere near the entrance to the Keyhole parking would be a convenient feature. This will give beach-goers a place to rinse off before proceeding to their cars.

c) Especially on windy days, trash from the shoreline is being blown into ocean, sometimes from the trash cans and sometimes from trash strewn in the park and along the beach. This should be addressed.

7. PARK MAINTENANCE COSTS
An assessment of the maintenance costs of any improvements made to the park should be done. Projects that involve significant maintenance costs, especially short-term and ongoing, might not make sense.

8. SIGNAGE

a) Signs describing the rules of the park need to made more obvious. Current signs are too high and too small. The better parks throughout the US have clear signage that helps the public understand the park rules to keep them safe and to protect the park.

b) At the outdoor showers that drain into the sand, clearly visible and readable signs should be posted stating that the use using soaps and shampoos is not allowed.

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Takanishi,

Thank you for your email dated January 20, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN. You state your agreement with Stan Sakai's and Ray Madigan's comments. Responses to those comments are below.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants,

significant trees, and endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the playground, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819
Attention: Joanne E. Hiramatsu

RECEIVED
2018 JAN 22 PM 2:14
BELT COLLINS HAWAII

Rearranging the parking along the Makai side of Ala Moana Park Drive to open views to ocean and Add loading and unloading zones.

I am writing to you to voice my sadness over the
Plan to eliminate the Makai parking at ala moana park.
This change will disrupt 50% of the people who now
Do not have to cross the street to enjoy the beach,
Especially the keiki. Unloading ease of surfboards & SUP ect.
All for a bike lane that bikers already can use the existing street
If they grumble about safty issue, post 5 mile per hr speed sign
Thru out park.
And it Would be less expensive to tax payers if not done.
We are already paying for the rail !
How many bike users versus beach users??
As a park user since the 1950's I strongly oppose this retarded
Change.

Thank you,
Craig Sugihara
Email: cs@tcsurf.com

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:48 PM
To: 'cs@tcsurf.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Sugihara,

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN, we have reviewed your comments on the EISPN regarding the removal of parking on the makai side of Ala Moana Park Drive.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized, and after the plans are reviewed by the public and agencies. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Derek Hama <derek.hamasaki@gmail.com>
Sent: Tuesday, January 23, 2018 2:48 PM
To: Joanne Hiramatsu
Subject: Ala Moana Park and Magic Island Improvements

FOLLOWING ARE MY COMMENTS THAT I WILL FORWARD TO BELT COLLINS:

1. PROMENADE
a) The grassy areas along the promenade is used by many for setting up picnics. Is the intention of the new design to eliminate this?
If not, then people will be hauling their picnic and BBQ supplies from their cars parked on the mauka side of Ala Moana Park Drive. This will impede traffic flow and make it more difficult to people to use the park.

b) If you widen the promenade, what will happen to the trees? If you keep the trees than the promenade will essentially be split into two lanes. This will not actually widen the existing promenade.

c) If the trees are to be kept, will widening the promenade injure or shorten the lives of the trees, which are 'historical' features of the park?

d) On hot days, the concrete and asphalt surfaces in the park can easily burn the feet of adults and kids walking bare footed. If you widen the promenade with more concrete, you're adding more of these 'hot' surfaces and there won't be any nearby cooler grass surfaces for people to escape to.

2. PARKING

a) One problem with removing the parking on the makai side of Ala Moana Drive is that many more pedestrians will be crossing the street. This will: (1)impede the flow of traffic and (2)increase the risk of a pedestrian getting hit by a car, more so after dark. The street lighting in the areas where pedestrians are expected to cross the street should be bright enough for drivers to easily see pedestrians.

b) Keep the parking on the makai side of Ala Moana Drive along the raised picnic area. These would provide convenient parking for those picnicking in the raised area and also for those using the Great Lawn. This wouldn't affect the 'open views of the ocean' because the ocean isn't visible from these parking stalls.

c) Keep the parking on the Ewa side of Ala Moana Drive just as you enter the park. These stalls will provide parking for those using the Ewa end of the park and they do not affect the 'open views of the ocean.'

d) Design the perpendicular and diagonal parking stalls wide enough to accommodate larger vehicles, which are common at the park, and also to give people enough room to easily unload their vehicles without hitting adjacent ones.

e) Perhaps, create additional parking on the Diamond Head side of McCoy pavilion. These would provide parking for the tennis courts, pavilion, and also for the Great Lawn.

3. BEACH EROSION

a) Efforts should be made to reduce the wave action along the sandy beach shoreline to minimize beach erosion. Otherwise, replenishing the sand might be just ongoing. There used to be large rocks outside of the swim channel. I was told that many of these fell into the channel after one of the hurricanes. Perhaps setting up structures along the reef edge of the channels, like the former rocks, might diminish the wave action at the beach.

b) Efforts should be made to address potential problems that might occur due to sea level rising.

4. INVASIVE PLANTS
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c) Especially on windy days, trash from the shoreline is being blown into ocean, sometimes from the trash cans and sometimes from trash strewn in the park and along the beach. This should be addressed.

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b) At the outdoor showers that drain into the sand, clearly visible and readable signs should be posted stating that the use using soaps and shampoos is not allowed.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:49 PM
To: 'derek.hamasaki@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Hama,

Thank you for your email dated January 23, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

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The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies to help determine viable options and permits will be needed for this work.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and

endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Park Traffic

The Atkinson entrance is bordered by the historic Roosevelt Portals the entrance will be studied to see if the ingress and egress at that intersection can be improved.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, so not all projects will be implemented in the near future.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Rebecca Choi

To: Joanne Hiramatsu
Subject: RE: Ala Moana EISPN

From: Diane Fujimura <diyimnida1@gmail.com>
Sent: Thursday, January 18, 2018 12:55 PM
To: Joanne Hiramatsu
Subject: Ala Moana EISPN

Good morning, Ms. Hiramatsu:
Here are my comments, and I also want to ditto the comments already provided by Stan Sakai, and Ray Madigan.
Do not eliminate the parallel parking on the makai side of the drive through the park. To have people have to CROSS the street to gain access to the beach will only create more congestion, and liability.

Exactly how many trees are planned for removal? Where are these trees currently located?

What exactly is planned for the raised area? Leave as is, but make accessible to all patrons.

We don't need a restaurant facility in the park! It's bad enough with L&L with its low quality food. Even high-quality food isn't necessary as a replacement, as people picnic in the park, and bring their own food. Would alcohol be served at the restaurant. That should not happen.

Can we see the parking study? How many parking spaces are gained with perpendicular versus parallel parking?

What's the plans for the 'playground'? We don't need a playground with plastic apparati . . .unsightly and unnecessary. Kids should just runaround, play games, throw balls, etc.....

Keep in mind that this park is a true people's park . . it needs to remain that way, simple, clean, safe, and naturally beautiful.
Mahalo for your time,
Aloha,
Diane Fujimura

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:50 PM
To: 'diyimnida1@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Fujimura,

Thank you for your email dated January 18, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN. You state your agreement with Stan Sakai's and Ray Madigan's comments, and included additional comments of your own. Responses to those comments are below.

Beach Promenade Parking Reconfiguration, Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and

endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the playground, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Richard Fujie <ksph.rmf@gmail.com>
Sent: Tuesday, December 26, 2017 8:30 AM
To: Rebecca Choi; Joanne Hiramatsu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

This is the most popular beach in Hawaii for residents. More parking is needed...yes we want to control overusage of the park but with the planned improvements and the dispersal of park users to different activities at the park, additional parking will be needed
Specific parking for the McCoy Pavilion. Have specific parking for the use of McCoy Pavilion. Perhaps higher parking fees for short term parking.
This way visitors to functions at the M Pavilion can find parking and will be willing to pay for 1 to 2 hr at a higher rate.

Improve the beach from the Kewalo end of the beach toward the Diamond head side. The beach is rocky and painful to swim and currently unusable to most beach goers. . remove the loose coral and rocks and add sand Tthis will decrease the load on the East end of the park.
Dr Richard Fujie

On Tue, Dec 26, 2017 at 8:19 AM, Rebecca Choi <rchoi@bchdesign.com> wrote:

Environmental Impact Statement Preparation Notice (EISPN)

Ala Moana Regional Park and Magic Island Improvements

Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025

Honolulu, O'ahu, Hawai'i

Aloha Participant,

On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

On December 13, 2017, the EISPN was submitted to the Office of Quality Control (OEQC) under Chapter 343, Hawai'i Revised Statutes, requirements. By that submittal, a notice of the EISPN's availability was published in the OEQC's December 23, 2017 issue of *The Environmental Notice*. Publication of that notice initiates a public review period of 30 days. You may review the EISPN document on the OEQC's website:

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:

Mailing Address: Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu
jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu

Director of Planning

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:51 PM
To: ksph.rmf@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Dr. Fujie,

Thank you for your email dated December 26, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN and provide the following responses.

Parking

Current plans call for a modest increase in the number of parking stalls, and for more parking near the pavilion. The Draft Environmental Impact Statement (DEIS) will provide more detailed plans along with a traffic and parking study. Your suggestion that parking fees be increased for short-term parking will be considered.

Beach Improvements

The City concurs with the need for beach improvements and have taken action with the sand pushing and removing coral projects. Beach maintenance will continue until a long-term solution for sand replenishment is determined. As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies and permits will be needed for this work.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Gail <percybelle@sbcglobal.net>
Sent: Friday, December 29, 2017 8:55 AM
To: Joanne Hiramatsu
Subject: Ala Moana Park

Aloha kakou,

As a Native Hawaiian and runner/swimmer/surfer who frequently goes to Ala Moana, it is with great hope that the city and state agencies will work to keep this park open to local residents. We need open spaces to move and gather to enjoy access to the ocean. Keeping healthy activities like running, swimming, surfing, paddle boarding, and playing sports is vital to our la hui. If you build more parking spaces please go up. Do not take more land and pave over it. Has there been any thought to work with Ala Moana Center to use their parking for beach users?

Improving the comfort stations should be a huge priority. Keeping the facilities clean and damage free is such a challenge. I have such mixed and conflicted feeling about our homeless population, but it is frustrating that I work so hard and pay taxes on everything to see them desecrate the land and live in areas that I can't afford to live. They should not be able to stay in the parks and take away our ability to use these areas.

I hope all sidewalks will be expanded to accommodate the volume of people who are walking, running, cycling and skate boarding. If the city and state want people out of their vehicles, they need to widen all sidewalks and change the lights to an "all walk" (all cars stop) for pedestrians to cross. Cars will be able to turn freely and not have to wait for pedestrians thus minimizing aggravation and congestion when they have the green light.

Please bring back common sense and practical solutions to challenges we face.

Mahalo,
Gail Murakami
Sent from my iPad

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:52 PM
To: 'percybelle@sbcglobal.net'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Murakami,

Thank you for your email dated December 29, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Land for Parking

Perpendicular parking along Ala Moana Park Drive is proposed and is a standard accepted design for our city parks; it maximizes the use of park space which will yield more stalls.

Comfort Station Improvements, Homeless, Security

The City concurs with the need for improved maintenance, and has increased staffing for better maintenance and cleaner comfort stations. These facilities are currently undergoing major renovations. The City's commitment to improve park security started with hiring more park staff dedicated to these issues. Other security measures were implemented such as installing cameras at all comfort stations and the comfort stations are closed after hours. Furthermore, police patrol units are stationed at the parks overnight. Park staff also supervise security of the parks during the day.

Widen Sidewalks/Pathways

Changes to parking and traffic along Ala Moana Park Drive will be designed to make beach access safe for all, including drivers, bicycle riders, and pedestrians. The City concurs that a wider sidewalk (promenade) would accomplish this, by allowing accessibility for all types of recreation. The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. Your suggestion concerning "all walk" traffic lights will be assessed from that perspective. Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. A traffic study will be conducted to help determine needs for additional traffic calming facilities. Results are expected to determine the baseline traffic conditions and evaluate the proposed options of the project.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized. Your concerns will be included

in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Guy KUDO <rubbazori@yahoo.com>
Sent: Thursday, January 18, 2018 2:13 PM
To: Joanne Hiramatsu
Subject: Ala Moana park

Follow Up Flag: Flag for follow up
Flag Status: Flagged

To J. Hiramatsu, I am writing this email to you to express my opinion on the proposed changes for park. I think more bathrooms and more trees are a great idea. I think getting rid of all the commercial endeavors (yoga classes, SUP instruction and rental, exercise classes, Japanese wedding photographers, etc.) would also be a good idea. I also would like to see more matinence and upkeep done.

Other than that, I would like the park to remain as is. It is a beautiful and special place in Honolulu. It has been for the people of Hawaii for as long as I can remember. Sometimes less is more. Aloha, Guy Kudo

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Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 2:53 PM
To: rubbazori@yahoo.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Kudo:

Thank you for your email dated January 18, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following response.

Maintenance, Trees, and Comfort Stations

The City and many who have shared their views agree with you on the need for continuing maintenance. The City has already expanded the staff dedicated to upkeep of the park. Work on improvements to the comfort stations has begun and will continue. The City will implement more landscaping improvements within most of the long-term proposed projects. As for the immediate projects, which are listed as the Mayor's 9-Point Community Action Plan, the City planted more trees, and upgraded the irrigation system to be more water efficient and to provide more coverage.

Commercial Use

Your comment that no commercial endeavors be permitted touches on a complex issue. The City permits food sales by a local vendor at two locations. Other "commercial endeavors" include surf schools, wedding photography, and perhaps some exercise and yoga classes. At Kapiʻolani Park, where the initial deed of gift to the City limits commercial activity, the definition of "commercial activities" has been contested for decades. To limit such endeavors at Ala Moana Regional Park will demand both new regulations and enforcement personnel. Revised Ordinances of Honolulu Chapter 10, Article 3 covers the few commercial activities in parks for which the City has established fee schedules.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Design and Construction

Joanne Hiramatsu

From: Helene Philips <hawaiisurferhp@yahoo.com>
Sent: Tuesday, December 26, 2017 2:42 PM
To: Joanne Hiramatsu
Subject: Ala Moana Regional Park

Thank you for sending me the Environmental Impact Statement .
I was at the last planning meeting and was in touch with Chris Dacas regularly. I am aware what things in the project proposals created the most opposition. Was hoping there is some comparison information to see what plans were adapted or rejected after public input was received.
My name is Helene Phillips. I was an Ocean Safety Lifeguard at Ala Moana for 33 years. (retired 6-14) The subject of renovations of the park come up daily.
Any information you can share with me would be greatly appreciated.
Sincerely, Helene Phillips

Joanne Hiramatsu

From: Helene Philips <hawaiisurferhp@yahoo.com>
Sent: Monday, January 22, 2018 4:31 PM
To: Joanne Hiramatsu
Subject: Ala Moana Park

I am writing to comment on the proposed plans for Ala Moana Beach Park.
My main objection is the removal of the Makai parking in the middle of the park.
I'm wondering who it is that needs an ocean view as the beach patrons who come to the park only have to go to the sand or the adjacent walkway to have an unobstructed view of the ocean.
Thank you, Helene Phillips

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:17 PM
To: 'hawaiisurferhp@yahoo.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Philips,

Thank you for your emails dated December 26, 2017 and January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN and provide the following responses.

In your December 26, 2017 email, you requested information regarding what plans were adapted or rejected after public input was received. Please note that the description of facilities in the EISPN is preliminary. The Draft Environmental Impact Statement (DEIS) will have more description of the alternatives considered for the project. The City will proceed with design after the EIS has been finalized and after plans are reviewed by the public and agencies.

In your January 22, 2018 email, you express concern over removing parking on the makai side of Ala Moana Park Drive. The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: ivan kaisan <seamountain.m115@gmail.com>
Sent: Tuesday, December 26, 2017 2:04 PM
To: Joanne Hiramatsu
Subject: eispn for ala moana regional park

please register my opposition to the proposed action recommended in the enhance project alternative to add a dining activity to mccoy pavilion. i participated in the earlier online public comment outreach by the city for this park. i saw no public interest in adding commercial activity to the park let alone a dining attraction to mccoy. i recommended and here reiterate that the park needs a higher level of maintenance to support the huge increase in nearby residential population. it does not need an additional attraction, commercial or otherwise.

Ivan Kaisan
1525 Pensacola St Apt 302
Honolulu HI 96822

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:18 PM
To: seamountain.m115@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Kaisan:

Thank you for your email dated December 28, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following response.

McCoy Pavilion Renovations

You believe it is not in the public's interest to add commercial activities/attractions in park, such as dining at McCoy Pavilion. Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and Scottish Festival.

Park Maintenance

You have noted that the parks require a higher level of maintenance to support nearby residential growth. The City concurs that the level of maintenance will need to be increased and has prioritized this by hiring more park staff to improve the overall condition. Increased maintenance will need to be coupled with a sustainable plan for the parks due to their age, and is the goal of this project. Proposed improvements are meant to allow visitors to use the vacant areas of the parks and enhance the popular areas so they can withstand more use in the future.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Design and Construction

Joanne Hiramatsu

From: james h kaneshiro <jhk41@hotmail.com>
Sent: Thursday, December 28, 2017 9:10 PM
To: Joanne Hiramatsu
Subject: beach sand replenishment

i strongly believe the replenishment should be done by recovering the sand that was washed into the channel between the beach area and the reef. also to lesson the sand runoff when the waves are high or strong, more large rocks should be placed on the reef to break up the waves that causes most of the sand runoff.

thank you very much for allowing my opinion.

james kaneshiro, a long time park user

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:18 PM
To: jhk41@hotmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Kaneshiro:

Thank you for your email dated December 28, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your suggestions regarding sand replenishment and beach erosion.

A beach nourishment study will be conducted with several sand recovery sites being considered. Sand recovery site options will be evaluated for many factors, such as adverse impacts to the surf break, marine life, and other recreational activities. Results of those reports will be available for review with the Draft Environmental Impact Statement (DEIS) appendices.

Your suggestions will be included in the DEIS and we will notify you when it is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Design and Construction

Joanne Hiramatsu

From: Jan Asuncion <jannerjt@hawaii.rr.com>
Sent: Tuesday, January 09, 2018 11:45 AM
To: Joanne Hiramatsu
Subject: Environmental Impact Statement Preparation Notice (EISPN) Ala Moana Regional Park and Magic Island Improvements

Aloha Ms. Hiramatsu,

Thank you for including me on your email list and allowing feedback from frequent local visitors to Ala Moana Beach Park.

My main concern is the widening of the promenade that may lessen the amount of parking stalls on the Makai side of the road way. I walk/ and run on that promenade and feel it is sufficient.

Thank you for your time,

Jan Asuncion
(808)220-1216

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:21 PM
To: 'jannerjt@hawaii.rr.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Jan Asuncion,

Thank you for your email dated January 9, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we are responding to your comments regarding the promenade widening and reduction of makai side parking stalls.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, we are now evaluating and considering the feasibility of other options for this area. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for parking; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Jay F Henderson
jayhenderson43@gmail.com
Jan 18, 2018 at 20:45 UTC

There are plants growing out of the top of the art deco "gate" to the park at the Diamond Head entrance. They need to be removed before their roots destroy the top of the gate. I'm talking about the only gate, or entryway, that is under a tree. The tree provides shelter for the invasive, destructive plant.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:22 PM
To: jayhenderson43@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Henderson:

Thank you for your comments posted January 18, 2018 on the EISPN for the Ala Moana Regional Park (AMRP) and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your concern with damage from plants on top of the Roosevelt Gate at Atkinson Drive.

Please note that the AMRP Master plan proposes restoration of the Roosevelt Gate. Your concern will be included in the Draft Environmental Impact Statement (DEIS). We will contact you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Jeannie Jeffery
jeanniejeffrey@aol.com
Jan 18, 2018 at 03:34 UTC

I personally believe, before Oahu spends another dime on improving any park or public area, we hard working taxpayers should be provided protection on our investment. First of all, PRIORITIZE. Sewage problems, water mains, safe sidewalks and lighting, another entrance/exit for traffic flow and especially, paving! As for beautification? Skip it, save us taxpayers the money. If cameras aren't installed, and park services continue to ignore providing proper maintenance, no security, allowing homeless derilects to trash the area, hoodrats spraypainting sides of buildings etc. well then, forget it. We're so tired of the money wasted on these precious public areas, only to watch them deteriorate at the hands of the lacksadaisy government agencies responsible for their care, and the homeless heathens that don't care.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:23 PM
To: 'jeanniejeffrey@aol.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Jeffrey:

Thank you for your comments posted January 18, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following response.

You are seeking prioritization of funding for all City projects. Based on land use laws, open spaces reserved for public use needs to be made available and maintained. The goal of the project is developing a sustainable plan for the parks that will do more than maintain, but preserve the resource for many generations. More money would be spent on maintenance of the parks without a sustainable plan. The City views the option of leaving the parks as they are as unsustainable due to their age and many years of depreciation. The parks receive the most visitors of all the parks in the state and the number of visitors will increase because population growth is inevitable. Proposed improvements are meant to allow park goers to use the vacant areas of the parks and enhance the popular areas so they can withstand more use in the future. Other public agencies have allocated funding to infrastructure needs as you indicated.

You mentioned that improvements may be at risk without security measures. Please note that the project also includes increased security and security personnel for the park. Security cameras were installed at all comfort stations and the comfort stations are closed after hours. Furthermore, police patrol units are stationed at the parks overnight. Additional park staff were hired to help with overall maintenance and security of the parks during the day.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Design and Construction

Joanne Hiramatsu

From: John S. Nishimot <jsn1820@gmail.com>
Sent: Wednesday, January 03, 2018 11:51 PM
To: Joanne Hiramatsu
Subject: AMRP AND MAGIC ISLAND IMPROVEMENTS

You have asked for comments regarding proposed changes and improvements to the AMRP and Magic Island which are intended to be the subject of the EIS which is presently being prepared.

The following are my comments regarding the Proposed Actions listed under section 4.3 of the Project Summary of the EISPN:

As it has been acknowledged that the community's and Park user's preferences are to keep the character of the park the same and to retain its "local character", I believe that some of the proposed actions should not be undertaken altogether or should involve much more limited modifications and/or additions:

1. Piikoi entrance expansion and plaza.

It is unclear what is being proposed to renovate this areas as an entrance and what is being contemplated as a "plaza". However, if it is contemplated that additional changes should not change the local character of the park, minimal addition of concrete walkways and other artificial structures should be the order of the day. That area of the park has never been and continues **not** to be a primary point of entry for park users and to direct substantial resources to "improve" the Piikoi St. area as an entrance would be a waste of money.

2. Widening the promenade on the makai side of the drive.

If the proposed widening contemplates the elimination of all makai road side parking in order to enlarge the present walkway, I oppose such a change. Adding more concrete on the makai side is contrary to the intent of keeping the park's character the same. More concrete and less beach frontage is not maintaining one of the primary park usages. The width of the present sidewalk areas on the makai side of the roadway are sufficient for foot traffick and if anything, modifications can be made to the existing width by removing the present grassy sidewalk area which has very little grass growing anyway and filling in with materials to expand the usable space as a walkway while at the same time preserving the trees that are planted.

It would further be counterproductive to require all parking to only be located on the Mauka side of the drive, especially if the intent is to make traffic only one way. One way traffic would create increased unwanted traffic tie ups and back ups at the exiting side of the drive even on days when the usage of the park is not heavy. We see this already happening when one side of the park is not accessible. One way traffic direction for the park would be a major mistake.

Parking should continue to be available on both sides of the roadway, with continuing two way traffic and improvement of the existing walkway on the makai side but without any widening.

3. Improvement of sandy beach areas

There should be more efforts made in the area of sand replenishment, especially in the middle sections of the park where sand erosion has been heaviest. There is a need for additional efforts toward the removal of rock and coral fragments that presently makes use of the sandy shoreline and shallow swimming areas difficult, if not impossible. Sand replenishment and the removal of rock and coral should be a greater priority than adding more concrete to widen the makai side promenade.

There are certain sections of the swimming channel located directly off the ewa concession structure where there has been a build up of sand within the channel, thereby narrowing the usable space for swimmers and paddle boarders. The built up easand should be removed and placed along those portions of the beach shoreline that require widening.

4. Keyhole Parking Expansion and parking at Magic Island

It is not clear what is specifically contemplated but if the intent is to increase parking capacity for park users, the keyhole area may be suitable for adding additional parking stalls, especially in the large middle grassy area which , based on my observations, is not a frequented picnic area by park users.

If elongating the Magic Island parking lot means taking more of the open grassy areas makai of the existing parking areas to increase parking, it should be done in a manner that will not compromise existing trees and does not extend too far into the present open space. But one thought to keep in mind is that improving and widening the middle sections of the park beach shoreline by rock removal and sand replenishment will direct more usage of the beach space to the middle areas of the park.

5. Lawn Bowling Area

Is the lawn bowling area open for use by the general public? Over the 60+ years that I have been a park user, it was always my impression that the use off the lawn bowling area was restricted and limited to a select few who participated in lawn bowling. Was this a condition for creating the park space many years ago? This space should be used for more general park activities by the general public.

The above are my initial comments regarding the proposed actions for improving the AMRP. I would like to be made aware of more specifics regarding the contemplated changes that are being considered. But again, the basic intent should be to keep the character of the park the same it has been for the last 50 to 60 years and to maintain the local character of the park open for use by the general public.

Sent from my iPad

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:25 PM
To: jsn1820@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Nishimot,

Thank you for your email dated January 3, 2018 commenting on the EISPN for the Ala Moana Regional Park (AMRP) and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Piʻikoi entrance expansion and plaza

The proposed plan for the Piʻikoi entrance expansion is a widened entrance for pedestrians only. Main entrances are currently located at the Diamond Head and ʻEwa ends of the AMRP while the secondary entrances are along Ala Moana Boulevard and by way of narrow bridges over the drainage canal. The goal is to create a third main entrance for pedestrians that is centrally located and closer to the proposed rail station. This entrance is meant to help with crowd circulation especially during large events and emergencies. Additional studies and permits will need to be obtained before this can be done.

Widening the promenade on the makai side of the drive

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Improvements of sandy beach areas

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies to help determine viable options and permits will be needed for this work.

Keyhole parking expansion and parking at Magic Island

The City is reviewing the keyhole parking area and Magic Island's parking lot as some of the areas of opportunity to create additional parking stalls. The goal is to balance the number of stalls by adding more parking on the ʻEwa side of the AMRP. A traffic study and a parking study will be completed for the Draft Environmental Impact Statement (DEIS) and will help assess parking needs and traffic flow through the parks.

Lawn bowling area

The lawn bowling facility is currently open to the public, but has specific hours of operation. The facility was installed when the AMRP was developed in the 1930s. The proposed multi-use facility at or near the lawn bowling area is suggested to increase the variety of sports and recreational games. No detailed plans for this facility have been developed, since this is not proposed as an immediate improvement.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Kimo
jloo@dcca.hawaii.gov
Jan 22, 2018 at 18:48 UTC

Large trees such as the monkeypond, are fine as long as they are not near any street, buildings, or items such as canals, that will require money to repair in the future. Plant some trees/plants that are not so as invasive. Roots.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:27 PM
To: jloo@dcca.hawaii.gov
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Kimo:

Thank you for your comments posted January 22, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your recommendations and provide the following responses.

Your recommendations to plant monkeypod trees in areas not near any streets, buildings, and canals; and to plant some trees/plants that have less invasive roots are noted. Several biological studies will be completed for the Draft Environmental Impact Statement (DEIS) that will assess the current environment of the parks' land and surrounding waters. The City will implement landscaping improvements within most of the long-term proposed projects which could be native and practical. As for the immediate projects, which are listed as the Mayor's 9-Point Community Action Plan, the City planted more trees, and upgraded the irrigation system to be more water efficient and to provide more coverage.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized. Your recommendations will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: KVIBE . <kvibe@kkv.net>
Sent: Wednesday, December 27, 2017 10:27 AM
To: Joanne Hiramatsu
Subject: Park renovation

Sounds great i would love to see new life be brought into the park as i use it for surfing in the summer time

HOW TO DONATE YOUR BIKE:

*If you have donations or would like to inquire about a bicycle please stop by the shop during hours. We also barter! Contact us to find out what's on our shop wish list!

Follow Us!

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:28 PM
To: 'kvibe@kkv.net'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear KVIBE:

Thank you for your email dated December 27, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your email.

In your email you state your general support for the project. Your views will be included in the Draft Environmental Impact Statement (DEIS), and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Lance Higa <lwhiga@gmail.com>
Sent: Wednesday, January 10, 2018 4:18 PM
To: Joanne Hiramatsu
Cc: Janyce Higa; Cal; Gary Senaga; Floyd Higa
Subject: Ala Moana Park Improvements

Hi Joanne,

Boy, I give you a lot of credit for hearing out every one's concerns cause everyone I talk to at the beach is very opinionated and passionate about the planned park improvements.
I just want to give you some insight from a Ala Moana surfer for the last 48 years. Although Ala Moana is a long beach, 80% of the surf breaks are located between the tennis courts to Kewalo Basin, thus this stretch of beach and parking stalls are the most heavily used in all of Ala Moana Park, especially during the summer when the south shore swells come to life. The tennis players and tournaments also bring high demands to parking, let alone the festivals that occur at McCoy Pavilion.
My idea for this problem is to create two parking areas:

1. Where the current lifeguard office is located to the area where the large banyan trees are (makai of the lawn bowl), this area is heavily shaded and has always been a undesirable picnic area because grass cannot grow there.
2. The upper circular grass area between the lawn bowling facility and the mauka tennis courts has always been a lightly used and would be better served as a parking lot, especially for the tennis players.

The idea of taking away the parallel parking along the beach and making the roadway one way would be a huge mistake, the whole ambiance of Ala Moana Beach would be lost forever and the traffic created by the one way direction would be a nightmare, the exiting cars in the evenings during the summer is already bad at both exits, having just one exit would create a huge backup and a safety concern for emergency vehicles.
I would like to see a on-site park keeper that would live on the property and manage his own staff, someone who would know all the issues and maintenance problems so any improvements can be maintained and not fall into disrepair like all the other city and state parks.
I suggest having food truck areas instead of the concession stands that have to be maintained, this could give the beach goers eating options and two less buildings to maintain.

A thought to keep in mind... the most important components to any beach park is a nice sandy beach, well kept grass, clean restrooms and parking, everything else is just icing.

Thanks for hearing me

Aloha,
Lance Higa

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:29 PM
To: 'lwhiga@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Higa,

Thank you for your email dated January 10, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Parking Suggestions and Traffic

The City is reviewing the keyhole parking area and Magic Island parking lot as possible areas of opportunity to create more parking stalls. The keyhole parking is being reviewed to balance out the number of stall on the ʻEwa side of the park with the Diamond Head side. As for Magic Island parking, it is being reviewed in an elongated configuration to give park users closer access to the picnic spots and the lagoon. This will also help emergency vehicle access in the event of an emergency on Magic Island.

As for the issues of parking and circulation – the Draft Environmental Impact Statement (DEIS) will include a parking study and a traffic study, detailed presentations of changes to parking areas, and the expected increase in parking stalls. Please keep in mind that the City does not plan to reconfigure Ala Moana Park Drive into a one-way road and both vehicular entrances and exits would remain. Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution.

Removing Makai Parking

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City needs to address storm water quality in accordance with City's Rules Relating to Water Quality that was effective August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules.

Maintenance Staff

The City has increased staffing at the parks to improve maintenance. Hiring additional park staff was an immediate action from the Mayor's 9-Point Community Action Plan.

Consider Food Trucks Over Concession Stands

Your suggestion to bring in food trucks is noted and considered. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized.

Your comments will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Larry Erwin <larrmo3@gmail.com>
Sent: Tuesday, December 26, 2017 1:56 PM
To: Joanne Hiramatsu
Subject: Honolulu Lawn bowls clubs

Hello
Please explain in more detail ,what exactly is ment by " a multi use facility" at the lawnbowls area??
As you may or may not know, the Honolulu lawn bowls facility is an historic site ,with it's roots of formation during the second world war , begun by Australian airmen/ troops stationed in Hawaii.
It is not only used by many locals ,but importantly it is used by many tourists who visit Oahu regularly from all over the world.
I would be very upset to see the lawn bowls club diminished in any way.
Larry Erwin

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:33 PM
To: larrmo3@gmail.com
Subject: Ala Moana Regional Park

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Erwin,

Thank you for your email dated December 26, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we note your question and concern regarding the lawn bowling facility and provide the following response.

The proposed multi-use facility is suggested to increase the variety of sports and recreational games. No detailed plans for this facility have been developed, since this is not proposed as an immediate improvement. Please note that the description of facilities, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS).

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Leighton & Maude Fujinaka <fujinaka50@gmail.com>
Sent: Monday, January 01, 2018 6:07 PM
To: Joanne Hiramatsu
Subject: pickleball court at Ala Moana Park

As a beginner player of pickle ball, I find the sport very enjoyable for all senior citizens who are looking for an activity to exercise during our golden years. At 70 years of age, pickle ball is a sport that anyone can enjoy and master. It is a fun game to participate and keeps one active. A combination of tennis, ping pong and a mild form of racket ball, it would benefit all people of all ages 6 to 90. If you have not played the game, Monday evening from 6pm to 8pm is available for beginners at the Kailua District Part. Just show up. A paddle will be supplied and the net and court lines will be in place.

If there were pickle ball courts set up with a permanent net and permanent court lines painted (like in Mililani Rec #3) people will be more avid and likely to play the game at Ala Moana Regional Park and Magic Island.

Sincerely,

Leighton and Maude Fujinaka
68 South Kainalu Drive
Kailua, HI 96734
ph#262-0431 (home)
ph#723-8838(work after 1pm)

1

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. and Mrs. Fujinaka:

Thank you for your email dated January 1, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments. You express interest in installing pickleball courts at the parks.

The Master Plan identifies a multi-use area at or near the lawn bowling area. This concept has not been designed in detail and is viewed as a long-range improvement that may not be implemented immediately. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for added recreational uses; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the Environmental Impact Statement (EIS) has been finalized.

Your comment will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Linda Howe
lindamhowe@gmail.com
Jan 18, 2018 at 15:24 UTC

Please clearly describe/disclose the number and types of mature trees that are being removed and replaced with (?) other types of landscaping? It's particularly obvious to me, especially in the 'promenade' images along the wall/beach side that many trees are being removed -- certainly on the makai side, hard to tell on the mauka side.
I do like the larger broader opening at Piikoi. What will become of the iconic art deco elements which appear to disappear? Will there be 'bath house' improvements? Will there be facilities for city departments/staff serving the public at the park? Will there be more food and beverage opportunities?
Thank you.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:36 PM
To: lindamhowe@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Howe:

Thank you for your comments posted January 18, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your questions and provide the following responses.

Mature Trees

Several biological studies will be completed for the Draft Environmental Impact Statement (DEIS) that will assess the current environment of the parks' land and surrounding waters. A tree inventory report was also completed for the project. These studies will help with the landscaping plans by adding more trees and removing the unhealthy ones. The City will implement landscaping improvements within most of the long-term proposed projects. As for the immediate projects, which are listed as the Mayor's 9-Point Community Action Plan, the City planted more trees, and upgraded the irrigation system to be more water efficient and to provide more coverage. Details of all studies will be included in the DEIS appendices for public review.

Piʻikoi Street

Your agreement with widening the pedestrian entrance near Piʻikoi Street is noted. The goal is to create a third main entrance for pedestrians that is centrally located and closer to the proposed rail station. This entrance is meant to help with crowd circulation especially during large events and emergencies. Changes to existing structures and walls will be minimal, since this is a pedestrian access, not a vehicular one. All such changes will need to be reviewed by the State Historic Preservation Division (SHPD).

Art Deco Features

The historic art deco features like the Bridle Bridge, Roosevelt Entrance etc.,will remain. There are proposed plans to feature the art deco design at the Kamakee Street entrance as well.

Bathhouse Improvements

The City concurs with the need for improved maintenance, and has increased staffing for better maintenance and cleaner comfort stations. These facilities are currently undergoing major renovations.

Facilities for City Departments / Staff

The City's Ocean Safety headquarters and water safety personnel have space in a facility shared with the Honolulu Police Department. They will remain on site and possible plans could include expansion and relocation of their facility to a more strategic location at the park.

Food / Beverage Opportunities

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and Scottish Festival.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the Environmental Impact Statement (EIS)has been finalized. Your recommendations will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Lori McCarney <lori@bikesharehawaii.org>
Sent: Thursday, January 11, 2018 4:15 PM
To: Joanne Hiramatsu
Cc: Rebecca Choi; Leong, Carrie S.; Young, Rosalind J.; Nekota, Michele K
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Aloha Joanne,

When Biki launched on June 28, it was placed throughout the Park, at locations coordinated with the City and through an ROE. We moved some locations temporarily to accommodate projects underway, and 3 Biki Stops continue to be on Park property. My objective is that Biki Stop locations be considered in the planning so they are of most benefit to Park users and in concert with other elements of Park design—not as an afterthought.

Biki was not in the master plan as they came to being after the plan was created. Biki is not a commercial operation. We are a non-profit working on behalf and in concert with the City to provide bikesharing services to our community.

As mentioned, I am preparing comments in response to your request for comments, but I did want to see if this was the appropriate way to get the subject discussed. I very much appreciate your guidance.

Thank you,

Lori L McCarney
CEO
Bikeshare Hawaii

Lori@bikesharehawaii.org | 808-347-0833 | 914 Ala Moana Blvd, Honolulu, HI 96814
www.GoBiki.org | @gobikihi | Facebook | Instagram | Twitter

On Jan 10, 2018, at 1:25 PM, Joanne Hiramatsu <jhiramatsu@bchdesign.com> wrote:

Lori:

The City is the proposing agency for the Ala Moana Regional Park, so I think this can be one way to discuss Biki Bikes. However, is there any coordination between the City and Biki Bikes on the placement of these bikes? Is there an approval process for these locations? Biki Bikes are currently not in the Master Plan. What we heard from the public is that they don't want the park to be commercialized.

Joanne

Joanne E. Hiramatsu | Senior Associate | Director of Planning
Belt Collins Hawaii LLC
2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
T: 808.521.5361 | Direct: 808.846-3309 | F: 808.538.7819 | www.beltcollins.com

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From: Lori McCarney [mailto:lori@bikesharehawaii.org]
Sent: Wednesday, January 10, 2018 12:42 PM
To: Rebecca Choi <rchoi@bchdesign.com>; Joanne Hiramatsu <jhiramatsu@bchdesign.com>
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Aloha Rebecca and Joanne,

I am preparing comments recommending Biki Stops in Ala Moana Regional Park as they were placed originally. Is this the appropriate vehicle to share this recommendation?

Appreciate your thoughts!

<~WRD000.jpg>
Lori L McCarney
CEO
Bikeshare Hawaii

Lori@bikesharehawaii.org | 808-347-0833 | 914 Ala Moana Blvd, Honolulu, HI 96814
www.GoBiki.org | @gobikihi | Facebook | Instagram | Twitter

On Dec 26, 2017, at 8:19 AM, Rebecca Choi <rchoi@bchdesign.com> wrote:

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Aloha Participant,

On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

On December 13, 2017, the EISPN was submitted to the Office of Quality Control (OEQC) under Chapter 343, Hawai'i Revised Statutes, requirements. By that submittal, a notice of the EISPN's availability was published in the OEQC's December 23, 2017 issue of *The Environmental Notice*. Publication of that notice initiates a public review period of 30 days. You may review the EISPN document on the OEQC's website:

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:

Mailing Address: Belt Collins Hawaii LLC
2153 North King Street, Suite 200

Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu
jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

Joanne Hiramatsu

From: Lori McCarney <lori@bikesharehawaii.org>
Sent: Friday, January 19, 2018 4:38 PM
To: Joanne Hiramatsu
Cc: Rebecca Choi; Nekota, Michele K; Leong, Carrie S.; Young, Rosalind J.; John Nakauye; Nouchi, Jon; Justine Espiritu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period
Attachments: Ala Moana_Biki Stops.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Aloha Joanne,

Please accept these comments to the EISPN for Ala Moana Regional Park and Magic Island Improvements.

Recommendation:

Distribute Biki Stops throughout Ala Moana Regional Park and Magic Island for the benefit of Park users for exercise, transportation to and from the Park, and to attract new Park users. The original seven locations that were approved before work began on the Park were optimal to achieve these objectives. Our recommendation is to restore the original number of locations to seven in the Park and Magic Island as part of Park improvements with placement at or near their original locations.

Situation:

Early in the planning process for improvements to the Park, Bikeshare Hawaii attended input meetings to discuss how best to incorporate bikeshare for the benefit of Park users. At that time, bikeshare was not well understood and the actual timing and scale of the bikeshare system was not defined. We are not aware of mention of bikeshare in any planning documents despite our input.

Bikeshare Hawaii launched the bikesharing service, branded Biki, on June 28, 2017 with approximately 100 Biki Stops and 1000 bikes in urban Honolulu. Bikeshare Hawaii, a 501(c)3 non-profit, works in concert and with support from the City and County of Honolulu to provide bikesharing services for the benefit of residents and visitors. As part of Biki's launch and through an ROE granted by the City Parks and Recreation Department (DPR), and specific location review by DPR, we located seven Biki Stops with a capacity of 133 bikes, within Ala Moana Regional Park and Magic Island. (see attached map)

Biki Stop locations reduced from 7 to 4:

- On July 17, we relocated all Biki Stops located on grass to hardscape locations to allow for sprinkler and other landscaping improvements. Instead of broad distribution of Biki Stops to serve most areas of the Park, including Magic Island, some stations were moved to less visible and less convenient locations. The two Biki Stops serving Magic Island were among the most popular in the system. A large Biki Stop at the Atkinson entrance was created to place equipment within the Park, with the number of locations serving the Park and Magic Island reduced from seven to five. Average daily Biki usage (originating or ending at the Park) declined from 262 per day to 191 per day. Declining Biki trips per day is in contrast to Biki daily usage growing consistently since launch.
- On November 27, 2017 the Biki Stop at Concession One was moved out of the Park to accommodate refurbishment of the comfort station located there. It is not clear what impact this has had on Park users who

Joanne Hiramatsu

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To: Joanne Hiramatsu
Cc: Rebecca Choi; Nekota, Michele K; Leong, Carrie S.; Young, Rosalind J.; John Nakauye; Nouchi, Jon; Justine Espiritu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period
Attachments: Ala Moana_Biki Stops.pdf

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had used that location. But it is clear that Biki Stop locational convenience was further negatively impacted for users who use Magic Island and nearby Park facilities.
- The number of Biki Stops in the Park is now only four with a 19% reduced capacity for bikes (108): Atkinson entrance (55), Kamakee entrance (19), Concession 2 (23) and McCoy Pavilion (11). There is no convenient access to Biki for users of Magic Island, Concession One, or other Park destinations on the Diamond Head side of the Park. (see attached map)

Use of Biki at Ala Moana Beach Park:

In the period between June 28 and December 31, 2017 (approximately six months):

- 28,531 Biki trips originated from Biki Stops located at the Park; 23,372 ended at the Park within this same time period.
- On just one day, the 4th of July, 447 Biki trips originated and 470 ended at the Park.

Why People Use Biki:

- System data indicates that nearly 2/3 of Biki trips are made by Oahu residents.
- Member research conducted October 2017 shows the following usage of Biki (some, most or all of the time):
  - For exercise 56%
  - Meet up with friends 66%
  - Just for fun 77%

Who Uses Biki:
(based on October 2017 Member Research)

Age:

- 28% of users are over age 50; 2.52% are over age 65
- 68% of users are between the ages of 25-49

Household Income:

- 17.5% under $50K
- 38% under $75K
- 60% under $100K

We appreciate the opportunity to comment on this EISPN. We would like to have the opportunity to further discuss this subject with the appropriate parties in order to ensure full consideration is given to bikeshare as a mobility, exercise and recreational option for many residents of Honolulu.

Lori L McCarney
CEO
Bikeshare Hawaii
Lori@bikesharehawaii.org | 808-347-0833 | 914 Ala Moana Blvd, Honolulu, HI 96814
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We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:

Mailing Address: Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu
jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu
Director of Planning

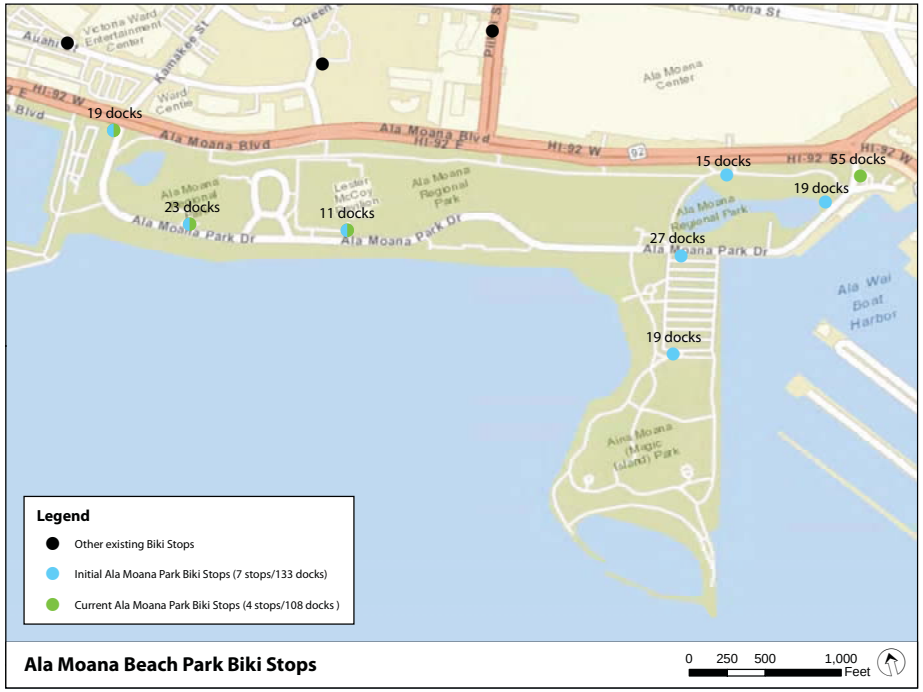
Food / Beverage Opportunities

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and Scottish Festival.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the Environmental Impact Statement (EIS)has been finalized. Your recommendations will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction



Ala Moana Beach Park Biki Stops

Joanne Hiramatsu

From: Michael Arita <mikearita4142@gmail.com>
Sent: Sunday, January 21, 2018 3:06 PM
To: Joanne Hiramatsu
Subject: Ala Moana Regional Park Improvement Project- comments

Follow Up Flag: Follow up
Flag Status: Flagged

Joanne,

Here's my comments to the Improvement plan provided by Belt Collins.
- Although plan provides some description of the Improvements, please provide the conceptual drawings (min plan views) for the alternatives.
- Also need the cost estimates for the alternatives (initial construction & annual maintenance), in order to justify the economic value added.
- Plan notes that the cost will be covered by the CityCapital Improvement Projects Funds, but since the Funds are probably coming from the taxes collected from me, would need to see the value compared to other needy projects.
- Request that the project boundary extend past the noted shoreline for the "rocky" area, since the rocks in the water creates a safety issue. Past efforts to remove rocks had good intentions but have been ineffective.
- Relocating the canoe shelter and enhancing the landing to the Magic Island side would greatly increase safety and reduce the traffic.
- Without the conceptual drawings it's hard to visualize what would be the effects of the parking changes with the perpendicular parking arrangement. But need to at least keep the number parking spaces intact or more.

Thank you
Mike Arita, P.E.

Sent from my iPhone

Rebecca Choi

From: Michael Arita <mikearita4142@gmail.com>
Sent: Saturday, January 27, 2018 9:15 AM
To: Rebecca Choi
Subject: Re: Ala Moana Regional Park Improvement Project - comments

Rebecca,

Just saw a rendering of the road & parking. Sidewalk looks nice but I believe it's going to be a nightmare when the outbound lane (Oceanside) will try to cross inbound line to park cars (especially during peak usage) Layout would work if it was just a parking lot, but since cars are traveling both ways, car travel at speeds like a neighborhood street.

During peak use, drivers are very aggressive in getting parking and will cross oncoming cars just to get the parking.

Please let me know if this issue can be addressed in the design.

Thank you

Sent from my iPhone

On Jan 22, 2018, at 7:57 AM, Rebecca Choi <rchoi@bchdesign.com> wrote:

> Dear Mr. Arita,
>
> Thank you for your comment and input on the Environmental Impact Statement Preparation Notice for the Ala Moana Regional Park and Magic Island Improvements. Belt Collins Hawaii LLC and the City's Department of Design and Construction will review your comments and will provide a response after the end of the comment period. We appreciate your time and interest in this project.
>
> Sincerely yours,
>
> BELT COLLINS HAWAII LLC

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:38 PM
To: 'mikearita4142@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Arita:

Thank you for your emails dated January 21 and January 27, 2018, commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN.

1. More details will be provided about concept plans in the Draft Environmental Impact Statement (DEIS).
2. Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, so not all projects will be implemented in the near future.
3. Plans for traffic and parking along Ala Moana Park Drive are being considered. If "cars travel at speeds like a neighborhood street," then these can be controlled with speed bumps, signage, and crosswalks. A traffic study will be completed that will inform all plans for changes in parking and traffic flow.
4. As discussed in the EISPN, the project also includes beach nourishment to add more sand to the shoreline, so we are addressing the "rocky" area.
5. Due to space requirements for the Canoe Hālau and outdoor storage of the canoes, the Hālau may not be relocated to Magic Island, but the boat ramp is still planned for renovation with a wider, raised crosswalk at the ramp location.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Michael Garsva <mwg75@sbcglobal.net>
Sent: Sunday, December 31, 2017 10:49 PM
To: Joanne Hiramatsu
Subject: Re: Ala Moana Park upgrade

I appreciate the attempt to receive and possibly implement input from the public. I Use that park five to 7 times a week. I swim along the buoys regularly and walk and run around the park as well. I really appreciate the improvements so initiated so far. But so much more could be done

1) I believe increasing the width of the walking/jogging path around the entire circumference of the park would be an appropriate action. As it is it is substandard and sorely needed.
2) The water in the park used to be much clearer in years past. I firmly believe that putting oysters in the reef just makai of the main swimming area will bring back the clarity as it has been doing in Pearl Harbor. Some basic seeding of oysters should do the trick over a year or three.
3) The path around the outer lagoon on Magic Island has eroded terribly. It needs to be rebuilt and when that occurs it should be twice the width.
4) The showers should be upgraded to the self-limiting ones such as the Shower-tower from Showertower.com that was installed a few years ago. Occasional maintenance is a must. It doesn't take much to adjust the fixtures on those and it needs to be done from time to time. It would be a significant improvement and reduce water usage significantly.
5) More work needs to be done on eliminating the sticker grass in the park. Once it gets embedded it becomes more difficult to eradicate.
6) We have lost some Plumeria trees and they have not been replaced. They are lovely. Please replace them and add more.

As you have clearly understood, this is the most heavily used park in the state. I hope that you will not only consider but implement these suggestions.

Mahalo,

Michael Garsva
1778 Ala Moana Blvd
Apt 4004
Honolulu, Hawaii
96815

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:44 PM
To: 'mwg75@sbcglobal.net'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Garsva:

Thank you for your email dated December 31, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Increase Width of Walking / Jogging Paths Around Entire Park

Your agreement with increasing the width of the walking/jogging paths around the entire park is noted. The City has proposed short-term and long-term projects that needs to be more sustainable for the parks and conducive to multiple types of recreation.

Maintenance and Landscaping Recommendations

Your recommendations for maintenance of the showers and ocean water clarity, and landscaping recommendations to remove sticker grass and replace the plumeria trees are also noted. Several biological studies will be completed for the Draft Environmental Impact Statement (DEIS) that will assess the current environment of the parks' land and surrounding waters. The City will implement more landscaping improvements within most of the long-term proposed projects so plumeria trees could be considered. As for the immediate projects, which are listed as the Mayor's 9-Point Community Action Plan, the City planted more trees, and upgraded the irrigation system to be more water efficient and to provide more coverage. The City is working to improve overall maintenance by increasing staffing at the parks.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Michael Tominaga <mineyo306@yahoo.com>
Sent: Friday, January 19, 2018 2:09 PM
To: Joanne Hiramatsu
Subject: My comments on the Ala Moana Beach Park and Magic Island EISPN...
Attachments: AlaMoanaPlan.pdf

Follow Up Flag: Flag for follow up
Flag Status: Flagged

I have included my comments on the EISPN as a separate attachment. Thank you for the opportunity to be involved in the process.

Michael Tominaga

ALA MOANA PLAN
COMMENTS ON ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE
Michael P. Tominaga

SUMMARY

The focus of the improvement to Ala Moana Regional Park and Magic Island should be on improving the maintenance and performance of what exists BEFORE attempting to “improve” on what exists. Very little has been stated about the quality of care the current park and island have received over the years. THAT is a testament to what we can expect to happen to the plans for improvements and additions after they are created.

Many of the planned additions don’t seem to take into account the performance and funding of maintenance once they have been created. Where will the money come from to take care of all these additional features? What are the reasons that the current park and island have fallen into such disrepair? Have these reasons been identified and resolved? These should be the focus of improvement before more burden is placed on those that will have to maintain them.

We should all relate to the statement: Show me that you can take care of what you have before thinking you can take care of more.

Lack of adequate parking, while identified as an existing problem, seems to be relegated to an after thought, rather than a ongoing consideration with every other facet of change to the park and island. It should be a high priority and issue addressed with the consideration of any ‘improvement’. Improvements will increase users and users will need someplace to park.

Many of the new additions lack inclusion of justification for their creation. If there is a demand or need and it fits in with the theme of the park and island, it should be considered. Also resources for its maintenance and whether is can sustain itself with the demand that has been identified. Particular attention should be addressed to current features that have exclusive usage.

Resources are scarce and if an improvement is just someone’s idea of a novel addition, it may go the route of Magic Island as a resort. Luckily, it was turned into a green space for park users. Will every addition be as adaptable?

Has the possible need for $200K worth of repairs or $300K/year for 24-hour security been considered when the homeless have been deterred from Kakaako District and Gateway parks and find Ala Moana park convenient.

In conclusion, a majority of the resources should be utilized to bring the existing features to a higher level. Adequate parking on pothole less roadways, widened sandy beaches that address king tides, a pristine channel without sediment from shifting sands, operational showers and comfort stations, grassy areas especially under trees without weeds and dirt spots. These are all things that currently exist in varying, mostly substandard conditions. There is much to bring back to standard rather than ‘improve’ with features that have not been substantiated, justified or dedicated with maintenance resources.

TAKE CARE OF WHAT WE HAVE BEFORE ADDING MORE THINGS TO DEAL WITH.

I have **high lighted** and **underlined** portions of the EISPN with my comments. They follow below for your review and reference. Thank you for this opportunity to participate. I await either your response or action.

4 Project Description

The **City is proposing** to restore, revitalize, enhance, and improve the Ala Moana Regional Park (AMRP) and the Magic Island peninsula (Magic Island)1 grounds and facilities as a result of a recent master plan process that outlined both long-term and short-term improvement plans.

The initial proposal was full of many commercial entities that appeared to have originated from the present administration. News coverage indicated that there was little public support of these endeavors.

The EIS will evaluate direct impacts associated with the proposed action, as well as indirect and cumulative impacts associated with the project.

4.1 Purpose and Need for the Project

The Parks' resources and amenities have a significant amount of wear and tear from exposure to the coastal environment, a high volume of usage, **unavailability of funding to replace deteriorated infrastructure, and vandalism over the last 80 years**.

Throughout this presentation, nothing has been presented to show that consideration was given to how maintenance of all the new additions will be funded.

Approximately 300- 350 homeless either pass through or stay at the Parks every day. Other issues raised by the community and focus groups were accessibility, night security lighting, ocean safety, sand erosion, canoe ramp steepness, repair of comfort stations, tree health, broken grass, local favorites concessions, **inadequate amount of parking**, lack of loading and unloading zones, and general maintenance and management concerns.

Appears that parking is lower on the priority of issues raised. It is an existing concern and with the increase in users, it should be an ongoing high priority consideration. The number of parking stalls should increase with every item that might increase the number of users to the area.

There was no desire to upscale the Parks with modern motifs and added structures.

This substantiates concern that some of the City proposed commercial entities may not have been totally eliminated despite the lack of public support.

4.2 Background

Structural construction at the AMRP began soon after in the 1930s on the new land with the Sports Pavilion and Banyan Court, a lawn bowling green, the Bridle Path Bridge, and the

Roosevelt Portals. The two ponds and **drainage canal** were dredged around 1932 for both aesthetic and local run-off control purposes. These earlier structures remain today and **most will be considered for preservation or restoration** in the EIS. In 1988, the AMRP received historical recognition as a significant property on the State Register of Historic Places. The main goal for the AMRP during its conception in the 1920s was to have a place with lots of green open space that was accessible to all communities for recreational activities.

The Drainage Canal Covering seems to go beyond "**preservation or restoration"** consideration. (see more in Proposed Action)

The idea for Magic Island was first conceptualized as a major resort area in the late-1950s. Two parts of a three-part plan that included engineering and planning reports were completed in 1961.3 The study goal was to weigh the possibilities for development of the resort area and offshore island through reef reclamation. **The plans for the resort area and island did not develop due to overwhelming public opposition to the proposal.** As a result, Magic Island was added to the AMRP as additional open space.

Hopefully, this time around, we will learn from the past and not go ahead with something that has met with public opposition prior to its creation.

Today, the Parks remain significant to history and the community. They have increased in importance over the years as the population continues to grow and as various forms of recreation evolved. They continue to serve as a host for large venues and events. **There is a need to ensure the Parks' sustainability while meeting the demands on them placed by community.**

Sustainability seems to be an after thought. The only fiscal consideration conveyed in this report seems to be the creation utilizing Capital Improvements funding.

4.3 **Proposed Action**

Are these presented in a priority? Since nothing stated to think otherwise, they portray that additional parking is solely dependent on the inclusion of the new feature.

The proposed elements reviewed in the EIS include:

Pi'ikoi Street entrance expansion and plaza;

Justification/substantiation for its inclusion? Is there a demand from public for non-vehicular entry to the park? How much usage will this feature receive? Will cost of maintaining this addition be considered before decision to create?

Widening the promenade along the makai side of Ala Moana Park Drive;

The effects on parking should be carefully considered and not be a result of what the widening of the promenade dictates.

Widening the promenade along the Ala Wai Small Boat Harbor; with improvements to the existing canoe launch ramp;

Parking must not suffer or decrease due to this feature. This feature should have the result of providing access to more people, increasing the possibility of needing more parking to allow those that commute to enjoy the feature.

Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones;

"Rearranging" conveys that the specific 'feature' will dictate the amount of parking that will result. Since it has been stated that parking is an existing issue, it should be highly prioritized when considering any feature.

"…to open views to the ocean…" is a very weak justification for eliminating much needed parking. WHO will benefit from these open views? Has a demand for these open views been determined to exist? Locating on the beach will provide the view for anyone in the immediate vicinity by simply crossing the street.

Configure parking stalls on the mauna side of Ala Moana Park Drive to perpendicular and parallel stalls;

Parking must not suffer or decrease due to this "configuration" who's purpose is to allow the addition of a feature.

Keyhole parking lot expansion;

Unclear what this expansion entails. No clear whether parking will increase or decrease.

Elongating Magic Island parking lot;

"Elongating" doesn't clearly state whether parking will increase or decrease to facilitate the creation of a feature.

Improve the pond edges;

Improve McCoy Pavilion to include a dining facility;

No specific justification for this feature. Other than various annual events, this facility seems a reoccurring location for HPD and HFD functions. How will this new feature be maintained and sustained?

Redesign the elevated area in the middle of the park on the makai side of Ala Moana Park Drive for Americans with Disabilities Act access;

Sand replenishment and long-term beach nourishment;
Offshore collection of sand doesn't specify deal with the previously deposited sand that has migrated to the channel between the beach and reef. This migrating sand will continuously fill

the channel and will eventually need to be removed. Has reclamation of the shifted sand from the beach to the channel been considered?

Build a Playground;

Relocate the Maintenance Yard;

No justification or rationale provided to substantiate this feature. Will this involve expansion of the current size? What will become of the current location? How will this new location be maintained regarding funding? Making a new yard is nice but will the funding be available to maintain it?

Drainage canal covering;

While this feature will create more ground for park users, what is the demand for this area? Currently, the closer to the beach portions of the park are more desirable. How will the maintenance of this covered canal be funded? Has thought gone into the maintaining of build up coming downstream from residential/commercial areas?

Create a multiuse facility at the Lawn Bowling area;

Will the exclusive user of this facility be contributing to the cost of this multi-use facility?

Relocate the Ocean Safety's Honolulu Headquarters;

Improve the entrance at the Kamakee Street entrance.

Unclear on details that comprise this 'improvement'. What needs to be improved?

4.4 Alternatives Considered

4.4.2 Enhance Alternative

The enhance alternative includes all proposed improvements in the restore alternative with **some changes to the existing conditions**. This is the preferred alternative that was selected and the projects are identified in Section 4.3.

More details need to be provided for "…some changes to the existing conditions." to ensure that private and personal agendas that have not been accepted by the public are included.

4.4.3 Evolve Alternative

A multi-story parking structure where the outer shell would be designed to camouflage concrete walls

…**, the evolve alternative was not considered further.**
This feature should be considered for inclusion into the Enhance Alternative. Since additional parking is an existing need and will increase with all new features added.

4.5 Timeframe

The Final Environmental Impact Statement (FEIS) is expected to be completed by the end of 2018. Design of the park improvements will then begin. Once all land use, environmental, and construction permits and approvals, as well as financing, are secured, construction can commence.

There is no mention of public input. Many details in this plan are still uncertain.

4.6 Funding Source

The proposed improvements will be paid for by the City's capital improvement project funds.

This does not take into account the cost to maintain all this new features to the park. Consideration of how easy or difficult it will be to secure funding to maintain all these features should be included in the decision to

5.6 Marine Environment

Sand replenishment work is proposed for the beach and will require offshore dredging in the nearby ocean. Sand replenishment was done recently for two projects at Waikīkī Beach and Kūhiō Beach. Both projects recovered sand directly offshore or adjacent to the project areas. **A sand source investigation will be done to determine a suitable site to dredge the sand for Ala Moana Beach. Any sand placed on the shoreline will be tested to ensure that the material is not contaminated.**

Reclamation of the sand that has shifted from the beach to the channel between the beach and reef should be seriously considered. It will address the eventual issue of dealing with shifting sands from multiple replenishment projects with sand from other locations.

5.10 Visual and Aesthetic Resources

Visual resources include scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value. Improvements to the Parks' visual and aesthetic resources are not expected to be impacted by the proposed action.

The City also proposes to reconfigure the parking along the Ala Moana Park Drive to improve the view of the ocean.

The "improve the view of the ocean" is a very weak justification to change and possibly decrease the number of parking stalls which is inadequate at the present time. The "view" can be improved by someone simply crossing the drive to be directly on the promenade or beach. Perhaps the improvement of view is for those luxury condos coming up on the Mauka side of Ala Moana Blvd. Let them walk across the street to enjoy the view.

5.11 Recreation

The main recreational amenities at the Parks are the large open spaces and beaches. According to recent public outreach meetings, the highest recreational use of the Parks is water related. The water recreation focus groups suggested better management of suitable areas for calm water activities like paddle boarding and swimming. **The buoyed areas may need updating as safety has been an issue near the reef.**

No details to substantiate the need for "updating". Are use of resources necessary? When infractions of usage are committed, who will handle enforcement?

5.12 Public Health, Safety and Service

The AMRP is currently closed to the public at night between 10 p.m. and 4 a.m. Magic Island and parking lot closes two hours earlier at 8 p.m. Park closure during the night is meant to deter homeless from staying in the Parks, and to prevent crime. **The Honolulu Police Department (HPD) may monitor the Parks during closed hours.** Response from the HPD would come from District 1 (Honolulu) police stations.

Enforcement of rules should not be placed on HPD. Every new law's enforcement is placed on HPD without regard to how it effects their manpower resources. Laws, just for the park already include animals, feeding animals, shopping carts, tents, alcohol, smoking, fireworks, parking, reserving parking stalls, paddlers v. swimmers in the channel… Some thought needs to be given to enforcement costs before laws are created and who will enforce them. Park rangers with citation power, patrolling the park would be able to cite violators or at least summon HPD and substantiate those acts that need to be witnessed.

5.15 Circulation, Traffic, and Parking

A parking study was completed and it was used to substantiated the need for additional parking and propose options for areas where additional parking is possible. A traffic study will assess baseline traffic condition in and around the project area. It will evaluate the parking reconfiguration and lane options and its impact to the current ambient traffic. Results of both studies will be presented in the EIS along with any needed mitigation to avoid or minimize associated impacts.

The already completed parking study should place parking as a priority over ALL NEW additions that will create more user population. Parking should not be secondary to any NEW additions, particularly changes that will decrease the already existing stalls.

Adverse impacts to the circulation and traffic environment resulting from the improvements are not expected to be significant.

Disagree with this assessment. More details are required which define and identify adverse impacts.

5.16 Infrastructure

The majority of the project area is open space that is heavily used for recreational purposes. Infrastructure at the Parks, includes water supply for irrigation and drinking water, wastewater collection system, drainage, electricity, communications, and solid waste collection. Adverse impacts to infrastructure are not anticipated as a result of the proposed action. **The improvements will not significantly increase demand on the existing utilities.**

The existing utilities are already significantly stressed due to lack of adequate maintenance. The improvements, without additional resources to bring the existing utilities to adequate standards AND improved maintenance to keep these utilities in working order will only further burden the park. Whether it is lack of resources or corrective action, the future will be dim if no change in the performance of maintenance or resources to address the customary costs are addressed.

6.2.4 State Functional Plans

These committees hold a forum to discuss the matters within their functional plan that relates to budget, executing actions and implementing a timeframe. The functional plans include: Agriculture, Conservation Lands, Employment, Energy, Health, Higher Education, Historic Preservation, Housing, Recreation, Tourism, Transportation, and Human Services.

The care of the park will fall to the City and County of Honolulu. No listing is included for the C&C Hnl or an entity that appears to handle the resources they will need to maintain the improvements and additions AFTER they are constructed.

6.2.7 Stream Channel Alteration Permit

As outlined in HAR Chapter 13-169-50, no stream channel shall be altered until a SCAP is issued by the commission. In this context, channel alteration means to **"obstruct, diminish, destroy, modify, or relocate a stream channel; to change the direction of flow of water in a stream channel; to place any material or structures in a stream channel; or to remove any material or structures from a stream channel."**

This directly relates to the covering of the stream just makai of Ala Moana Blvd. Many things need to be considered when this water flow is covered up to provide more green space. Resources necessary for the maintenance and to clear it out once upstream sediment and objects flow down and clog the less accessible body of water.

9. Public Outreach

Early consultation on the project has been carried out with various agencies and stakeholder groups as part of the scoping process for the AMRP Master Plan. The first public informational meeting was held on March 10, 2015 to provide opportunities for the community to obtain information on the proposed action and to provide their concerns about changes to the Parks. A second public meeting was held on April 28, 2016 to show the community some of the improvements being considered at the Parks, based on what the development team heard at the first meeting. As a result of these public interactions, substantial input from agencies and the public was obtained. With the information received through this outreach, the distribution of this EISPN, and subsequent

consultations, environmental concerns should be sufficiently identified prior to finalization of the EIS.
Consulted parties, the City's public informational meetings, and the parties to be consulted with distribution of this EISPN are identified in the following section.

There appears to be a pattern. Many undesirable inclusions persist and remain in one form or another with each segment of this process. It appears that the generating force creating each revision continues to attempt and include features that have already be reviewed and rejected. This only slows the process.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 3:57 PM
To: mineyo306@yahoo.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Tominaga,

Thank you for your email dated January 19, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN and we are providing response on the proposed action.

Piʻikoi Street entrance expansion and plaza, drainage canal covering

The goal is to create a third main entrance for pedestrians that is centrally located and closer to the proposed rail station. This entrance is meant to help with crowd circulation especially during large events and emergencies. Changes to existing structures and walls will be minimal, since this is a pedestrian access, not a vehicular one. A portion of the drainage canal will need to be covered to accomplish this. All such changes will need to be reviewed by the State Historic Preservation Division.

Reconfiguration of parking stalls

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

As for the issues of parking and circulation - the Draft Environmental Impact Statement (DEIS) will include a parking study and a traffic study, detailed presentations of changes to parking areas, and the expected increase in parking stalls. Please keep in mind that the City does not plan to reconfigure Ala Moana Park Drive into a one-way road and both vehicular entrances and exits would remain. Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure

all drivers, moped riders, and bikers within the park drive with caution. The full results of the studies will be available for public review in the DEIS appendices.

Widen promenade along Ala Wai Small Boat Harbor

Parking would not be affected if the Magic Island parking lot is also elongated in the process. This project is not considered high priority and may be something added in the future.

Parking lot expansions

The City is reviewing the Keyhole parking area and Magic Island parking lot as possible areas of opportunity to create more parking stalls. The keyhole parking is being reviewed to balance out the number of stall on the ʻEwa side of the park with the Diamond Head side. As for Magic Island parking, it is being reviewed in an elongated configuration to give park users closer access to the picnic spots and the lagoon. This will also help emergency vehicle access in the event of an emergency on Magic Island.

Improvement of McCoy Pavilion

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and the Scottish Festival.

Sand replenishment and long-term beach nourishment

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will demand additional studies to help determine viable options and permits will be needed for this work.

Building a playground

A site for the playground has been selected behind the Diamond Head concession area, but no immediate plans have been developed.

Relocate Maintenance Yard

The current maintenance yard is located near the Atkinson Street entrance. The City would like to move the maintenance yard to a more central location in the park.

Creating a multi-use facility at the Lawn Bowl area

The Master Plan identifies a multi-use area at or near the lawn bowling area. This concept has not been designed in detail and is viewed as a long-range improvement that may not be implemented immediately. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for added recreational uses; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized.

Improving the Kamakee Street entrance

Proposed improvements for this entrance is mostly related to landscaping and designing it with the art deco theme like the Atkinson entrance.

Comfort Station Improvements, Security

The City concurs with the need for improved maintenance, and has increased staffing for better maintenance and cleaner comfort stations. These facilities are currently undergoing major renovations. The City's commitment to improve park security started with hiring more park staff dedicated to these issues. Other security measures were implemented such as installing cameras at all comfort stations and the comfort stations are closed after hours. Park staff supervise security of the parks during the day.

Prioritization of Projects and Funding

You are seeking prioritization of funding for the parks' projects. Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, so not all projects will be implemented in the near future. Based on land use laws, open spaces reserved for public use needs to be made available and maintained. The goal of the project is developing a sustainable plan for the parks that will do more than maintain, but preserve the resource for many generations. More money would be spent on maintenance of the parks without a sustainable plan. The City views the option of leaving the parks as they are as unsustainable due to their age and many years of depreciation. The parks receive the most visitors of all the parks in the state and the number of visitors will increase because population growth is inevitable. Proposed improvements are meant to allow visitors to use the vacant areas of the parks and enhance the popular areas so they can withstand more use in the future.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Michael Wong
mustang68@hawaii.rr.com
Dec 29, 2017 at 11:02 UTC

Please don't for the sake of the kamaaina, remove all of the makai parking stalls; we don't want it to be another waikiki. Those stalls is what makes Ala Moana Park so special for 60 years. Please don't pave paradise and put up a parking lot. Pono Ala Moana.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:01 PM
To: 'mustang68@hawaii.rr.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Wong,

Thank you for your comments posted December 29, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN regarding the removal of parking on the makai side of Ala Moana Park Drive.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized, and after the plans are reviewed by the public and agencies. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: msmatson@hawaii.rr.com
Sent: Tuesday, December 26, 2017 9:50 AM
To: Joanne Hiramatsu; Rebecca Choi
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Thank you for this EISPN notification. Please include the O'ahu Island Parks Conservancy on the Special Interest and Stakeholders Groups list at this email address.

Mahalo,
Michelle S. Matson
President, O'ahu Island Parks Conservancy

---- Rebecca Choi <rchoi@bchdesign.com> wrote:
> Environmental Impact Statement Preparation Notice (EISPN) Ala Moana
> Regional Park and Magic Island Improvements Tax Map Key: (1)
> 2-3-37:001, 002, 022,023, 025 Honolulu, O'ahu, Hawai'i
>
> Aloha Participant,
>
>
> On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.
>
> On December 13, 2017, the EISPN was submitted to the Office of Quality Control (OEQC) under Chapter 343, Hawai'i Revised Statutes, requirements. By that submittal, a notice of the EISPN's availability was published in the OEQC's December 23, 2017 issue of The Environmental Notice. Publication of that notice initiates a public review period of 30 days. You may review the EISPN document on the OEQC's website:
>
> http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moa
> na-Regional-Park-Improvements.pdf
>
> We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:
>
>
> Mailing Address: Belt Collins Hawaii LLC
> 2153 North King Street, Suite 200
>
> Honolulu, HI 96819
>
>
> Attention: Joanne E. Hiramatsu
>
> Email Address: Joanne E. Hiramatsu
> jhiramatsu@bchdesign.com<mailto:jhiramatsu@bchdesign.com>
>
>

> We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com<mailto:jhiramatsu@bchdesign.com>.
>
>
> Sincerely yours,
> BELT COLLINS HAWAII LLC
>
>
>
> Joanne E. Hiramatsu
> Director of Planning
>
>

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:02 PM
To: msmatson@hawaii.rr.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Matson:

Thank you for your email dated December 26, 2017 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your request.

You requested to have the Oʻahu Island Park Conservancy be placed on the Special Interest and Stakeholders Groups list as msmatson@hawaii.rr.com. Your request has been noted and your email address has been added. We will contact you when the Draft Environmental Impact Statement (DEIS) is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Mikal Weiss <mweiss@mikalweiss.com>
Sent: Monday, January 01, 2018 11:58 AM
To: Joanne Hiramatsu
Subject: Comment on EISPN

Please consider adding Pickleball Courts! Growing sport all over the Island, as well as nationally, and very few permanent courts. Thanks.

Mikal M. Weiss (808-600-4090)

The information contained in this electronic message and any files transmitted with it may be legally privileged and confidential, and intended only for the use of the individual or entity named above or to whom it was directed. If the recipient of this message is not the above-named intended recipient, you are hereby notified that any dissemination, copy or disclosure of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and purge the communication immediately without making any copy or distribution. Thank you.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:03 PM
To: mweiss@mikalweiss.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Weiss:

Thank you for your email dated January 1, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your suggestion that the City add pickleball courts.

The Master Plan identifies a multi-use area at or near the lawn bowling area. This concept has not been designed in detail and is viewed as a long-range improvement that may not be implemented immediately. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for added recreational uses; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized.

Your comment will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Nancy Ardito-Ng
nebulousnancy@gmail.com
Jan 23, 2018 at 23:58 UTC

I am not happy with the new proposal for perpendicular parking on the mountain side only. It means that everybody who wants beach access will have to cross the street. People with small children, the elderly,people carrying coolers, surfboards, all the things that people take to the beach,will be forced to cross the street. In what world is that safer, or more convenient? Please don't make this change to our family/people friendly Ala Moana Beach Park.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:09 PM
To: 'nebulousnancy@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Ardito-Ng,

Thank you for your comments posted January 23, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN regarding removing parking on the makai side of Ala Moana Park Drive, and perpendicular parking on the mauka side of Ala Moana Park Drive.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Perpendicular parking is a standard accepted design for our city parks; it maximizes the use of park space. Additional speed bumps and signage can be installed on the park road should it be deemed necessary and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: overdafalls <overdafalls@gmail.com>
Sent: Saturday, January 20, 2018 9:06 AM
To: Joanne Hiramatsu
Subject: Ala Moana Park Development

Follow Up Flag: Flag for follow up
Flag Status: Flagged

DO NOT GET RID OF MAKAI PARKING STALKS. DEVELOPERS AND VENTURE OUTSIDERS ALREADY SCREWING OUR WAY OF LIFE IN HAWAII.

Sent from my T-Mobile 4G LTE Device

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:07 PM
To: 'overdafalls@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Overdafalls@gmail.com,

Thank you for your email dated January 20, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we reviewed your comment that states, "do not get rid of makai parking stalls."

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is now evaluating and considering the feasibility of other options for this area. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for parking; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Patti Choy <halamango@gmail.com>
Sent: Thursday, January 18, 2018 2:37 PM
To: Joanne Hiramatsu
Cc: Patti Choy
Subject: Ala Moana Park

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Dear Ms. Hiramatsu,

It is with utter frustration that I write to you about the "improvement" plans for Ala Moana Park and Magic Island.

If the Caldwell administration has good listening skills and puts the desire of longtime Hawaii residents first over the rich cats moving into Kaka'ako, then the park needs to remain as is.

Yes, of course, existing structures need to be renovated, but not expanded, and safety issues need to be resolved such as, continuing to improve bathrooms, lighting, renovate McCoy Pavillion, etc.

Do not touch or reconfigure the existing parking spaces that run parallel to the beach. The access from car to sand when using those parking stalls is a large part of the beauty of the park. Redrawing the parking stalls to pack in more cars will just make the park a madhouse.

Who has complained that the sidewalk (parallel) to the ocean is too narrow?? Probably no one. Leave the walkway as is. Making it wider just adds more concrete to the park which will then generate more heat! People have coexisted on that walkway for decades.

We don't want any beer gardens/alcohol in the park, and no commercial entertainment areas or special playgrounds for rich kids.

Just hear out what the majority of local people said from the beginning of this process and your work will be easy. Follow what we stated. Do not commercialize the park and turn it into a Central Park for rich out of towers.

Caldwell should refocus his energies and instead of working against local people and what they want for the park, go after all the illegal businesses that abuse public land and ocean with the park: land and water yoga classes, SUP classes, scuba diving tours, the bridal industry catering to non-local residents, Segway tours, to name a few.

I am frustrated, along with friends and family, who can't help but think that Caldwell has another agenda for the park and it does not coincide with our wishes.

No matter how long ago the budget was approved for the new beach volleyball courts, we see the building of the courts as a symbol for what is to come for the park: commercialization and building up the park for new residents to Hawaii and not keeping the park as is, for local people!

Enough is enough! Hands off Ala Moana Park!

Patrice Choy
Honolulu, HI

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:08 PM
To: 'halamango@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Choy:

Thank you for your email dated January 18, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN. You express the need for renovation of existing structures, rather than expanding, and resolving of safety issues in the Park.

McCoy Pavilion Renovations and Commercialization

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that continue to use the dining room for planned special events throughout the year. As stated in Section 4.4.3, Evolve Alternative, of the EISPN, "modernization of the parks would attract more visitors and would not preserve the parks' existing character" so the alternative was not considered further. However, a "No Action" or "leave the parks as is" is also not a viable option due to their age and many years of depreciation (Section 4.4.4, No Action, EISPN). The parks receive the most visitors of all the parks in the state and the number of visitors will increase because population growth is inevitable. Proposed improvements are meant to allow park goers to use other areas of the parks and also enhance popular areas so they can withstand more use in the future.

Playground

A site for the playground has been selected behind the Diamond Head concession area, but no immediate plans have been developed. Playgrounds are common facilities in the City's parks.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Park and Beach Maintenance

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will explain proposed repair and maintenance of the beach and parks in more detail. Some of that maintenance is currently implemented through increased staffing for maintenance and security.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Peter Oleson
peter.oleson@yahoo.com
Jan 19, 2018 at 19:58 UTC

The lawn bowls facility is important to help our senior citizens in particular maintain their fitness through doing sports. In improving Ala Moana Park, as physicians say "first, do no harm." The proposed "multipurpose use" of the lawn bowls facility is a red herring for unspecified and unknown development.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:10 PM
To: peter.oleson@yahoo.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Oleson:

Thank you for your comments posted January 19, 2018 on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments regarding alteration of the lawn bowl facility and proposal of a "multi-purpose use" area at the lawn bowl facility.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized and after plans are reviewed by the public and agencies. No detailed plans have been developed for multi-purpose use.

Your concerns and more detail concerning planned improvements will be included in the DEIS. We will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Our Ala Moana Park Website comments during the EISPN comment period

Ralph Germann
ralph_germann@hotmail.com
Jan 18, 2018 at 18:18 UTC

I swim the length of the beach park from Magic Island to the Kewalo Basin end 5 days a week. Parking in the Magic Island parking area is most important to me as I have a disability. Beach sand as far as low tide 2 foot depth is very important for safe access and egress. Most of the area along the park's beach has sharp rocks and is not safe for swimmers except by the Magic Island life guard station and the McCoy Pavillion life guard station. It is important to be able to exit the water anywhere along the beach and not just at those two points. These are two of the most important improvements I am interested in seeing done at Ala Moana Park. Thank you.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:11 PM
To: ralph_germann@hotmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Germann,

Thank you for your comments posted January 18, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments regarding your preference to park at Magic Island, and for safe beach entrance/exit along the length of the beach.

Your concerns will be included in the Draft Environmental Impact Statement (DEIS). Sand replenishment and long-term beach nourishment are proposed actions for this project. The City will continue to remove the sharp coral from the beach in the meantime. Additionally, several options are being proposed regarding parking and access, this includes adding more Americans with Disabilities Act stalls and drop off areas.

The City will proceed with design after the EIS has been finalized, and after project plans have been reviewed by the public and agencies. We will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Ray Madigan <ray52madigan@gmail.com>
Sent: Thursday, January 18, 2018 9:48 AM
To: Joanne Hiramatsu
Subject: Comments on the Ala Moana Projec

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Dear Joanne Hiramatsu,
I agree with the comments made by Stan Sakai which I have copied below. I particularly agree with his comment regarding the widening of the promenade leading to hot feet!
Need more showers!
Keep it simple. This is the "People's Park", not the the "Tourists Park". Forget beer gardens. We don't want any alcohol consumption. Provide facilities for the families who come to BBQ and get out of their apartments to enjoy the simple natural environment. Less concrete. Do we really need restaurants in the park? It's a park not an extension of Waikiki.
Good clean toilets with shady trees. No unnecessary buildings. Keep it as natural as possible. Plenty of trees, less concrete.
Better off site parking and public transport. Do not take away green space! It's a precious resource. Don't pave paradise and put up a parking lot!

1. PROMENADE
a) The grassy areas along the promenade is used by many for setting up picnics. Is the intention of the new design to eliminate this?
If not, then people will be hauling their picnic and BBQ supplies from their cars parked on the mauka side of Ala Moana Park Drive. This will impede traffic flow and make it more difficult to people to use the park.

b) If you widen the promenade, what will happen to the trees? If you keep the trees than the promenade will essentially be split into two lanes. This will not actually widen the existing promenade.

c) If the trees are to be kept, will widening the promenade injure or shorten the lives of the trees, which are 'historical' features of the park?

d) On hot days, the concrete and asphalt surfaces in the park can easily burn the feet of adults and kids walking bare footed. If you widen the promenade with more concrete, you're adding more of these 'hot' surfaces and there won't be any nearby cooler grass surfaces for people to escape to.

2. PARKING

a) One problem with removing the parking on the makai side of Ala Moana Drive is that many more pedestrians will be crossing the street. This will: (1)impede the flow of traffic and (2)increase the risk of a pedestrian getting hit by a car, more so after dark. The street lighting in the areas where pedestrians are expected to cross the street should be bright enough for drivers to easily see pedestrians.

b) Keep the parking on the makai side of Ala Moana Drive along the raised picnic area. These would provide convenient parking for those picnicking in the raised area and also for those using the Great Lawn. This wouldn't affect the 'open views of the ocean' because the ocean isn't visible from these

parking stalls.

c) Keep the parking on the Ewa side of Ala Moana Drive just as you enter the park. These stalls will provide parking for those using the Ewa end of the park and they do not affect the 'open views of the ocean.'

d) Design the perpendicular and diagonal parking stalls wide enough to accommodate larger vehicles, which are common at the park, and also to give people enough room to easily unload their vehicles without hitting adjacent ones.

e) Perhaps, create additional parking on the Diamond Head side of McCoy pavilion. These would provide parking for the tennis courts, pavilion, and also for the Great Lawn.

3. BEACH EROSION

a) Efforts should be made to reduce the wave action along the sandy beach shoreline to minimize beach erosion. Otherwise, replenishing the sand might be just ongoing. There used to be large rocks outside of the swim channel. I was told that many of these fell into the channel after one of the hurricanes. Perhaps setting up structures along the reef edge of the channels, like the former rocks, might diminish the wave action at the beach.

b) Efforts should be made to address potential problems that might occur due to sea level rising.

4. INVASIVE PLANTS
The autograph trees in the center of the keyhole parking area are on the list of invasive trees. They and other invasive plants should be identified and removed. There might be some mangrove trees in the Ewa pond that need to evaluated.

http://hawaii-agriculture.com/autograph-trees-are-invading-hawaiis-forests/

http://www.hear.org/misc/pdfs/misc_invasiveplantexamples.pdf

5. PARK TRAFFIC
The park exit at the Atkinson Street side needs to be improved.
The right turn lane from Ala Moana Park Drive onto Ala Moana Blvd is too short. Cars that want to make this turn need to que with cars going straight into Atkinson. To lengthen this right turn lane the historic arch that spans the sidewalk will need to be relocated.

6.BEACH FACILITIES

a) More charcoal fire pits should be provided and these should be visible at dusk and into the early evening when picnickers are cleaning up.

b) A shower/wash station somewhere near the entrance to the Keyhole parking would be a convenient feature. This will give beach-goers a place to rinse off before proceeding to their cars.

c) Especially on windy days, trash from the shoreline is being blown into ocean, sometimes from the trash cans and sometimes from trash strewn in the park and along the beach. This should be

addressed.

7. PARK MAINTENANCE COSTS
An assessment of the maintenance costs of any improvements made to the park should be done. Projects that involve significant maintenance costs, especially short-term and ongoing, might not make sense.

8. SIGNAGE

a) Signs describing the rules of the park need to made more obvious. Current signs are too high and too small. The better parks throughout the US have clear signage that helps the public understand the park rules to keep them safe and to protect the park.

b) At the outdoor showers that drain into the sand, clearly visible and readable signs should be posted stating that the use using soaps and shampoos is not allowed.

Raymond Madigan, R.N.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:12 PM
To: ray52madigan@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Madigan,

Thank you for your email dated January 18, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments. You state your agreement with Stan Sakai's comments and included comments of your own. Responses to the comments are below.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities, such as the dining facility, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Rebecca Choi

From: Joanne Hiramatsu
Sent: Monday, January 22, 2018 7:27 AM
To: Rebecca Choi
Subject: FW: Ala Moana Beach Park

From: sen uyeunten [mailto:sen@flex.com]
Sent: Monday, January 22, 2018 12:45 AM
To: Joanne Hiramatsu <jhiramatsu@bchdesign.com>
Subject: Ala Moana Beach Park

Hi Joanne,

Mahalo for taking the time to read all our(my) comments.

Keep the Makai (and Mauka parking too) parking along Ala Moana Park Drive. People enjoy being able to drive up, park, then have a relaxing day along the grass, right next to their car along the beach. There are very few place that allow that in town (Kakaako and Kewalo have no beach/sand, Kapiolani is too far from the road/parking). The parked cars provide a wind block along with a little privacy from the passing traffic, like a wall. The improvement should be to widen the grass area (about 2x the current size) to help keep the walkway free and clear.

The beach/ocean views is nice to have, but not at the loss of the Makai Parking. Loading zones along the Makai side will turn into "parking zones" until the police show up. Then it will be "move the car and return back" until the police show up again. People will park there anyway. More people will be upset at the loss of any Makai Parking, then being happy having a beach/ocean view. Maybe just the visiting tourist will enjoy the beach/ocean views as they drive by.

Traffic and parking are the 2 biggest problems. Need more exits, or a better exit flow getting out of the park. A parking lot and exit(to Ala Moana Blvd) on the "Diamond Head" side of McCoy Pavilion is needed. The exit can be just a "right turn only" lane onto Ala Moana Blvd. The parking lot(and loading/unloading area) should be big enough for events at McCoy Pavilion that will stop the need to block other parking in the park.

Maybe a coral rock "crusher" is needed. There seems to be a good supply of coral rocks that can be made into sand. The current that is pushing" the sand along most of the beach(area in front of the tennis courts) is from the Tradewinds and not really the ocean waves. The Kewalo end of Ala Moana Beach has erosion from the ocean waves. Maybe a small breakwall will help there.

Move the Canoe Hale closer to the launch ramp so there is no need to cross the street. It is dangerous with may of the kids running across the street. Traffic is also a mess when the canoes are crossing the street.

Hope we can make Ala Moana Beach Park a better park for Honolulu's residents.

Mahalo, Sen Uyeunten

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:14 PM
To: 'sen@flex.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Uyeunten,

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN and provide the following responses.

Removing Parking Along Ala Moana Park Drive and Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Coral Rocks

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Relocate the Canoe Hālau

Due to space requirements for the Canoe Hālau and outdoor storage of the canoes, the Hālau may not be relocated to Magic Island, but the boat ramp is still planned for renovation with a wider, raised crosswalk at the ramp location.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Shar Chun-Lum <sharstocks@yahoo.com>
Sent: Monday, January 22, 2018 9:59 AM
To: Joanne Hiramatsu
Subject: Response to EISPN, Ala Moana Regional Park and Magic Island Improvements
Attachments: EISPN Save Ala Moana for the people.pdf

Aloha Joanne,

Mahalo for the opportunity to share my views on this EISPN. In the interest of time, I have limited my response to the two most concerning issues.

Sincerely,

Shar Chun-Lum

January 22, 2018

Joanne Hiramatsu, Director of Planning

Jhiramastu@bchdesign.com

Aloha Ms. Hiramastu,

Please halt further recommendation on two of the proposed actions summarized in the EISPN regarding Ala Moana Regional Park and Magic Island Improvements. The two proposals I refer to are: *"Widening the promenade along the makai side of Ala Moana Park Drive"* and *"Rearranging the parking along the makai side of Ala Moana Park Drive to open the views to the ocean and add loading and unloading zones."*

I have been an Ala Moana Park user since the 1950's when my Dad would take my brother, sister and me on Sundays to swim and play in the sand. As parents, my husband and I took our young sons to Ala Moana Beach on weekends. Now that we are retired, we go to the park several times a week.

Being at the beach so often, I see so many individuals, of all socioeconomic status, using the People's Park. Some are workers who park on the makai side looking at the ocean on their lunch break. Some are families who set up their tents on the grass along the makai parking area to enjoy the day. Some families have older, disabled or very young family members who sit or sleep in their cars while the rest enjoy the beach. People like to park on the makai side so they can easily access their cars rather than leave things on the beach. Families with lots of equipment like strollers, beach chairs, coolers, etc. prefer parking on the Makai side since parking on Mauka side can be hazardous as their keiki sometimes dart out into the road in their excitement to get to the beach. Even using the crosswalk can be a challenge.

In its current state, the sidewalk (or "promenade" as you have referred to it) is sufficient for pedestrians and joggers, who look out for each other. Less safe and probably illegal are the bike and Segway riders, as well as skate boarders, who create a hazard for others. Today, I witnessed a person walking his dog (also illegal in the park) while skateboarding down the sidewalk. If the sidewalk is widened as suggested, it will only encourage more dangerous situations, especially as people who are trying to get to the beach with their "stuff" from the mauka side may be hit by those Bike or Segway riders who may even feel encouraged to ride side by side, given the expanse of the "promenade." Should an accident occur between a jogger or pedestrian and such vehicles, the City may face a lawsuit for having willfully created the conditions for accidents to happen. As a person, I am concerned for the safety of other park users. As a taxpayer, I am not happy to see City funds spent wastefully.

By widening the sidewalk to make it a "promenade," it appears the grassy area and trees will be affected. What will the people who sit on the grass on mats or on beach chairs enjoying the shade of the trees while they read the paper, eat lunch, feed their children, wax their surf boards, or just talk story do? Where do the many families and friends who set up tents on the grassy areas on the makai side for a day of fun, with chairs, food and beach equipment go? I doubt that this would be possible or allowed on the "promenade."

"Rearranging the parking along the Makai side of the park to open the views to the ocean and add loading and unloading zones," appears to be doublespeak way of saying, "We are eliminating makai parking to open the view of the ocean, but it's okay because we will add loading and unloading zones." This is illogical. If you are at the beach, you have a view of the ocean, from the sand or in the water. How does this proposed action improve the experience for park users who want to park on the makai side for a multitude of practical reasons? Who is the audience who will enjoy the open view of the ocean? Is this action to enhance the view for the *"New urban residential developments mauka of the parks"* referred to in the second sentence of 4.1 Purpose and Need for the Project versus people at the beach?

My husband and I are 70 and 67 years old. We are lifetime residents and taxpayers of Hawai'i. An important part of maintaining our health is Stand Up paddling. It is important to us to park on the Makai side of the park, nearest the ocean and the showers to wash off our board and ourselves. Carrying the equipment to and from our truck is not easy for people our age. Parking on the Makai side of the beach is a Godsend. And we are not alone in this sentiment.

The last paragraph of 4.1 Purpose and need for the Project acknowledges that *"the community and current part users expressed the preference to keep the park's character the same." "…Remaining true to its local character as "The People's Park,"* requires recognizing what our people do and want at the park. These two plans go against the people's wishes. This afternoon, I approached a group of about 20 people that I didn't know, enjoying the beach with their tent up along the makai parking area, and mentioned that the Mayor was suggesting widening the sidewalk, and taking away some of makai parking and possibly the grassy area they were on. They all looked surprised and incredulous. One young woman spoke for all of their feelings when she said, "No way! It's great the way it is. Why are they trying to fix something that isn't broken?"

My husband and I have attended every public meeting held by the city to express our wishes about the future of the People's Park. We were assured that our participation was vital for making good decisions. After the second meeting, it seemed dubious. And now, as we plan to attend the January 29th meeting, it is even more disheartening that one of the most important issues of parking is still being manipulated for reasons not of or for the people. How disingenuous was it (and a waste of a million taxpayers' dollars) to ask for our opinions when it appears that some actions were already predetermined?

Please take these points to heart and recommend halting: *"Widening the promenade along the makai side of Ala Moana Park Drive"* and *"Rearranging the parking along the makai side of Ala Moana Park Drive to open the views to the ocean and add loading and unloading zones."* Let's encourage our City to focus on more necessary projects.

Sincerely,

Shar Chun-Lum

Sharlene Chun-Lum

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:16 PM
To: sharstocks@yahoo.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Ms. Chun-Lum:

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments on the EISPN and provide the following response.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Please note that the description of facilities, in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: S. Sakai <stansakai154@gmail.com>
Sent: Saturday, January 27, 2018 5:35 PM
To: Joanne Hiramatsu
Subject: EISPN for Ala Moana Park and Magic Island Improvements - Comments on proposed parking

Hi Joanne,

I know the deadline for responding to the EISPN was January 22nd, but when we first talked you mentioned that there might be some flexibility on this date. Having had more time to think through the proposed actions, I now have a better understanding of the important issues so I hope you'll include my comments from this email.

My first criticism is the proposed action "Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones." I am 100% against removing the parallel parking along the makai side of Ala Moana Park Drive and replacing them with loading/unloading zones. Secondly, I also have serious public safety concerns on the implementation of perpendicular or diagonal parking stalls on the mauka side.

The only argument in favor of removing the makai parking is to create an 'open ocean view,' but the list of negatives is considerably longer and includes serious public safety risks.

1. The current ocean views, even with the cars parked along the makai side, are more than adequate. People walking on the promenade, sitting on the low concrete wall that travels along the beach, or sitting on the beach already have 100% 'open ocean views.' People who are picnicking, playing ball sports on the Great Lawn, or playing tennis are not interested in an 'open ocean view.' They're involved in their activities.

2. Creating an 'open ocean view' will essentially create a 'scenic drive' that will encourage more people to drive through the park including tour vans and buses. In recent times, more tour vans and even double decker buses, have been coming into the park. All this extra traffic poses risks for pedestrians, impedes the park traffic, and increases the frustration of people trying to enjoy the park. The city should seriously consider banning "ALL" tour vans and especially buses from driving through the park as part of a scenic tour because there are no limits on how many businesses can drive through the park. Without some kind of control, in time, potentially all tours could include a drive through the park.

3. Eliminating the makai side parking will increase the risk of an accident because more people will be crossing the street to get to the beach from the mauka side. Many of these will be carrying beach supplies and equipment, including large paddle boards and surfboards. On windy days, it can get really difficult handling these while crossing the street. And, they'll be making the trip twice during their day at the beach, first toward beach and later back to their cars.

4. Drivers sightseeing through the park will be distracted by views of the ocean, beach, and 'beach bodies' rather that looking out for pedestrians crossing from the mauka side. Kids bolting across the street to get to the beach faster and moving cars with inattentive drivers are a bad mix.

5. Like the situation in Laniakea on Oahu's North Shore, the constant flow of people crossing the highway to look at the turtles brings
traffic to a crawl. The situation could be worse at Ala Moana because
beach goers will be carrying their beach supplies, paddle boards, surfboards, picnic supplies, beach equipment, etc., etc., etc. And, they'll have to do this at least twice, once heading toward the beach and later heading back to their cars.

6. Reversing out of diagonal or perpendicular parking stalling into oncoming traffic is much more dangerous than pulling out from a parallel stall. From a diagonal or perpendicular stall you have to creep out, literally 'praying' that no one is

cruising by, especially a driver who's distracted, perhaps by looking at the 'open ocean view.' For trucks with paddle boards or surfboards sticking out of their beds by a few feet, this gets even more risky.

7. Unloading and loading from the backs of cars, vans, and trucks is much more dangerous with perpendicular and diagonal stalls than from parallel ones. With parallel stalls, one just unloads unto the curb.
With perpendicular or diagonal stalls, you'll have to stand in the flow of traffic. And, at least for a moment, if you are unloading or loading a paddle board or surfboard the board will extend even further into the flow of traffic.

8. Loading/unloading zones on the makai side is impractical and will create problems for beach users. It's a nice conceptual idea, but uninformed and not well thought out. Here are some scenarios which could play out:

> Cars will be lining up waiting to load/unload. This will be worse at those times when most people are packing up and leaving and also on days when people are trying to escape a sudden downpour.
>
> People bring tents and all kinds of things for their day at Ala Moana. Some will take longer to load and unload. Who will police this? Will this frustrate beachgoers enough that some kind of confrontation ensues?
>
> After unloading, someone needs to watch the supplies while the driver leaves to look for parking. On a busy day, the only available parking could be at a far end of the park. This whole process, in reverse, will play out again when the group leaves the park; so much time wasted, so much unnecessary traffic.
>
> From the loading/unloading area, all the supplies will then have to be carried to a beach location. Many will probably setup close to the loading/unloading area rather than haul everything farther away. So, instead of spreading people across the beach, people will tend to be clustered around the loading/unloading zones.

9. Almost all cars these days are wider than previous models. The one shining feature of parallel parking is that it can accommodate wider vehicles. And, people can unload their supplies from the back of their vehicles without having to walk into traffic, as would be the case with diagonal or perpendicular parking stalls.

Lastly, Ala Moana Park has a long history for generations of residents who have fond memories and still cherish the park. That's why it's still so heavily used. All proposed improvements to the park should not destroy this history and the local park culture. From years of experience, the frequent and long-time park users have a very good understanding of how the park functions, more so than designers and planners, especially those from out of state who don't use the park and don't understand the culture of Ala Moana. As such, the opinions of the people should have a significant and dominant bearing on the proposed actions. They know what they want and they know what works for them.

Stan Sakai

Joanne Hiramatsu

From: S. Sakai <stansakai154@gmail.com>
Sent: Sunday, January 28, 2018 8:16 AM
To: Joanne Hiramatsu
Subject: EISPN for Ala Moana Park and Magic Island Improvements - Comments on proposed parking - LAST revision

Hi Joanne,

Sorry for sending another email, but I wanted to clarify section 6 and a bit of section 8. I just see too many problems with diagonal and perpendicular parking stalls for Ala Moana Park Drive so I wanted to make sure that the issues can be clearly visualized and understood.

The text below is the edited version of my previous email.

Stan

Hi Joanne,

I know the deadline for responding to the EISPN was January 22nd, but when we first talked you mentioned that there might be some flexibility on this date. Having had more time to think through the proposed actions, I now have a better understanding of the important issues so I hope you'll include my comments from this email.

My first criticism is the proposed action "Rearranging the parking along the makai side of Ala Moana Park Drive to open views to the ocean and add loading and unloading zones." I am 100% against removing the parallel parking along the makai side of Ala Moana Park Drive and replacing them with loading/unloading zones. Secondly, I also have serious public safety concerns on the implementation of perpendicular or diagonal parking stalls on the mauka side.

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2. Creating an 'open ocean view' will essentially create a ‘scenic drive’ that will encourage more people to drive through the park including tour vans and buses. In recent times, more tour vans and even double decker buses, have been coming into the park. All this extra traffic poses risks for pedestrians, impedes the park traffic, and increases the frustration of people trying to enjoy the park. The city should seriously consider banning "ALL" tour vans and especially buses from driving through the park as part of a scenic tour because there are no limits on how many businesses can drive through the park. Without some kind of control, in time, potentially all tours could include a drive through the park.

3. Eliminating the makai side parking will increase the risk of an accident because more people will be crossing the street to get to the beach from the mauka side. Many of these will be carrying beach supplies and equipment, including large paddle boards and surfboards. On windy days, it can get really difficult handling these while crossing the street. And, they'll be making the trip twice during their day at the beach, first toward beach and later back to their cars.

4. Drivers sightseeing through the park will be distracted by views of the ocean, beach, and 'beach bodies' rather that looking out for pedestrians crossing from the mauka side. Kids bolting across the street to get to the beach faster and moving cars with inattentive drivers are a bad mix.

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traffic to a crawl. The situation could be worse at Ala Moana because
beach goers will be carrying their beach supplies, paddle boards, surfboards, picnic supplies, beach equipment, etc., etc., etc. And, they'll have to do this at least twice, once heading toward the beach and later heading back to their cars.

6. Reversing out of diagonal or perpendicular parking stalling into oncoming traffic is much more dangerous than pulling out from a parallel stall. From a diagonal or perpendicular stall you have to creep out, literally 'praying' that no one is cruising by, especially a driver who's distracted, perhaps by looking at the 'open ocean view.' If there is another car parked next to you that's blocking your view of the oncoming traffic, it gets extremely dangerous. We've all been there trying to pull out of a stall in a parking lot. It's worse pulling out into a major traffic flow. You have to backup 'blind' until at least
1/2 or 3/4 of your vehicle goes past the adjacent car before you can even begin to see the oncoming traffic. At this point, your car will be in the flow of traffic and traffic flow will stop. For trucks with paddle boards or surfboards sticking out of their beds by a few feet, this gets even more risky.

7. Unloading and loading from the backs of cars, vans, and trucks is much more dangerous with perpendicular and diagonal stalls than from parallel ones. With parallel stalls, one just unloads unto the curb.
With perpendicular or diagonal stalls, you'll have to stand in the flow of traffic. And, at least for a moment, if you are unloading or loading a paddle board or surfboard the board will extend even further into the flow of traffic.

8. Loading/unloading zones on the makai side is impractical and will create problems for beach users. It's a nice conceptual idea, but uninformed and not well thought out. A comparable situation might be
the loading/unloading zones at the airports. When they get busy, these
loading/unloading zones become very congested and traffic flow stops.
Here are some scenarios which could play out if there are loading/unloading zones at Ala Moana:

> Cars will be lining up waiting to load/unload. This will be worse at those times when most people are packing up and leaving and also on days when people are trying to escape a sudden downpour.
>
> People bring tents and all kinds of things for their day at Ala Moana. Some will take longer to load and unload. Who will police this? Will this frustrate beachgoers enough that some kind of confrontation ensues?
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Lastly, Ala Moana Park has a long history for generations of residents who have fond memories and still cherish the park. That's why it's still so heavily used. All proposed improvements to the park should not destroy this history and the local park culture. From years of experience, the frequent and long-time park users have a very good understanding of how the park functions, more so than designers and planners, especially those from out of state who don't use the park and don't understand the culture of Ala Moana. As such, the opinions of the people should have a significant and dominant bearing on the proposed actions. They know what they want and they know what works for them.

Stan Sakai

Joanne Hiramatsu

From: S. Sakai <stansakai154@gmail.com>
Sent: Wednesday, January 17, 2018 12:16 PM
To: Joanne Hiramatsu
Subject: EISPN for Ala Moana Park and Magic Island Improvements

Follow Up Flag: Flag for follow up
Flag Status: Flagged

Hi Joanne,

We spoke over the phone about a week or so ago. I finally have some time formulate my comments. If anything isn't clear, please feel free to contact me.

Stan Sakai

1. PROMENADE
a) The grassy areas along the promenade is used by many for setting up picnics. Is the intention of the new design to eliminate this?
If not, then people will be hauling their picnic and BBQ supplies from their cars parked on the mauka side of Ala Moana Park Drive. This will impede traffic flow and make it more difficult to people to use the park.

b) If you widen the promenade, what will happen to the trees? If you keep the trees than the promenade will essentially be split into two lanes. This will not actually widen the existing promenade.

c) If the trees are to be kept, will widening the promenade injure or shorten the lives of the trees, which are 'historical' features of the park?

d) On hot days, the concrete and asphalt surfaces in the park can easily burn the feet of adults and kids walking bare footed. If you widen the promenade with more concrete, you're adding more of these 'hot' surfaces and there won't be any nearby cooler grass surfaces for people to escape to.

2. PARKING

a) One problem with removing the parking on the makai side of Ala Moana Drive is that many more pedestrians will be crossing the street. This
will: (1)impede the flow of traffic and (2)increase the risk of a pedestrian getting hit by a car, more so after dark. The street lighting in the areas where pedestrians are expected to cross the street should be bright enough for drivers to easily see pedestrians.

b) Keep the parking on the makai side of Ala Moana Drive along the raised picnic area. These would provide convenient parking for those picnicking in the raised area and also for those using the Great Lawn.
This wouldn't affect the 'open views of the ocean' because the ocean isn't visible from these parking stalls.

c) Keep the parking on the Ewa side of Ala Moana Drive just as you enter the park. These stalls will provide parking for those using the Ewa end of the park and they do not affect the 'open views of the ocean.'

d) Design the perpendicular and diagonal parking stalls wide enough to accommodate larger vehicles, which are common at the park, and also to give people enough room to easily unload their vehicles without hitting adjacent ones.

e) Perhaps, create additional parking on the Diamond Head side of McCoy pavilion. These would provide parking for the tennis courts, pavilion, and also for the Great Lawn.

3. BEACH EROSION

a) Efforts should be made to reduce the wave action along the sandy beach shoreline to minimize beach erosion. Otherwise, replenishing the sand might be just ongoing. There used to be large rocks outside of the swim channel. I was told that many of these fell into the channel after one of the hurricanes. Perhaps setting up structures along the reef edge of the channels, like the former rocks, might diminish the wave action at the beach.

b) Efforts should be made to address potential problems that might occur due to sea level rising.

4. INVASIVE PLANTS
The autograph trees in the center of the keyhole parking area are on the list of invasive trees. They and other invasive plants should be identified and removed. There might be some mangrove trees in the Ewa pond that need to evaluated.

http://hawaii-agriculture.com/autograph-trees-are-invading-hawaiis-forests/

http://www.hear.org/misc/pdfs/misc_invasiveplantexamples.pdf

5. PARK TRAFFIC
The park exit at the Atkinson Street side needs to be improved.
The right turn lane from Ala Moana Park Drive onto Ala Moana Blvd is too short. Cars that want to make this turn need to que with cars going straight into Atkinson. To lengthen this right turn lane the historic arch that spans the sidewalk will need to be relocated.

6.BEACH FACILITIES

a) More charcoal fire pits should be provided and these should be visible at dusk and into the early evening when picnickers are cleaning up.

b) A shower/wash station somewhere near the entrance to the Keyhole parking would be a convenient feature. This will give beach-goers a place to rinse off before proceeding to their cars.

c) Especially on windy days, trash from the shoreline is being blown into ocean, sometimes from the trash cans and sometimes from trash strewn in the park and along the beach. This should be addressed.

7. PARK MAINTENANCE COSTS
An assessment of the maintenance costs of any improvements made to the park should be done. Projects that involve significant maintenance costs, especially short-term and ongoing, might not make sense.

8. SIGNAGE

a) Signs describing the rules of the park need to made more obvious.
Current signs are too high and too small. The better parks throughout the US have clear signage that helps the public understand the park rules to keep them safe and to protect the park.

b) At the outdoor showers that drain into the sand, clearly visible and readable signs should be posted stating that the use using soaps and shampoos is not allowed.

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:18 PM
To: stansakai154@gmail.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Sakai,

Thank you for your emails dated January 17, 27, and 28, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses.

Beach Promenade, Parking Reconfiguration, and Park Traffic

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additional traffic calming facilities such as speed bumps and signage can be installed on the park road, if necessary, and speed tables can be constructed to ensure all drivers, moped riders, and bikers within the park drive with caution. As stated in Section 5.15, Circulation, Traffic, and Parking, of the EISPN, a traffic study will be conducted to help determine needs for additional traffic calming facilities. The study will determine the baseline traffic conditions and evaluate the proposed options of the project.

Beach Erosion

As stated in Section 5.6, Marine Environment, of the EISPN, sand replenishment is proposed, but that work will require additional studies to determine viable options and permits needed for implementation.

Invasive Plants

As stated in Section 5.5, Terrestrial Biological Resources, of the EISPN, a biological survey and tree inventory will be completed for the project area with descriptions of invasive plants, significant trees, and

endangered species. These studies will facilitate the landscaping plans by identifying unhealthy trees that need to be removed and locations for new trees to be planted.

Beach Facilities / Signage

The City concurs with the need for more maintenance. The Draft Environmental Impact Statement (DEIS) will discuss proposed repair and maintenance of the beach and park in more detail. Some of the corrective actions are already being implemented through increased staffing for maintenance and security.

Park Maintenance Costs

Cost estimates for the overall project improvements will be provided in the DEIS. Proposed projects will be prioritized, and not all projects will be implemented in the near future.

Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for the project; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized. Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Rebecca Choi

From: Steve Kalilimoku <stekal2000@gmail.com>
Sent: Sunday, February 04, 2018 7:38 PM
To: Rebecca Choi; Joanne Hiramatsu
Subject: Re: Ala Moana Regional Park and Magic Island Improvements Environmental Impact Statement Preparation Notice - Public Comment Period

Aloha Rebecca,

I looked over the proposal and it is to general in detail for any feedback at this time. When details are available, please forward the details and then I can better respond to your request

Regards,
Steve Kalilimoku

On Tue, Dec 26, 2017 at 3:24 PM, Rebecca Choi <rchoi@bchdesign.com> wrote:

Environmental Impact Statement Preparation Notice (EISPN)

Ala Moana Regional Park and Magic Island Improvements

Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025

Honolulu, O'ahu, Hawai'i

Aloha Participant,

On behalf of the City and County of Honolulu, Department of Design and Construction, we respectfully request your review and comment on the EISPN for the proposed park and facilities improvements at Ala Moana Regional Park and Magic Island. As one of the oldest and most visited parks in the State, the new improvements are intended to restore, revitalize, enhance, and improve the grounds and facilities to extend their longevity.

On December 13, 2017, the EISPN was submitted to the Office of Quality Control (OEQC) under Chapter 343, Hawai'i Revised Statutes, requirements. By that submittal, a notice of the EISPN's availability was published in the OEQC's December 23, 2017 issue of *The Environmental Notice*. Publication of that notice initiates a public review period of 30 days. You may review the EISPN document on the OEQC's website:

http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-OA-EISPN-Ala-Moana-Regional-Park-Improvements.pdf

We would like to receive your comments or input in writing by January 22, 2018 to one of the following addresses below:

Mailing Address: Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, HI 96819

Attention: Joanne E. Hiramatsu

Email Address: Joanne E. Hiramatsu
jhiramatsu@bchdesign.com

We thank you for your time and consideration in participating in this review process. If you have any questions, please contact the undersigned at 521-5361, extension 309, or at jhiramatsu@bchdesign.com.

Sincerely yours,

BELT COLLINS HAWAII LLC

Joanne E. Hiramatsu

Director of Planning

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:19 PM
To: 'stekal2000@gmail.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, O'ahu, Hawai'i

Dear Mr. Kalilimoku,

Thank you for your email dated February 4, 2018 regarding the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comment. The DEIS will provide more detail. Please note that the description of facilities in the EISPN is preliminary. The City will proceed with design after plans are reviewed by the public and agencies.

As requested, we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: kkukuisausage@hawaii.rr.com
Sent: Monday, January 22, 2018 7:45 AM
To: Joanne Hiramatsu
Subject: Makai side

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Joanne,
I been frequently going to Ala Moana beach park for 50 some what years. I also now take my child there to swim and I love to surf at the spots that Ala Moana provides.
The idea of taking the Makai parking away for a view of the ocean will create other problems like, cars driving through will be looking at the scenery which will create a traffic jam and be dangerous for pedestrians crossing the street. Besides it will have to be totally enforced like the airport arrival pick up area. Everyone would be stopping to take pictures, unload, and even just to stop by watch the fireworks. Weekend picnickers will be on the grass area and obstruct the view.
There should be more important issues instead of working to improve the view.
We need more tennis courts and a bathroom facility should be close by, we should have more showers, ant infestation should be taking care of, and most important is testing the quality of the ocean and finding out how to eliminate the bacteria problems that's occurring.
Ala Moana has always been the main gathering for the locals. Don't ruin it with all the modern hype.
Mahalo,
Steven Horio

Sent from my iPhone

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:21 PM
To: kkukuisausage@hawaii.rr.com
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Horio,

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments regarding parking on the makai side of Ala Moana Park Drive.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is now evaluating and considering the feasibility of other options for this area. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for parking; these options will be outlined in more detail in the Draft Environmental Impact Statement (DEIS). The City will proceed with design after the EIS has been finalized.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Additionally, you expressed support for the following Park improvements:

- More tennis courts and nearby bathrooms
- More showers
- Ant extermination
- Focus on water quality and water bacteria problem

The City is currently increasing staffing to improve maintenance in the parks. While the City is concerned about water quality, sampling of the offshore waters is the responsibility of the State of Hawaiʻi Department of Health (DOH). The City follows the lead of DOH when questions of water quality arise.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to submit comments on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: Sylvia Hayashi <sylviah@gentryhawaii.com>
Sent: Tuesday, January 02, 2018 3:05 PM
To: Joanne Hiramatsu
Subject: Ala Moana Beach Park

Dear Ms. Hiramatsu,

Thank you for the opportunity to submit feedback re the proposed improvements to Ala Moana Beach Park.

I frequently and consistently visit and utilize Ala Moana Beach Park (since 1969), primarily for the purposes of surfing and walking/running. Ala Moana Beach Park ("the Park") has been my primary spot for physical exercise, as well as a place where I meet friends to relax, enjoy the beach, and socialize.

I appreciate the city's desire to make improvements to the Park. However, I am not optimistic that these improvements will be properly maintained, and over time, will result in money wasted, and those improvements in disrepair. This is currently evident throughout the Park (buckled sidewalks and walking paths, non-functional irrigation, or irrigation that must be turned on manually, compaction where no grass will grow, broken toilets, broken stall doors, broken showers [which park users regularly buy parts for and repair themselves]). To be fair, I have noticed improvements to the bathrooms (more lighting, fewer non-working toilets) in the last 2 years.

Unfortunately, there way more examples of the city (state, too) pouring money into well-intentioned improvements, then failing to maintain them. Whether that maintenance is performed by government employees or contracted thru the private sector doesn't seem to matter – bottom line is that proper maintenance and/or enforcement thereof appears to be minimal, so those improvements deteriorate. Should any improvements be considered, I sincerely hope that more attention is paid to the **proper** maintenance thereof. It is disheartening to see improvements deteriorate when proper maintenance could have not only preserved their appearance and functionality, but more importantly, our monetary investment.

Another of my concerns is with the placement of the promenade. Perhaps I missed something, but it wasn't clear to me as to its location or size/width. I don't think a structure or pathway that obstructs clear access to the beach would necessarily be a positive. I think there needs to be clarification and/or specifics on the promenade issue.

Thank you for your time and consideration.

Very truly yours,
Sylvia Hayashi

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Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:22 PM
To: 'sylviah@gentryhawaii.com'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Ms. Hayashi,

Thank you for your email dated January 2, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction, we have reviewed your comments and provide the following responses below.

The City concurs with the need for more maintenance. As an effort to resolve this issue, the City increased the number of park staff who are responsible for upkeep and maintenance of the facilities.

The Draft Environmental Impact Statement (DEIS) will include detailed plans for the existing beach promenade. The City intends to improve beach access for all and to follow its commitment to the Complete Streets policy. The policy (Ordinance 12-15) was passed as a law in 2012. The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is now evaluating and considering the feasibility of other options for this area. Please note that the description of facilities in the EISPN is preliminary and that several options are being considered for parking; these options will be outlined in more detail in the DEIS. The City will proceed with design after the EIS has been finalized.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Your concerns will be included in the DEIS and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,
BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

Joanne Hiramatsu

From: William Kaeo <william.kaeo@wilsonschoolhawaii.org>
Sent: Monday, January 22, 2018 8:34 AM
To: Joanne Hiramatsu
Subject: Ala Moana Beach Park Improvements

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Joanne,

I am writing this letter in regards to the proposed improvements to Ala Moana Beach Park. I strongly feel that the widening of the promenade along the makai side of Ala Moana Park Drive is NOT NEEDED. Keep the parallel parking on the makai side of Ala Moana Park Drive. There is enough of an ocean view even with the parked vehicles and eliminating this parking will create many problems for park users, including public safety issues. A dining facility in McCoy Pavillion is NOT NEEDED. A playground in the park is NOT NEEDED. Please make more showers and cleaner bathrooms. Thank you.

Aloha,

--
William Kaeo
Mayor John H. Wilson Elementary
School Counselor
808-733-4740

Joanne Hiramatsu

From: Joanne Hiramatsu
Sent: Wednesday, June 06, 2018 4:24 PM
To: 'william.kaeo@wilsonschoolhawaii.org'
Subject: Ala Moana Regional Park EIS

Environmental Impact Statement Preparation Notice (EISPN)
Ala Moana Regional Park and Magic Island Improvements
Tax Map Key: (1) 2-3-37:001, 002, 022,023, 025
Honolulu, Oʻahu, Hawaiʻi

Dear Mr. Kaeo,

Thank you for your email dated January 22, 2018 commenting on the EISPN for the Ala Moana Regional Park and Magic Island Improvements. As the consultant for the City and County of Honolulu (City), Department of Design and Construction. The following are responses to your concerns.

The proposed promenade and changes in parking were advanced because of Honolulu's experience with Complete Streets and the efforts to make Honolulu an Age Friendly City, with lessons learned from other cities. The Complete Streets policy (Ordinance 12-15) was passed as a law in 2012. Based on the comments that were received from the EISPN comment period and objections raised by some of the participants at the public meeting, the City is evaluating and considering the feasibility of other options for this area.

Currently, the grassy areas on the promenade are often claimed by families and groups with tents and barbeque grills. Other beachgoers and recreational users find it difficult to pass through these areas. Also, the current use of the promenade grass results in damage to the grass and irrigation lines by tent stakes and picnicking equipment. Finally, the trees are harmed by park users disposing charcoal at the bases; this practice slowly burns the trees and eventually kills them.

The City must comply with new Rules Relating to Water Quality adopted by the Department of Planning and Permitting that went into effect August 16, 2017. The proposed design of the promenade is predicated on compliance with these rules. Adoption of these rules is one of the requirements of the City's National Pollutant Discharge Elimination System Permit No. HI S000002.

Renovation plans for the McCoy Pavilion's kitchen facilities are for the City and other organizations that plan yearly special events. These events include popular festivals such as the Greek Festival and the Scottish Festival.

A site for the playground has been selected behind the Diamond Head concession area, but no immediate plans have been developed.

The City concurs with the need for improved maintenance, and has increased staffing for better maintenance and cleaner comfort stations. These facilities are currently undergoing major renovations.

Your concerns will be included in the Draft Environmental Impact Statement (DEIS) and we will notify you when the DEIS is available for public review. You will be able to comment on the DEIS during a 45-day period after it is published.

Sincerely yours,

BELT COLLINS HAWAII LLC
Joanne E. Hiramatsu
Director of Planning

cc: Ms. Elaine Morisato, City and County of Honolulu, Department of Design and Construction

APPENDIX B

Traffic Evaluation Ala Moana Regional Park

Honolulu, Oʻahu, Hawaiʻi June 2018

Draft

TRAFFIC EVALUATION

ALA MOANA REGIONAL PARK

HONOLULU, OAHU, HAWAII

June 2018

Draft

TRAFFIC EVALUATION

ALA MOANA REGIONAL PARK

Honolulu, Oahu, Hawaii

June 2018

Prepared For:
Belt Collins Hawaii LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Prepared By:
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Honolulu, HI 96813
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WSP Reference Number:

16596A

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I. INTRODUCTION

Ala Moana Regional Park (AMRP) is an approximately 119-acre public park located on the island of Oahu owned by the City & County of Honolulu (the City). The park is man-made, having been constructed in the 1930s when the area's swampy marshlands were repurposed beginning in the late 1920's. The beach was created in the 1950's. As shown in **Figure 1**, the park is bounded by Kewalo Basin to the west, Ala Moana Boulevard to the north, Ala Wai Boat Harbor to the east, and the Pacific Ocean to the South.

While the beach is AMRP's primary attraction, the park is also used for its recreational amenities, including tennis courts, lawn bowling, pedestrian facilities, and open spaces. AMRP has two vehicular entrances from Ala Moana Boulevard at Kamakee Street and Atkinson Drive, located at the east and west ends of the park, respectively. In addition to these two intersections, pedestrian access at Queen Street and Piikoi Street are utilized by pedestrians and bicycle traffic. Ala Moana Boulevard is serviced by multiple bus routes which connect the park to Waikiki, downtown, and beyond.

Per the Ala Moana Regional Park Environmental Impact Statement Preparation Notice (EISPN), "the City is proposing to restore, revitalize, enhance, and improve the Ala Moana Regional Park (AMRP) and the Magic Island Peninsula (Magic Island) grounds and facilities as a result of a recent master plan process." Major improvements being considered include "sand replenishment, renovations to existing structures, improving pond edges, widening access over the drainage canal along Ala Moana Boulevard, creating a wider promenade along Ala Moana Park Drive, and reconfiguring the parking." The AMRP Conceptual Plan is shown in **Figure 2**. From a traffic perspective, the expansion of the parking facilities will allow for more park users to access the park facilities.

The purpose of this traffic evaluation is to assess the impact of AMRP's proposed improvements and to identify measures to efficiently handle traffic and pedestrian operations. The Year 2028 was chosen as an analysis year, representing a 10-year horizon. Existing and projected Year 2028 traffic conditions were analyzed at key roadway intersections located within the study area to determine the project's impact.

PROJECT LOCATION MAP

FIGURE
1

PROPOSED SITE PLAN

FIGURE
2

II. EXISTING CONDITIONS

A. EXISTING ROADWAY SYSTEM

Ala Moana Boulevard provides regional and sub-regional access to the Ala Moana area. Within the study area, Kamakee Street, Queen Street/Queen Lane, Piikoi Street, and Atkinson Drive provide mauka-makai access. Kamakee Street and Atkinson Drive provide direct access to the park. Additional east-west collector roadways such as Auahi Street and Queen Street provide access within the Ward area.

Ala Moana Boulevard

Ala Moana Boulevard is a principle arterial roadway which is oriented in the east-west direction between downtown and Waikiki. It transitions from Nimitz Highway to Ala Moana Boulevard just west of Bishop Street and continues east into Waikiki, where it terminates at Kalakaua Avenue. In the vicinity of the Victoria-Ward development, Ala Moana Boulevard is configured with 6 lanes (3 in each direction) and a raised median. The posted speed limit is 35 miles per hour (mph). On-street parking in the eastbound direction is allowed between 10 PM and 4 AM in select locations.

Kamakee Street

Kamakee Street is a 4-lane collector road which runs mauka-makai from Kapiolani Boulevard to Ala Moana Boulevard. It intersects Ala Moana Boulevard directly opposite Ala Moana Park Drive and provides mauka-makai mobility in this area of Kakaako. The posted speed limit on Kamakee is 25 mph. On-street parking is allowed on Kamakee Street between Queen Street and Waimanu Street during off-peak time periods.

Atkinson Drive

Atkinson Drive is a 6-lane collector road which runs mauka-makai from Kapiolani Boulevard to Ala Moana Boulevard. It intersects Ala Moana Boulevard directly opposite Ala Moana Park Drive and provides access to the Diamond Head side of Ala Moana Shopping Center as well as the Hawaii Convention Center. The posted speed limit is 30 mph. On-street parking is allowed opposite Kona Street during off-peak time periods.

1. Transit Facilities

Public transportation is provided by TheBus which is managed by Oahu Transit Services (OTS) on behalf of the City Department of Transportation Services (DTS). The following bus routes service Ala Moana Boulevard:

- 42 – Ewa Beach to Waikiki
- 65 – Kaneohe to Ala Moana
- 56 – Kaneohe to Ala Moana
- 20 – Aiea to Diamond Head via the Airport
- 57 – Waimanalo to Ala Moana
- 19 – Hickam Air Force Base to Diamond Head via the Airport
- 57A – Waimanalo to Ala Moana
- 55 – Haleiwa to Ala Moana
- 8 – Ala Moana to Waikiki
- 6 – Pauoa to University of Hawaii at Manoa via Ala Moana
- 88A – Ala Moana/North Shore via Kahekili

Bus stops are located along Ala Moana Boulevard at Kamakee Street, Queen Street, and fronting Ala Moana Shopping Center.

2. Pedestrian and Bike Facilities

Sidewalks are provided along both sides of Ala Moana Boulevard, Kamakee Street, Queen Street, Piikoi Street, and Atkinson Drive. Along the Ala Moana Boulevard corridor, crosswalks are provided across the minor street approaches and across one of the Ala Moana Boulevard approaches. AMRP contains an approximately 2-3 mile shared-use path as well as sidewalks along Ala Moana Park Drive.

Currently, cyclists on Ala Moana Boulevard, Kamakee Street, Queen Street, Piikoi Street, and Atkinson Drive share the travel lanes with vehicles. Within the park, bicyclists can use the shared-use path that circulates the main AMRP and Magic Island areas according to the Hawaii Bicycling League Oahu Bike Map.

3. Public Parking

AMRP provides 934 public parking stalls. 356 of those stalls are parallel parking along Ala Moana Park Drive, 469 are located on Magic Island, 77 are located at McCoy Pavilion, and 32 are located at Canoe Halau.

B. EXISTING INTERSECTION GEOMETRY AND CONTROL

Existing traffic conditions were observed and documented, and operations of study area signalized intersections were analyzed. The existing intersection operational characteristics established base conditions for comparison to future operations with and without the project.

Traffic-related data were collected at the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive and Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersections. Traffic turning movement volumes, field observations of intersection operations, and general intersection characteristics were noted. Geometric lane configurations, intersection traffic control, and traffic signal phasing and timing data were collected. Intersection geometry inventory included the following:

- Number of lanes and lane widths;
- Crosswalk locations;
- Signalized intersection locations;
- Entrance and driveway locations;
- Posted speed limits.

These data were used as inputs into the intersection analyses. The existing lane configurations are illustrated in **Figure 3**. It should be noted that at the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection, the mauka-bound Ala Moana Park Drive approach was modified from left/through and right turn lanes to left and through/right lanes. The new lane configuration is reflected in the existing and future analysis.

C. EXISTING TRAFFIC VOLUMES

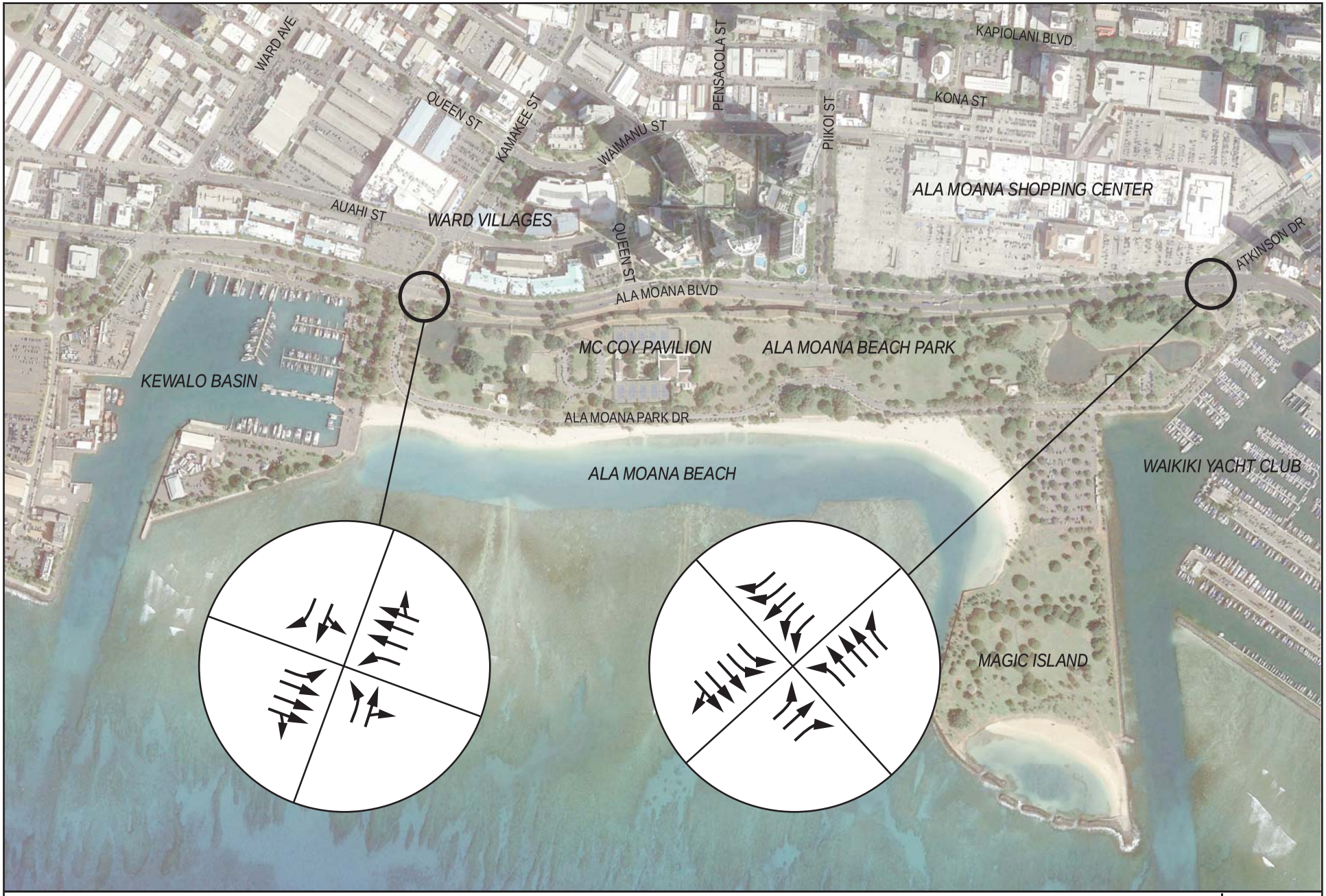
AM, PM, and Saturday mid-day peak period traffic turning movement counts were conducted at these two study area intersections:

- Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive and
- Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive.

Data collection was conducted on the following dates:

- Wednesday, March 15, 2017;
- Thursday, March 16, 2017; and
- Saturday, March 25, 2017.

Traffic volumes obtained from the data collection were compared to historical Hawaii Department of Transportation (HDOT) traffic counts for consistency. Supplemental counts were conducted in April 2018 and compared to the 2017 data. The updated counts were found to be in line with the 2017 counts; therefore, the 2017 counts were assumed to be representative of existing 2018 conditions. Spot pedestrian counts were also conducted in April 2018 to examine pedestrian behavior at park accesses.



EXISTING LANE CONFIGURATIONS

FIGURE
3

The AM and PM peak hours were found to occur from 7:15 to 8:15 AM and from 4:15 to 5:15 PM, respectively. The Saturday mid-day peak hour was found to occur from 2:00 PM to 3:00 PM. **Figure 4** shows the existing peak hour traffic volumes for each turning movement at these intersections. Existing traffic count data can be found in **Appendix A.**

D. EXISTING INTERSECTION OPERATIONS

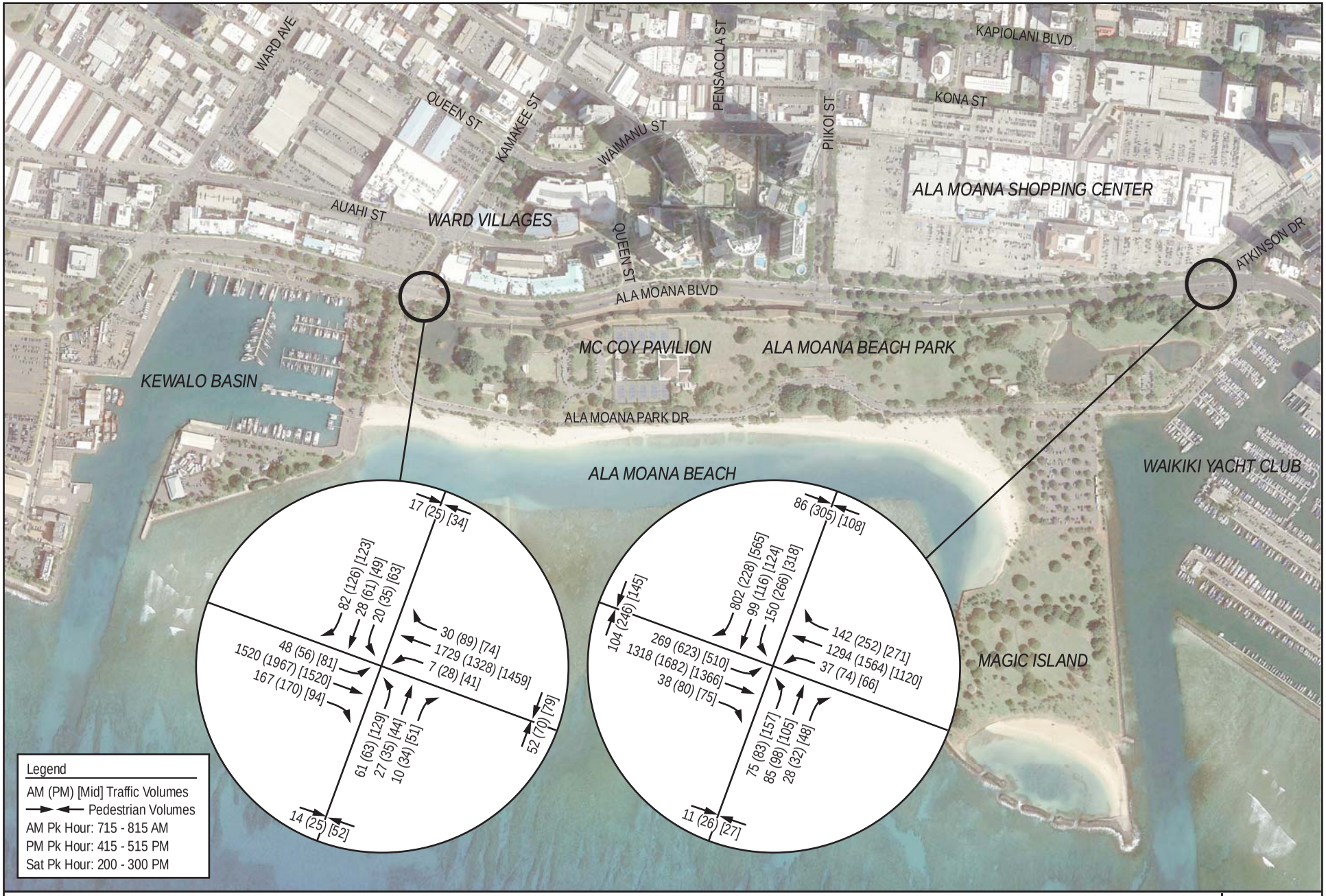
The intersections were analyzed with Synchro 9 using the methodologies for signalized intersections outlined in the *2000 Highway Capacity Manual (HCM).* Operating conditions at an intersection by approach are expressed as a qualitative measure known as Level of Service (LOS) ranging from A to F. LOS A represents free-flow operations with low delay, while LOS F represents congested conditions with relatively high delay. The overall intersection LOS is a weighted average of the LOS of individual traffic movement groups. **Appendix B** has more detailed definitions of intersection LOS. Field observations were performed at selected intersections to verify the results of the intersection analyses.

Table 1 shows the existing conditions level of service (LOS) for each intersection. The Ala Moana Boulevard intersections are generally characterized by medium to long cycle lengths of 150-170 seconds. This leads to higher delays, particularly for minor street approaches and major street left turns. **Appendix C** contains the Synchro worksheets.

Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive

The intersection of Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive is signalized with protected Ala Moana Boulevard left turns. A single phase is provided for the Kamakee Street/Ala Moana Park Drive traffic which includes a pedestrian crossing phase using the crosswalk across the east Ala Moana Boulevard leg of the intersection. The cycle length was 155-165 seconds.

The Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection operates at LOS C overall during the AM, PM, and Saturday mid-day peak hours. Ala Moana Boulevard through movements operate at LOS C or better during all peak periods. Ala Moana Boulevard left turns operate at LOS E. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements operate at LOS D or better. As expected, traffic into and out of the park is lowest during the AM peak and highest during the Saturday mid-day peak. Vehicles were generally observed to clear within one cycle for all movements. The pedestrian phase across Ala Moana Boulevard was observed to be triggered semi-regularly, conflicting with the makai-bound Kamakee Street left turn. Approximately 2/3 of the pedestrians crossing Ala Moana Boulevard were observed to be associated with the park.



2018 EXISTING TRAFFIC AND PEDESTRIAN VOLUMES

FIGURE
4

Table 1 Existing Level of Service

HCM 2000	AM		PM		Saturday	
	LOS	Delay	LOS	Delay	LOS	Delay
Ala Moana Blvd/Kamakee Dr/Ala Moana Park Dr	C	22	C	24	C	27
Ala Moana Blvd EB Left	E	71	E	78	E	60
Ala Moana Blvd EB Through-Right	B	18	C	23	C	23
Ala Moana Blvd WB Left	E	67	E	73	E	65
Ala Moana Blvd WB Through-Right	C	23	B	18	C	25
Ala Moana Park Dr NB Left	D	36	D	48	D	42
Ala Moana Park Dr NB Through-Right	C	34	D	45	C	36
Kamakee St SB Left-Through	C	35	D	47	D	38
Kamakee St SB Right	C	34	D	44	C	34
Ala Moana Blvd/Atkinson Dr/Ala Moana Park Dr	D	42	D	47	D	45
Ala Moana Blvd EB Left	E	71	F	97	F	87
Ala Moana Blvd EB Through-Right	C	33	C	29	C	33
Ala Moana Blvd WB Left	E	73	E	72	F	85
Ala Moana Blvd WB Through	D	41	D	44	D	43
Ala Moana Blvd WB Right	C	31	C	31	C	35
Ala Moana Park Dr NB Left	E	70	E	61	E	67
Ala Moana Park Dr NB Left-Through	E	74	E	65	E	67
Ala Moana Park Dr NB Right	E	60	D	55	D	52
Atkinson Dr SB Left	D	43	E	65	D	48
Atkinson Dr SB Through	D	44	E	62	D	46
Atkinson Dr SB Right	D	42	C	34	C	31

NB- northbound, SB-southbound, EB- eastbound, WB- westbound

Delay expressed in seconds per vehicle.

Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive

The intersection of Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive is signalized with protected Ala Moana Boulevard left turns. Split phasing is provided for the Atkinson Drive approaches. The makai-bound Atkinson right turn is given a protected phase with no right turns allowed on red. Pedestrians cross with the makai-bound Atkinson Drive approach phase. The cycle length was 150-170 seconds.

The Ala Moana Boulevard/Atkinson Drive intersection operates at LOS D overall during the AM, PM, and Saturday mid-day peak hours. Ala Moana Boulevard through movements operate at LOS D or

better during all peak periods. Ala Moana Boulevard left turns operate at LOS E-F. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements generally operate at LOS D-E. Much of the delay is caused by the Atkinson Drive/Ala Moana Park Drive split phasing. Traffic into and out of the park is lowest during the AM peak and highest during the Saturday mid-day peak. Vehicles were generally observed to clear within one cycle for all movements. The pedestrian phase across Ala Moana Boulevard was observed to be triggered regularly. Approximately 1/4 of the pedestrians crossing Ala Moana Boulevard were associated with the park which is lower than at the Kamakee Street intersection. Pedestrians crossing Ala Moana Boulevard at the Atkinson Drive intersection tend to be associated with Ala Moana Shopping Center and/or Waikiki.

E. EXISTING TRAFFIC OPERATIONS SUMMARY

Overall, the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection operates at an acceptable LOS during peak hours. The Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersection has a higher delay, which is to be expected as the intersection acts as a gateway to Waikiki. The higher delay is related to high demand for the eastbound left turn movement and the split phasing at the intersection.

III. YEAR 2028 TRAFFIC CONDITIONS

The Year 2028 was used as the basis for future traffic analysis representing a 10-year horizon for the completion of on-site modifications. The No Build scenario represents Year 2028 background conditions without any modifications to the Ala Moana Regional Park.

A. PROJECTED ROADWAY SYSTEM

1. Transit Facilities

In addition to the existing bus transit routes serving the corridor, the City is constructing a 20-mile long rail rapid transit system which will connect East Kapolei to Ala Moana Shopping Center. The project is projected to be completed by 2025. Park users using rail transit would use the Ala Moana Center Station and access AMRP on foot, likely at the Piikoi Street intersection.

2. Future Pedestrian and Bike Facilities

As mentioned earlier, sidewalks are provided along both sides of Ala Moana Boulevard, Kamakee Street, Queen Street, Piikoi Street, and Atkinson Drive with crosswalks provided at each intersection. AMRP contains an approximately 2-3 mile shared-use path as well as sidewalks along Ala Moana Park Drive. The AMRP master plan proposes to improve pedestrian facilities within the park, especially along the beachfront promenade and Magic Island. In addition, per the AMRP Preferred Master Plan, "the enhancement of various AMRP entry points will allow for improved pedestrian and bike access along the length of the park."

According to HDOT's Bike Plan Hawaii and the City's Oahu Bike Plan, the installation of bike lanes on Ala Moana Boulevard between Nimitz Highway and Kalakaua Boulevard are a Priority I proposed project. In addition, bike routes are proposed on Kamakee Street, Queen Street, and Piikoi Street across from AMRP.

B. YEAR 2028 BACKGROUND TRAFFIC

Base Year 2028 traffic volumes were derived using existing Ala Moana Boulevard traffic volumes. Historical HDOT traffic volumes near Atkinson Drive were available for most years between 2009 and 2016 with the nearest counting stations being located on Ala Moana Boulevard on either side of Atkinson Drive. Recent traffic counts show a stagnant or declining average daily traffic, therefore a conservative 0.5% annual growth rate was applied. A summary of the growth rate calculations is included in **Appendix D**. The Ward Villages Transportation Master Plan was used as a reference for future traffic volumes at the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection.

In addition, the Kamehameha Schools Kaiaulu ‘o Kakaako Master Plan was consulted and used to help generate the 2028 background traffic.

Year 2028 peak hour traffic volumes without project are shown in **Figure 5**.

C. PROJECTED YEAR 2028 INTERSECTION OPERATIONS WITHOUT PROJECT

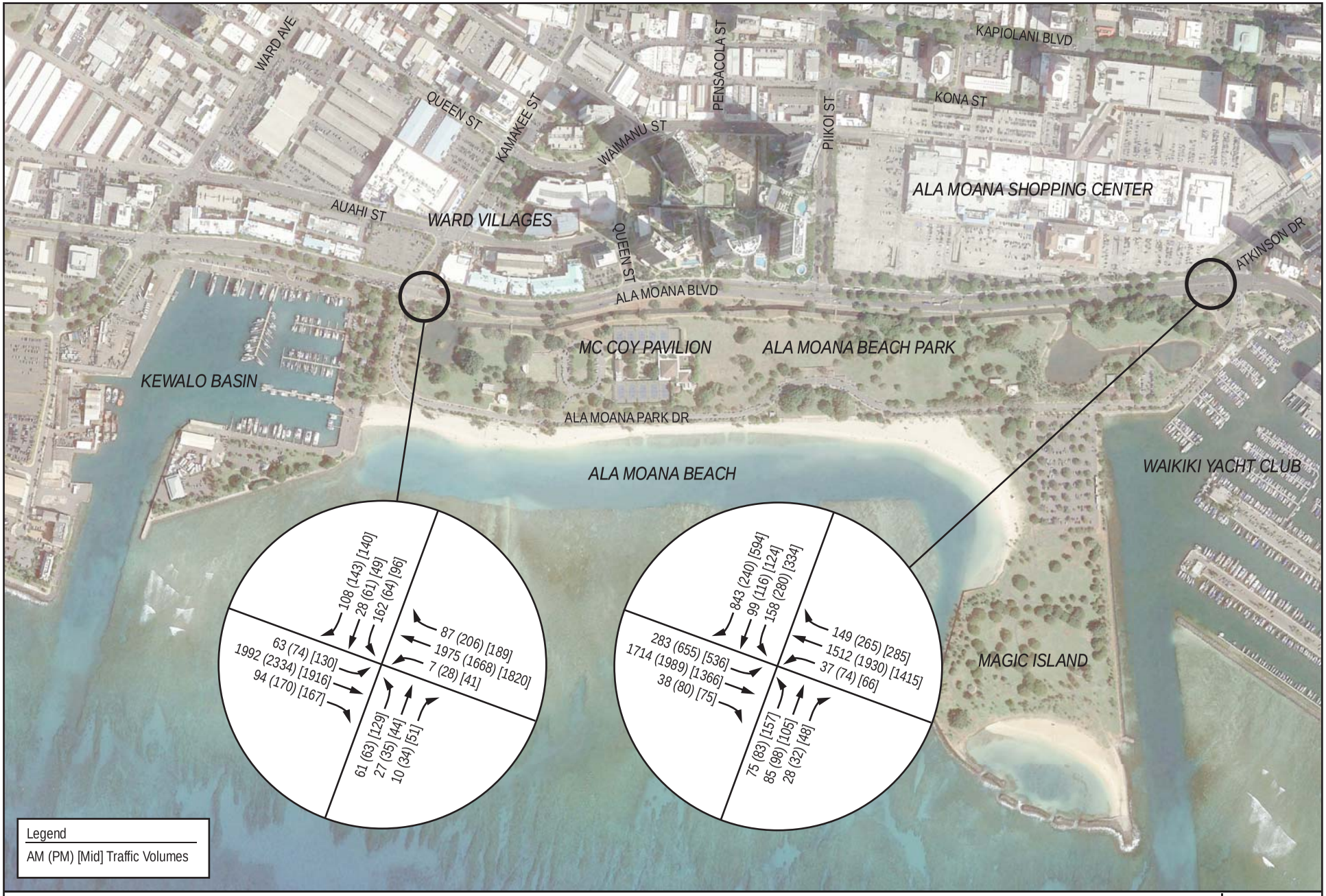
The intersections were analyzed using Synchro 9. Cycle lengths and signal timing were optimized and adjusted. **Table 2** shows the Year 2028 Without Project level of service (LOS) for each intersection.

Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive

The Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection is projected to operate at LOS C overall during the AM, PM, and Saturday mid-day peak hours. Ala Moana Boulevard through movements are projected to operate at LOS C or better during all peak periods. Ala Moana Boulevard left turns generally are projected to operate at LOS E-F. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements are projected to operate at LOS D-E.

Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive

The Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersection is projected to operate at LOS D overall during the AM and Saturday mid-day peak hours and at LOS E during the PM peak hour. Ala Moana Boulevard through movements are projected to operate at LOS D or better during all peak periods except for the westbound PM peak through. Ala Moana Boulevard left turns are projected to operate at LOS E-F. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements are generally projected to operate at LOS D-F.



2028 YEAR PEAK HOUR TRAFFIC VOLUMES WITHOUT PROJECT

FIGURE
5

Table 2 Year 2028 Level of Service Without Project

HCM 2000	AM		PM		Saturday	
	LOS	Delay	LOS	Delay	LOS	Delay
Ala Moana Blvd/Kamakee Dr/Ala Moana Park Dr	C	24	C	27	C	29
Ala Moana Blvd EB Left	F	94	F	115	E	74
Ala Moana Blvd EB Through-Right	B	17	C	25	C	23
Ala Moana Blvd WB Left	F	110	F	80	E	78
Ala Moana Blvd WB Through-Right	C	22	B	20	C	26
Ala Moana Park Dr NB Left	E	56	E	55	E	58
Ala Moana Park Dr NB Through-Right	D	48	D	51	D	45
Kamakee St SB Left-Through	E	65	E	58	E	53
Kamakee St SB Right	D	49	D	53	D	44
Ala Moana Blvd/Atkinson Dr/Ala Moana Park Dr	D	46	E	61	D	53
Ala Moana Blvd EB Left	F	80	F	115	F	95
Ala Moana Blvd EB Through-Right	D	37	D	35	D	40
Ala Moana Blvd WB Left	E	79	E	73	F	81
Ala Moana Blvd WB Through	D	43	E	77	D	55
Ala Moana Blvd WB Right	C	30	C	32	D	40
Ala Moana Park Dr NB Left	E	77	E	62	F	83
Ala Moana Park Dr NB Left-Through	F	82	E	65	F	82
Ala Moana Park Dr NB Right	E	66	E	56	E	63
Atkinson Dr SB Left	D	48	E	65	E	56
Atkinson Dr SB Through	D	48	E	61	D	54
Atkinson Dr SB Right	D	51	C	34	D	36

NB- northbound, SB- southbound, EB- eastbound, WB- westbound
Delay expressed in seconds per vehicle.

D. YEAR 2028 WITHOUT PROJECT TRAFFIC OPERATIONS SUMMARY

Overall, the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection is projected to operate at an acceptable LOS during peak hours. The Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersection is projected to operate at a higher delay due to regional growth with certain individual turning movements operating at LOS E or F.

E. PROJECTED YEAR 2028 INTERSECTION OPERATIONS WITH PROJECT

The Build scenario represents Year 2028 base conditions combined with the proposed AMRP modifications. Overall, drastic changes to AMRP are not being considered. The City is proposing to increase the total number of public parking stalls from 934 to 1088. The bulk of the additional parking stalls will come from converting the McCoy Pavilion keyhole area into a parking lot.

1. Trip Generation

Projected park-related inbound and outbound trips were calculated using parking projections. **Table 3** summarizes the AMRP-generated trips.

Table 3 Trip Generation Summary

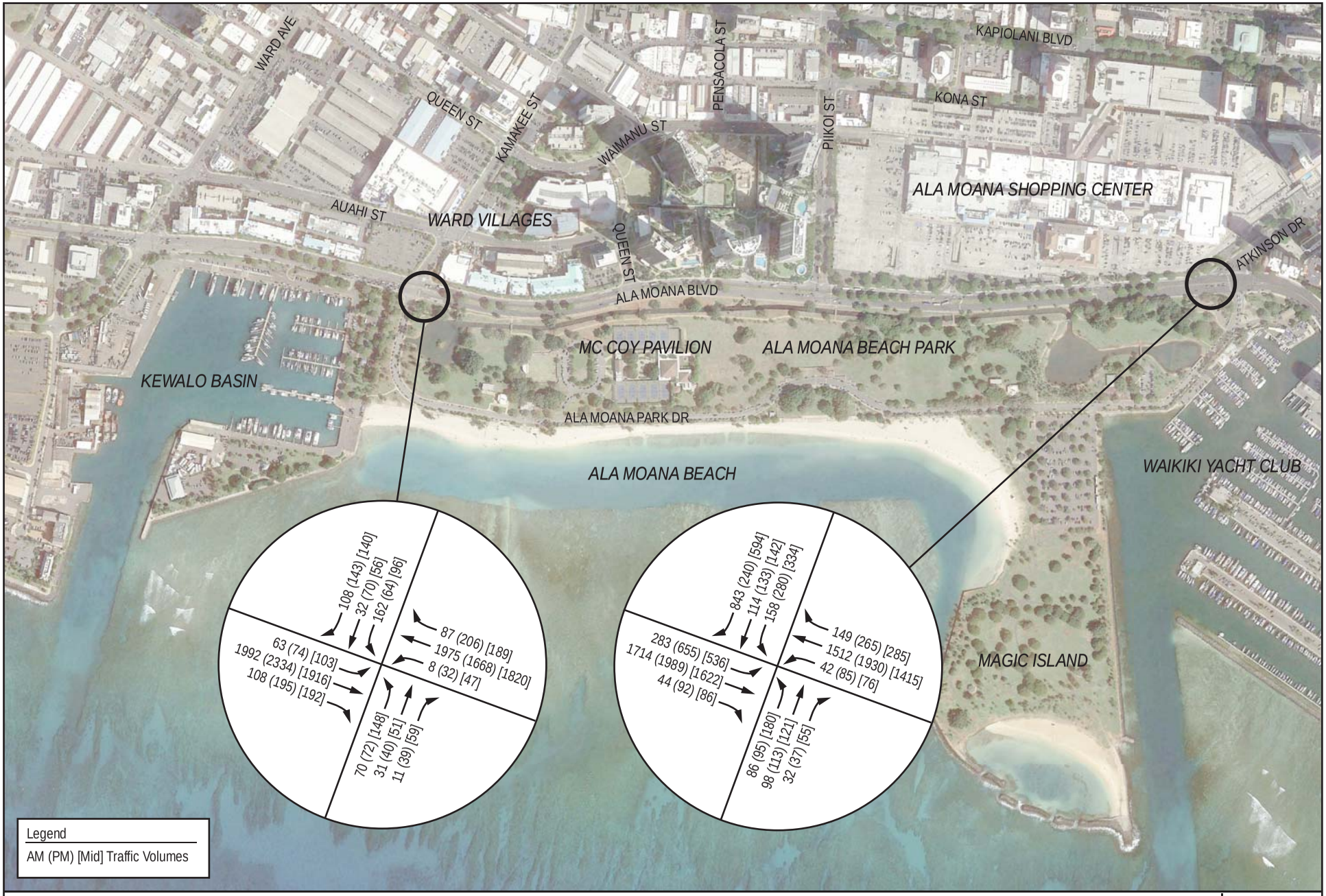
	In	Out	Total
AM Peak Hour	45	42	87
PM Peak Hour	78	51	129
Saturday Peak Hour	77	80	157

Trips generated expressed in vehicles per hour

2. Trip Distribution and Assignment

Distribution of new trips associated with the Ala Moana Regional Park were distributed using existing traffic distributions. The total Year 2028 peak hour traffic volumes with project are shown in **Figure 6**, which represent the project-generated traffic combined with projected 2028 background traffic.

The projected 2021 intersection LOS with project are shown in **Table 4**.



2028 YEAR PEAK HOUR TRAFFIC VOLUMES WITH PROJECT

FIGURE
6

Table 4 Year 2028 Level of Service With Project

HCM 2000	AM		PM		Saturday	
	LOS	Delay	LOS	Delay	LOS	Delay
Ala Moana Blvd/Kamakee Dr/Ala Moana Park Dr	C	25	C	28	C	30
Ala Moana Blvd EB Left	F	92	F	117	E	76
Ala Moana Blvd EB Through-Right	B	18	C	26	C	22
Ala Moana Blvd WB Left	F	81	F	82	F	86
Ala Moana Blvd WB Through-Right	C	22	B	20	C	27
Ala Moana Park Dr NB Left	E	58	E	58	E	68
Ala Moana Park Dr NB Through-Right	D	48	D	52	D	47
Kamakee St SB Left-Through	E	65	E	59	E	57
Kamakee St SB Right	D	48	D	53	D	45
Ala Moana Blvd/Atkinson Dr/Ala Moana Park Dr	D	47	E	62	D	54
Ala Moana Blvd EB Left	F	80	F	115	F	95
Ala Moana Blvd EB Through-Right	D	38	D	36	D	41
Ala Moana Blvd WB Left	E	79	E	76	F	86
Ala Moana Blvd WB Through	D	43	E	77	D	55
Ala Moana Blvd WB Right	C	30	C	32	D	40
Ala Moana Park Dr NB Left	E	79	E	63	F	91
Ala Moana Park Dr NB Left-Through	F	88	E	68	F	89
Ala Moana Park Dr NB Right	E	66	E	56	E	63
Atkinson Dr SB Left	D	48	E	65	E	56
Atkinson Dr SB Through	D	49	E	64	D	55
Atkinson Dr SB Right	D	51	C	34	D	36

NB- northbound, SB- southbound, EB- eastbound, WB- westbound
Delay expressed in seconds per vehicle.

Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive

The Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection is projected to operate at LOS C overall during the AM, PM, and Saturday mid-day peak hours. Ala Moana Boulevard through movements are projected to operate at LOS C or better during all peak periods. Ala Moana Boulevard left turns generally are projected to operate at LOS E-F. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements are projected to operate at LOS D-E.

Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive

The Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersection is projected to operate at LOS D overall during the AM and Saturday mid-day peak hours and at LOS E during the PM peak

hour. Ala Moana Boulevard through movements are projected to operate at LOS D or better during all peak periods except for the westbound PM peak through. Ala Moana Boulevard left turns are projected to operate at LOS E-F. Mauka-bound Ala Moana Park Drive and makai-bound Kamakee Street turning movements are generally projected to operate at LOS D-F.

F. YEAR 2028 WITH PROJECT TRAFFIC OPERATIONS SUMMARY

The most significant traffic-generating aspects of the AMRP master plan are the increased public parking stall count. This will result in a moderate increase in vehicular traffic compared to existing conditions. Modifications to pedestrian and bike facilities will make the park friendlier to these types of land uses but are not expected to have a significant impact on traffic operations.

As shown in **Tables 2 and 4**, the project is not projected to have a significant impact on the overall delay at the Kamakee Street and Atkinson Drive intersections with Ala Moana Boulevard.

IV. CONCLUSION AND RECOMMENDATIONS

The City is proposing to restore, revitalize, enhance, and improve the AMRP and the Magic Island grounds and facilities. The expansion of the parking facilities will allow for more park users to access the park facilities. Existing and projected Year 2028 traffic conditions were analyzed at key roadway intersections located within the study area.

A. CONCLUSION

Based on the results of the projected 2028 conditions, it was determined that the roadway network can accommodate the project's traffic impacts at the Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive and Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersections.

B. RECOMMENDATIONS

Removal of Makai-bound Left Turn at Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive

With an emphasis on pedestrian and bicycle modes of transportation within the park, it will be important to ensure safe passage for pedestrians into and out of the park. The Ala Moana Boulevard/Kamakee Street/Ala Moana Park Drive intersection has one crosswalk across Ala Moana Boulevard at the east leg of the intersection. Pedestrians using the crosswalk must contend with conflicting makai-bound Kamakee Street left turns. It is recommended that the removal of the left turning movement be examined, with the makai-bound Kamakee Street approach being modified to provide a through lane and a right turn lane. Removing the makai-bound left turning vehicles would improve vehicular access into the park via Kamakee Street. Detoured vehicles would likely use the Ala Moana Boulevard/Queen Street intersection.

A more formal study would need to be conducted, as the Kamakee Street approach is not a part of the AMRP project.

Pedestrian Island at Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive

There are existing crosswalks across 3 legs of the Ala Moana Boulevard/Atkinson Drive/Ala Moana Park Drive intersection. Pedestrians needing to cross multiple approaches are expected to wait at the pedestrian islands located on the Ala Moana Shopping Center and AMRP corners of the intersection. The shopping center pedestrian island is significantly larger than the AMRP island and can comfortably hold far more pedestrians. It is recommended that the AMRP pedestrian island on the southwest corner be expanded as much as possible.

Pedestrian and Bicycle Facilities

Ensure that AMRP pedestrian facilities are compliant with the Americans with Disabilities Act (ADA) guidelines and, where appropriate, increase pedestrian safety by providing traffic calming measures such as raised crosswalks and bulb-outs. Provide secure and convenient bicycle parking throughout AMRP. Coordinate with the State and City on the continued development of State and City bike plans.

Transit Facilities

Coordinate with HDOT, DTS, OTS on public transit services, especially regarding bus stop placement and access.

APPENDICES

Appendix A Traffic Count Data

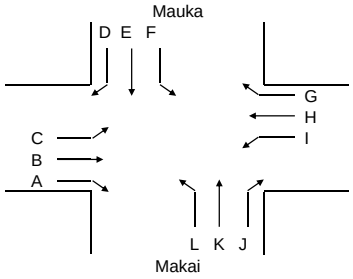
AM COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/16/2017

By: Nick & David

Weather: Clear



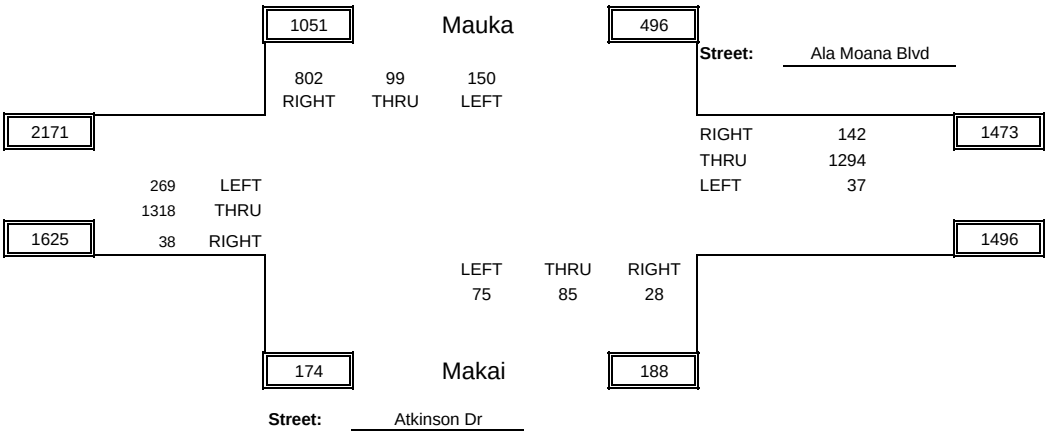
Street: Ala Moana Blvd

Street: Atkinson Dr

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:15 AM - 6:30 AM	7	162	16	86	24	29	10	167	9	0	7	7	524	2997
6:30 AM - 6:45 AM	19	168	26	129	31	38	21	212	4	4	11	10	673	3472
6:45 AM - 7:00 AM	7	231	30	178	29	37	15	256	10	5	10	12	820	3826
7:00 AM - 7:15 AM	10	263	61	200	20	45	18	328	7	6	9	13	980	4146
7:15 AM - 7:30 AM	7	289	55	168	25	33	24	334	15	8	20	21	999	4337
7:30 AM - 7:45 AM	13	317	43	168	27	34	38	326	9	7	24	21	1027	
7:45 AM - 8:00 AM	8	347	76	243	18	45	36	324	3	8	17	15	1140	
8:00 AM - 8:15 AM	10	365	95	223	29	38	44	310	10	5	24	18	1171	
Phf	0.731	0.903	0.708	0.825	0.853	0.833	0.807	0.969	0.617	0.875	0.885	0.893	Peak	Phf
7:15 AM - 8:15 AM	38	1318	269	802	99	150	142	1294	37	28	85	75	4337	0.926

Peak Hour

7:15 AM - 8:15 AM



PARSONS
BRINCKERHOFF

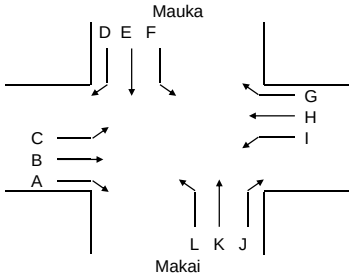
AM COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/16/2017

By: Jodi & Selena

Weather: Clear



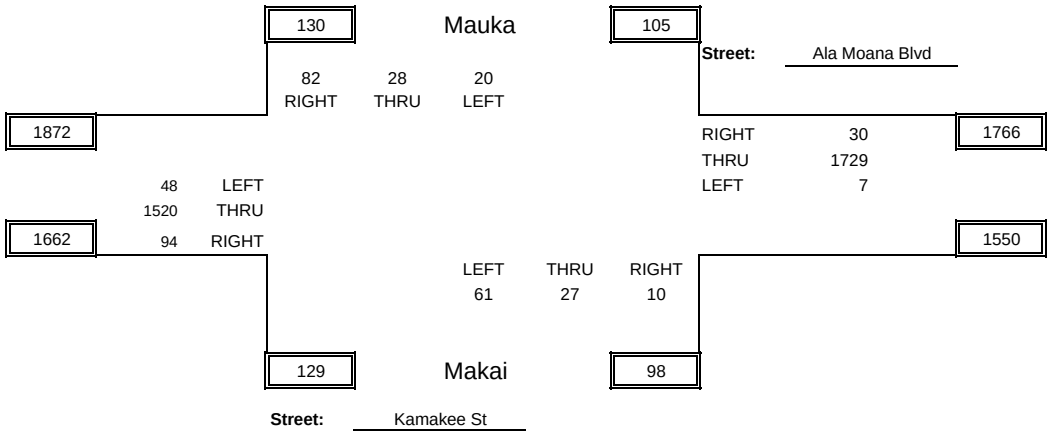
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:15 AM - 6:30 AM	23	237	9	12	7	6	1	203	3	1	2	6	510	2645
6:30 AM - 6:45 AM	24	245	16	13	4	4	8	277	1	2	4	7	605	3032
6:45 AM - 7:00 AM	25	294	11	14	8	7	3	311	2	0	1	13	689	3362
7:00 AM - 7:15 AM	29	361	15	18	6	6	8	385	0	2	5	6	841	3580
7:15 AM - 7:30 AM	21	374	13	22	3	9	5	426	0	3	9	12	897	3656
7:30 AM - 7:45 AM	24	391	12	16	9	4	5	451	1	2	7	13	935	
7:45 AM - 8:00 AM	19	372	8	22	6	3	11	439	3	4	4	16	907	
8:00 AM - 8:15 AM	30	383	15	22	10	4	9	413	3	1	7	20	917	
Phf	0.783	0.972	0.800	0.932	0.700	0.556	0.682	0.958	0.583	0.625	0.750	0.763	Peak	Phf
7:15 AM - 8:15 AM	94	1520	48	82	28	20	30	1729	7	10	27	61	3656	0.978

Peak Hour

7:15 AM - 8:15 AM



PARSONS
BRINCKERHOFF

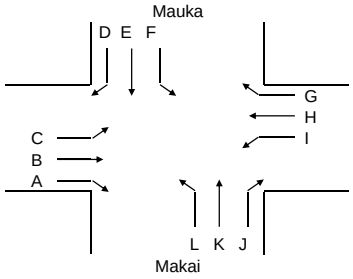
PM COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/15/2017

By: Nick & David

Weather: Clear



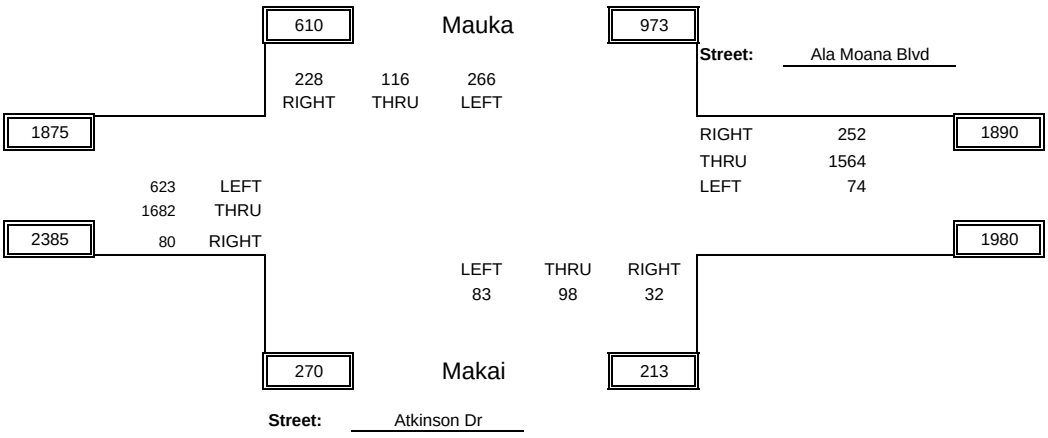
Street: Ala Moana Blvd

Street: Atkinson Dr

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	0	0	0	0	0	0	64	302	19	8	56	52	501	3954
3:30 PM - 3:45 PM	30	359	133	55	29	48	95	345	18	26	27	18	1183	4841
3:45 PM - 4:00 PM	11	350	154	34	36	70	67	311	19	16	21	13	1102	4910
4:00 PM - 4:15 PM	15	332	142	44	36	74	53	361	9	19	75	8	1168	5035
4:15 PM - 4:30 PM	15	394	161	54	26	60	66	521	23	13	26	29	1388	5098
4:30 PM - 4:45 PM	20	379	158	64	31	73	69	381	26	9	25	17	1252	4904
4:45 PM - 5:00 PM	17	473	148	54	26	57	62	339	9	6	19	17	1227	4291
5:00 PM - 5:15 PM	28	436	156	56	33	76	55	323	16	4	28	20	1231	
5:15 PM - 5:30 PM	26	362	141	51	36	72	88	323	23	17	36	19	1194	
5:30 PM - 5:45 PM	7	137	35	8	5	14	52	310	6	5	25	35	639	
Phf	0.714	0.889	0.967	0.891	0.879	0.875	0.913	0.750	0.712	0.615	0.875	0.716	Peak	Phf
4:15 PM - 5:15 PM	80	1682	623	228	116	266	252	1564	74	32	98	83	5098	1.018

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

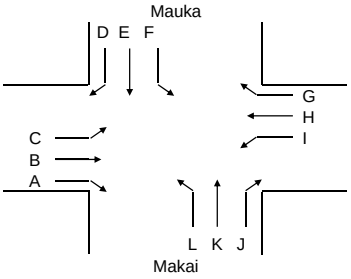
PM COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/15/2017

By: Jodi & Selena

Weather: Clear



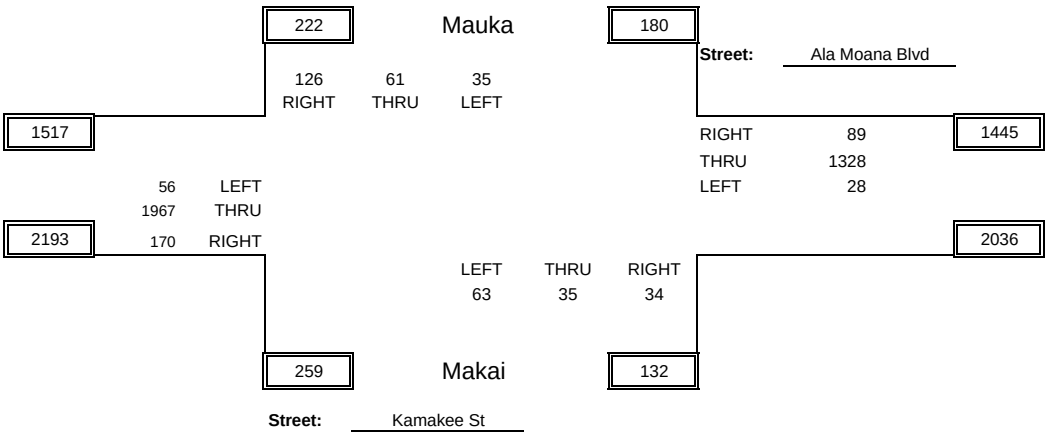
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	23	444	22	29	13	17	10	330	8	6	8	18	928	3827
3:30 PM - 3:45 PM	46	478	17	34	15	14	18	344	4	6	7	9	992	3964
3:45 PM - 4:00 PM	54	432	7	27	20	16	11	304	2	6	9	21	909	3918
4:00 PM - 4:15 PM	55	515	16	32	20	7	20	297	8	7	5	16	998	4022
4:15 PM - 4:30 PM	56	481	16	33	15	5	34	385	7	12	7	14	1065	3992
4:30 PM - 4:45 PM	30	481	12	28	21	7	17	304	11	8	7	20	946	3909
4:45 PM - 5:00 PM	38	520	14	27	13	11	20	329	5	9	13	14	1013	3951
5:00 PM - 5:15 PM	46	485	14	38	12	12	18	310	5	5	8	15	968	
5:15 PM - 5:30 PM	35	502	12	36	20	14	18	300	6	7	12	20	982	
5:30 PM - 5:45 PM	43	510	8	30	13	7	15	317	10	10	6	19	988	
Phf	0.759	0.946	0.875	0.829	0.726	0.729	0.654	0.862	0.636	0.708	0.673	0.788	Peak	Phf
4:15 PM - 5:15 PM	170	1967	56	126	61	35	89	1328	28	34	35	63	3992	0.985

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

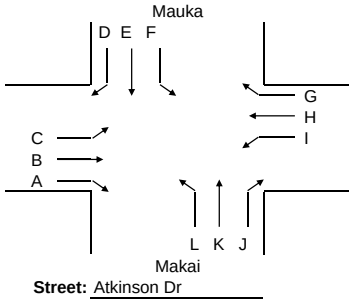
Saturday COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/25/2017

By: Nick & David

Weather: Clear

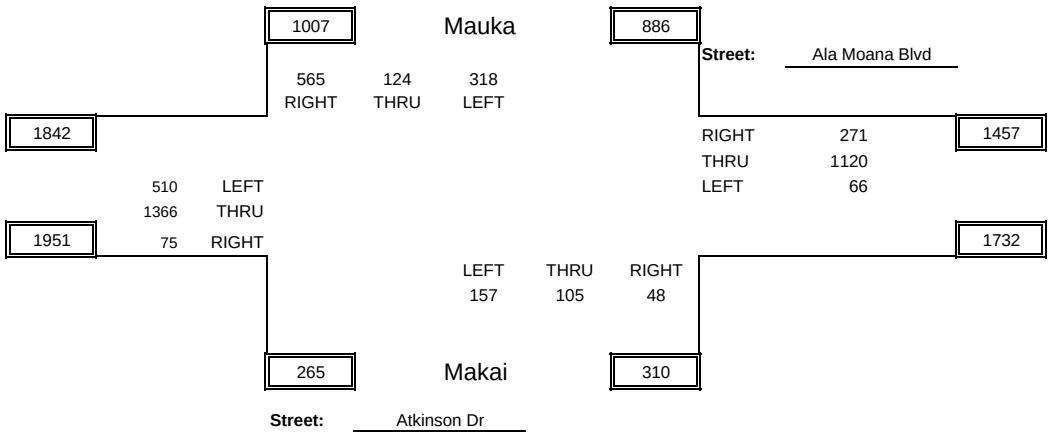


Street: Ala Moana Blvd

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
12:00 PM - 12:15 PM	31	260	117	135	39	55	33	287	16	11	22	33	1039	4117
12:15 PM - 12:30 PM	26	296	111	180	22	48	44	282	7	10	26	41	1093	4102
12:30 PM - 12:45 PM	22	265	110	152	34	45	32	297	9	6	35	39	1046	4017
12:45 PM - 1:00 PM	26	260	96	130	40	55	35	239	10	8	17	23	939	4043
1:00 PM - 1:15 PM	13	259	109	147	37	61	44	256	14	27	31	26	1024	4125
1:15 PM - 1:30 PM	24	274	119	119	28	53	55	256	17	16	18	29	1008	4263
1:30 PM - 1:45 PM	17	277	99	149	22	61	48	314	14	10	28	33	1072	4424
1:45 PM - 2:00 PM	19	249	104	153	36	86	56	263	8	12	18	17	1021	4566
2:00 PM - 2:15 PM	14	327	138	147	26	76	80	271	11	11	29	32	1162	4725
2:15 PM - 2:30 PM	19	340	124	141	39	84	64	275	20	7	25	31	1169	
2:30 PM - 2:45 PM	20	373	138	134	27	81	63	287	12	20	16	43	1214	
2:45 PM - 3:00 PM	22	326	110	143	32	77	64	287	23	10	35	51	1180	
Phf	0.852	0.916	0.924	0.961	0.795	0.946	0.847	0.976	0.717	0.600	0.750	0.770	Peak	Phf
1:00 PM - 2:00 PM	75	1366	510	565	124	318	271	1120	66	48	105	157	4725	0.973

Peak Hour

1:00 PM - 2:00 PM



PARSONS
BRINCKERHOFF

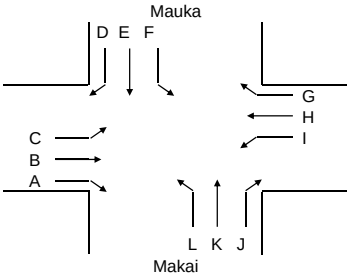
Saturday COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/25/2017

By: Sal & Selena

Weather: Clear



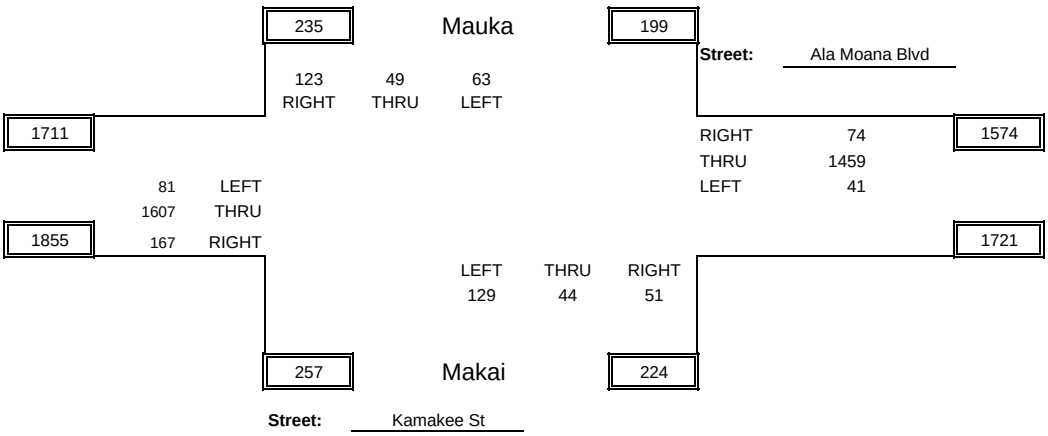
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
12:00 PM - 12:15 PM	37	410	29	31	14	17	15	386	9	19	9	23	999	3763
12:15 PM - 12:30 PM	52	389	13	28	11	8	17	336	6	13	12	30	915	3666
12:30 PM - 12:45 PM	59	369	21	32	12	13	18	382	13	6	6	24	955	3672
12:45 PM - 1:00 PM	56	357	27	41	13	17	20	316	11	4	12	20	894	3634
1:00 PM - 1:15 PM	44	354	18	31	10	14	19	353	9	14	8	28	902	3706
1:15 PM - 1:30 PM	34	412	20	25	8	11	19	340	7	10	12	23	921	3807
1:30 PM - 1:45 PM	37	364	17	41	13	14	14	355	11	11	10	30	917	3851
1:45 PM - 2:00 PM	55	396	20	35	7	11	27	368	7	7	7	26	966	3886
2:00 PM - 2:15 PM	40	463	21	31	13	19	20	329	9	12	9	37	1003	3888
2:15 PM - 2:30 PM	41	376	19	26	11	18	21	397	5	15	6	30	965	
2:30 PM - 2:45 PM	45	392	22	35	11	11	15	356	12	10	13	30	952	
2:45 PM - 3:00 PM	41	376	19	31	14	15	18	377	15	14	16	32	968	
Phf	0.928	0.868	0.920	0.879	0.875	0.829	0.881	0.919	0.683	0.850	0.688	0.872	Peak	Phf
2:00 PM - 3:00 PM	167	1607	81	123	49	63	74	1459	41	51	44	129	3888	0.969

Peak Hour

2:00 PM - 3:00 PM



PARSONS
BRINCKERHOFF

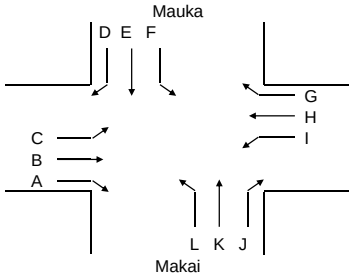
PM COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr.

Date: 4/26/2018

By: David

Weather: Sunny



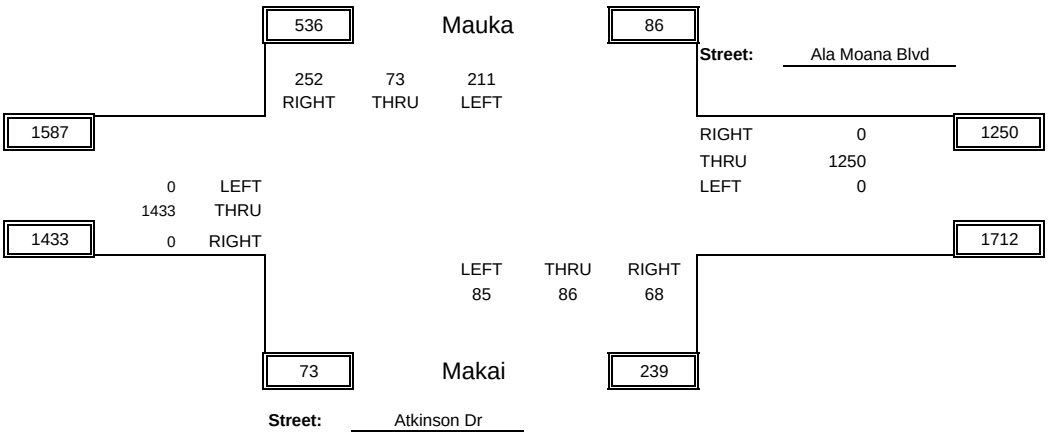
Street: Ala Moana Blvd

Street: Atkinson Dr

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	917
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1807
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2751
4:15 PM - 4:30 PM	0	353	0	76	14	46	0	353	0	24	26	25	917	3458
4:30 PM - 4:45 PM	0	374	0	56	27	62	0	311	0	19	23	18	890	2541
4:45 PM - 5:00 PM	0	424	0	61	14	52	0	338	0	15	19	21	944	1651
5:00 PM - 5:15 PM	0	282	0	59	18	51	0	248	0	10	18	21	707	
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Phf	#DIV/0!	0.845	#DIV/0!	0.829	0.676	0.851	#DIV/0!	0.885	#DIV/0!	0.708	0.827	0.850	Peak	Phf
4:15 PM - 5:15 PM	0	1433	0	252	73	211	0	1250	0	68	86	85	3458	0.916

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

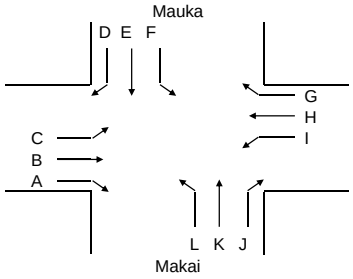
PM COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 4/26/2018

By: Phil

Weather: Sunny



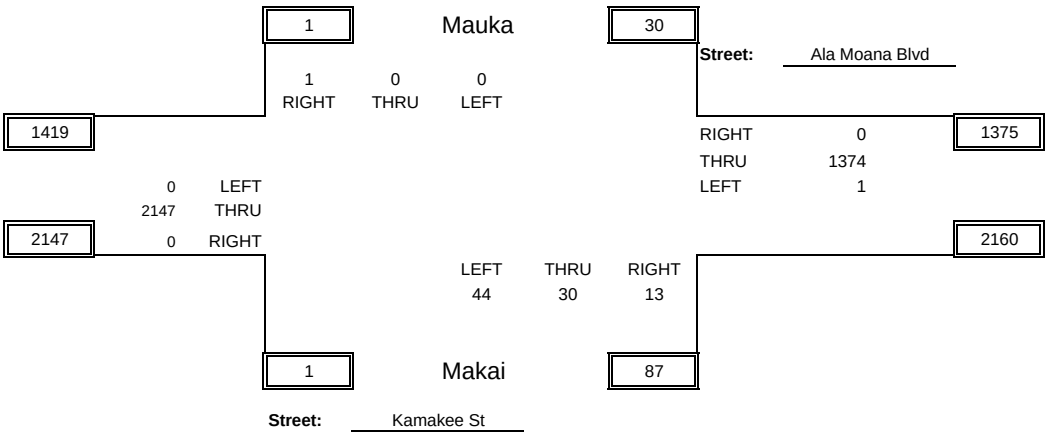
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM - 3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	916
3:45 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1832
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2749
4:15 PM - 4:30 PM	0	514	0	0	0	0	0	383	0	6	4	9	916	3610
4:30 PM - 4:45 PM	0	557	0	1	0	0	0	332	1	4	9	12	916	2694
4:45 PM - 5:00 PM	0	539	0	0	0	0	0	361	0	0	8	9	917	1778
5:00 PM - 5:15 PM	0	537	0	0	0	0	0	298	0	3	9	14	861	
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Phf	#DIV/0!	0.964	#DIV/0!	0.250	#DIV/0!	#DIV/0!	#DIV/0!	0.897	0.250	0.542	0.833	0.786	Peak	Phf
4:15 PM - 5:15 PM	0	2147	0	1	0	0	0	1374	1	13	30	44	3610	0.984

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

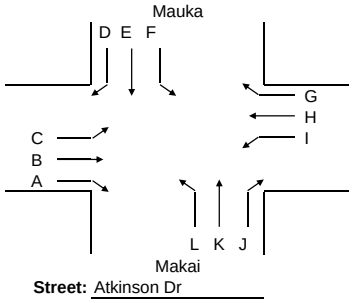
AM COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/16/2017

By: Nick & David

Weather: Clear

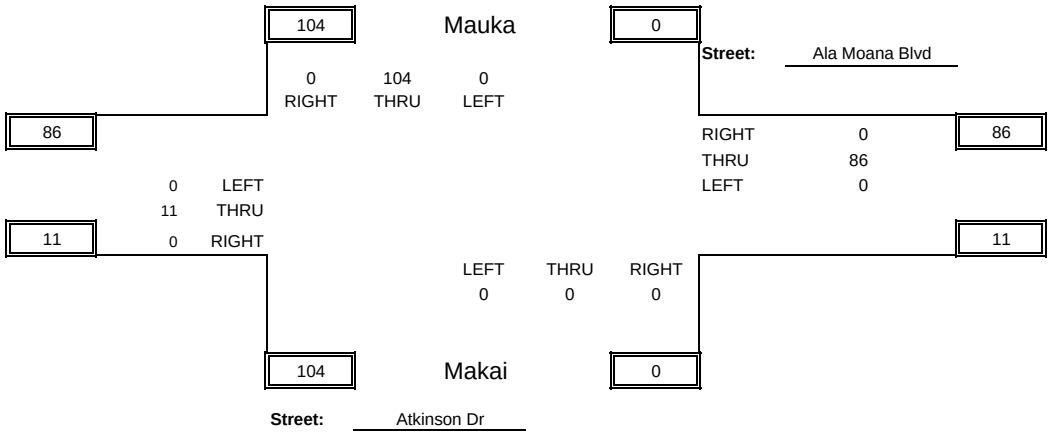


Street: Ala Moana Blvd

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:15 AM - 6:30 AM	0	1	0	0	16	0	0	9	0	0	0	0	26	112
6:30 AM - 6:45 AM	0	0	0	0	10	0	0	0	0	0	0	0	10	144
6:45 AM - 7:00 AM	0	4	0	0	28	0	0	0	0	0	0	0	32	190
7:00 AM - 7:15 AM	0	3	0	0	24	0	0	17	0	0	0	0	44	211
7:15 AM - 7:30 AM	0	6	0	0	34	0	0	18	0	0	0	0	58	201
7:30 AM - 7:45 AM	0	4	0	0	22	0	0	30	0	0	0	0	56	
7:45 AM - 8:00 AM	0	0	0	0	35	0	0	18	0	0	0	0	53	
8:00 AM - 8:15 AM	0	1	0	0	13	0	0	20	0	0	0	0	34	
Phf	#DIV/0!	0.458	#DIV/0!	#DIV/0!	0.743	#DIV/0!	#DIV/0!	0.717	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Peak	Phf
7:15 AM - 8:15 AM	0	11	0	0	104	0	0	86	0	0	0	0	201	0.866

Peak Hour

7:15 AM - 8:15 AM



PARSONS
BRINCKERHOFF

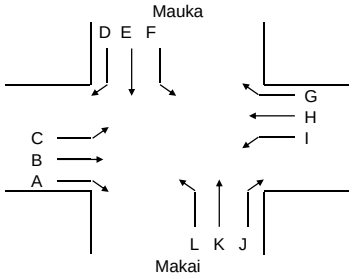
AM COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/16/2017

By: Jodi & Selena

Weather: Clear



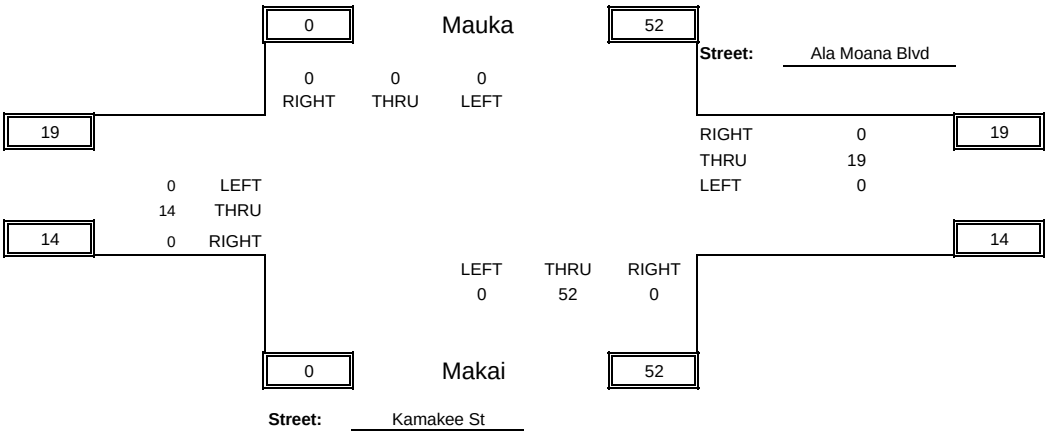
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
6:15 AM - 6:30 AM	0	4	0	0	0	0	0	4	0	0	37	0	45	133
6:30 AM - 6:45 AM	0	5	0	0	0	0	0	9	0	0	25	0	39	122
6:45 AM - 7:00 AM	0	6	0	0	0	0	0	4	0	0	25	0	35	105
7:00 AM - 7:15 AM	0	3	0	0	0	0	0	3	0	0	8	0	14	82
7:15 AM - 7:30 AM	0	4	0	0	0	0	0	8	0	0	22	0	34	85
7:30 AM - 7:45 AM	0	3	0	0	0	0	0	8	0	0	11	0	22	
7:45 AM - 8:00 AM	0	5	0	0	0	0	0	1	0	0	6	0	12	
8:00 AM - 8:15 AM	0	2	0	0	0	0	0	2	0	0	13	0	17	
Phf	#DIV/0!	0.700	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.594	#DIV/0!	#DIV/0!	0.591	#DIV/0!	Peak	Phf
7:15 AM - 8:15 AM	0	14	0	0	0	0	0	19	0	0	52	0	85	0.966

Peak Hour

7:15 AM - 8:15 AM



PARSONS
BRINCKERHOFF

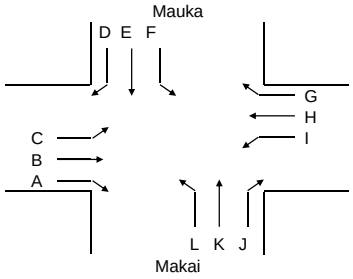
PM COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/15/2017

By: Nick & David

Weather: Clear



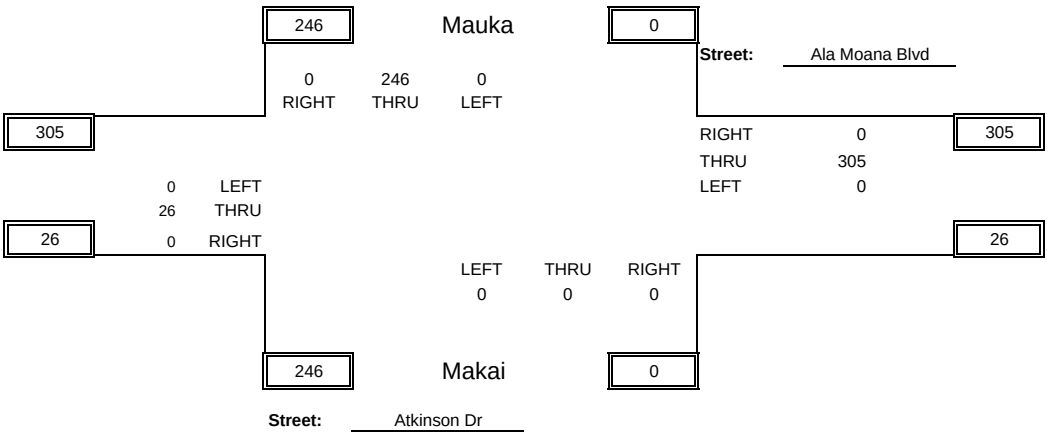
Street: Ala Moana Blvd

Street: Atkinson Dr

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	0	0	0	0	0	0	0	58	0	0	0	0	58	509
3:30 PM - 3:45 PM	0	31	0	0	58	0	0	78	0	0	0	0	167	624
3:45 PM - 4:00 PM	0	10	0	0	81	0	0	58	0	0	0	0	149	626
4:00 PM - 4:15 PM	0	30	0	0	55	0	0	50	0	0	0	0	135	572
4:15 PM - 4:30 PM	0	20	0	0	71	0	0	82	0	0	0	0	173	577
4:30 PM - 4:45 PM	0	2	0	0	78	0	0	89	0	0	0	0	169	562
4:45 PM - 5:00 PM	0	0	0	0	54	0	0	41	0	0	0	0	95	492
5:00 PM - 5:15 PM	0	4	0	0	43	0	0	93	0	0	0	0	140	
5:15 PM - 5:30 PM	0	12	0	0	54	0	0	92	0	0	0	0	158	
5:30 PM - 5:45 PM	0	0	0	0	10	0	0	89	0	0	0	0	99	
Phf	#DIV/0!	0.325	#DIV/0!	#DIV/0!	0.788	#DIV/0!	#DIV/0!	0.820	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Peak	Phf
4:15 PM - 5:15 PM	0	26	0	0	246	0	0	305	0	0	0	0	577	0.854

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

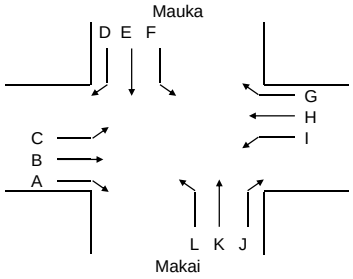
PM COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/15/2017

By: Jodi & Selena

Weather: Clear



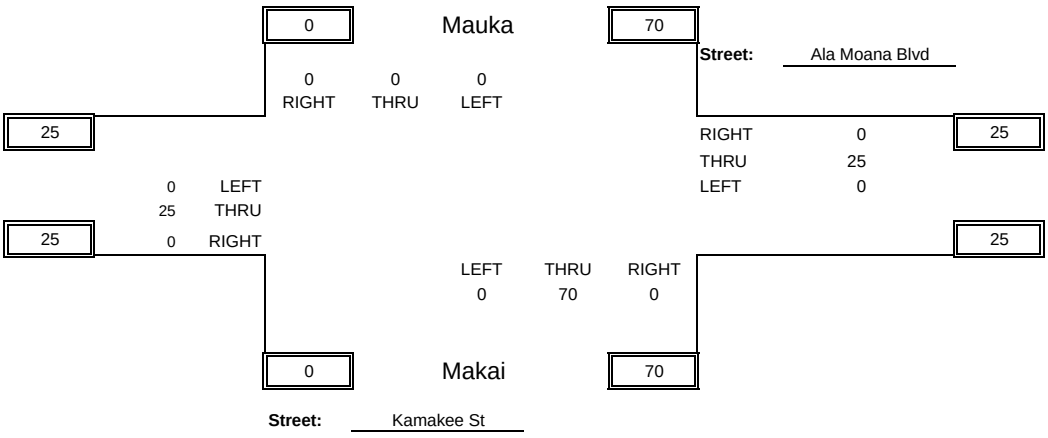
Street: Ala Moana Blvd

Street: Kamakee St

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
3:15 PM - 3:30 PM	0	2	0	0	0	0	0	1	0	0	12	0	15	105
3:30 PM - 3:45 PM	0	10	0	0	0	0	0	9	0	0	19	0	38	101
3:45 PM - 4:00 PM	0	6	0	0	0	0	0	8	0	0	24	0	38	100
4:00 PM - 4:15 PM	0	2	0	0	0	0	0	0	0	0	12	0	14	100
4:15 PM - 4:30 PM	0	4	0	0	0	0	0	4	0	0	3	0	11	120
4:30 PM - 4:45 PM	0	9	0	0	0	0	0	12	0	0	16	0	37	139
4:45 PM - 5:00 PM	0	5	0	0	0	0	0	2	0	0	31	0	38	142
5:00 PM - 5:15 PM	0	7	0	0	0	0	0	7	0	0	20	0	34	
5:15 PM - 5:30 PM	0	3	0	0	0	0	0	4	0	0	23	0	30	
5:30 PM - 5:45 PM	0	8	0	0	0	0	0	15	0	0	17	0	40	
Phf	#DIV/0!	0.694	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.521	#DIV/0!	#DIV/0!	0.565	#DIV/0!	Peak	Phf
4:15 PM - 5:15 PM	0	25	0	0	0	0	0	25	0	0	70	0	120	0.789

Peak Hour

4:15 PM - 5:15 PM



PARSONS
BRINCKERHOFF

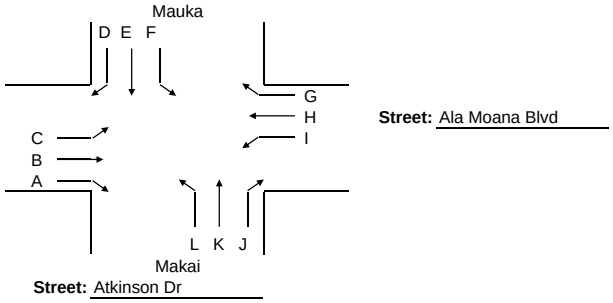
Saturday COUNT SHEET

Intersection: Ala Moana Blvd & Atkinson Dr

Date: 3/15/2017

By: Nick & David

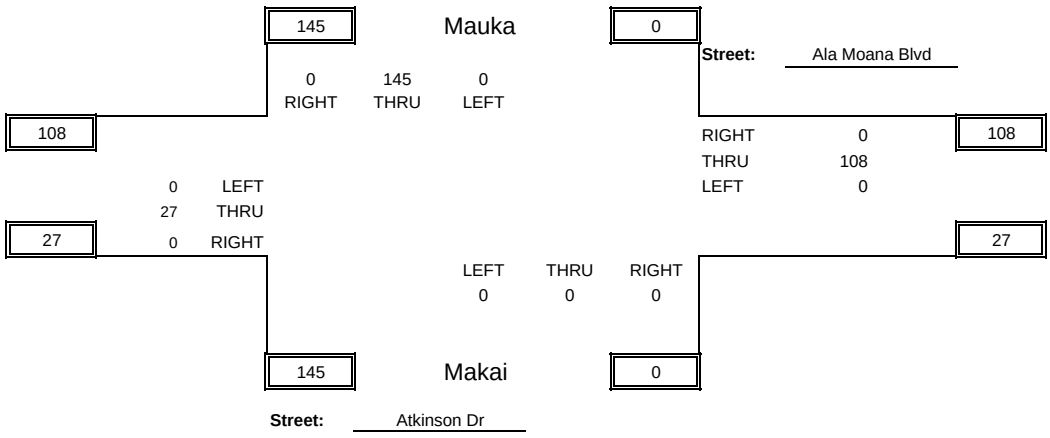
Weather: Clear



TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
12:00 PM - 12:15 PM	0	9	0	0	23	0	0	49	0	0	0	0	81	445
12:15 PM - 12:30 PM	0	24	0	0	56	0	0	52	0	0	0	0	132	437
12:30 PM - 12:45 PM	0	10	0	0	44	0	0	63	0	0	0	0	117	420
12:45 PM - 1:00 PM	0	7	0	0	30	0	0	78	0	0	0	0	115	370
1:00 PM - 1:15 PM	0	9	0	0	33	0	0	31	0	0	0	0	73	369
1:15 PM - 1:30 PM	0	21	0	0	50	0	0	44	0	0	0	0	115	366
1:30 PM - 1:45 PM	0	0	0	0	31	0	0	36	0	0	0	0	67	348
1:45 PM - 2:00 PM	0	6	0	0	55	0	0	53	0	0	0	0	114	331
2:00 PM - 2:15 PM	0	5	0	0	31	0	0	34	0	0	0	0	70	280
2:15 PM - 2:30 PM	0	11	0	0	49	0	0	37	0	0	0	0	97	
2:30 PM - 2:45 PM	0	7	0	0	13	0	0	30	0	0	0	0	50	
2:45 PM - 3:00 PM	0	4	0	0	52	0	0	7	0	0	0	0	63	
Phf	#DIV/0!	0.614	#DIV/0!	#DIV/0!	0.697	#DIV/0!	#DIV/0!	0.730	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Peak	Phf
1:00 PM - 2:00 PM	0	27	0	0	145	0	0	108	0	0	0	0	280	0.722

Peak Hour

1:00 PM - 2:00 PM



PARSONS
BRINCKERHOFF

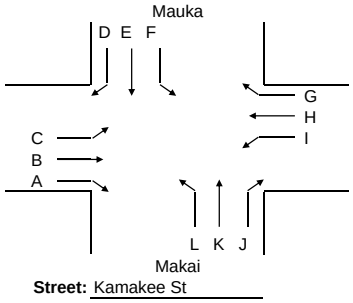
Saturday COUNT SHEET

Intersection: Ala Moana Blvd & Kamakee St

Date: 3/25/2017

By: Sal & Selena

Weather: Clear

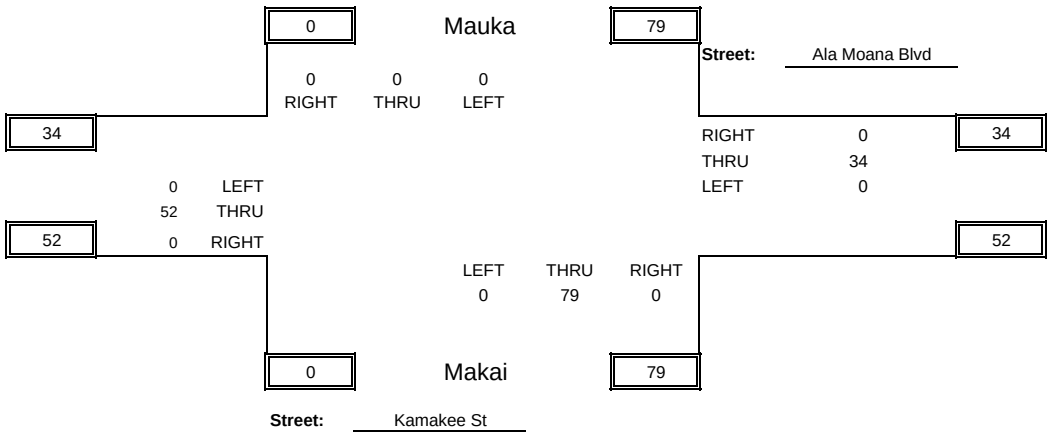


Street: Ala Moana Blvd

TIME	A	B	C	D	E	F	G	H	I	J	K	L	Total Mvmt	Total Hour
12:00 PM - 12:15 PM	0	7	0	0	0	0	0	7	0	0	18	0	32	133
12:15 PM - 12:30 PM	0	6	0	0	0	0	0	4	0	0	17	0	27	124
12:30 PM - 12:45 PM	0	10	0	0	0	0	0	13	0	0	25	0	48	121
12:45 PM - 1:00 PM	0	3	0	0	0	0	0	10	0	0	13	0	26	125
1:00 PM - 1:15 PM	0	5	0	0	0	0	0	10	0	0	8	0	23	136
1:15 PM - 1:30 PM	0	7	0	0	0	0	0	5	0	0	12	0	24	147
1:30 PM - 1:45 PM	0	7	0	0	0	0	0	24	0	0	21	0	52	156
1:45 PM - 2:00 PM	0	10	0	0	0	0	0	12	0	0	15	0	37	163
2:00 PM - 2:15 PM	0	8	0	0	0	0	0	13	0	0	13	0	34	165
2:15 PM - 2:30 PM	0	10	0	0	0	0	0	9	0	0	14	0	33	
2:30 PM - 2:45 PM	0	25	0	0	0	0	0	4	0	0	30	0	59	
2:45 PM - 3:00 PM	0	9	0	0	0	0	0	8	0	0	22	0	39	
Phf	#DIV/0!	0.520	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.654	#DIV/0!	#DIV/0!	0.658	#DIV/0!	Peak	Phf
2:00 PM - 3:00 PM	0	52	0	0	0	0	0	34	0	0	79	0	165	0.699

Peak Hour

2:00 PM - 3:00 PM

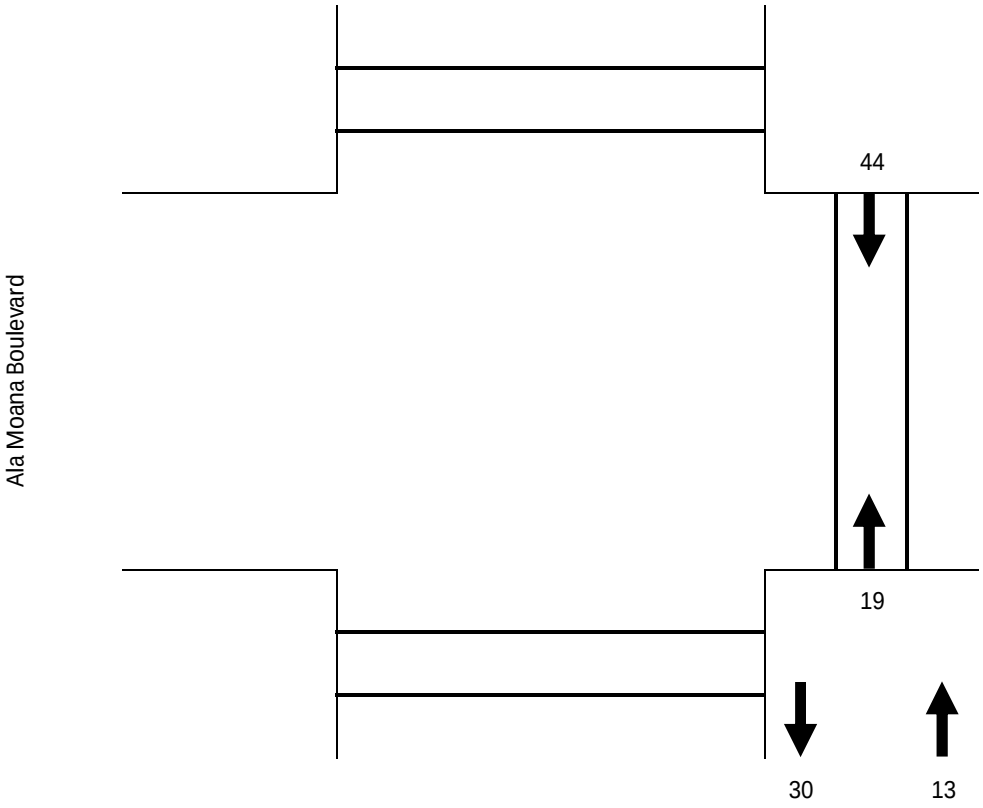


PARSONS
BRINCKERHOFF

Thursday, 4/26/18

4:15 PM to 5:15 PM

Kamakee Street



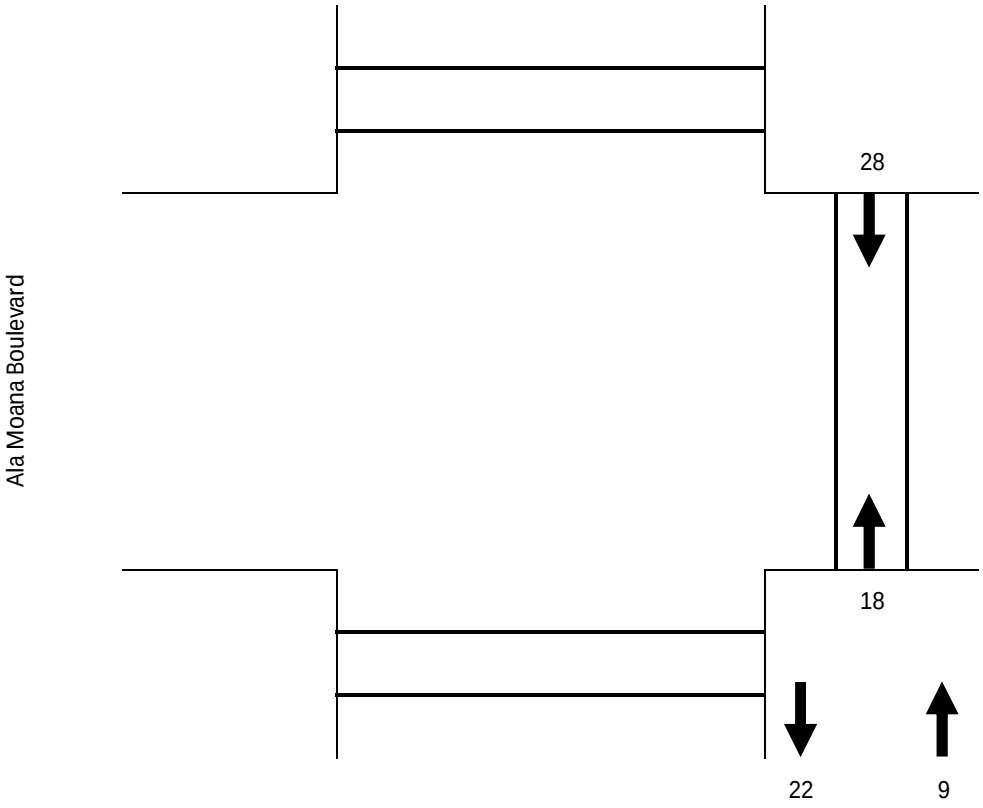
30 of 44 makai-bound crossers entered the park.

13 of 19 mauka-bound crossers came from the park.

Tuesday, 3/27/18

4:15 PM to 4:45 PM

Piikoi Street



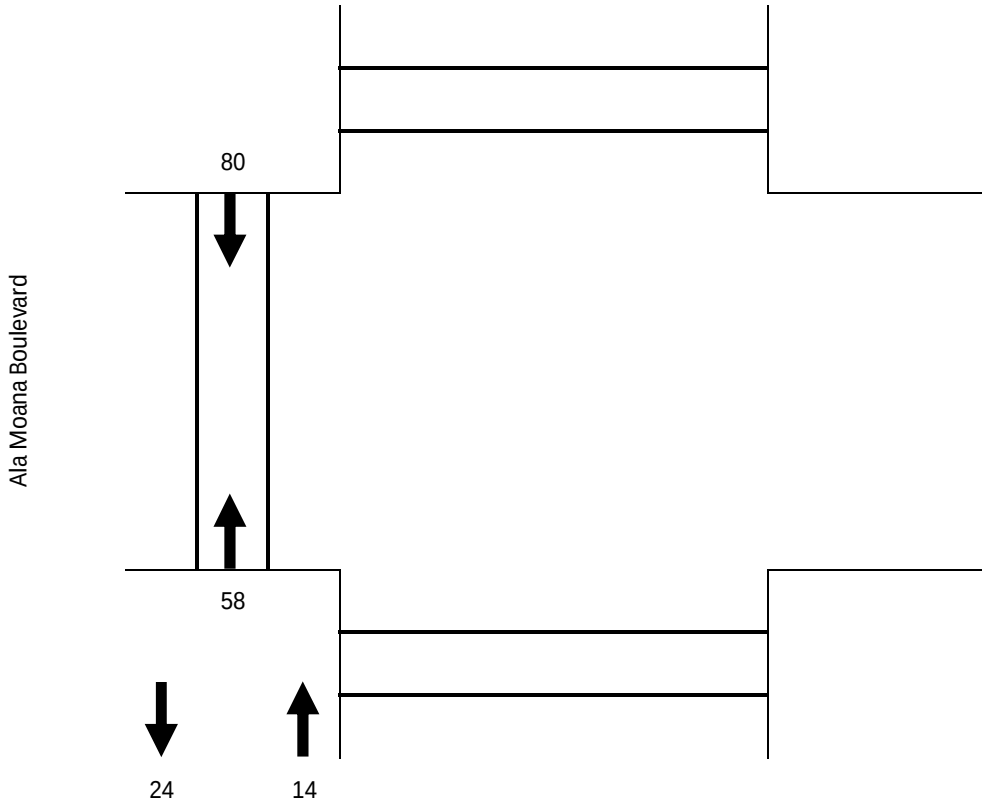
22 of 28 makai-bound crossers entered the park.

9 of 18 mauka-bound crossers came from the park.

Tuesday, 3/27/18

5:00 PM to 5:30 PM

Atkinson Drive



24 of 80 makai-bound crossers entered the park.

14 of 58 mauka-bound crossers came from the park.

Appendix B Levels of Service Definitions

The *Highway Capacity Manual* defines six Levels of Service (LOS), labeled A through F, from best to worst conditions. Levels of Service for signalized and unsignalized intersections are defined in terms of average user delays. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

For unsignalized intersections, the *Highway Capacity Manual* evaluates gaps in the major street traffic flow and calculates available gaps for left-turns across oncoming traffic and for the left and right-turns onto the major roadway from the minor street.

LEVEL-OF-SERVICE A: Little or no delay.

LEVEL-OF-SERVICE B: Short traffic delays.

LEVEL-OF-SERVICE C: Average traffic delays.

LEVEL-OF-SERVICE D: Long traffic delays.

LEVEL-OF-SERVICE E: Very long traffic delays.

LEVEL-OF-SERVICE F: Demand volume exceeds capacity, resulting in extreme delays with queuing that may cause severe congestion and affect other movements at the intersection.

Appendix C Intersection Capacity Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	1318	38	37	1294	142	75	85	28	150	99	812
Future Volume (vph)	269	1318	38	37	1294	142	75	85	28	150	99	812
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5064		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5064		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	292	1433	41	40	1407	154	82	92	30	163	108	883
RTOR Reduction (vph)	0	2	0	0	0	63	0	0	27	0	0	0
Lane Group Flow (vph)	292	1472	0	40	1407	91	74	100	3	163	108	883
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	17.6	67.3		7.5	57.2	57.2	16.1	16.1	16.1	39.5	39.5	61.1
Effective Green, g (s)	17.6	67.3		7.5	57.2	57.2	16.1	16.1	16.1	39.5	39.5	61.1
Actuated g/C Ratio	0.12	0.45		0.05	0.38	0.38	0.11	0.11	0.11	0.26	0.26	0.41
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	401	2266		88	1933	602	179	188	169	901	489	1132
v/s Ratio Prot	0.09	0.29		0.02	c0.28		0.04	c0.06		0.05	0.06	c0.32
v/s Ratio Perm						0.06			0.00			
v/c Ratio	0.73	0.65		0.45	0.73	0.15	0.41	0.53	0.02	0.18	0.22	0.78
Uniform Delay, d1	64.1	32.4		69.5	39.9	30.6	62.7	63.6	60.1	42.9	43.4	38.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	0.7		3.7	1.4	0.1	6.9	10.4	0.2	0.1	0.2	3.5
Delay (s)	70.6	33.0		73.2	41.3	30.8	69.6	74.0	60.3	43.0	43.6	42.4
Level of Service	E	C		E	D	C	E	E	E	D	D	D
Approach Delay (s)		39.2			41.1			70.4			42.6	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	623	1682	80	74	1564	252	83	98	32	266	116	228
Future Volume (vph)	623	1682	80	74	1564	252	83	98	32	266	116	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5051		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5051		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	677	1828	87	80	1700	274	90	107	35	289	126	248
RTOR Reduction (vph)	0	2	0	0	0	77	0	0	30	0	0	0
Lane Group Flow (vph)	677	1913	0	80	1700	197	81	116	5	289	126	248
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	29.0	76.5		11.5	59.0	59.0	21.0	21.0	21.0	19.3	19.3	52.3
Effective Green, g (s)	29.0	76.5		11.5	59.0	59.0	21.0	21.0	21.0	19.3	19.3	52.3
Actuated g/C Ratio	0.20	0.52		0.08	0.40	0.40	0.14	0.14	0.14	0.13	0.13	0.35
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	671	2605		137	2023	629	238	249	224	446	242	982
v/s Ratio Prot	c0.20	0.38		0.05	c0.33		0.05	c0.07		c0.08	0.07	0.09
v/s Ratio Perm						0.12			0.00			
v/c Ratio	1.01	0.73		0.58	0.84	0.31	0.34	0.47	0.02	0.65	0.52	0.25
Uniform Delay, d1	59.7	28.0		66.1	40.4	30.7	57.4	58.5	54.8	61.3	60.2	34.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	37.0	1.1		6.2	3.3	0.3	3.9	6.1	0.2	3.2	2.0	0.1
Delay (s)	96.6	29.1		72.3	43.7	31.0	61.3	64.6	55.0	64.5	62.2	34.2
Level of Service	F	C		E	D	C	E	E	D	E	E	C
Approach Delay (s)		46.7			43.1			62.0			52.7	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	148.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	510	1366	75	66	1120	271	157	105	48	318	124	565
Future Volume (vph)	510	1366	75	66	1120	271	157	105	48	318	124	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5045		1770	5085	1583	1681	1751	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5045		1770	5085	1583	1681	1751	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	1485	82	72	1217	295	171	114	52	346	135	614
RTOR Reduction (vph)	0	4	0	0	0	148	0	0	45	0	0	0
Lane Group Flow (vph)	554	1563	0	72	1217	147	140	145	7	346	135	614
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	23.2	61.2		8.0	46.0	46.0	19.2	19.2	19.2	30.6	30.6	57.8
Effective Green, g (s)	23.2	61.2		8.0	46.0	46.0	19.2	19.2	19.2	30.6	30.6	57.8
Actuated g/C Ratio	0.17	0.44		0.06	0.33	0.33	0.14	0.14	0.14	0.22	0.22	0.42
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	572	2221		101	1682	523	232	241	218	755	410	1158
v/s Ratio Prot	c0.16	c0.31		0.04	0.24		c0.08	0.08		0.10	0.07	c0.22
v/s Ratio Perm						0.09			0.00			
v/c Ratio	0.97	0.70		0.71	0.72	0.28	0.60	0.60	0.03	0.46	0.33	0.53
Uniform Delay, d1	57.5	31.5		64.4	40.9	34.3	56.3	56.3	51.9	47.0	45.6	30.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.4	1.0		21.1	1.6	0.3	11.1	10.6	0.3	0.4	0.5	0.5
Delay (s)	87.0	32.6		85.4	42.5	34.6	67.4	67.0	52.1	47.5	46.0	30.9
Level of Service	F	C		F	D	C	E	E	D	D	D	C
Approach Delay (s)		46.8			43.0			64.9			38.0	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	48	1520	94	1	1729	30	61	27	10	20	28	82
Future Volume (vph)	48	1520	94	1	1729	30	61	27	10	20	28	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1770	5041		1770	5072		1770	1786			1824	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.72	1.00			0.90	1.00
Satd. Flow (perm)	1770	5041		1770	5072		1347	1786			1679	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1652	102	1	1879	33	66	29	11	22	30	89
RTOR Reduction (vph)	0	5	0	0	1	0	0	8	0	0	0	64
Lane Group Flow (vph)	52	1749	0	1	1911	0	66	32	0	0	52	25
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	6.5	75.9		1.0	70.4		37.1	37.1			37.1	37.1
Effective Green, g (s)	6.5	75.9		1.0	70.4		37.1	37.1			37.1	37.1
Actuated g/C Ratio	0.05	0.58		0.01	0.54		0.29	0.29			0.29	0.29
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	88	2943		13	2746		384	509			479	451
v/s Ratio Prot	c0.03	c0.35		0.00	c0.38			0.02				
v/s Ratio Perm							c0.05				0.03	0.02
v/c Ratio	0.59	0.59		0.08	0.70		0.17	0.06			0.11	0.06
Uniform Delay, d1	60.4	17.2		64.0	21.9		34.9	33.8			34.3	33.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	10.2	0.3		2.5	0.8		1.0	0.2			0.5	0.2
Delay (s)	70.6	17.6		66.6	22.7		35.9	34.0			34.7	34.0
Level of Service	E	B		E	C		D	C			C	C
Approach Delay (s)		19.1			22.7			35.2			34.2	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	56	1967	170	28	1328	89	63	35	34	35	61	126
Future Volume (vph)	56	1967	170	28	1328	89	63	35	34	35	61	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1770	5025		1770	5037		1770	1725			1829	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.63	1.00			0.88	1.00
Satd. Flow (perm)	1770	5025		1770	5037		1181	1725			1639	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	2138	185	30	1443	97	68	38	37	38	66	137
RTOR Reduction (vph)	0	6	0	0	4	0	0	20	0	0	0	104
Lane Group Flow (vph)	61	2317	0	30	1536	0	68	55	0	0	104	33
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	8.7	90.9		6.7	88.9		36.7	36.7			36.7	36.7
Effective Green, g (s)	8.7	90.9		6.7	88.9		36.7	36.7			36.7	36.7
Actuated g/C Ratio	0.06	0.60		0.04	0.59		0.24	0.24			0.24	0.24
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	102	3039		78	2979		288	421			400	386
v/s Ratio Prot	c0.03	c0.46		0.02	0.30			0.03				
v/s Ratio Perm							0.06				c0.06	0.02
v/c Ratio	0.60	0.76		0.38	0.52		0.24	0.13			0.26	0.09
Uniform Delay, d1	69.1	21.8		69.8	18.0		45.6	44.3			45.8	43.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	9.1	1.2		3.1	0.2		1.9	0.6			1.6	0.4
Delay (s)	78.2	23.0		72.9	18.2		47.5	45.0			47.4	44.3
Level of Service	E	C		E	B		D	D			D	D
Approach Delay (s)		24.4			19.2			46.2			45.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	81	1607	167	41	1459	74	129	44	51	63	49	123
Future Volume (vph)	81	1607	167	41	1459	74	129	44	51	63	49	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	1770	5013		1770	5049		1770	1714			1812	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.63	1.00			0.79	1.00
Satd. Flow (perm)	1770	5013		1770	5049		1173	1714			1481	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	1747	182	45	1586	80	140	48	55	68	53	134
RTOR Reduction (vph)	0	9	0	0	4	0	0	25	0	0	0	96
Lane Group Flow (vph)	88	1920	0	45	1662	0	140	78	0	0	121	38
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	11.8	70.4		6.4	65.0		36.8	36.8			36.8	36.8
Effective Green, g (s)	11.8	70.4		6.4	65.0		36.8	36.8			36.8	36.8
Actuated g/C Ratio	0.09	0.54		0.05	0.50		0.28	0.28			0.28	0.28
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	161	2723		87	2532		333	486			420	449
v/s Ratio Prot	c0.05	c0.38		0.03	0.33			0.05				
v/s Ratio Perm							c0.12				0.08	0.02
v/c Ratio	0.55	0.71		0.52	0.66		0.42	0.16			0.29	0.08
Uniform Delay, d1	56.3	21.9		60.1	24.0		37.7	34.8			36.2	34.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.8	0.8		5.1	0.6		3.9	0.7			1.7	0.4
Delay (s)	60.1	22.8		65.2	24.6		41.6	35.5			37.9	34.4
Level of Service	E	C		E	C		D	D			D	C
Approach Delay (s)		24.4			25.7			39.0			36.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	129.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	1714	38	37	1512	149	75	85	28	158	99	843
Future Volume (vph)	283	1714	38	37	1512	149	75	85	28	158	99	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5069		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5069		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	1863	41	40	1643	162	82	92	30	172	108	916
RTOR Reduction (vph)	0	1	0	0	0	54	0	0	27	0	0	0
Lane Group Flow (vph)	308	1903	0	40	1643	108	74	100	3	172	108	916
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	18.2	76.6		7.8	66.2	66.2	16.0	16.0	16.0	40.7	40.7	62.9
Effective Green, g (s)	18.2	76.6		7.8	66.2	66.2	16.0	16.0	16.0	40.7	40.7	62.9
Actuated g/C Ratio	0.11	0.48		0.05	0.41	0.41	0.10	0.10	0.10	0.25	0.25	0.39
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	387	2410		85	2089	650	166	175	157	867	470	1088
v/s Ratio Prot	0.09	c0.38		0.02	0.32		0.04	c0.06		0.05	0.06	c0.33
v/s Ratio Perm						0.07			0.00			
v/c Ratio	0.80	0.79		0.47	0.79	0.17	0.45	0.57	0.02	0.20	0.23	0.84
Uniform Delay, d1	69.6	35.5		74.6	41.3	30.0	68.4	69.3	65.5	47.4	47.8	44.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.8	1.8		4.1	2.0	0.1	8.4	12.9	0.2	0.1	0.3	6.0
Delay (s)	80.4	37.3		78.7	43.3	30.1	76.8	82.1	65.7	47.5	48.0	50.6
Level of Service	F	D		E	D	C	E	F	E	D	D	D
Approach Delay (s)		43.3			42.9			77.8			49.9	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	161.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	655	1989	80	74	1930	265	83	98	32	280	116	240
Future Volume (vph)	655	1989	80	74	1930	265	83	98	32	280	116	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5056		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5056		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	712	2162	87	80	2098	288	90	107	35	304	126	261
RTOR Reduction (vph)	0	2	0	0	0	66	0	0	30	0	0	0
Lane Group Flow (vph)	712	2247	0	80	2098	222	81	116	5	304	126	261
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	29.0	76.6		11.5	59.1	59.1	21.0	21.0	21.0	20.2	20.2	53.2
Effective Green, g (s)	29.0	76.6		11.5	59.1	59.1	21.0	21.0	21.0	20.2	20.2	53.2
Actuated g/C Ratio	0.19	0.51		0.08	0.40	0.40	0.14	0.14	0.14	0.14	0.14	0.36
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	666	2594		136	2012	626	236	247	222	464	252	993
v/s Ratio Prot	c0.21	0.44		0.05	c0.41		0.05	c0.07		c0.09	0.07	0.09
v/s Ratio Perm						0.14			0.00			
v/c Ratio	1.07	0.87		0.59	1.04	0.35	0.34	0.47	0.02	0.66	0.50	0.26
Uniform Delay, d1	60.2	31.9		66.6	45.1	31.7	57.9	59.0	55.3	61.2	59.9	34.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.8	3.3		6.4	32.3	0.3	3.9	6.3	0.2	3.3	1.6	0.1
Delay (s)	115.0	35.2		73.0	77.4	32.0	61.9	65.3	55.5	64.6	61.4	34.3
Level of Service	F	D		E	E	C	E	E	E	E	E	C
Approach Delay (s)		54.4			71.9			62.6			52.5	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	149.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	536	1622	75	66	1415	285	157	105	48	334	124	594
Future Volume (vph)	536	1622	75	66	1415	285	157	105	48	334	124	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5051		1770	5085	1583	1681	1751	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5051		1770	5085	1583	1681	1751	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	583	1763	82	72	1538	310	171	114	52	363	135	646
RTOR Reduction (vph)	0	3	0	0	0	105	0	0	45	0	0	0
Lane Group Flow (vph)	583	1842	0	72	1538	205	140	145	7	363	135	646
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	29.1	75.3		11.5	57.7	57.7	21.0	21.0	21.0	37.0	37.0	70.1
Effective Green, g (s)	29.1	75.3		11.5	57.7	57.7	21.0	21.0	21.0	37.0	37.0	70.1
Actuated g/C Ratio	0.18	0.46		0.07	0.35	0.35	0.13	0.13	0.13	0.22	0.22	0.43
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	606	2307		123	1780	554	214	223	201	770	418	1185
v/s Ratio Prot	c0.17	0.36		0.04	c0.30		c0.08	0.08		0.11	0.07	c0.23
v/s Ratio Perm						0.13			0.00			
v/c Ratio	0.96	0.80		0.59	0.86	0.37	0.65	0.65	0.03	0.47	0.32	0.55
Uniform Delay, d1	67.3	38.3		74.3	49.9	40.0	68.4	68.4	63.0	55.4	53.4	35.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.2	2.0		6.9	4.6	0.4	14.6	13.8	0.3	0.5	0.5	0.5
Delay (s)	94.5	40.3		81.3	54.5	40.4	83.0	82.2	63.3	55.9	53.9	35.9
Level of Service	F	D		F	D	D	F	F	E	E	D	D
Approach Delay (s)		53.3			53.3			79.6			44.4	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	164.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	1992	94	7	1975	87	61	27	10	162	28	108
Future Volume (vph)	63	1992	94	7	1975	87	61	27	10	162	28	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	1770	5051		1770	5053		1770	1786			1786	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.43	1.00			0.73	1.00
Satd. Flow (perm)	1770	5051		1770	5053		795	1786			1358	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	2165	102	8	2147	95	66	29	11	176	30	117
RTOR Reduction (vph)	0	3	0	0	3	0	0	8	0	0	0	74
Lane Group Flow (vph)	68	2264	0	8	2239	0	66	32	0	0	206	43
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	8.7	103.7		1.4	96.4		36.3	36.3			36.3	36.3
Effective Green, g (s)	8.7	103.7		1.4	96.4		36.3	36.3			36.3	36.3
Actuated g/C Ratio	0.06	0.66		0.01	0.61		0.23	0.23			0.23	0.23
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	97	3327		15	3094		183	411			313	365
v/s Ratio Prot	c0.04	c0.45		0.00	c0.44			0.02				
v/s Ratio Perm							0.08				c0.15	0.03
v/c Ratio	0.70	0.68		0.53	0.72		0.36	0.08			0.66	0.12
Uniform Delay, d1	73.1	16.6		77.7	21.2		50.8	47.4			54.9	47.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	20.4	0.6		31.9	0.9		5.4	0.4			10.4	0.7
Delay (s)	93.5	17.2		109.6	22.1		56.3	47.8			65.3	48.6
Level of Service	F	B		F	C		E	D			E	D
Approach Delay (s)		19.4			22.4			53.1			59.2	
Approach LOS		B			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	157.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	74	2334	170	28	1668	206	63	35	34	64	61	143
Future Volume (vph)	74	2334	170	28	1668	206	63	35	34	64	61	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	1770	5033		1770	5001		1770	1725			1816	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.55	1.00			0.81	1.00
Satd. Flow (perm)	1770	5033		1770	5001		1030	1725			1510	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	2537	185	30	1813	224	68	38	37	70	66	155
RTOR Reduction (vph)	0	5	0	0	9	0	0	21	0	0	0	83
Lane Group Flow (vph)	80	2717	0	30	2028	0	68	54	0	0	136	72
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	9.0	103.7		6.5	101.2		36.1	36.1			36.1	36.1
Effective Green, g (s)	9.0	103.7		6.5	101.2		36.1	36.1			36.1	36.1
Actuated g/C Ratio	0.06	0.64		0.04	0.62		0.22	0.22			0.22	0.22
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	98	3215		70	3118		229	383			335	352
v/s Ratio Prot	c0.05	c0.54		0.02	0.41			0.03				
v/s Ratio Perm							0.07				c0.09	0.05
v/c Ratio	0.82	0.85		0.43	0.65		0.30	0.14			0.41	0.20
Uniform Delay, d1	75.8	23.0		76.1	19.3		52.5	50.7			53.9	51.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	38.7	2.2		4.2	0.5		3.3	0.8			3.6	1.3
Delay (s)	114.5	25.2		80.3	19.8		55.8	51.4			57.6	52.7
Level of Service	F	C		F	B		E	D			E	D
Approach Delay (s)		27.8			20.7			53.5			55.0	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	162.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	103	1916	167	41	1820	74	129	44	51	96	49	140
Future Volume (vph)	103	1916	167	41	1820	74	129	44	51	96	49	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	1770	5024		1770	5056		1770	1714			1803	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.54	1.00			0.69	1.00
Satd. Flow (perm)	1770	5024		1770	5056		1002	1714			1286	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	2083	182	45	1978	80	140	48	55	104	53	152
RTOR Reduction (vph)	0	7	0	0	3	0	0	26	0	0	0	107
Lane Group Flow (vph)	112	2258	0	45	2055	0	140	77	0	0	157	45
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	14.1	88.5		6.6	81.0		36.4	36.4			36.4	36.4
Effective Green, g (s)	14.1	88.5		6.6	81.0		36.4	36.4			36.4	36.4
Actuated g/C Ratio	0.10	0.60		0.04	0.55		0.25	0.25			0.25	0.25
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	169	3014		79	2776		247	422			317	390
v/s Ratio Prot	c0.06	c0.45		0.03	0.41			0.04				
v/s Ratio Perm							c0.14				0.12	0.03
v/c Ratio	0.66	0.75		0.57	0.74		0.57	0.18			0.50	0.12
Uniform Delay, d1	64.4	21.4		69.1	25.3		48.6	43.8			47.7	43.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	9.4	1.1		9.1	1.1		9.1	0.9			5.4	0.6
Delay (s)	73.8	22.5		78.2	26.4		57.8	44.7			53.1	43.7
Level of Service	E	C		E	C		E	D			D	D
Approach Delay (s)		24.9			27.5			52.2			48.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	147.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Atkinson Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	1714	44	42	1512	149	86	98	32	158	114	843
Future Volume (vph)	283	1714	44	42	1512	149	86	98	32	158	114	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5066		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5066		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	308	1863	48	46	1643	162	93	107	35	172	124	916
RTOR Reduction (vph)	0	2	0	0	0	54	0	0	32	0	0	0
Lane Group Flow (vph)	308	1909	0	46	1643	108	84	116	3	172	124	916
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	18.2	76.2		8.2	66.2	66.2	16.0	16.0	16.0	40.7	40.7	62.9
Effective Green, g (s)	18.2	76.2		8.2	66.2	66.2	16.0	16.0	16.0	40.7	40.7	62.9
Actuated g/C Ratio	0.11	0.47		0.05	0.41	0.41	0.10	0.10	0.10	0.25	0.25	0.39
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	387	2396		90	2089	650	166	175	157	867	470	1088
v/s Ratio Prot	0.09	c0.38		0.03	0.32		0.05	c0.07		0.05	0.07	c0.33
v/s Ratio Perm						0.07			0.00			
v/c Ratio	0.80	0.80		0.51	0.79	0.17	0.51	0.66	0.02	0.20	0.26	0.84
Uniform Delay, d1	69.6	35.9		74.5	41.3	30.0	68.8	69.9	65.5	47.4	48.2	44.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.8	1.9		4.8	2.0	0.1	10.6	18.1	0.3	0.1	0.3	6.0
Delay (s)	80.4	37.8		79.3	43.3	30.1	79.4	88.0	65.7	47.5	48.5	50.6
Level of Service	F	D		E	D	C	E	F	E	D	D	D
Approach Delay (s)		43.7			43.1			81.6			50.0	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	161.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Atkinson Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	655	1989	92	85	1930	265	95	113	37	280	133	240
Future Volume (vph)	655	1989	92	85	1930	265	95	113	37	280	133	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5052		1770	5085	1583	1681	1763	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5052		1770	5085	1583	1681	1763	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	712	2162	100	92	2098	288	103	123	40	304	145	261
RTOR Reduction (vph)	0	2	0	0	0	66	0	0	34	0	0	0
Lane Group Flow (vph)	712	2260	0	92	2098	222	93	133	6	304	145	261
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	29.0	76.1		12.0	59.1	59.1	21.0	21.0	21.0	20.2	20.2	53.2
Effective Green, g (s)	29.0	76.1		12.0	59.1	59.1	21.0	21.0	21.0	20.2	20.2	53.2
Actuated g/C Ratio	0.19	0.51		0.08	0.40	0.40	0.14	0.14	0.14	0.14	0.14	0.36
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	666	2575		142	2012	626	236	247	222	464	252	993
v/s Ratio Prot	c0.21	0.45		0.05	c0.41		0.06	c0.08		c0.09	0.08	0.09
v/s Ratio Perm						0.14			0.00			
v/c Ratio	1.07	0.88		0.65	1.04	0.35	0.39	0.54	0.03	0.66	0.58	0.26
Uniform Delay, d1	60.2	32.5		66.6	45.1	31.7	58.4	59.6	55.3	61.2	60.5	34.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.8	3.7		9.8	32.3	0.3	4.9	8.2	0.2	3.3	3.2	0.1
Delay (s)	115.0	36.2		76.4	77.4	32.0	63.2	67.8	55.5	64.6	63.7	34.3
Level of Service	F	D		E	E	C	E	E	E	E	E	C
Approach Delay (s)		55.0			72.0			64.4			53.2	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	61.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	149.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Atkinson Drive & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	536	1622	86	76	1415	285	180	121	55	334	142	594
Future Volume (vph)	536	1622	86	76	1415	285	180	121	55	334	142	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91	1.00	0.95	0.95	1.00	0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5047		1770	5085	1583	1681	1751	1583	3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5047		1770	5085	1583	1681	1751	1583	3433	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	583	1763	93	83	1538	310	196	132	60	363	154	646
RTOR Reduction (vph)	0	3	0	0	0	105	0	0	52	0	0	0
Lane Group Flow (vph)	583	1853	0	83	1538	205	161	167	8	363	154	646
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	pt+ov
Protected Phases	7	4		3	8		2	2		6	6	6 7
Permitted Phases						8			2			
Actuated Green, G (s)	29.1	74.9		11.9	57.7	57.7	21.0	21.0	21.0	37.0	37.0	70.1
Effective Green, g (s)	29.1	74.9		11.9	57.7	57.7	21.0	21.0	21.0	37.0	37.0	70.1
Actuated g/C Ratio	0.18	0.45		0.07	0.35	0.35	0.13	0.13	0.13	0.22	0.22	0.43
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	606	2293		127	1780	554	214	223	201	770	418	1185
v/s Ratio Prot	c0.17	0.37		0.05	c0.30		c0.10	0.10		0.11	0.08	c0.23
v/s Ratio Perm						0.13			0.00			
v/c Ratio	0.96	0.81		0.65	0.86	0.37	0.75	0.75	0.04	0.47	0.37	0.55
Uniform Delay, d1	67.3	38.8		74.4	49.9	40.0	69.4	69.4	63.0	55.4	54.0	35.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.2	2.2		11.5	4.6	0.4	21.4	20.4	0.4	0.5	0.6	0.5
Delay (s)	94.5	40.9		85.9	54.5	40.4	90.8	89.7	63.4	55.9	54.6	35.9
Level of Service	F	D		F	D	D	F	F	E	E	D	D
Approach Delay (s)		53.7			53.6			86.1			44.6	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	164.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	63	1992	108	8	1975	87	70	31	11	162	32	108
Future Volume (vph)	63	1992	108	8	1975	87	70	31	11	162	32	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	1770	5046		1770	5053		1770	1790			1788	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.42	1.00			0.73	1.00
Satd. Flow (perm)	1770	5046		1770	5053		783	1790			1359	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	2165	117	9	2147	95	76	34	12	176	35	117
RTOR Reduction (vph)	0	4	0	0	3	0	0	8	0	0	0	74
Lane Group Flow (vph)	68	2278	0	9	2239	0	76	38	0	0	211	43
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	8.7	101.3		2.7	95.3		36.3	36.3			36.3	36.3
Effective Green, g (s)	8.7	101.3		2.7	95.3		36.3	36.3			36.3	36.3
Actuated g/C Ratio	0.06	0.65		0.02	0.61		0.23	0.23			0.23	0.23
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	98	3270		30	3080		181	415			315	367
v/s Ratio Prot	c0.04	c0.45		0.01	c0.44			0.02				
v/s Ratio Perm							0.10				c0.16	0.03
v/c Ratio	0.69	0.70		0.30	0.73		0.42	0.09			0.67	0.12
Uniform Delay, d1	72.5	17.6		75.9	21.4		51.0	47.1			54.6	47.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	19.2	0.7		5.6	0.9		7.0	0.4			10.8	0.7
Delay (s)	91.6	18.3		81.4	22.3		58.1	47.5			65.4	48.0
Level of Service	F	B		F	C		E	D			E	D
Approach Delay (s)		20.4			22.5			54.1			59.2	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	156.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	74	2334	195	32	1668	206	72	40	39	64	70	143
Future Volume (vph)	74	2334	195	32	1668	206	72	40	39	64	70	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	1770	5026		1770	5001		1770	1725			1819	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.53	1.00			0.81	1.00
Satd. Flow (perm)	1770	5026		1770	5001		990	1725			1513	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	2537	212	35	1813	224	78	43	42	70	76	155
RTOR Reduction (vph)	0	6	0	0	9	0	0	21	0	0	0	83
Lane Group Flow (vph)	80	2743	0	35	2028	0	78	64	0	0	146	72
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	9.0	104.1		6.7	101.8		36.0	36.0			36.0	36.0
Effective Green, g (s)	9.0	104.1		6.7	101.8		36.0	36.0			36.0	36.0
Actuated g/C Ratio	0.06	0.64		0.04	0.63		0.22	0.22			0.22	0.22
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	97	3213		72	3127		218	381			334	350
v/s Ratio Prot	c0.05	c0.55		0.02	0.41			0.04				
v/s Ratio Perm							0.08				c0.10	0.05
v/c Ratio	0.82	0.85		0.49	0.65		0.36	0.17			0.44	0.20
Uniform Delay, d1	76.1	23.3		76.4	19.2		53.6	51.3			54.7	51.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	40.9	2.4		5.1	0.5		4.5	1.0			4.1	1.3
Delay (s)	117.1	25.7		81.5	19.7		58.2	52.2			58.8	53.0
Level of Service	F	C		F	B		E	D			E	D
Approach Delay (s)		28.3			20.7			55.1			55.8	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	162.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Kamakee Street & Ala Moana Boulevard

06/21/2018

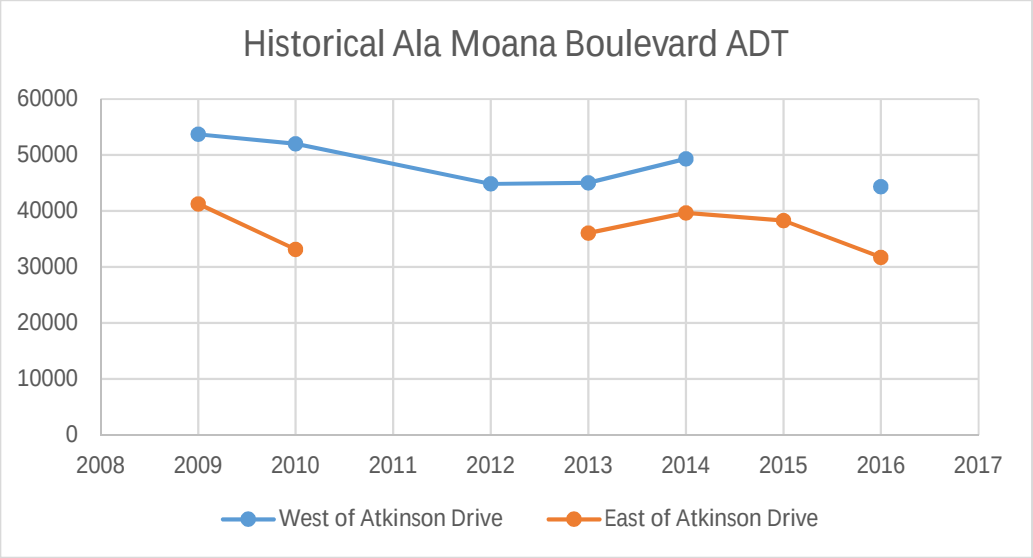
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	103	1916	192	47	1820	189	149	51	59	96	56	140
Future Volume (vph)	103	1916	192	47	1820	189	149	51	59	96	56	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.92			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	1770	5016		1770	5014		1770	1712			1806	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.52	1.00			0.66	1.00
Satd. Flow (perm)	1770	5016		1770	5014		965	1712			1232	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	2083	209	51	1978	205	162	55	64	104	61	152
RTOR Reduction (vph)	0	8	0	0	8	0	0	27	0	0	0	108
Lane Group Flow (vph)	112	2284	0	51	2175	0	162	92	0	0	165	44
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	14.2	90.7		6.8	83.3		36.2	36.2			36.2	36.2
Effective Green, g (s)	14.2	90.7		6.8	83.3		36.2	36.2			36.2	36.2
Actuated g/C Ratio	0.09	0.61		0.05	0.56		0.24	0.24			0.24	0.24
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	167	3039		80	2790		233	413			297	382
v/s Ratio Prot	c0.06	c0.46		0.03	c0.43			0.05				
v/s Ratio Perm							c0.17				0.13	0.03
v/c Ratio	0.67	0.75		0.64	0.78		0.70	0.22			0.56	0.12
Uniform Delay, d1	65.5	21.3		70.2	26.0		51.7	45.5			49.7	44.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	10.1	1.1		15.5	1.4		15.8	1.3			7.3	0.6
Delay (s)	75.6	22.4		85.7	27.4		67.5	46.7			57.0	44.9
Level of Service	E	C		F	C		E	D			E	D
Approach Delay (s)		24.9			28.8			58.7			51.2	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	149.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Appendix D Growth Rate Analysis

	West of Atl	East of Atkinson Drive	W of Atkinson		E of Atkinson	
2009	53708	41294.5	54433	52983	41349	41240
2010	52018.5	33134.5	51769	52268	33994	32275
2012	44845.5		44229	45462		
2013	45026	36075	44668	45384	38388	33762
2014	49321	39654	48609	50033	39226	40082
2015		38271			38134	38408
2016	44331.5	31750.5	44791	43872	31749	31752



APPENDIX C

Ala Moana Regional Park
Parking Occupancy Study

FEHR PEERS

August 24, 2017

Mr. Rodrigo Rodarte
Project Analyst
Biederman Redevelopment Ventures
441 N. Beverly Dr., Suite 205
Beverly Hills, CA 90210

Subject: Ala Moana Regional Park – Parking Occupancy Study **SD17-0244**

Dear Mr. Rodarte:

Fehr & Peers has completed a parking occupancy study of Ala Moana Regional Park in the City and County of Honolulu on the island of O`ahu, Hawaii. We completed this study on behalf of Biederman Redevelopment Ventures for the City & County to provide input to the Ala Moana Regional Park Master Plan. The Master Plan will identify potential options for redeveloping the park, and an integral element of this plan is understanding the demand for vehicle parking. The scope of this study included conducting parking occupancy counts, documenting the range of demand on select days of the week, and identifying potential strategies to address and manage existing and future demand. This report documents our study approach and findings.

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STUDY CONTEXT AND BACKGROUND

Ala Moana Regional Park (also known as Ala Moana Beach Park) is a 100-acre park located between Downtown Honolulu and the Waikiki resort area on the southern edge of O`ahu. The Park is a primary destination for numerous residents, especially those living in the primary urban center of Honolulu, but it is also used by employees from the surrounding area and island visitors. In addition to the numerous natural amenities, the Park includes several different recreation facilities that make it attractive to both the casual user, as well as attendees of organized events. The Park is operated and maintained by the City & County of Honolulu Department of Parks and Recreation (DPR) including both the distribution of operating permits for organized events and upkeep of all facilities and public areas.

Given its convenient location, natural beauty, facilities, and access to the ocean, the Park has become an attraction that generates a substantial demand for vehicle parking depending on the weather, scheduled events, time of day, day of week, etc. As shown on **Figure 1**, vehicle access is provided via a two-lane circulatory roadway designated as Ala Moana Park Drive that connects and is generally parallel to Ala Moana Boulevard. The primary connections of Ala Moana Park Drive are at signalized intersections opposite Kamakee Street at the west end, and opposite Atkinson Drive at the east end.

Figure 1

Ala Moana Beach Park
Project Location

On-street spaces are delineated on Ala Moana Park Drive, which also provides access to four off-street public parking lots with different capacities within the Park. These lots include the McCoy Pavilion Lot, the Beach Lot, the Canoe Hale Lot, and the Harbor Lot. A fifth lot is located along Ala Moana Park Drive adjacent to the marina slips, but it is private, gate-controlled and not part of this study.

Like many attractions that are in demand, anecdotes vary as to the availability of parking, demand patterns, and the ability of drivers to find parking in close proximity to their ultimate destination within the Park. With a length of approximately one-mile and a width that generally varies between 0.15 to 0.45 miles between ala Moana Boulevard and the water's edge, the Park is large enough that some users complain when spaces are not available within a reasonable walking distance. While this distance can vary from person to person, a typical distance of 0.25 miles or roughly 1,300 feet is considered the desired maximum.

PARKING OCCUPANCY COUNTS

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To provide actual demand data to identify current parking utilization, vehicle occupancy counts were conducted over the course of one weekday and two weekend days. The purpose of these counts is to quantify the parking demand by hour to determine demand across the entire park, as well as within specific areas.

As noted above, parking demand at the Park can vary depending on the number and size of scheduled events, as well as weather and surf conditions and time of year. The general intent for any parking study is to conduct counts during higher demand times, but not the highest or peak conditions, since those typically do not occur with regular frequency. Conclusions of studies based on absolute peak conditions typically result in over-building of facilities to accommodate projected demand and an inefficient use of infrastructure and support staff. A more typical industry approach is to use demand that represents the 85th or 90th percentile, provided that the selected level occurs with some regular frequency over the course of the year. The understanding is that some larger-scale events will require additional parking in other areas, but that the provided supply will generally be sufficient for most days.

Selection of Survey Days

Fehr & Peers coordinated with DPR staff to identify potential days with higher than normal attendance levels based on projected event schedules. Data from May 2016 through April 2017 was reviewed and event sizes were generally categorized by 250-attendee increments between 0 and 1000 or more. Most events

included attendance levels of less than 500 persons and the majority of those events included less than 250 people. Some key findings from the review of event data included the following:

- Approximately 70% of weekdays did not have a scheduled event requiring a permit through DPR.
- Of the weekdays with events, over two-thirds of those had events with fewer than 250 persons total.
- Roughly 85% of weekend days had some event scheduled.
- Weekend events had higher numbers of attendees, with 40% of all events including 250 total persons or less, and roughly 25% of events with a total attendance of between 250 and 500 people.
- Nearly ¼ of all weekend events had a total attendance of more than 1,000 persons but over the course of a year, this represents less than 8% of all days or slightly more than two days per month.

In addition to the review of scheduled event data, other aspects of the Park as an attraction were considered. Several desirable surf breaks are accessible from the Park, and these generate parking demand, especially during the summer when the surf is typically better on the south shore of the island than at the North Shore breaks. In addition, summer months also include typically the highest number of monthly visitors to O`ahu (usually in July per the latest visitor data published at http://files.hawaii.gov/dbedt/visitor/visitor-research/2015-annual-visitor.pdf), as well as local students on summer vacation.

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Based on the review of event data, seasonal variations, and the project schedule, one weekday (Thursday July 13th) and two consecutive weekend days (Saturday July 15th and Sunday July 16th) were selected as the days for the parking occupancy surveys. The combined potential event attendance was expected to be 270 persons on Thursday, and increasing to 950 and 575 people on Saturday and Sunday, respectively, if all events occurred as anticipated.

Survey Scope

The Master Plan for the Park will recommend redevelopment options across the property and may change the location of the most desired parking spaces. As such, it was determined that locational surveys would be conducted independently for each of the individual parking lots, and for various sections of on-street spaces on Ala Moana Park Drive (within the Park) and Ala Moana Boulevard (fronting the Park). Ala Moana Park Drive within the Park was subdivided into three sections as follows:

- Park West On-Street Parking: from the Kamakee Street intersection to the crosswalk immediately east of the McCoy Pavilion lot eastern driveway
- Park Central On-Street Parking: from the McCoy Pavilion crosswalk to the western entrance of the Beach Lot
- Park East On-Street Parking: from the Beach Lot western entrance to the Atkinson Drive intersection

On Ala Moana Boulevard, parking is permitted in the outside lane but only on weekdays late at night (between 10pm and 4am) and on weekends. The section where parking is permitted extends from diamond head of Kamakee Street to the diamond head driveway serving Ala Moana Shopping Center. These sections were included in the survey on Saturday and Sunday only.

In addition to locational variations, parking demand fluctuates over the course of the day. To address this issue and to identify the peak times of parking demand, surveys were conducted between 8am and 6pm on each of the weekday and weekend days. During each hour, the number of vehicles parked in each off-street lot space and in the on-street spaces was counted. In all off-street lots except for the relatively small Harbor Lot, some of the parking spaces are designated for vehicles displaying a blue disability parking placard. Occupancy of these spaces was tallied separately since access to them is restricted, but it is also important to understand if the existing supply of disabled spaces is adequately serving demand.

The available parking supply within each lot and on-street segment is shown in **Table 1**. The total number of spaces is also presented in this table and shows that the aggregate supply of standard and disabled parking is 929 spaces and 23 spaces, respectively. This total excludes the 64 on-street spaces on Ala Moana Boulevard (assuming 22 feet per space) since they are only available on weekends (and weekday late nights), and that available supply is also included in **Table 1**.

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Table 1
Ala Moana Regional Park – Vehicle Parking Supply

Parking Lot/Street Segment	Standard Space Supply	Disabled Space Supply
Ala Moana Park Drive		
Park West	119	0
Park Central	173	0
Park East	82	0
Off-Street Lots		
McCoy Pavilion Lot	76	4
Beach Lot	453	17
Canoe Hale Lot	19	2
Harbor Lot	7	0
Total	***929***	***23***
Ala Moana Boulevard (Weekends Only)		
Kamakee St to Piikoi St	34	0
Piikoi St to DH Ala Moana SCtr Dwy	30	0

Source: Fehr & Peers – Vendor Survey (July 2017)

Knowing that the overall parking demand could exceed the existing available supply at some locations at certain times of day, survey personnel were also tasked with counting the number of vehicles parking illegally, as well as those waiting for spaces to become available. These additional counts help to identify the total parking demand regardless of space availability, as well as the actual locational demand.

Also noted during the survey was the presence of bus, limousines, and large passenger vans that often stage at various locations throughout the park. Along the Diamond Head (i.e., eastern) edge of the Beach Lot, for example, the curb is painted yellow allowing for loading activities, and striping on the pavement indicates parking for larger vehicles. The presence of these vehicles in all parking lots and in on-street spaces was noted during the survey.

PARKING OCCUPANCY SURVEY RESULTS

The results of all of the July parking occupancy surveys are graphically depicted on **Figure 2**. This figure shows the proportion of occupied spaces by hour for each of the survey days (Thursday, Saturday and Sunday) by lot or on-street segment. The percentage within each circle represents the vehicle occupancy divided by the capacity of that facility. The set of occupancy data for each surveyed facility is color-coded to the respective lot or segment. For occupancies shown as greater than 100%, the number of illegally parked and waiting vehicles was added to the occupancy count.

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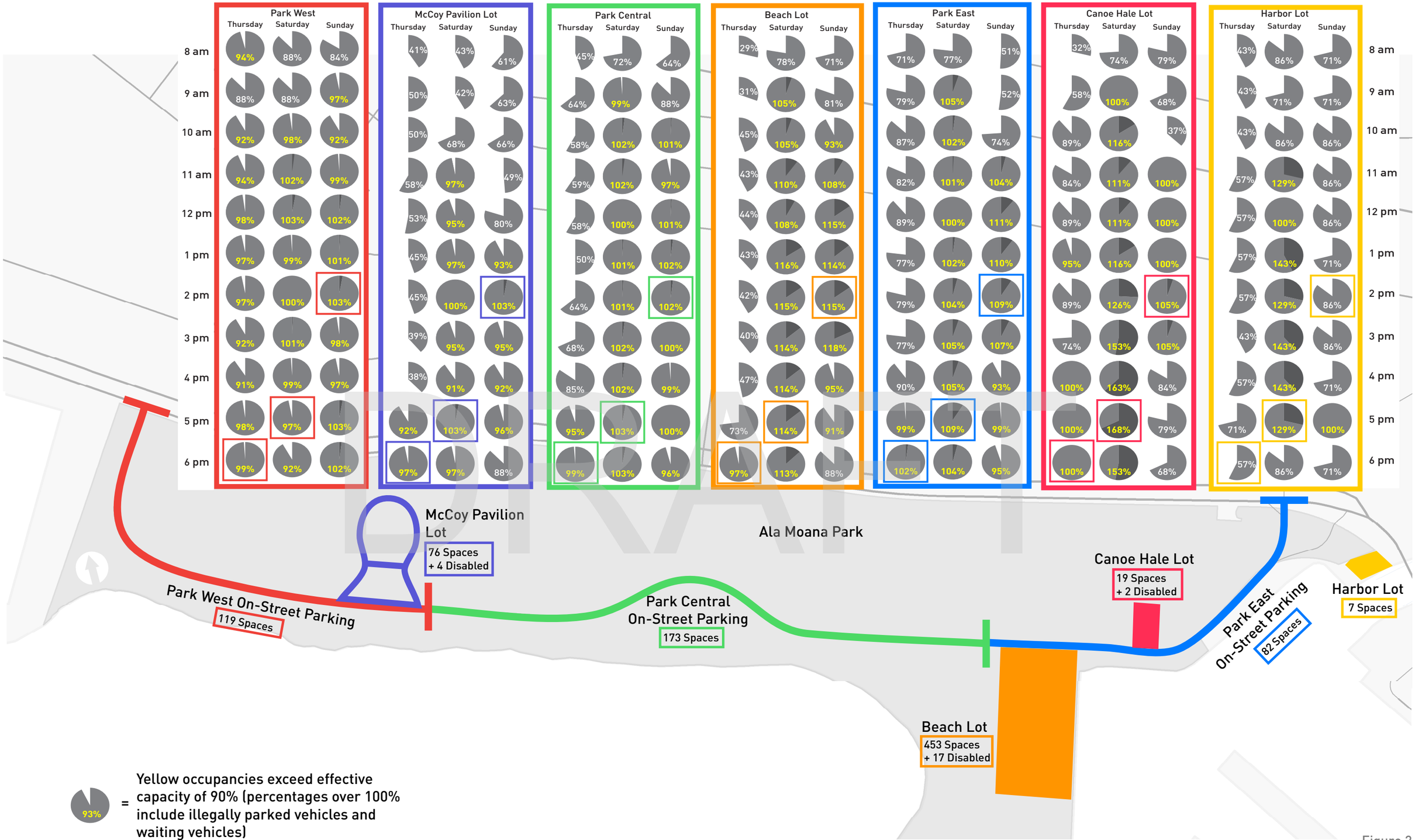
All percentages on **Figure 2** that exceed 90% are shown in yellow. This signifies that the effective capacity of the lot or street segment has been exceeded. When a parking area's occupancy reaches 85 to 95% of the total capacity, depending on the user group, the area becomes effectively full. When parking lot occupancy exceeds effective capacity, users become frustrated as it becomes increasingly difficult to find an available parking space. Users will begin to either park illegally in the lot or leave the lot altogether and search for parking elsewhere. Given the current mix of user groups (residents familiar with the Park, and some visitors who may not be), the effective maximum desirable occupancy percentage for parking within the Park is assumed to be 90%. This 10% "cushion" of spaces is used to provide for reasonable search times for available parking, as well as to need to look in several distinct areas for parking.

In addition to the data for each lot or segment, the peak parking demand for the overall park as a whole is also noted by a square around the corresponding peak hour (i.e., 6pm on Thursday, 5pm on Saturday, and 2pm on Sunday. **Figure 3** illustrates the total parking demand across the Park for each day, and includes both the actual and effective capacities of the total Park supply.



93% = Yellow occupancies exceed effective capacity of 90% (percentages over 100% include illegally parked vehicles and waiting vehicles)

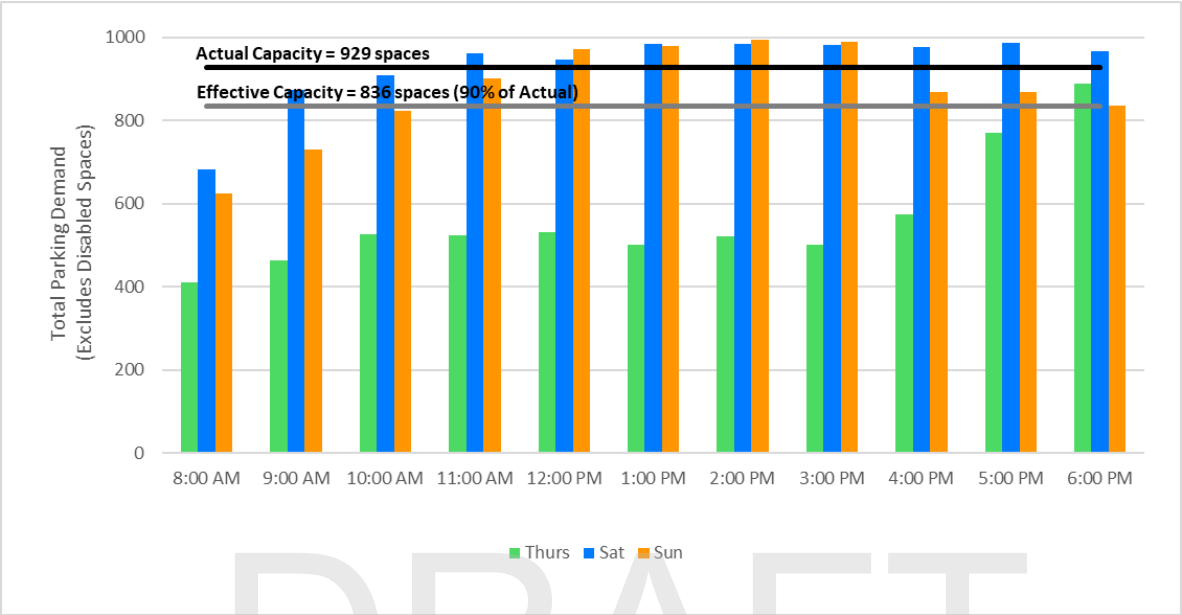
75% = Represents peak hour of total parking demand across the Park

Figure 2

Ala Moana Beach Park
2017 Parking Occupancy Survey
Thursday (July 13), Saturday (July 15), Sunday (July 16)

Figure 3

Total Parking Demand by Day at Ala Moana Regional Park



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The raw data for this figure and all of the analyses in this report is included in the tables attached as an appendix. A review of the findings for each day, as well as for the park as a whole, are presented below.

Thursday Parking Demand

The highest demand area for parking on Thursday was the western segment of Ala Moana Park Drive, which experienced an occupancy rate of 91% to 99% for all but one hour of the survey period. The occupancy in most of the other lots and segments ranged from 40% to 70% full between 8am and 3pm, except for the Canoe Hale Lot, which approached 90% to 95% occupancy for five of the midday hours. It was only towards the end of the day at around 4pm or 5pm did occupancy in almost all of the lots and segments approach 90% or more. Interestingly, the small seven-space Harbor Lot was generally 60% full or less for almost the entire day.

The only lot or segment where demand exceeded the actual capacity was the Park East segment, where the occupancy was measured at 102% at 6pm where three vehicles were illegally parked.

Between 8am and 4pm on Thursday, the total parking demand for the entire park ranged from 44% to 62% with 411 to 574 spaces occupied. At 5pm, the occupancy increased to 770 spaces or 83% of capacity, and then to 889 spaces or 96% occupancy by 6pm. At this time, parking at the Park was effectively full.

For disabled parking spaces specifically, demand was 100% for several hours at the end of the survey period in both the McCoy Pavilion Lot and the Canoe Hale Lot (2 spaces). During the rest of the day, some spaces were available.

Upon consultation with DPR staff after the occupancy surveys were completed, it was determined that both of the permitted events originally scheduled for Thursday did not take place. Thus, the Thursday data is based solely on the recreation and visitor demand generated by the Park amenities and not by any large organized group.

Saturday Parking Demand

The parking demand on Saturday began to exceed 90% of the available supply in all but two of the lots (McCoy Pavilion and Harbor Lot) and on all street segments by 10am. In fact, the Park Central segment and the Beach Lot (with the two largest individual supplies), as well as the Park East segment and Canoe Hale Lot, were all at or over capacity by 9am. By 11am, demand in all of the surveyed facilities were at or over capacity.

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All of the lots and segments experienced demand that exceeded capacity, but the two locations with the highest absolute volume of illegally parked vehicles was the Beach Lot with 50 to 60 vehicles every hour between 1pm and 6pm, and the Canoe Hale Lot with 10 to 13 vehicles every hour between 3pm and 6pm.

On a total demand basis, the total number of parked vehicles at 8am was 683 vehicles or 70% of capacity and increased to 910 vehicles or 91% by 10am. From 11am through 6pm, total Park demand ranged from 947 to 988 vehicles or 102% to 106% of actual capacity. The absolute peak technically occurred at 5pm, but the difference in total demand amongst the highest four surveyed hours was a negligible six vehicles.

Not surprisingly, the demand for disabled parking spaces on Saturday reflected the higher overall demand compared to Thursday. On Saturday, the Beach Lot disabled spaces were fully occupied for all but two hours: 8am and 10am with three spaces and one space available, respectively. Overall, disabled parking space occupancy was over 90% for five of the 11 survey hours on Saturday.

During the Saturday parking surveys, no vehicles were observed parking in the diamond head-bound curb lane on Ala Moana Boulevard where parking is permitted on weekends. Either drivers are misunderstanding the signage along the applicable blocks, or Park users deem those spaces too far from their ultimate destination within the Park (possibly the beach).

Similar to the Thursday survey, DPR staff indicated that all of the Saturday events requiring permits did not take place as originally scheduled. Where up to 950 persons were originally expected at a variety of

organized events, this additional demand never materialized. Thus, the Saturday parking demand data is based solely on the recreation and visitor demand generated by the Park attractions and not by any large organized group.

Sunday Parking Demand

In general, Sunday parking demand mirrored Saturday demand through the core hours of the day. Most of the lots and segments were at or over capacity by or before 11am except for the McCoy Pavilion Lot and the Harbor Lot. This trend continued until around 4pm, when the demand tapered more as compared to Saturday, but at 6pm all of the street sections were still above their effective capacity (i.e., greater than 95% occupied). The largest lots began to open up at 6pm but were still just below their effective capacity.

The peak demand for the entire park occurred between 12pm and 3pm, where the measured occupancy was 105% to 107%. The shoulders of the peak period occurred between 10am and 12pm, and between 4pm and 6pm, but occupancy during these times was at or in excess of 90%.

Overall demand in disabled spaces peaked in the middle of the day ranging from an overall occupancy of 87% to 96% between 11am and 3pm. In particular, the Beach Lot disabled spaces were fully occupied during that period, but spaces were generally available in all lots outside those core hours.

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Similar to the Saturday observations, no vehicles were observed parking on Ala Moana Boulevard immediately mauka of the Park property on Sunday during the occupancy survey. Instead of waiting for an available space or parking illegally, up to 64 vehicles could have utilized these spaces.

Although not expected at all, DPR staff indicated that all of the scheduled Sunday events requiring a permit did not take place as originally scheduled. This was a similar occurrence during the Thursday and Saturday occupancy surveys, and as a result, the Sunday parking demand data in this report is based solely on the recreation and visitor demand generated by the Park attractions.

OVERALL CONCLUSIONS REGARDING DEMAND

The occupancy data clearly shows that parking demand on Thursday can be generally accommodated by the existing supply at the Park. The exceptions are the 5pm hour when the demand is approaching the effective capacity of the Park (90% of the supply), and the 6pm hour when the demand is between the effective and actual parking capacity. This peak in demand is attributed to people that drive to the Park to enjoy the amenities and attractions after work. The number of disabled spaces appears to be adequate to serve weekday demand based on the Thursday survey. To provide a supply that would accommodate the peak Thursday demand at the effective capacity of 90%, a total of 58 spaces would have to be added. The

spaces on Ala Moana Boulevard are not an option since they are unavailable during the peak Park hour on Thursday.

On Saturdays and Sundays, the overall parking demand exceeds the total parking supply at the Park primarily from 11am to 5pm, with Saturdays including an additional three hours (9am, 10am and 6pm) where the demand exceeds the available capacity. The area with the highest demands includes the on-street spaces in the western section of Ala Moana Park Drive on both Thursday and the weekend days, although the on-street demand is high all weekend long. The Beach Lot is also highly desirable on the weekends and was over-capacity by 9am on Saturday.

It is interesting to note that while all of the parking supplies within the Park were highly desired on the weekend, no one took advantage of the spaces on Ala Moana Boulevard. These available on-street spaces could have accommodated nearly all of the illegally parked vehicles in the Beach Lot during the peak hours on Saturday. However, the overall demand would still have far exceeded the effective parking capacity within the Park had those spaces been utilized.

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Even without a*ny* increase in activity and subsequent parking demand caused the Master Plan, the City and County would have to consider providing additional parking and/or implementing management strategies to ensure that demand can be accommodated within the effective capacity of the available supply. To provide a supply that would accommodate the peak Saturday and Sunday demand at the effective capacity of 90%, a total of 113 new spaces would have to be added to the Park. This assumes that all 64 of the spaces on Ala Moana Boulevard were fully utilized before the new supply was added.

As noted in each of the daily summaries, none of the surveyed days included any scheduled events that can generate a substantial on-site population and parking demand, in addition to the demand generated by the Park's natural amenities. If the surveyed days are representative of typical summer activity for at least June, July and part of August (when schools begin classes), then weekend days with *any* scheduled events would likely result in more hours with a deficient parking supply and potentially vehicles parking in adjacent areas (such as Ala Moana Shopping Center).

POTENTIAL PARKING MANAGEMENT STRATEGIES

Managing parking is one of the most challenging aspects of transportation planning in terms of balancing: 1) the need to provide adequate supplies within reasonable access to the subject attraction with 2) the infrastructure economics/environmental considerations, and 3) public expectations. The expectations of drivers includes not only perceived convenience, but relatively low costs, and anticipated "free" access to certain attractions (e.g., the beach). When parking in an area has been "free" or has not included any

operational restrictions (e.g., time limits), some drivers resist the implementation of parking management strategies simply based on a change in the status quo. However, as areas urbanize and demand approaches or exceeds capacity, parking operators are forced to increase the supply or implement policies and actions to better manage demand and create opportunities for drivers to park at all times of day.

In the case of Ala Moana Regional Park, a series of strategies can be considered to increase the number of available spaces during the day, increase the available supply, and/or reduce the overall demand. These options are included in **Table 2** and each strategy includes a general description, the expected benefit, potential application for the Park, and relative cost and time implications for implementation. Cost is generalized as low, medium and high cost items illustrated by one, two or three dollar signs. Similarly, implementation timing is estimated as Immediate (within one year), Mid-Term (likely one to two years), and Long-Term (more than two years).

The simplest method to free up spaces during peak demand times is the implementation of time limits and enforcement to ensure compliance. This will provide more opportunities for Park patrons arriving during the peak times to find available spaces, and not require that they arrive by 9am or 10am to find a space. For the highest demand areas, a portion of the spaces could be designated with shorter time limits (2 hour and 4 hour limits) to make spaces available in all areas of the Park.

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Another relatively inexpensive solution is to install signage at both entrances and exits identifying that parking is available on Ala Moana Boulevard on weekends. Use of these 64 spaces would provide a substantive increase in the supply with little investment.

Reducing demand through the encouragement of other mode use and taxis/transportation network companies (TNCs) such as Uber and Lyft is an ideal way to increase space availability. However, these approaches are typically the most effective when there is some cost associated with parking in the desired location (i.e., when it is less expensive to ride one's bike or take an Uber).

Charging for parking is typically the most effective strategy to manage demand but also has the most implications for public comment and potential opposition. Another challenge is that there is not another free public parking supply that can reasonably serve as an option for drivers if parking charges were implemented. While Ala Moana Shopping Center is in close proximity, those spaces are designated for private use and cannot be counted on to supplement the Park supply.

Limited opportunities are available to increase the existing parking supply within the Park and using the existing infrastructure. The most effective strategy for re-striping would be to convert Ala Moana Park Drive to one-way operation (either ewa-bound or diamond head-bound) and stripe it with 60-degree diagonal

parking on along the makai curb and parallel parking on the mauka curb. Within the existing 40-foot curb to curb width, this would include 18 feet for the diagonal spaces, 8 feet for the parallel spaces, and a 14-foot travel lane. While this could increase the parking supply by roughly 200 spaces along the entire length of the street, the conversion would have other implications including: 1) changes to intersection operations on Ala Moana Boulevard at Kamakee Street and at Atkinson Drive depending on the direction of travel, as well as reduced circulation options to and through the Park. Additional studies would be needed to ascertain the functional feasibility of this option.

Please let us know if you have any questions regarding the contents of this study. We appreciate the opportunity to assist you.

Sincerely,

FEHR & PEERS

DRAFT

Sohrab Rashid
Principal

Attachment

Table 2

Potential Parking Management Strategies for Ala Moana Regional Park

Strategy	Description	Benefit	Potential Application	Cost[1]	Timing[2]
Time Limits and Restrictions	Indicate time limits on spaces via signage using a mix of short-term and and long-term limits. Typical limits for a park use include 2-hr, 4-hr, and 8-hr blocks but can be modified as appropriate.	Encourages turnover of spaces to provide short-term parking for visitors in some areas and provides opportunities for vehicles arriving during peak conditions.	Designate a portion of the spaces within the Park with typical limit ranges. Can be combined with parking charges and/or assignment of location if desired.	$	Immediate
Enforcement	Usually involves writing and issuing parking citation relating to violation of codes, laws, regulations, and validation programs. Is typically performed by a non-peace officer. If a jurisdiction is about to more stringently enforce time limits, sufficent notice should be provided to those who might be ticketed.	Encourages compliance with legal parking spaces, time limits, parking charges, permit requirements, etc.	Enforcement could currently be used to reduce illegal parking in the lots and on Ala Moana Park Drive, and would also need to be conducted in conjunction with one or more of the time limit or parking charge options to make them effective.	$	Immediate
Encourage Use of Non-Auto Modes	Enhance bus transit stops with amenities; provide: direct and attractive connections between stops and ultimate destination, secure and convenient bicycle parking, and enhanced walking environments to high-capacity transit stations..	Reduces overall parking demand by making non-auto modes more attractive and convenient	Install bike lockers and /or shaded racks, make sure all transit stops include all amenities including shelters and comfortable seating, provide discount at Park concessions for transit tickets and passes.	$ to $$	Immediate to Mid-Term
Wayfinding and Space Availability Signage	Install informational signs indicating larger parking supplies and all available on- and off-street supplies. In addition, install electronic reader boards indicating space availability within larger lots.	Ability for drivers to find spaces more efficiently resulting in reduced re-circulation and driver frustration.	Install: 1) information signs at the Park entrances indicating that location of additional on-street parking is available on Ala Moana Boulevard on weekends only, and 2) a reader board at the entrance to the Beach and McCoy Pavilion Lots indicating the number of available spaces.	$$	Mid-Term
Restripe to Increase Capacity	Re-stripe roadway sections with angled or perpendicular parking, if right-of-way and traffic conditions allow.	Increased supply plus a traffic calming effect and improved pedestrian environment by maintaining a buffer between pedestrians and moving vehicles.	Within the existing curb-to-curb width, the only effective way to increase the on-street supply is to convert Ala Moana Park Drive to one-way operation and install angled parking on one side and maintain parallel parking on the other.	$$	Mid-Term
Assignment of Parking Location	Assigns particular parking users to specific locations to increase the efficiency with which spaces are used.	Concentrates more frequent parking activities, manages the perceived convenience of some spaces (i.e., on-street) and can reduce recirculation.	Implement shorter time limits on some higher demand street sections (Park West) and allow longer term parking in the larger lots. Would be used in conjunction with time limits.	$	Immediate

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Table 2

Potential Parking Management Strategies for Ala Moana Regional Park

Strategy	Description	Benefit	Potential Application	Cost	Timing
Charge for Parking	Collecting parking charges can be accomplished by traditional parking meters, centralized parking machines, debit card systems, phone apps, etc. All systems can be programmed to implement different parking charges by day of the week depending upon demand, differentiate between short- and long-term use, time of day, and the location of particular spaces.	Encourages drivers to use parking efficiently, by directing long-term parking to less convenient spaces and gaining the most productivity from the most attractive spaces. Also, helps to reduce auto use and increase use of transit, walking and biking. Generates revenue for maintenance and re-investment in Park.	Install pay stations along Park street sections and in all lots. Initially, charges may only be required on weekends during peak periods with electronic signs at entrances indicating whether charges are in effect.	$$ to $$$	Mid-Term to Long-Term
Curbside Management	Designate the use of the most convenient curb locations for taxis and Transportation Network Companies (TNCs) such as Uber and Lyft	Reduces parking demand while still providing convenient access for users	Identify/construct key passenger loading areas in the Park with signing/striping and enforce appropriate use	$ to $$	Immediate to Mid-Term

Notes: 1 Dollar signs indicate relative cost of improvement strategies from least ($) to most ($$$)expensive.
2 Timing is generally described as follows: Immediate (w/in 1 year), Mid-Term (w/in 2 to 3 years), and Long-Term (greater than 3 years).
Source: Fehr & Peers, 2017.

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APPENDIX D-1

HRS Chapter 6E-8 Letter of Determination

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

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ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

June 18, 2018

IN REPLY REFER TO:
LOG: 2018.01374
DOC: 1806KN03
Architecture, Archaeology

Robert J. Kroning, Director
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawaii 96813
via: rkroning@honolulu.gov

Dear Mr. Kroning:

RE: **Historic Preservation Review**
Ala Moana Regional Park Master Plan
1201 Ala Moana Blvd. Honolulu, HI 96814
Waikīkī Ahupua'a, Kona District, Island of O'ahu
TMK: (1) 2-3-037:001

Thank you for the opportunity to comment on this request from the Department of Design and Construction (DDC) for Hawai'i Revised Statutes (HRS) Chapter 6E-8 review. The State Historic Preservation Division (SHPD) received this submittal on June 5, 2018. The submittal included the SHPD 6E Submittal Form, information per §13-275, HAR, the permit set, and photographs. The proposed scope of work includes repairing damaged canal walls, improving access along Ala Moana Boulevard and the edge conditions of the Japanese and Hawaiian ponds, reconfiguring the McCoy Pavilion "keyhole" parking area, and providing maintenance repair to the Bridle Bridge and Roosevelt Portals.

Ala Moana Regional Park is listed on the Hawai'i Register of Historic Places as part of the thematic multiple property nomination for the City & County of Honolulu's Art Deco Parks. The park was evaluated as eligible under Criteria A and C, under the areas of Recreation and Architecture and the period of significance is 1934.

Per §13-275-7, HAR, the project will affect one or more significant historic properties, the effects will potentially be harmful, and therefore SHPD **concurs** with DDC's **"Effect, with proposed mitigation commitments"** effect determination. Per §13-275-8, HAR, DDC's proposed mitigation commitments are acceptable.

Per 36 CFR 800.16(y), this project will require a Federal permit, license or approval and therefore is considered an undertaking. DDC acknolwedges that this project shall comply with Section 106 of the National Historic Preservation Act, and SHPD looks forward to future consultation and receiving the appropriate documentation per 36 CFR 800.11.

Please contact Susan Lebo, Archaeology Branch Chief, at (808) 692- 8019, or at Susan.A.Lebo@hawaii.gov, for questions regarding archaeological resources, or Kaiwi Yoon, Architecture Branch Chief at (808) 692-8032, or at Kaiwi.N.Yoon@hawaii.gov for questions regarding architectural resources this letter.

Mahalo,

Alan Downer

Alan Downer, PhD.
Deputy State Historic Preservation Officer
Administrator, State Historic Preservation Division

cc: emorisato@honolulu.gov

APPENDIX D-2

Draft Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan
Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu
TMKs: [1] 2-3-037:001, 022, 023 and 025

Draft

Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu TMKs: [1] 2-3-037:001, 022, 023 and 025

Prepared for
Belt Collins Hawaii LLC

Prepared by
Constance R. O'Hare, B.A.,
David W. Shideler, M.A.,
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Cultural Surveys Hawaiʻi, Inc.
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Management Summary

Reference	Literature Review and Field Inspection with Cultural Section for the Ala Moana Regional Park Master Plan, Waikīkī Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMKs: [1] 2-3-037:001, 022, 023 and 025 (O’Hare et al. 2017)
Date	January 2017
Project Number (s)	Cultural Surveys Hawai‘i Inc. (CSH) Job Code: WAIKIKI 160
Investigation Permit Number	CSH presently operates under Hawai‘i State Historic Preservation Division (SHPD) permit number 16-26, issued per Hawai‘i Administrative Rules (HAR) §13-282.
Project Location	The project area is bounded by Ala Moana Boulevard to the north, *mauka* (inland) side, the ocean on the south, *makai* (seaward) side, Kewalo Basin to the west, and Ala Wai Yacht Harbor to the east. The project area also includes Magic Island, a peninsula off the southeastern corner of the park. The project area is depicted on the 1998 Honolulu U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.
Land Jurisdiction	City and County of Honolulu
Agencies	SHPD
Project Description	The project area consists of the 75.209-acre Ala Moana Regional Park and the 42.669-acre peninsula called Magic Island for a total area of 117.878 acres. Various improvements are planned for the park by the City and County of Honolulu, after community input. These improvements could include construction of and/or improvements to existing pathways, lawn areas, new bathroom stalls on Magic Island, and new limits to parking (Garcia 2015).
Project Acreage	117.878 acres (47.70 hectares)
Historic Preservation Regulatory Context	The proposed project is subject to Hawai‘i State environmental and historic preservation review legislation (Hawai‘i Revised Statutes [HRS] §343 and HRS§6E-8/ HAR §13-275, respectively).
Historic Properties Potentially Affected	Ala Moana Regional Park was nominated to the National Register of Historic Places (NRHP) in 1988, and listed on the Hawai‘i Register of Historic Places (HRHP) in 1988, as State Inventory of Historic Places (SIHP) # 50-8-14-1388, one of the Art Deco Parks Thematic Group. A NRHP nomination for Ala Moana Regional Park, was prepared in 1988 (present Appendix A).

Field Results and Recommendation	A field check of the project area was conducted by Constance R. O'Hare, B.A., and photographs were taken of all major structures. Pre-Contact burials, historic burials, subsurface cultural layers, and historic trash layers have been recorded near Ala Moana Boulevard and may extend into the northern section of the park immediately adjacent to Ala Moana Boulevard in some areas but this is by no means certain. In addition, scattered human skeletal remains and pre-Contact artifacts might be found in a secondary context in the sand mined from northern and western O‘ahu beaches and trucked to the park to be used to create Ala Moana Beach. Possibly subsurface remnants of the Anti-Motor-Torpedo Boat (AMTB) Battery at Ala Moana Regional Park and related army temporary shacks for housing and bomb shelters built in 1944 and destroyed in 1946 may be present in a specific area. Possibly subsurface remnants of Ulu Mau Village (a recreation of a Hawaiian village) dating from 1948 into the early 1960s may be present. There are several original, unmodified structures/features in the park that are older than 50 years and consultation with the SHPD architecture branch is recommended if proposed improvements include modifications to these features.

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Section 1 Introduction

1.1 Project Background

At the request of Belt Collins Hawaii, LLC, Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this archaeological literature review and field inspection (LRFI) with a cultural section for the Ala Moana Regional Park Master Plan project, Waikīkī Ahupua‘a, Honolulu (Kona) District, O‘ahu, TMKs: [1] 2-3-037:001, 022, 033, and 025. Various improvements are planned for the park by the City and County of Honolulu, after community input. These improvements could include construction and or improvements to existing pathways, lawn areas, new bathroom stalls on Magic Island, and new limits to parking (Garcia 2015).

Ala Moana Regional Park is a 75.209-acre City and County of Honolulu public park located on the shoreline, bounded by Ala Moana Boulevard to the north, *mauka* (inland) side, the ocean on the south, *makai* (seaward) side, Kewalo Basin to the west, and Ala Wai Yacht Harbor to the east. The project area (117.878 acres or 47.70 ha) includes the 75.209-acre peninsula on the southeastern side of the park known as Magic Island. Ala Moana Park Drive runs through the park parallel to the shoreline. The project area is depicted on the 1998 Honolulu U.S. Geological Survey (USGS) map (Figure 1), tax map plat (TMK: [1] 2-3-037) (Figure 2), a 2013 aerial photograph (Figure 3), and a park layout map (Figure 4). Ala Moana Regional Park was nominated to the National Register of Historic Places (NRHP) in 1988 (Appendix A). The park was listed on the Hawai‘i State Register of Historic Places (HRHP) as part of the City and County of Honolulu’s Art Deco Parks Thematic Group and as State Inventory of Historic Places (SIHP) # 50-80-14-1388 in 1988. Several extant structures in the park date to the 1930s, and are thus older than 50 years.

1.2 Scope of Work

The scope of work for this archaeological literature review and field inspection includes the following:

1. Historical research involving study of archival sources, historic maps, Land Commission Awards, and previous archaeological reports to reconstruct a history of land use and to determine if archaeological sites have been recorded on or near this property.
2. Limited field inspection of the project area to verify or confirm existing sites, identify any surface archaeological features, and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of a report to include the results of the historical research and the limited fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

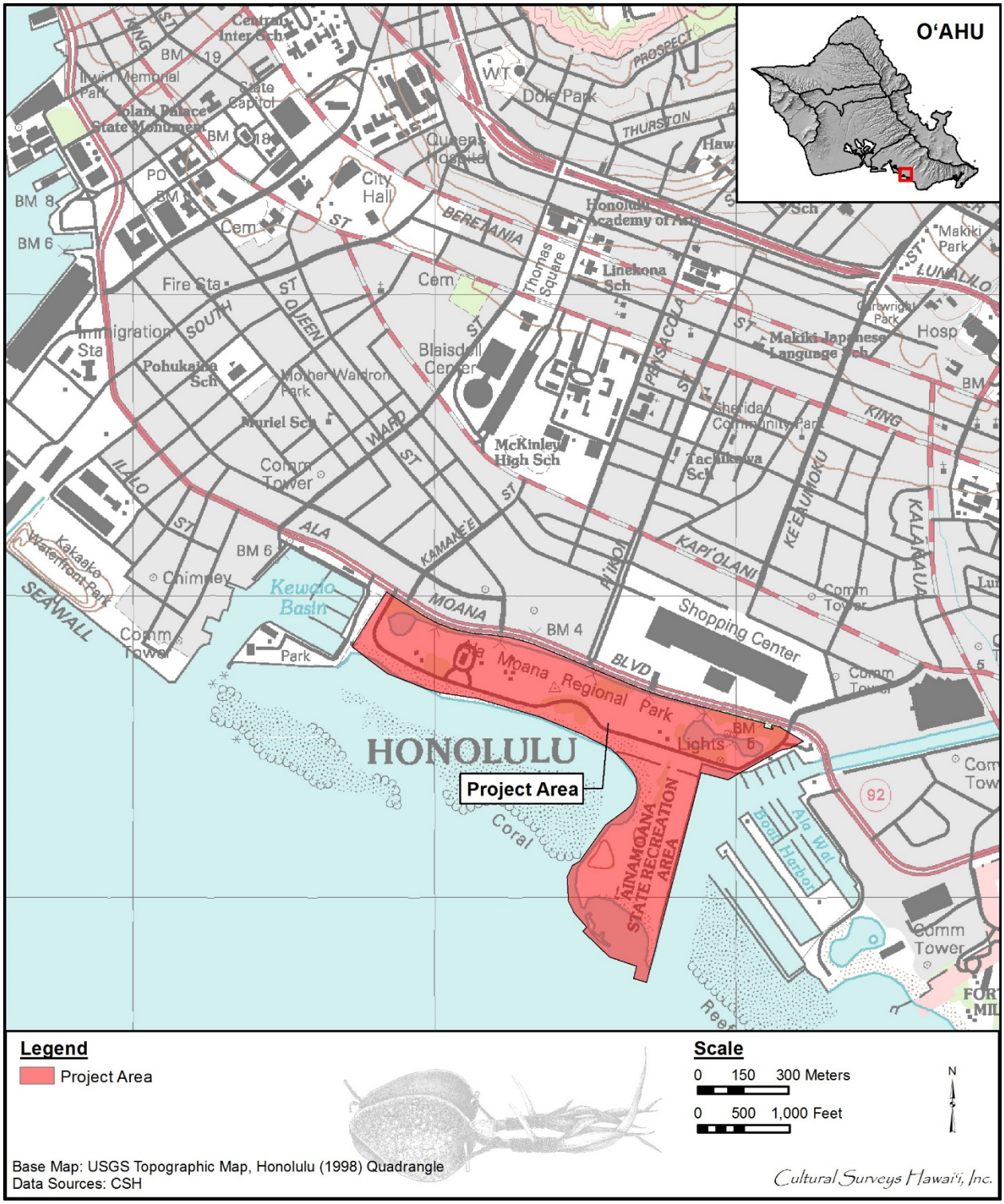

Figure 1. Portion of 1998 Honolulu USGS 7.5-minute series topographic quadrangle, showing the location of the project area

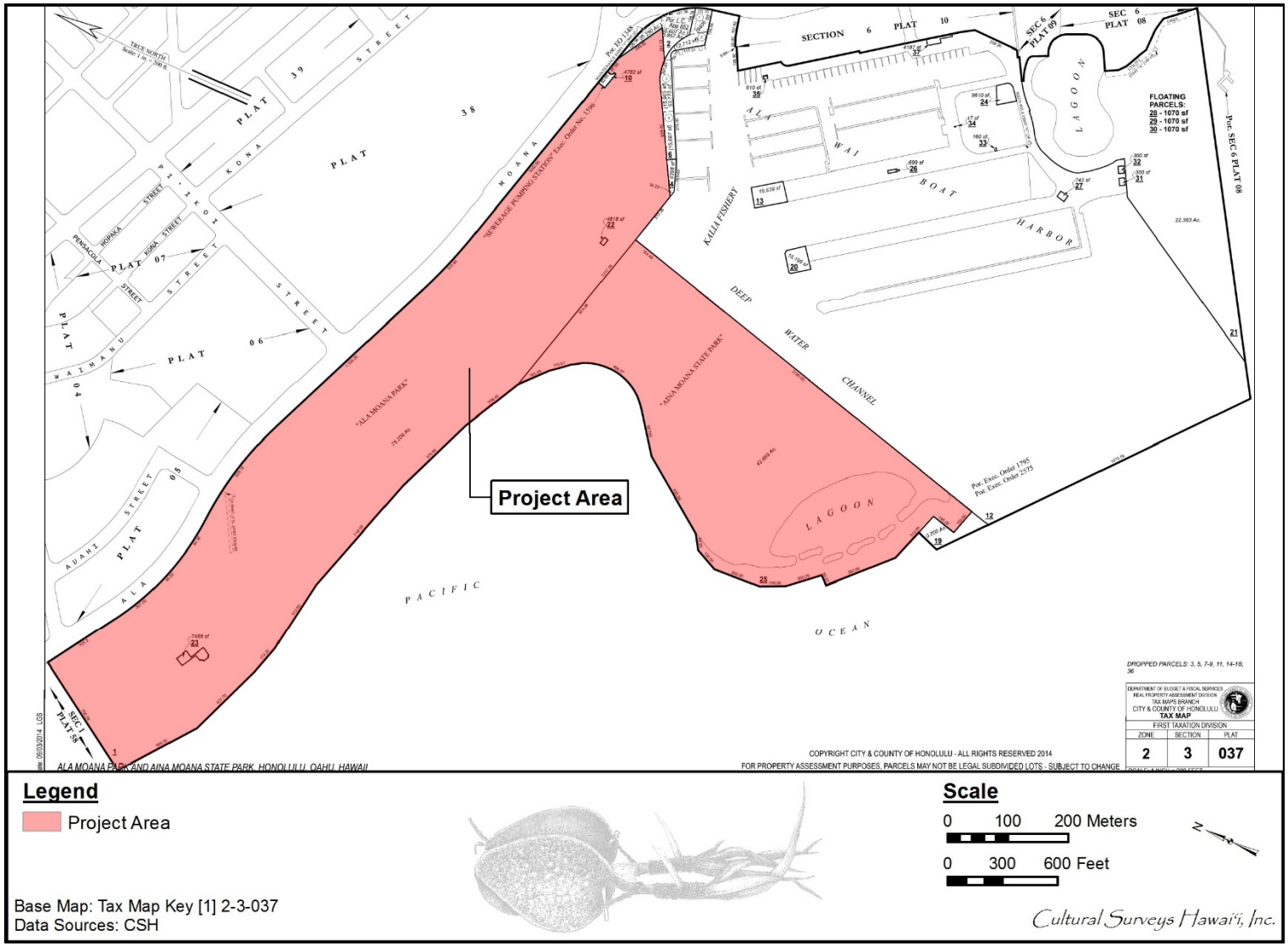

Figure 2. Tax Map Key (TMK) [1] 2-3-037, showing the location of the project area (Hawai‘i TMK Service 2013)

Figure 3. Aerial image (Google Earth 2013), showing the project area

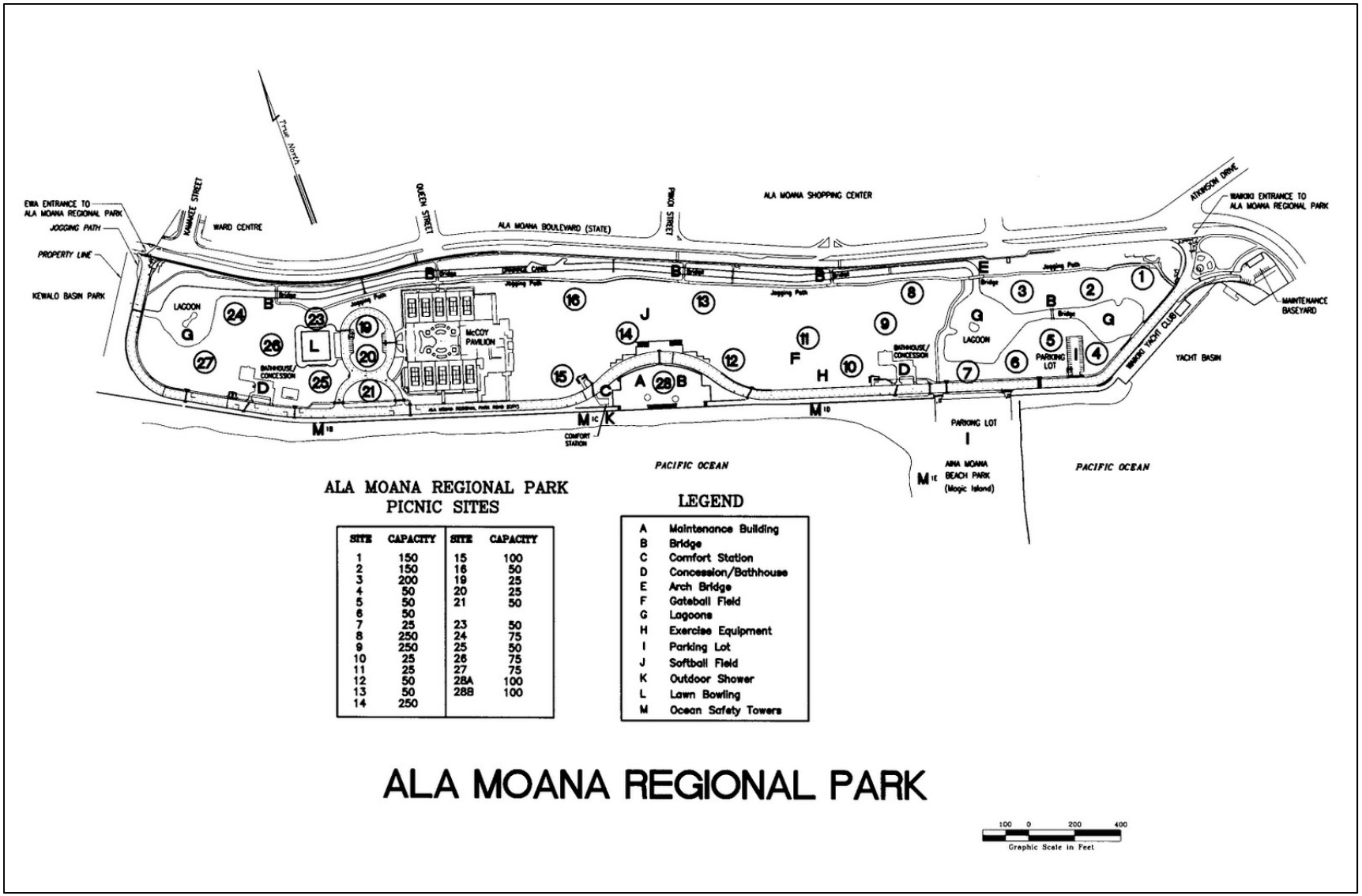

Figure 4. Plan of Ala Moana Regional Park (courtesy of client)

1.3 Document Purpose

The proposed project is subject to Hawai‘i State environmental and historic preservation review legislation (Hawai‘i Revised Statutes [HRS] §343 and HRS§6E-8/Hawai‘i Administrative Rules [HAR] §13-275, respectively). This literature review and field inspection provides a comprehensive overview document that will synthesize the work previously performed in and near this project area. This study includes analysis of the previous work, available information, and limited site inspections, as well as recommendations for future development contingencies.

This archaeological study provides an overview of existing archaeological conditions to facilitate planning and budgeting considerations, and to convey any possible archaeological constraints to proposed development(s) or improvements. Although the primary purpose of this investigation is planning, the investigation and its associated report can be used by project proponents to consult with the State Historic Preservation Division (SHPD) regarding the need for an archaeological inventory survey and/or mitigation work within the project area.

This literature review and field inspection is not intended to meet the requirements of an archaeological inventory survey per the rules and regulations of the SHPD (HAR §13-276). The level of work of this study is regarded as sufficient to address potential archaeological site types and locations and allow for future work recommendations. This literature review and field inspection report details methods, findings, and results.

1.4 Environmental Setting

1.4.1 Natural Environment

The project area is located on former reef land off O‘ahu’s south shore that was dredged and filled to create the park in the late 1920s and early 1930s (Figure 5). The park is fairly level with elevations ranging from 5.1 to 5.6 feet (ft) above mean sea level. The park stratigraphy is described as follows:

> The site is underlain by a layer of silty topsoil less than a foot thick beneath which is a loose to semi compact sand fill extending to an average depth of about five feet. The fill was placed as part of the reclamation effort to create Ala Moana Park. Immediately beneath the fill is a rather uniform deposit of chiefly loose to very loose, gravelly coralline sand identified as lagoonal sediments to the maximum depth explored, approximately 21.5 feet. Ground water levels were measured at an average depth of about five feet, reflecting mean sea level. [Weidig Geoanalysts in Arthur Kimbal Thompson Architect, AIA 2004:16]
>
> The remainder of the . . . site is underlain by fill, placed to extend the old shoreline, overlying pelagic coral reefs and lagoonal deposits. . . . Below the fill horizon, lies a rather uniform soil profile consisting of saturated, mostly loose to very loose, well graded fine to coarse coralline gravelly sand. These soils are lagoonal deposits, found to contain abundant fragments of finer coral and shells broken by storm surges. [Arthur Kimbal Thompson Architect, AIA 2004:16–17]

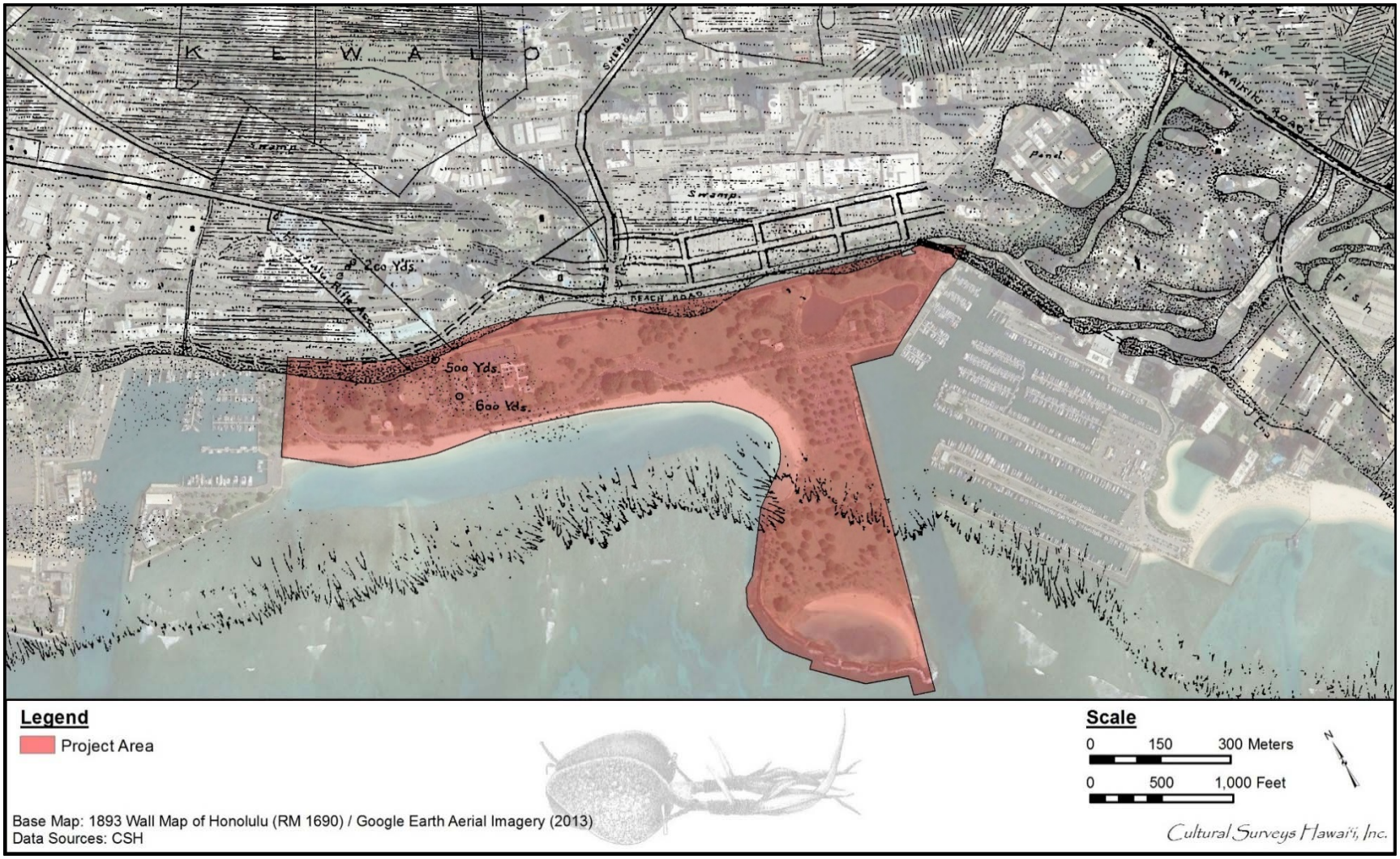

Figure 5. Figure comparing the shoreline of 1893 and the present shoreline in the vicinity of the project area (1893 Wall map of Honolulu overlain on a 2013 aerial photograph); note majority of project area is *makai* of “Beach Road” (Ala Moana Boulevard) in the former shallow reef area that was submerged at high tide

In this area of the Honolulu District, rainfall averages less than 30 inches per year (Armstrong 1983:62). Northeasterly trade winds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January. The average annual wind velocity is approximately 10 miles per hour (Wilson Okamoto & Associates 1998:1–2). Vegetation within the project area is limited to a variety of landscaped plants and ornamental trees such as banyans (*Ficus* sp.), coconuts (*Cocos nucifera*), *hala* (*Pandanus* sp.), monkeypod (*Samanea saman*), and *kamani* (*Calophyllum inophyllum*). Green turtles (*Chelonia mydas*) and Hawaiian monk seals (*Monachus schauinslandi*) are occasionally noted on the beach (Arthur Kimbal Thompson Architect, AIA 2004:22).

The USDA Soil Survey classifies the project area's soils as "Fill land, mixed" (FL) (Figure 6):

> This land type occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources. [Foote et al. 1972:31]

The fill lands were created from 1931 to 1934, mainly from offshore dredged material plus a foot of top soil. Although the soil map also shows an area of "Beaches" (BS), this sand is not local but was trucked in from other areas (mainly the north shore of O‘ahu) to expand and replenish the swimming beach area of the park.

1.4.2 Built Environment

The project area is comprised of the Ala Moana Regional Park, a landscaped area with a beach, open green areas, sports areas, Magic Island, and structures on the *makai* side of Ala Moana Boulevard. Shopping centers, including the large Ala Moana Center, and condominiums line the *mauka* side of Ala Moana Boulevard.

As Robert Weyeneth notes in his study *Ala Moana: The People's Park*:

> . . . Ala Moana Beach Park is entirely a manmade development. Its trees and shrubs are landscaping effects, arranged by the human hand, that have matured fifty years now [in 1987]. The park's oceanfront swimming hole has been carved from the fringing coral reef. The beach is the creation of hydraulic engineers, who at periodic intervals replenish the sand with imports from elsewhere on the island of Oahu. Even the site itself is a human invention, a tidal area filled by excavating the offshore reef. The passage of five decades [in 1987] has turned the park into a setting of incomparable natural beauty, but Ala Moana is what a geographer would call a "cultural" landscape. It is the product of engineering expertise and landscape design. [Weyeneth 1987:1]

Part of the purpose of the present study was to examine this claim particularly with regard to whether there might be a thin strip of land on the inland (Ala Moana Boulevard) side of the park that might have buried, natural sediments (a former natural coastline) above the water table. Reviewing the history of the land filling that created the park, and the subsequent substantial widening on the seaward side of the ancient "Beach Road" that evolved from a pre-Contact foot path into Ala Moana Boulevard (see in particular a 1935 aerial photograph in Figure 31) supports Weyeneth's conclusion that "Ala Moana Beach Park is entirely a manmade development." No natural sediments above the water table are believed to be present.

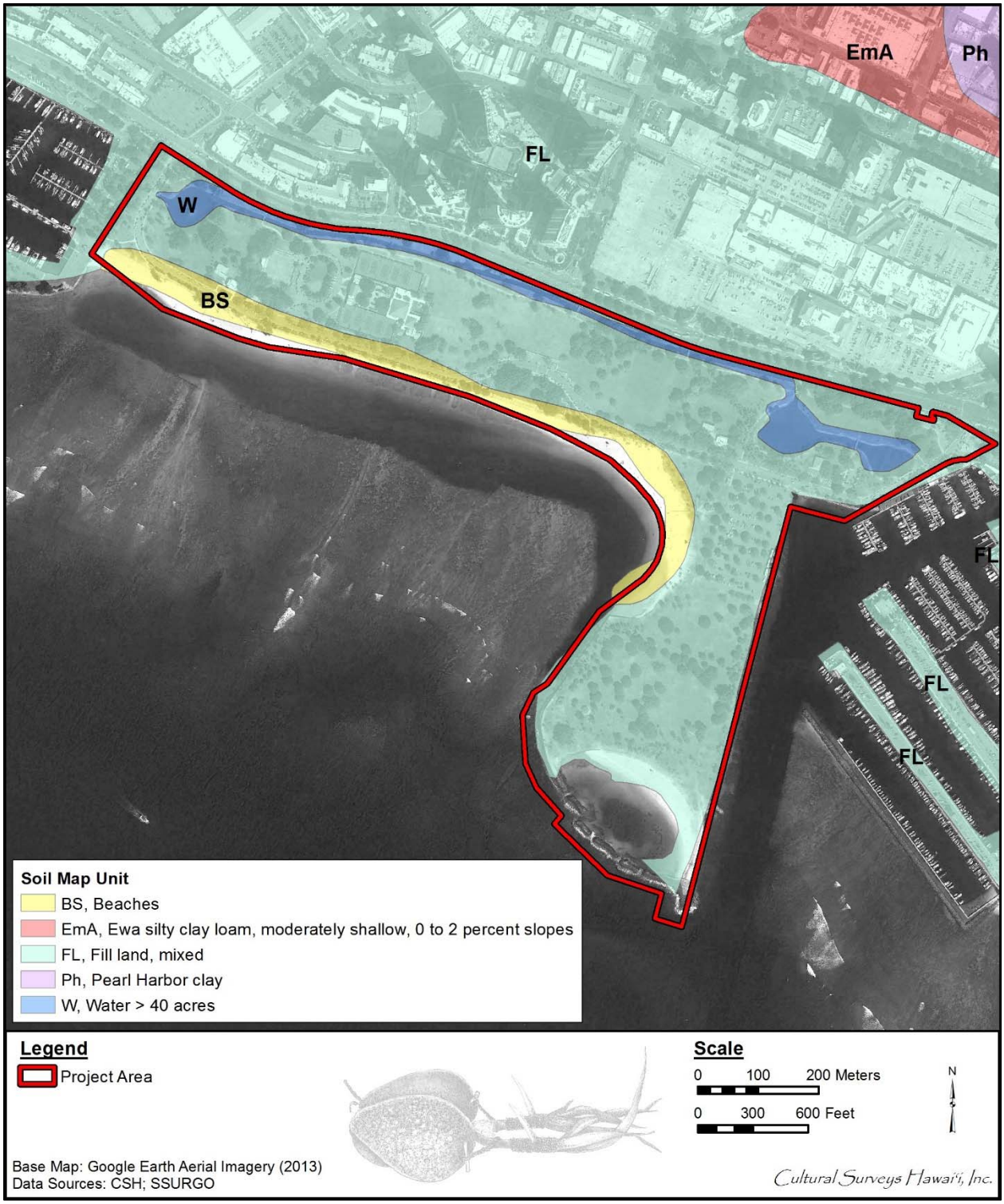

Figure 6. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating sediment types within and surrounding the project area (USDA Soils Survey Geographic Database [SSURGO] 2001)

Section 2 Traditional Background

Central Honolulu consists of the *ahupua‘a* (large land division) of Nu‘uanu, Pauoa, Makiki, Mānoa, and Pālolo, from west to east. At one time these *ahupua‘a* probably extended from the Ko‘olau mountain range down to the sea, as is typical of *ahupua‘a* on other parts of O‘ahu. Due to the importance of Honolulu Harbor to the west and the *ali‘i* (high chiefs) residences on the Waikīkī shore, these lands were "cut off" in the late pre-Contact or early post-Contact period, and the coastal areas of Nu‘uanu, Pauoa, and Makiki became Honolulu Ahupua‘a, while the coastal areas of Mānoa and Pālolo became Waikīkī Ahupua‘a. Many individual *‘ili* (small land divisions) within Honolulu and Waikīkī, however, still had some association with their original *ahupua‘a*. Some *‘ili lele*, or "jump lands," were still part of an *ahupua‘a*, although possibly no longer contiguous with the rest of the *ahupua‘a*. Additionally, they could be *‘ili kūpono*, shortened to *‘ili kū*, which were independent from their original *ahupua‘a* (Lucas 1995:40–41).

The project area is located offshore of portions of Kukuluāe‘o and Kewalo, two *‘ili* of Honolulu, and Kālia, an *‘ili* of Waikīkī. Sheridan and Pi‘ikoi streets generally follow the ancient boundary line dividing Honolulu to the west from Waikīkī to the east, as shown on maps of Honolulu from 1884 and 1891 (see Figure 10 and Figure 11). On the west side of Pi‘ikoi Street is a small section of the *‘ili* of Kewalo, an *‘ili kū* of Pauoa, then further west is Kukuluāe‘o, an *‘ili kū* of Makiki. Today, Pi‘ikoi Street also marks the eastern boundary of a modern land section called the Kaka‘ako Development District, which includes several *‘ili* stretching from Punchbowl Street to Pi‘ikoi Street, and some of the lands of Kukuluāe‘o and Kewalo. In the following report sections, the traditional background of Kukuluāe‘o, Kewalo, and Kālia will be presented.

The following sections present *wahi pana* (legendary places) and *‘ōlelo* (stories) of Kukuluāe‘o, Kewalo, two *‘ili* of Honolulu and Kālia. The Hawaiian term *wahi pana*, also referred to as a place name (literally "a storied place"), "physically and poetically describes an area while revealing its historical or legendary significance" (Landgraf 1994:v). *Wahi pana* can refer to natural geographic locations such as streams, peaks, rock formations, ridges, and offshore islands and reefs, or they can refer to Hawaiian divisions such as *ahupua‘a* and *‘ili*, and man-made structures such as fishponds. *‘Ōlelo* are traditional stories and *‘ōlelo no‘eau* are proverbs, wise sayings, or poetical sayings. *Wahi pana* and *‘ōlelo* tangibly link the *kama‘āina* (residents) of Hawai‘i to their past.

2.1 Kukuluāe‘o and Kewalo ‘Ili

Kukuluāe‘o, an *‘ili kū* of Makiki, which translates literally as the "Hawaiian stilt (bird)," means "to walk on stilts" (Pukui et al. 1974:23). This area with its marshes, saltpans, and small fishponds (Kekahuna 1958:4), was an ideal environment for the Hawaiian stilt (Griffin et al. 1987:36).

Kewalo literally means "the calling (as an echo)" (Pukui et al. 1974:109). This large *‘ili kū* of Pauoa extended from an area on the west side of Makiki above Punchbowl Crater down to a narrow beach section west of Pi‘ikoi Street. At one time, various sports such as surfing were held at this beach (Kekahuna 1958:4).

Kamakau (1991:24–25) recorded a traditional *wānana* (prophecy) that mentions the chief Huanuikalala‘ila‘i of Pu‘ukea Heiau:

[Ka makaua ua kahi o ‘Ewa]	[The increasing ‘first rain’ of ‘Ewa]
Ua puni ka i‘a o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau i‘a ka nene;	Washes up fish to the nene plants;
Ua ha‘a kalo ha‘a nu;	Lays low the taro as it patters down;
Ha‘a ka i‘a o Kewalo,	Lays low the fish of Kewalo,
Ha‘a na ‘ualu o Pahua,	Lays low the sweet potatoes of Pahua,
Ha‘a ka mahiki i Pu‘ukea,	Lays low the mahiki grass at Pu‘ukea,
Ha‘a ka unuunu i Pele ‘ula,	Lays low the growing things at Pele‘ula
Ha‘a Makaaho i ke ala.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[I ‘ai na ka i‘a o Maunalua]	[‘Eating’ the fish of Maunalua] . . . .

The chant mentions the *mahiki* grass of Pu‘ukea. *Mahiki* is a tufted rush found near the seashore. The term *mahiki* connotes several historical and contemporary meanings. With serious family discord, a *kupuna* (elder) can continue with lines of inquiry of *ho‘oponopono* (family conference in which relationships are set right) to “peel off” layers of deeper feelings (Pukui et al. 1972:228). In a deeper Hawaiian past, skilled *kahuna* (priests, experts) formerly exorcised malicious spirits from the afflicted in an exorcist ritual with the aid of *mahiki* (shrimp or a grass called *‘aki‘aki)* (Pukui and Elbert 1986:219). The use of this grass in a ritual may explain its association with a ceremonial *heiau* (temple, shrine). Alternatively, the Kewalo and Kukuluāe‘o coast were good habitats for *mahiki* and, therefore, they may have been favored places for healers to collect this type of grass.

The chief Huanuikalala‘ila‘i governed Pu‘ukea Heiau, located in the land section of Kukuluāe‘o (Kamakau 1991:24). Pu‘ukea literally means the “white hill” (Pukui et al. 1974:199). It is also the name of a small land division within the *‘ili* of Kukuluāe‘o that is mentioned in at least two Land Commission cases, LCA 1502 (not awarded) and LCA 1504. LCA 1504 is located near the junction of Halekauwila and Cooke streets. It is common for a *heiau* to have the same name as the *‘ili* in which it is located, so it is possible Pu‘ukea Heiau was also near the junction of Halekauwila and Cooke streets. The majority of the house sites in the mid-nineteenth century in Kukuluāe‘o were located near Halekauwila and Queen streets, *mauka* of the low-lying coastal marshlands on higher, dry ground. It is possible the *heiau* platform, or at least the area it was built on, was one of the few elevated locations in the flat, low-lying marshland that surrounded it. The name of Pu‘u Kea Heiau might be attributed to this elevated natural feature of the landscape.

2.2 Kālia ‘Ili

The marshland of Waikīkī was watered from streams in the Makiki, Mānoa, and Pālolo valleys, and from springs in Mānoa such as Punahou and Kānewai. The name Waikīkī, which means “water spurting from many sources” (Pukui et al. 1974:223), was well adapted to the character of the swampy land of ancient Waikīkī, where water from the upland valleys of Mānoa and Pālolo would gush forth from underground. Before construction of the Ala Wai Canal, the Mānoa and Pālolo streams did not merge until deep within Waikīkī. As they entered the flat Waikīkī Plain, the names of the streams changed; the Mānoa became the Kālia and the Pālolo became the Pāhoa. They joined near Hamohamo (now an area *mauka* [inland] of the Kapahulu Library) and then divided into three new streams, the Kuekaunahi, ‘Āpuakēhau, and Pi‘inaio. The Kuekaunahi once emptied into the

sea at Hamohamo (near the intersection of ‘Ōhua and Kalākaua avenues). The ‘Āpuakēhau, also referred to on some maps as the Muliwai o Kawehewehe, or “the stream that opens the way” (Kanahele 1995:7), emptied into the ocean at Helumoa, between the Royal Hawaiian and Moana hotels. The Pi‘inaio entered the sea in a wide delta at Kālia. The land between these three streams was called Waikolu, meaning “three waters” (Kanahele 1995:7–8).

Pi‘inaio Stream extends through the center of Kālia ‘Ili. The meaning of Pi‘inaio is uncertain but it could be an allusion to going inland (*pi‘i*) to the location of a *naio* tree (bastard sandalwood; *Myoporum sandwicense*), near a stream crossing. The name of the area, “Kālia,” translated as “waited for” (Pukui et al. 1974:77), provides a sense of “waiting,” “loitering,” or “hesitating.” While the nuance is uncertain, the mouth of the Pi‘inaio Stream would be a logical place for travelers to stop. Others believe the place was named after the native tree *kālia (Elaeocarpus bifudus*) (Clark 2011:437), which the Hawaiians used as thatching rods for their house roofs (Thrum 1891:95).

Kālia had rich fishing grounds and reefs, beaches, and tide pools for collecting mollusks, crabs, and seaweed, and a swampy area well suited for salt pans, as shown on a 1909 map of Waikīkī (see Figure 13). It was famous for one type of edible *limu* (seaweed) called *limu ‘ele‘ele* (*Enteromorpha prolifera*), or black seaweed. *Limu ‘ele‘ele* was common along coastlines with freshwater intrusions, such as the Pi‘inaio Stream or at inland fishponds (Abbott 1984:17). The offshore waters of Kālia were also used for surfing; many of these areas no longer exist, as dredging and land filling have destroyed the ancient breaks.

2.2.1 *‘Ōlelo* of Kālia

There are several *‘ōlelo* (poetical sayings) referring to Kālia, its lands, and resources. Mary Kawena Pukui (1983) collected several in her book, *‘Ōlelo No‘eau. Hawaiian Proverbs & Poetical Sayings.* In addition, John Clark (2011) has recently collected and translated sayings from old Hawaiian language newspapers, which are printed in his book *Hawaiian Surfing*. Several sayings reference the sea, the surf, the wind, or the rain of Kālia.

> *E ho-i, E ho-i e Kilopu ka wai hale i **Kalia**. He wai na ka ua Naulu mai luna.*
>
> Return, return, o Kili‘opu, the fresh waters that fill **Kalia**. These are the waters of the Nāulu rains from the uplands. [*Ka Nupepa Kuokoa*, 23 April 1864:2; Clark 2011:438]
>
> *E Kalia i ke kai nehe i ka pu-eone, ame wai limu nii o Piinaio.*
>
> Oh, Kalia in the gentle rustling of the waves on the sand dunes and the plentiful fresh water seaweed of Pi‘inaio stream. [*Ka Nupepa Kuokoa,* 9 April 1925:5; Clark 2011:438]
>
> *Ke kai wawalo leo le‘a o **Kālia*** The pleasing, echoing sea of Kālia
> [Pukui 1983:186]
>
> *Ke haaheo ae la i ke kai o **Kalia*** We are proud of the sea of **Kalia**
> [*Ka Nupepa Kuokoa,* 22 March 1862:3; Clark 2011:437]
>
> *E hoi ka nanai i Ulukou la,* Beauty rests in Ulukou.
> *I ka nalu hoi muku i Kapuna la,* In the waves that break at Kapuni.

Punihei ho au ia la la la,	I am taken by him,
I ka leo o ke kai leo nui la.	By the great voice of the sea,
*Ke wa mai la i **Kalia** la.*	It makes a thundering noise at **Kalia**

[*Ka Hoku o ka Pakipika,* 12 April 1862:4; Clark 2011:438]

There is one reference to the salt collection at Kālia:

Kāhunahuna pa‘akai o Kālia.	Fine-grained salt of Kālia.

A derogatory expression for the dried, viscid material in the corners of the eyes of an unwashed face. Kālia was a place for gathering salt, although any place name might be used. [Pukui 1983:144]

Many other sayings refer to the abundant fishing resources of Kālia.

*Ho‘i i **Kālia** i ka ‘ai ‘alamihi.*	Gone to **Kālia** to eat *‘alamihi* crabs.

Kālia was a place where *‘alamihi* crabs were once plentiful, leading to a play on the word *‘alamihi* (path of repentance), indicating someone who is in a repentant mood (Pukui 1983:110).

*Ka i‘a pīkoi kānaka o **Kālia**;*	The fish caught by the men of **Kālia**;
He kānaka ka pīkoi, he kānaka ka pōhaku.	men are the floaters, men are the sinkers

[Pukui 1983:150]

Kālia was also known for a certain type of fishing technique used to catch schools of mullet. When a school of mullet appeared, a bag net was set and the men swam out in a row. They surrounded the fish, slapped the water and kicked their feet, thus driving the frightened fish into the opening of their bag net. The fishermen of Kālia became known as human fishnets (Pukui 1983:150). This particular type of net was used because the water off Kālia was very shallow (Pukui 1983:74).

*Kuu hoa o ka i-a lauahi lima o **Kalia***	My companion who holds the fishnet at **Kalia**

[*Ka Nupepa Kuokoa*, 12 April 1862:4; Clark 2011:438]

*He kai hopuni ko **Kalia**.*	A sea for surround [nets] is at **Kalia**

[*Ka Nupepa Kuokoa*, 19 January 1867:1; Clark 2011:438]

In a song for the O‘ahu chief, Kuali‘i, the net fishermen of Kālia are also mentioned.

He kai heenalu ko Kahaloa,	The sea for surf-riding is at Kahaloa,
*He kai hului ko **Kalia**,*	The sea for casting the [bag] net is at **Kalia**,
He kai hele kohana ko Mamala,	A sea for going naked is at Mamala,
He kai au ko Kapueone,	A sea for swimming is at Kapuuone,
He kai kaha-nalu ko Makaiwa,	A sea for surf-riding sideways is at Makaiwa,
He kai ka anea ko Keehi,	A sea for kicking up mullet is at Keehi,
He kai elemihi ko Leleiwi,	The sea for small crabs is at Leleiwi,
He Kai awalau ko Puuloa, . . .	The sea of many harbors is at Puuloa . . .

[Fornander 1917:4(2):378–379]

The mullet were caught on their annual migration from their home in Pearl Harbor as they traveled around the island of O‘ahu:

> . . . starting from Puuloa and going windward, passing successively Kumumanu, Kalihi, Kou, **Kalia**, Waikiki, Kaalawai and so on, around to the Koolau side, ending at Laie, and then return by the same course to their starting point. [Keliipio 1900:112]

Kālia was one of eight important fisheries along the Waikīkī coast. The fishing grounds from the reef to the shore were so rich they were *kapu* (restricted) to anyone but the king and his representatives during certain seasons (Maly and Maly 2003:244).

> Kalia is one of eight fishing grounds (also called fisheries) on the shoreline of Waikīkī. From east to west they are: Ka‘alāwai, Kuilei, Kea‘ua‘u, Kaluāhole, Kapua, Kāneloa, Hamohamo, and **Kalia.** [*Honolulu Advertiser*, 11 March 1923:12; map of the fisheries of O‘ahu in Clark 2011:438]
>
> *Penei kana, ‘E hoomaka ana ke kapu ma ka muliwai o Piinaio, a hiki i ke kai o* ***Kalia****. Aole loa kekahi e lawaia malaila.’*
>
> This is what he said, ‘The restriction will commence at the stream of Pi’inaio to the sea at **Kālia**. No one is allowed to fish there.’ [*Ka Hoku o ka Pakipika,* 10 April 1862:4; Clark 2011:438]

2.2.2 The Snatching Wind in Kālia

Kālia is mentioned in a story about a woman who left her husband and children on Kīpahulu, Maui and followed a man from O‘ahu. Her husband missed her and went to see a *kahuna* (priest) who was skilled in *hana aloha* sorcery. The *kahuna* told the man to find a container with a lid and to speak into it of his love for his wife. The *kahuna* then uttered an incantation into the container, closed it, and threw it into the sea. The wife was fishing one morning at Kālia, O‘ahu, and saw the container. She opened the lid, and was possessed by a great longing to return to her husband. She walked until she found a canoe to take her home. This story led to the saying:

> *Ka makani kā‘ili aloha o Kīpahulu.* The love-snatching wind of Kīpahulu. [Pukui 1983:158]

2.2.3 The Goddess Hi‘iaka and Kālia

Honolulu was once called Kou, named for the most beautiful woman on O‘ahu. Kou composed a *mele* (chant) to her husband ‘Ouha, which includes some of the place names of coastal Honolulu and Waikīkī.

> *Kū ka nalu kai a ke Ko‘olau*
> *Pūhā ka nalu i kai mā‘oki‘oki*
> *Pī kai pua lana awa*
> *A ku‘u kāne aloha, ‘o ‘Ouha*
> . . .
> *Pā pae (papa pae) a kāua*
> *I ka‘u aloha lā, ua hala*
> *Ka hōkū papa nemonemo ō*
> *Aloha ka makani lihi kao o* ***Kālia***
> *Ke kali nei au ‘o kō ho‘i mai*
> . . .

‘O ka lā a pō iho
Hui aku i Kou nā maka. [Ho‘oulumāhiehie 2008a:296–297]

Translation:

The surf rises, stirred up by the Ko‘olau wind
Waves burst in the hue-streaked sea
Sprinkling the flowers drifting in the harbor
Of my beloved husband, ‘Ouha
. . .
On the waves our boards have mounted
To my love who has gone
The star of that smooth strata, oh
Beloved is the shoreline breeze at **Kālia**
I await your return
. . .
Wait all day until night
Friends shall meet in Kou [Ho‘oulumāhiehie 2008b:277]

The chant ends with the phrase, “Friends shall meet in Kou [Honolulu].” In her journey around the island of O‘ahu with her traveling companions Lohi‘au and Wahine-‘oma‘o, the goddess Hi‘iaka stopped at Pu‘uloa (Pearl Harbor) and met some people who were about to travel to Honolulu for the festival of a great chiefess. Hi‘iaka decided to attend the festival and departed on a canoe, bidding her friends at Pu‘uloa that “Kou is where we will meet again,” thus echoing a saying first pronounced by the chiefess Kou.

2.3 The Ala Moana or Beach Road

As will be expanded upon below, the vast majority of Ala Moana Regional Park is reclaimed or dredged land. Of particular note for the present project is the traditional Hawaiian trail that ran along the coast which began in pre-Contact times as a foot path, developed into a horse path, then into a cart path popularly known as “Beach Road” and ultimately into Ala Moana Boulevard.

John Papa ‘Ī‘ī provided a written account of the Waikīkī path of his experience ca. 1810 from which Gerald Ober produced a reconstructed figure (Figure 7).

> A trail led out of the town at the south side of the coconut grove of Honuakaha and went on to Kalia. From Kalia it ran eastward along the borders of the fish ponds and met the trail from lower Waikiki . . .
>
> The trail from Kawaiahao which led to lower Waikiki went along Kaananiau, into the coconut grove at Pawaa, the coconut grove of Kuakuaka, then down to Piinaio; along the upper side of Kahanaumaikai’s coconut grove, along the border of Kaihikapu pond, into Kawehewehe; then through the center of Helumoa of Puaaliilii, down to the mouth of the Apuakehau stream. [‘Ī‘ī 1959:92]

It is unclear from ‘Ī‘ī’s account whether the trail was immediately coastal in the project vicinity but this is how it is shown on early maps.

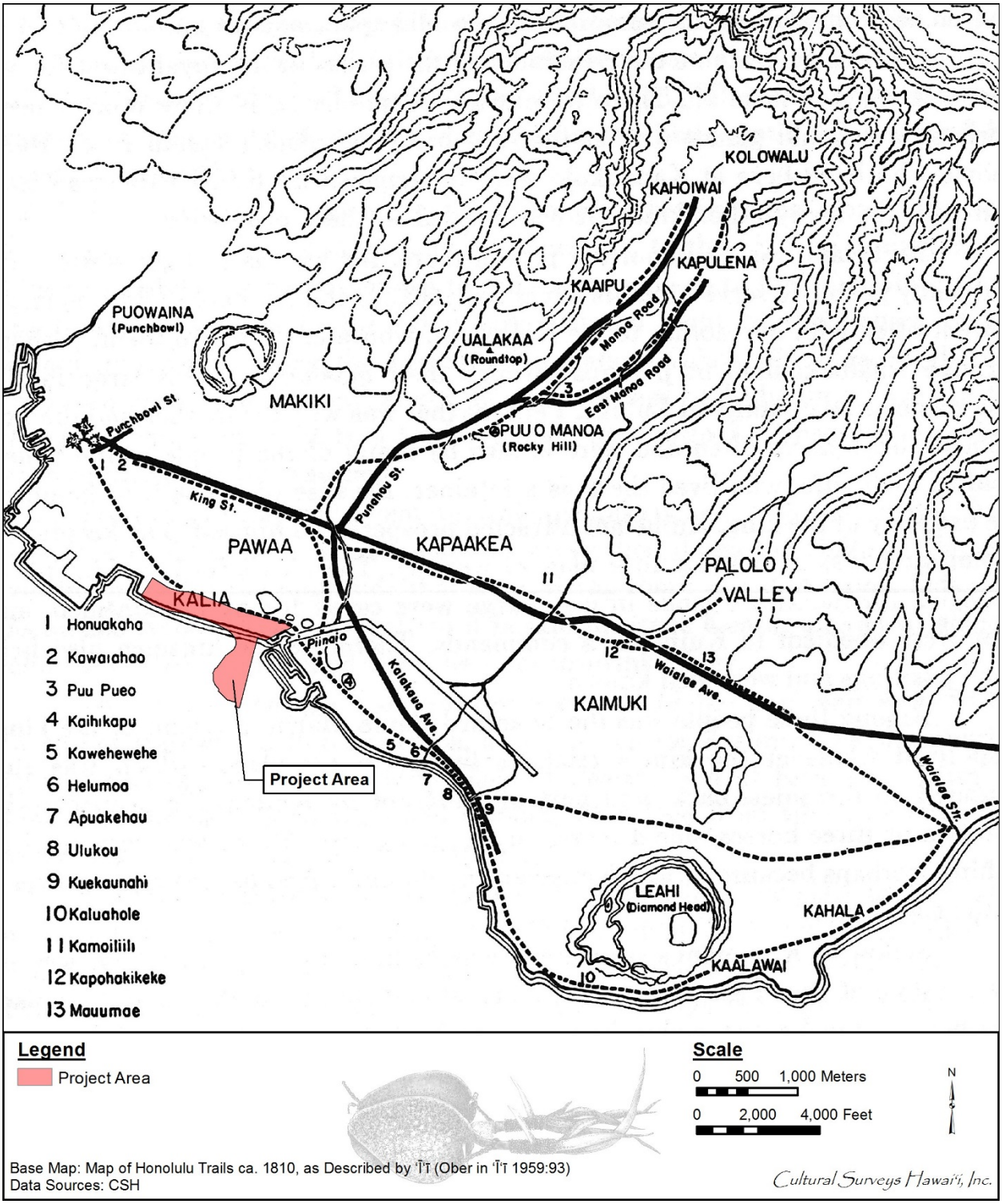

Figure 7. Reconstructed map of Honolulu trails (Ober in ‘Ī‘ī 1959:93) ca. 1810 depicting the coastal trail from Honuakaha (downtown) through coastal Kālia (showing the project area)

Section 3 Historic Background

3.1 Early 1800s

Waikīkī is actually the name of a large *ahupua‘a* encompassing lands stretching from Honolulu to Maunalua Bay. By the time of the arrival of Europeans during the late eighteenth century, the area today known as Waikīkī had long been a center of population and chiefly residence. The high chief Mā‘ilikūkāhi first established Waikīkī as the government center of O‘ahu ca.1450. The area remained the central residence of the rulers of the island until Kamehameha I moved his court to Honolulu in 1809.

Chiefly residences, however, were only one element of the landscape that characterized Waikīkī up through pre-Contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system, attributed to the chief Kalamakua, took advantage of streams descending from Makiki, Mānoa, and Pālolo valleys, and provided ample fresh water for the Hawaiians living in the *ahupua‘a*. Water was also available from springs in nearby Mō‘ili‘ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape.

In 1831, the Prussian botanist Dr. F.J.F. Meyen described this part of O‘ahu:

> Our way took us through the plain along the beach which was only sparsely covered with grass. Not until we came to the village of Waititi, where running and standing water is in abundance, did we see the taro fields and precious coconut plantations which stretch almost right up to the ocean shore. Under the scant shadow of these trees stand the quaint huts of the Indians. [Pultz 1981:52]

Samuel Kamakau in 1865 wrote,

> Cultivating was a great occupation of the chiefs, and the land of Waikīkī was made productive through cultivation—from the inland side to the coconut grove beside the sea. The chiefs constructed many ponds and stocked them with fish, and they made irrigation ditches about the land that led into the fishponds and the taro pond fields. . . .
>
> Kalamakua-a-Kaipūhōlua was a good chief. He was noted for cultivating, and it was he who constructed the large pond fields Ke‘okea, Kūalulua, Kalāmanamana, and the other *lo‘i* [irrigated taro fields] in Waikīkī. [*Ka Nupepa Kuokoa*, 19 August 1865, translation from Kamakau 1991:45]

A sizeable population developed amidst this fertile coastal landscape. Captain George Vancouver (1798), arriving at “Whyteete” in 1792, captured something of this profusion in his journals:

> On the shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.

> [We] found the plain in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence. [Vancouver 1798:161–164]

An 1817 map of O‘ahu’s south shore, drawn by Otto von Kotzebue of the Russian Ship *Rurick* (Figure 8), depicts the Kaka‘ako/Waikīkī landscape in the first decades following Western Contact. This map shows a concentration of house sites and agricultural fields along the Nu‘uanu Stream in Honolulu. Houses and agricultural fields are also depicted in the three-stream area (Waikolu) of Waiatité (Waikīkī) and along the coastline. Taro *lo‘i* (rectangular areas depicting irrigated fields) are concentrated around the streams descending from the Nu‘uanu and Mānoa valleys. The areas of habitation (indicated on the map by the trapezoids) probably reflect the post-Contact shift of Hawaiians to the area around Honolulu Harbor, the only sheltered landing on O‘ahu and the center of increasing trade with visiting foreign vessels.

During the early nineteenth century, the traditional Hawaiian role of Waikīkī as a center of chiefly and agricultural activities on southeastern O‘ahu was changing. The *ahupua‘a* of Honolulu became the center for trade, with visiting foreign vessels drawing increasing numbers of Hawaiians away from their traditional environments. The shift in preeminence is illustrated by the fact that Kamehameha moved his residence from Waikīkī to Honolulu. These changes were evident in 1828, when Levi Chamberlain visited Waikīkī:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. [Chamberlain 1957:26]

The growing attraction of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) and the introduction of European diseases were the primary factors behind the depopulation of Waikīkī. Despite the decrease in population, the *ahupua‘a* continued to sustain Hawaiians well into the nineteenth century. LCA records from the 1840s indicate awardees continued to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale.

Ala Moana Regional Park lies seaward of what formerly was an extensive area of low marshy ground as is clearly depicted on an 1884 Bishop map (Figure 10). It appears that a narrow sand bar upon which a coastal path was developed was all that separated the marsh from the coast. Thus it is perhaps no surprise that the natural shoreline of Ala Moana Regional Park was more mudflat than reef as suggested by one of our first photographs of the vicinity (Figure 9). Early maps (see Figure 14) refer to the former shallows that would become Ala Moana Regional Park as “Mud and Coral Flats Covered at High Tide.”

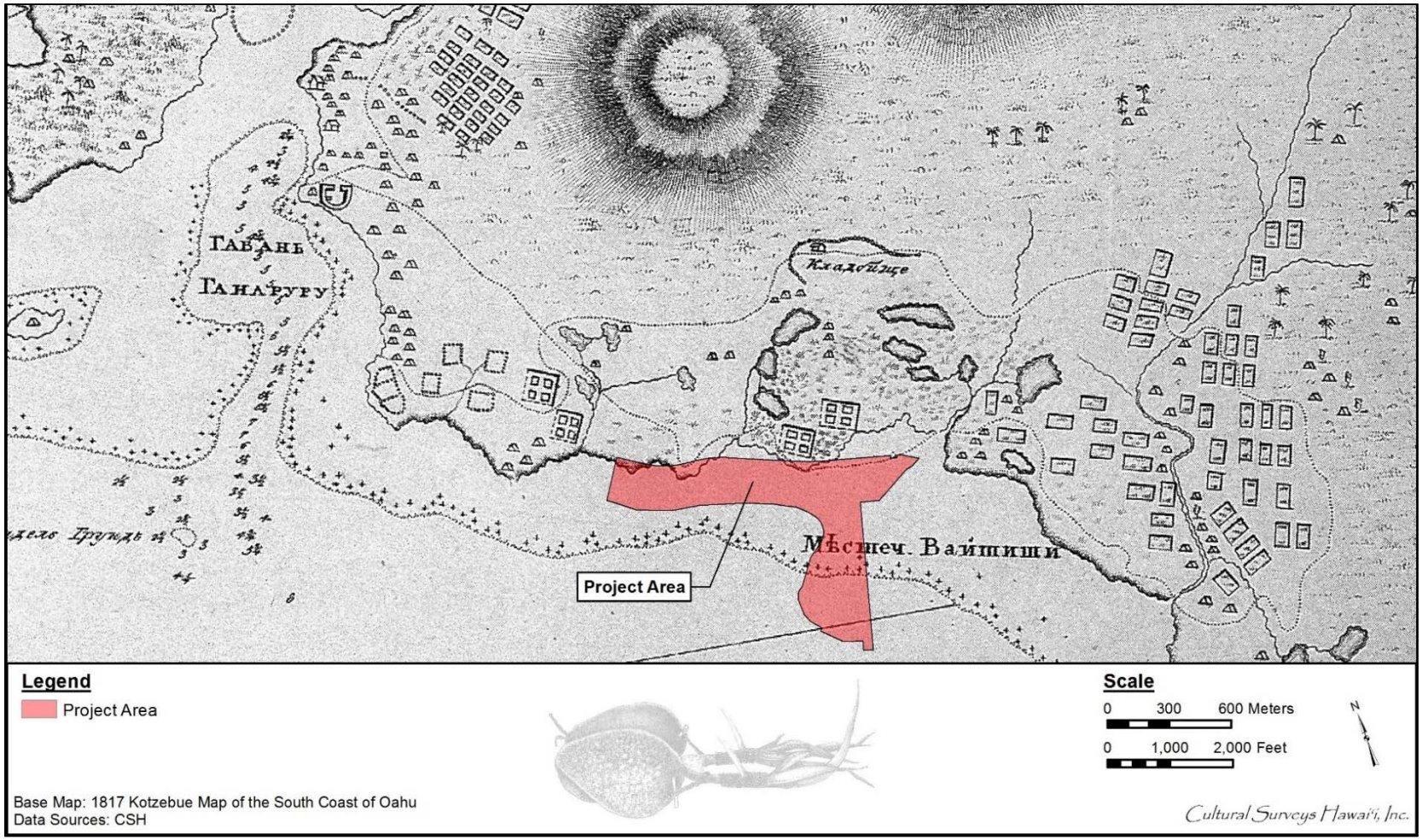

Figure 8. 1817 Kotzebue map of the south coast of O‘ahu by Otto von Kotzebue of the Russian ship *Rurick*, showing the project area and depicting the taro fields (rectangles), fishponds (ovals, squares), salt pans (squares with interior squares), and habitations (house icons) of O‘ahu’s south shore; habitation and agricultural land in Honolulu (left side of figure) and in Waikīkī (right); note fishponds to the north and east and salt pans *mauka* of the current project area (center) (map reprinted in Fitzpatrick 1986:48–49)

Figure 9. 1880 photograph of the Kaka‘ako shoreline west of areas later dredged for Kewalo Basin and filled for Fort Armstrong (near the peninsula in the background) (Hawai‘i State Archives 1880)

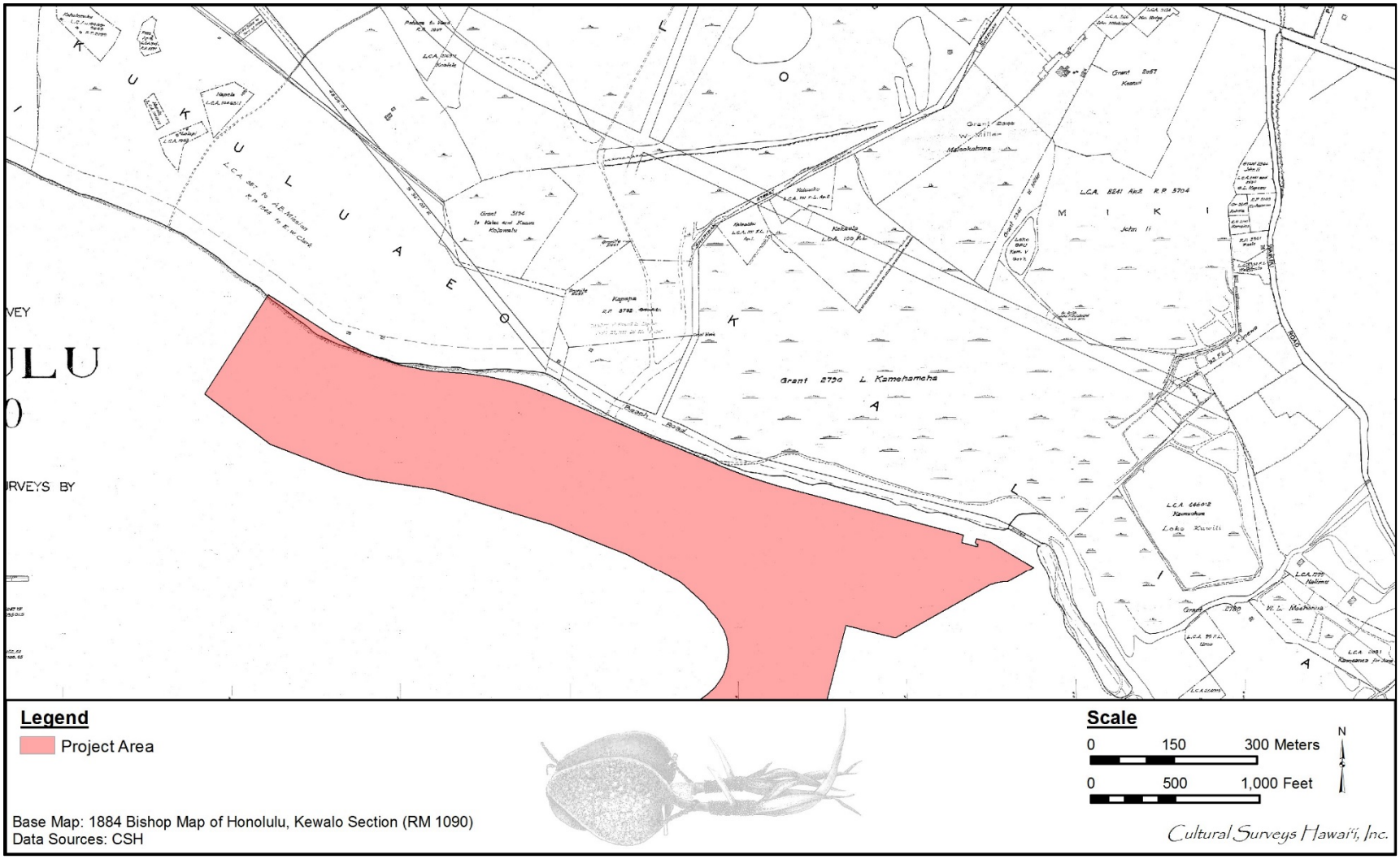

Figure 10. 1884 Bishop map of Honolulu, Kewalo Section by Sereno Bishop showing the project area, coastal *‘ili* of Kewalo and Kukuluāe’o (Makiki and Pauoa Ahupua‘a) to the west and the *‘ili* of Kālia in Waikīkī Ahupua‘a to the east; note Pi‘inaio Stream empties into the ocean at the east end of the project area (bottom right corner of map)

3.2 Mid-1800s and the Māhele

The Organic Acts of 1845 and 1846 initiated the process of the Māhele—the division of Hawaiian lands—which introduced private property into Hawaiian society. In 1848, the crown, the Hawaiian government, and the *ali‘i* received their land titles. The common people (*maka‘āinana*) received their *kuleana* awards (individual land parcels) beginning in 1850. The records for the Land Commission Awards (LCA) generated during the Māhele provide the first specific documentation of life in the Kewalo area as it had evolved up until the mid-nineteenth century.

The project area is *makai* of the lands of Kukuluāe‘o, Kewalo, and Kālia (Figure 11). The *‘ili* of Kukuluāe‘o (LCA 387) was awarded to the American Board of Commissioners for Foreign Missions (see Figure 10 where LCA 387 is annotated as “to AB Mission”). Initially this land was associated with Punahou School in Makiki and Mānoa Valley, as Chief Boki gave the Punahou lands to Hiram Bingham, pastor of Kawaiaha‘o Church in 1829 (DeLeon 1978:3), as stated in the LCA testimony: “The boundaries of that part which lies on the sea shore we cannot define so definitely, but presume there will be no difficulty in determining them as it is commonly known as pertaining to Punahou. This part embraces fishing grounds, coral flats & salt beds” (LCA 387). In the Māhele, however, this sea land became “detached” from the Mānoa award and was instead given to the pastor of the Kawaiaha‘o Church. The award also included the Kukuluāe‘o Fishery on the low reef flats offshore (Figure 13). A portion of the Kukuluāe‘o Fishery would later be dredged and filled to create Kewalo Basin and the west portion of the Ala Moana Regional Park (Figure 12 through Figure 14). A 1901 map (see Figure 12) has an early reference to the Beach Road as “Ala Moana” (“Ocean Road,” but we cannot rule out that this was a later annotation). The 1909 map (see Figure 13) calls it “Moana Road” and it does appear that by 1911 (see Figure 14) it was firmly known as “Ala Moana.”

The *‘ili* of Kewalo (LCA 10605) was awarded to Kamake‘e Pi‘ikoi, wife of Jonah Pi‘ikoi. The husband and wife shared the award (Kame‘eleihiwa 1992:269). Kewalo was a large 270.84-acre land section extending from Kawaiaha‘o Church to Sheridan Street and had a small access to the shoreline between the boundaries of Kukuluāe‘o and Kālia.

Kālia was an *‘ili kū* of Waikīkī Ahupua‘a. Soehren (2015) notes, “Kalia resembles an *ahupua‘a* extending across Waikīkī from Makiki in the west to Kapahulu in the east, fragmented by many intervening *‘ili* and *kuleana*.” The *‘ili* of Kālia was first awarded to Victoria Kamāmalu, who eventually returned it to the government. It then became fort land set aside for soldiers manning the fort positions on O‘ahu to plant crops for their own subsistence. The plan proved impractical and many of these lands were later awarded to other *ali‘i* or commoners, or assigned as Government or Crown Lands. The area also included the rich offshore Kālia fishery, on the low reef flats, as shown on the 1909 map of the O‘ahu Fisheries (see Figure 13). This fishery area would later be dredged and filled to form the east end of the Ala Moana Regional Park and part of Magic Island.

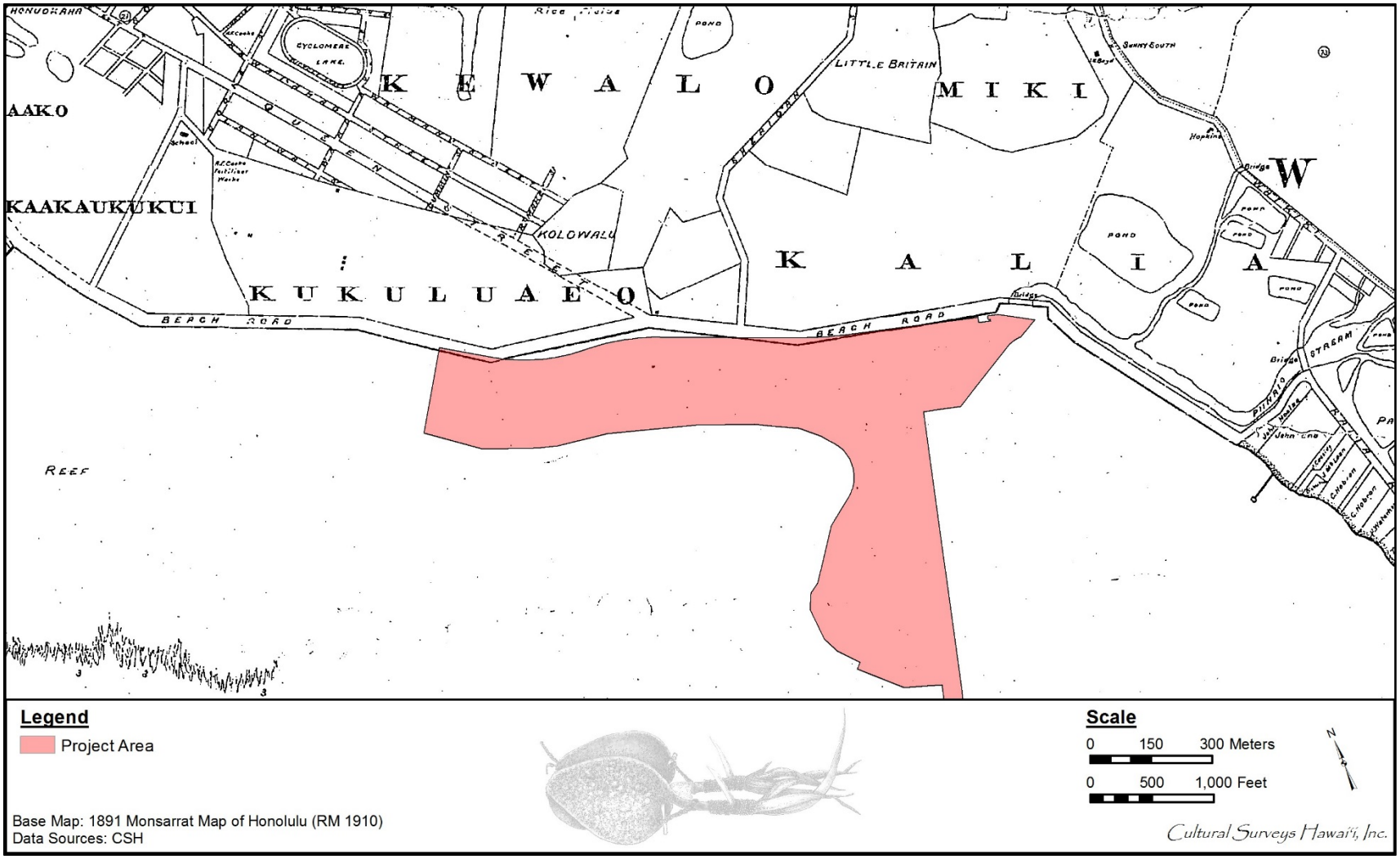

Figure 11. 1891 Monsarrat map of Honolulu showing the project area, depicting Sheridan/Pi‘ikoi Street as the dividing line between the coastal *‘ili* of Kewalo and Kukuluāe‘o to the west and the *‘ili* of Kālia in Waikīkī Ahupua‘a to the east

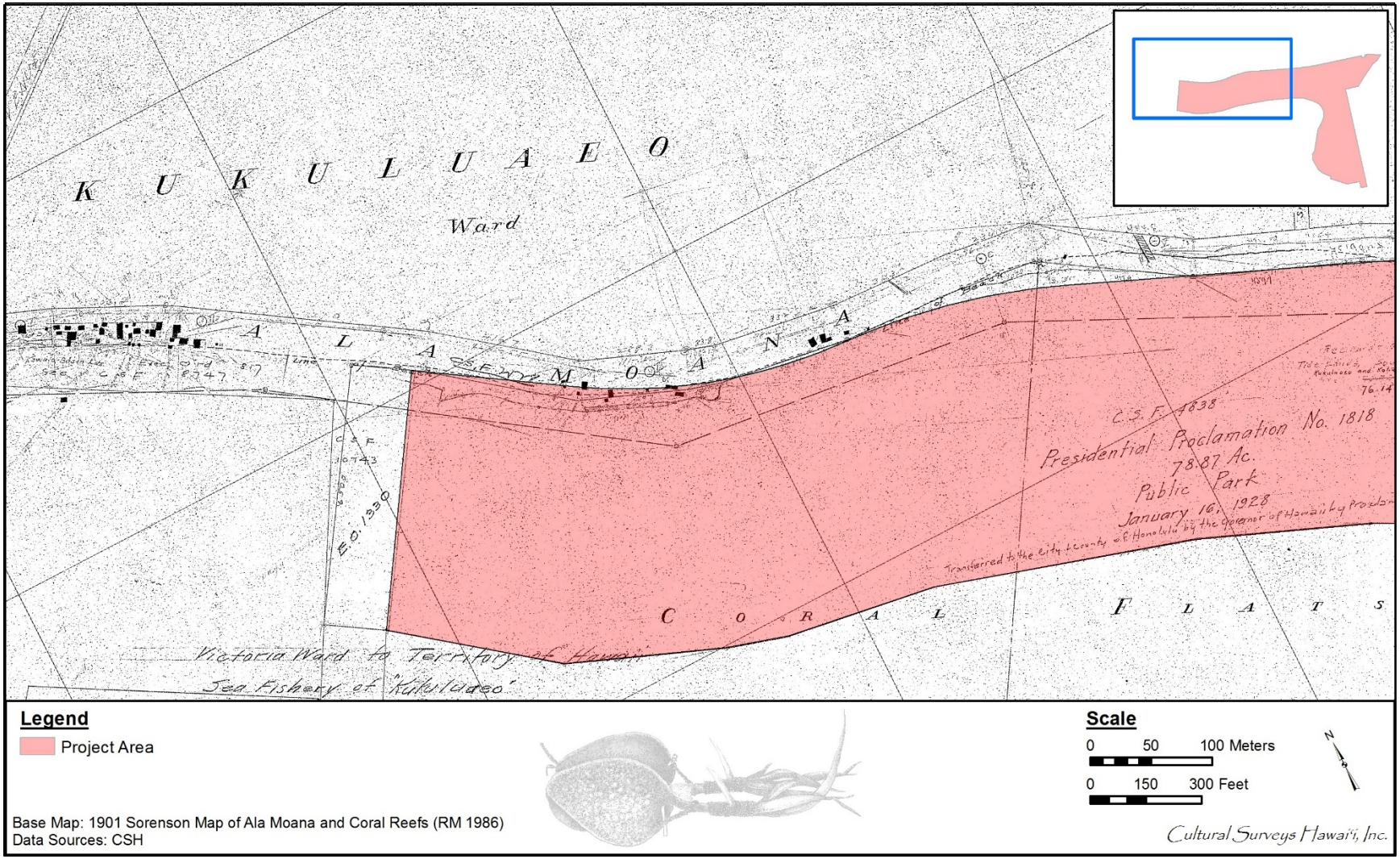

Figure 12 1901 Sorenson map of Ala Moana and Coral Reefs showing the west portion of the project area in the “Sea Fishery of Kukuluaeo”

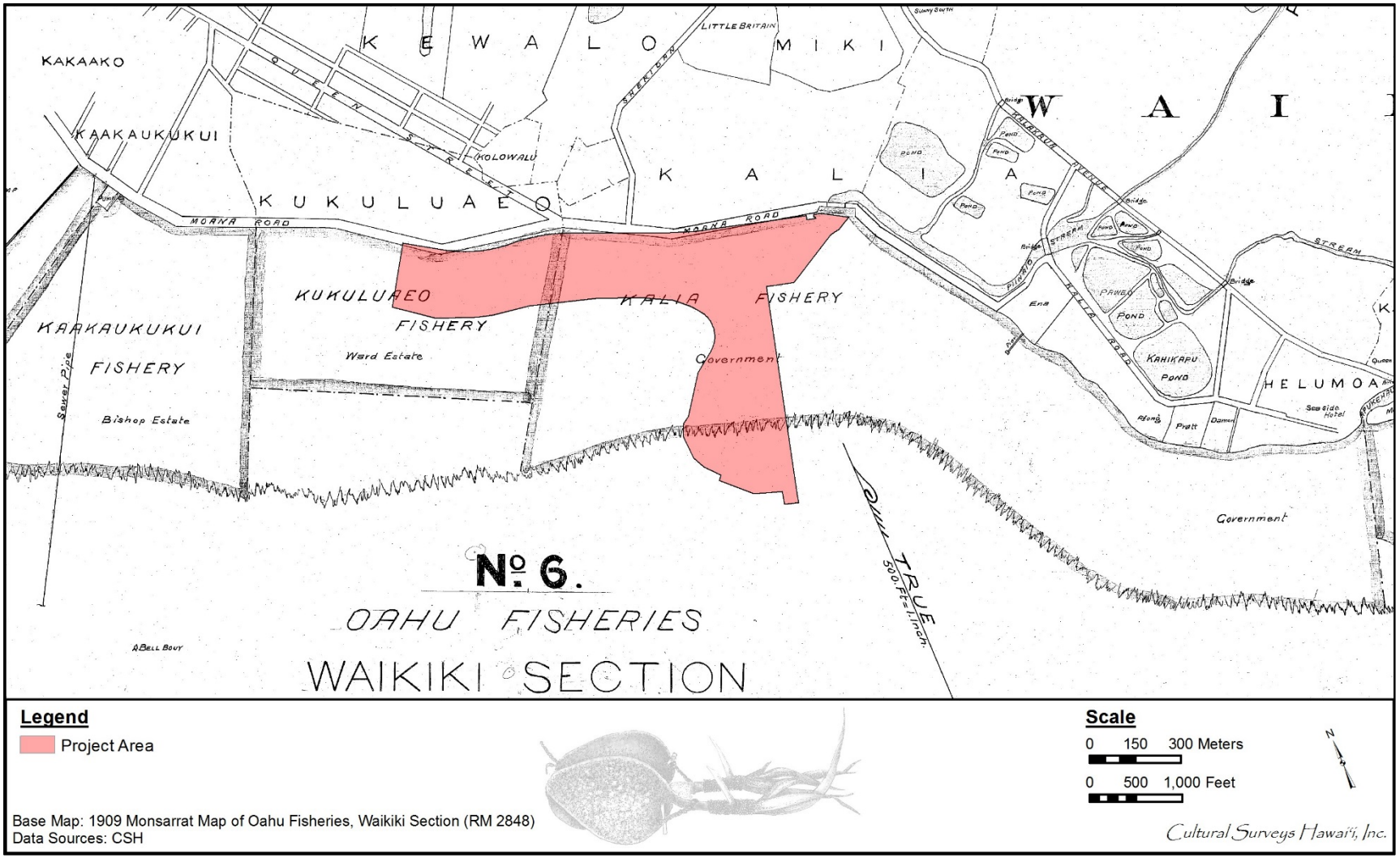

Figure 13. 1909 Monsarrat map of Oahu Fisheries, Waikiki Section showing the project area within the offshore fisheries of Kukuluāe‘o and Kālia, showing project area mainly within the shallow reef area of the fisheries

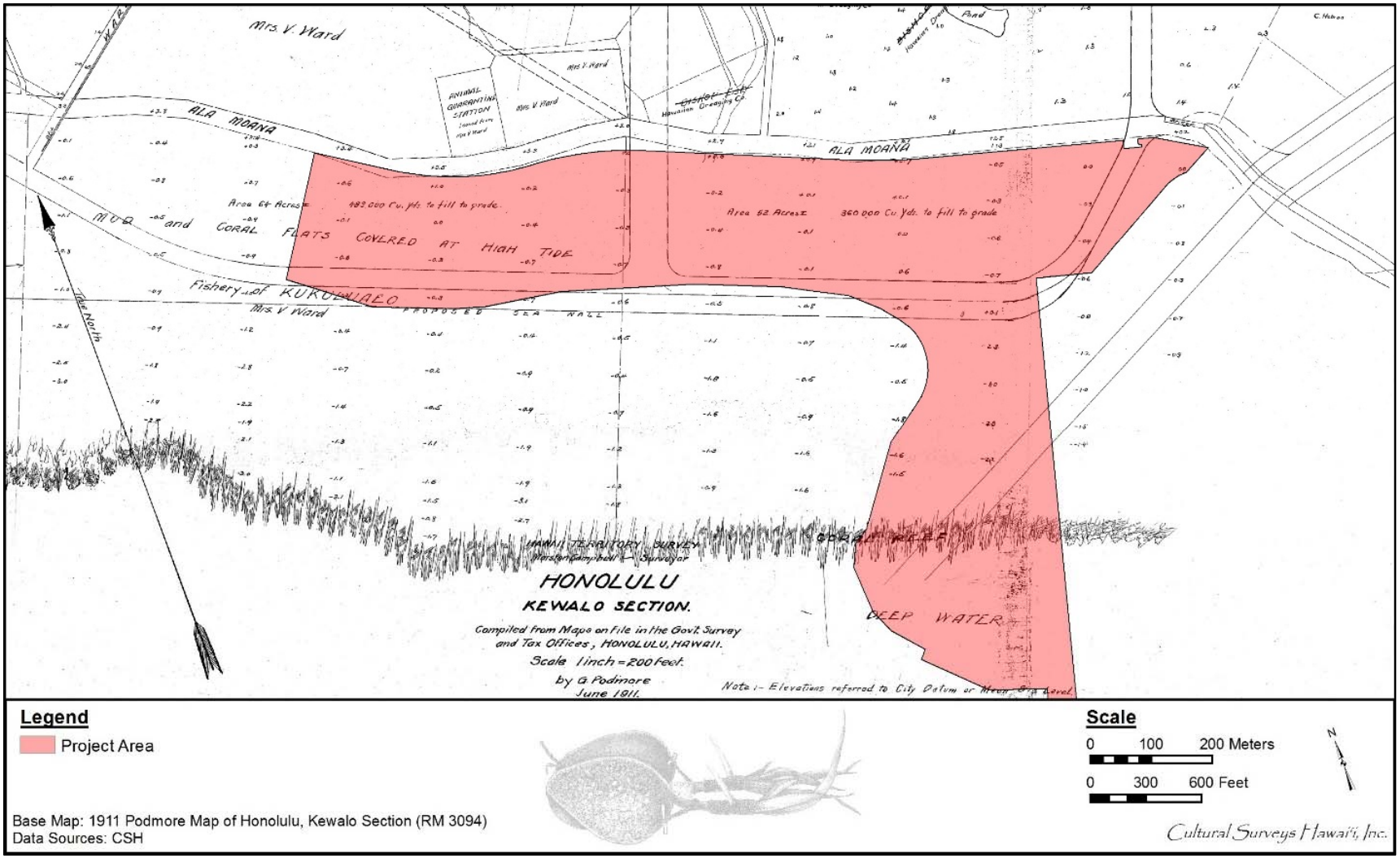

Figure 14. 1911 Podmore map of Honolulu, Kewalo Section, showing the project area and the original depths of the coral reef *makai* of Ala Moana Boulevard; note “Fishery of Kukuluaeo”

3.3 Late 1800s

The shallow, well-protected reefs of Waikīkī and the availability of the riparian resources of the Pi‘inaio estuary and the inland dune ponds made the Kālia vicinity particularly desirable for Polynesian settlement. John Papa ‘Ī‘ī (1959:49) relates an account from the early 1800s of a catch at a Kālia fishpond “so large that a great heap of fish lay spoiling upon the bank of the pond.” The waste was not noted with approval.

This abundance of fishponds not only provided a bounty of food for chiefly redistribution, but also would have required significant maintenance. While the abundance of fishponds suggests a large pre-Contact population, the demographics of pre-Contact Waikīkī remain uncertain (see Kanahele 1995:32–33). The missionary census of 1831/1832 lists a relatively large population for “Waikiki” of 2,571 (Schmitt 1973:19). This appears, however, to include all land between Honolulu and Waimānalo (including for example Mānoa and Pālolo), so the population of Waikīkī and Kālia remains uncertain.

The 1817 Kotzebue map of O‘ahu indicates there were several ponds north and east of the current project area (see Figure 8). In a list of fishponds on the island in 1903, there were ten fishponds in Kālia still in use, three of which did not have known names. Most of the ponds were leased and maintained by Chinese workers and most were controlled by just two merchant firms in Honolulu (Cobb 1905:748). The number of fishponds in the vicinity suggests cultural deposits in the vicinity may be particularly rich.

Much of the land in Kewalo, Kukuluāe‘o, and Kālia was used to produce salt. Salt pans are shown in Kaka‘ako and in Kālia on the 1817 Kotzebue map (represented by boxes with rectangles). The Hawaiians used *pa‘akai* (salt) to flavor food, to preserve fish by salting, for medicines, and for ceremonial purposes. Malo discusses the traditional Hawaiian method of salt production and salt pans:

> *O ka paakai kekahi mea e pono ai, he mea e ono ai, ka ia, a me ke koekoe o ka paina ana, he mea hana ia ka paakai, ma kekahi aina, aole i hana a ma kekahi aina, o ke kai makai, e kii aku no ka wahine, a lawe mai ma ke poi, a ke kai hooholo ia mai kekahi ma kauwahi mai.*
>
> *E waiho kela kai ma kekahi poho paha, he ekaha paha, he kahe ka paha, a liu malaila, alaila lawe ana kauwahi e, a paakai iho la no ia, o ka papa laau ka mea kui poi.* [Malo 2006:73]
>
> Pa‘akai [salt] is another beneficial item. It is used to make fish delicious and tasteless foods edible. Pa‘akai is made at a particular place, [but] it [salt] is not actually made from this spot, rather it [salt water] came from the sea. A woman went to get some when the sea crashed [upon the rocks] and she ran back [the salt water] to this particular spot.
>
> That salt water [kai] is placed in, perhaps, a depression [*poho*] or a ‘Bird’s nest’ [ēkeha] or rock basin [kāheka] and allowed to evaporate [*liu*]. Then it is taken to another spot and is formed into pa‘akai. Wooden boards [*papa lā‘au*] are used to pound poi [mashed cooked *kalo* corms] on. [Malo 2006:95]

In 1903, Nathaniel Emerson translated David Malo’s articles on early Hawaiian life. In his publication, the translations are not literal, but include information that Emerson added to clarify the accounts. In Emerson’s translation:

> Salt was one of the necessities and was a condiment used with fish and meat, also as a relish with fresh food. Salt was manufactured in certain places. The women brought sea-water in calabashes, or conducted it in ditches to natural holes, hollows and shallow ponds [*kekaha*] on the sea-coast, where it soon became strong brine from evaporation. Thence it was transferred to another hollow or shallow vat, where crystallization into salt was completed. [Malo 1951:123]

In the years following the arrival of Captain Cook in the Islands in 1778, most visitors were British and American fur traders stopping in Hawai‘i on their way to China. One reason for their visit was to stock up on food and water. Another concern was to buy or trade for salt, which was used to cure the seal and mammal pelts collected from the Northwest Coast. During Kotzebue’s visit in 1816 and 1817, he noted that “Salt and sandalwood were the chief items of export” (Thrum 1904:50).

> The journals of none mention the object of call other than for refreshments, though one, some 3 years later, records the scarcity and high price of salt at the several points touched at, with which to serve them in the curing of furs obtained on the coast. In all probability salt was the first article of export trade of the islands and an object, if not the object, of these pioneer fur traders’ call. [Thrum 1904:45]

Samuel Kamakau noted that in the early to mid-nineteenth century, “The king [Kamehameha III] and Isaac of Pu‘uloa [Pearl Harbor] are getting rich by running the salt water into patches and trading salt with other islands” (Kamakau 1992:409). In an article on Hawaiian salt, Thomas Thrum (1923:112–117) discussed the large salt works at Pu‘uloa, on the western loch of Pearl Harbor, and at Alia Pa‘akai (Salt Lake in Moanalua). The salt collected at these places was sent to Russian settlements in the Pacific Northwest, where it was used to pack salmon (Kurlansky 2002:406). Thrum also mentions a salt works in Kaka‘ako:

> Honolulu had another salt-making section in early days, known as the Kakaako salt works, the property of Kamehameha IV, but leased to and conducted by E.O. Hall, and subsequently E.O. Hall and Son, until comparatively recent years. This enterprise was carried on very much after the ancient method of earth saltpans as described by Cook and Ellis. [Thrum 1923:116]

The export of salt declined in the late nineteenth century. Thrum (1923:116) states that the apex of the trade was in 1870. By 1883, he noted that “pulu [a soft, glossy, yellow wool used for pillows and mattresses], salt and oil have disappeared entirely” from the list of yearly exports (Thrum 1883:68). By 1916, only one salt works, the Honolulu Salt Company, was in operation. The owner of the company, E.O. Hall & Son, had salt works in Pu‘uloa, Kalihi, and Waikīkī on the island of O‘ahu, and a salt works on the island of Hawai‘i (*Engineering and Mining Journal* 1916:595). Salt continued to be manufactured for local use; the Kaka‘ako Salt Works appears on maps as late as 1891, and a page in Victoria Ward’s ledger for 1883 notes a yearly income of $651.50 received from her “Salt Lands” in Kukuluāe‘o (Hustace 2000:50).

A traditional saying, *Kāhunahuna pa‘akao o Kālia*, “the fine-grained salt of Kālia” (Pukui 1983:144) indicates Kālia, along with Kaka‘ako, was a traditional area for salt collection by Native Hawaiians. Historic maps also indicate large-scale salt production took place in the project area in the early twentieth century.

E.O. Hall & Son, a Honolulu merchant, had a large salt works at Kaka‘ako, west of the project area. The company was officially used as a salt vendor as early as 1892 (*Daily Bulletin*, 7 January 1892:3). In 1902, the auctioneer Jas. F. Morgan advertised (*Hawaiian Star,* 10 July 1902:8) that he would be selling the “cottages, sheds, lean-tos, store and warehouses” at the Kaka‘ako Salt Works of E.O. Hall & Son. Soon after this date, in 1903 and 1904 (*Hawaiian Gazette*, 23 May 1903:8; *Hawaiian Star*, 31 August 1904:6), E.O. Hall began to advertise salt from their new “Kalia Salt Works.” This seems to indicate the merchant closed down the facilities at Kaka‘ako (or sold them) in 1902 and moved to the newly constructed works at Kālia in 1903/1904. There are references of the Kalia Salt Works until at least 1909 (*Overland Monthly* 1909:xii); however, at some point, E.O. Hall consolidated all of their salt works into the Honolulu Salt Company, which operated until at least 1916. A volume of the 1916 *Engineering & Mining Journal* indicated,

> Most of the salt produced in the islands is the output of the Honolulu Salt company, whose product is confined to coarse salt and manufactured entirely by natural evaporation, no vacuum pans, kettles or grainers being used. The company operates salt beds at Puuloa, Kalihi and Waikiki, on the island of Oahu, and at Mahukona, on the west coast of the island of Hawaii. [*Engineering and Mining Journal* 1916:594]

The Kalia Salt Works is probably the “Waikiki” salt works in the reference. These works probably closed between 1927 and 1932. Extensive areas of “salt pans” are depicted in some detail inland of the project area on a 1921 map (Figure 16).

3.4 The Vicinity of Ala Moana Regional Park in the Early Twentieth Century

The area inland of Ala Moana Regional Park was some of the last land of central urban Honolulu to be developed. A 1919 map (Figure 15) depicts substantial development in Kaka‘ako to the west, filling in seaward from King Street to the north, and in Waikīkī to the east but with the area inland of the future Ala Moana Regional Park as very sparsely settled—which is understood as due to the low-lying marshy ground. An animal quarantine station (first shown on the 1911 map, Figure 14) is a large fenced rectangular compound north of the west portion of the project area and a few houses are arrayed on the *mauka* side of the Beach Road *mauka* of the central portion of the project area.

The low-lying nature of the area *mauka* of what would become Ala Moana Regional Park is well illustrated in a 1921 Land Court Application map (see Figure 16).This map calls out “Pond” seventeen times along with two areas of “Salt Pans.”

A small area of land on the *makai* side of Ala Moana Boulevard was used as a city dump for trash. Before incinerators were built in Kaka‘ako and Kewalo in the 1930s and 1940s (such as Kewalo Incinerator No. 1), combustible trash collected by the city refuse division was burned in open areas near the coast from Kewalo Basin to the Ala Wai Canal (Young 2005), as shown on a 1921 photograph (Figure 17).

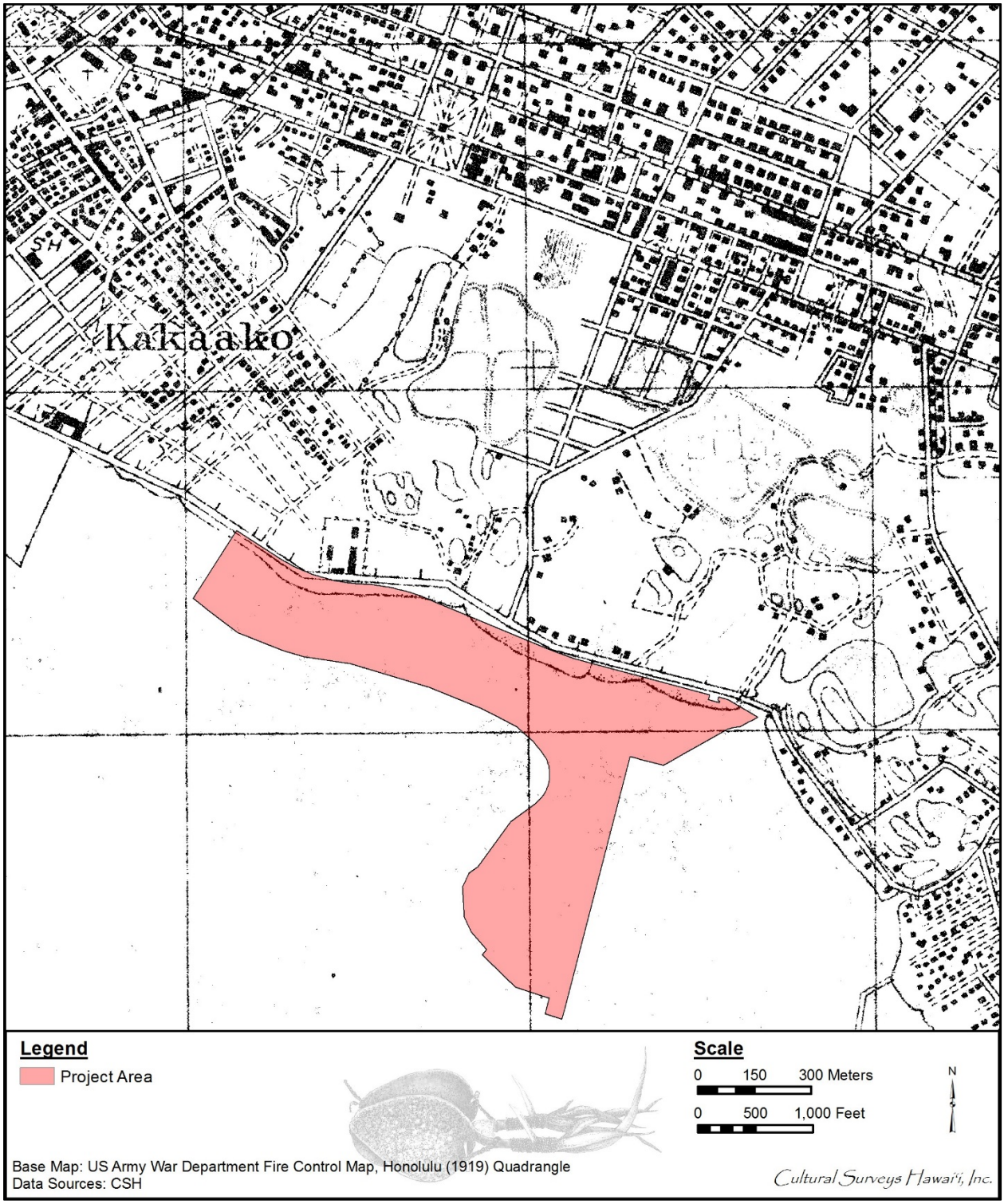

Figure 15. 1919 U.S. Army War Department Fire Control, Honolulu Quadrangle, depicting the location of the project area before the construction of the Ala Moana Regional Park

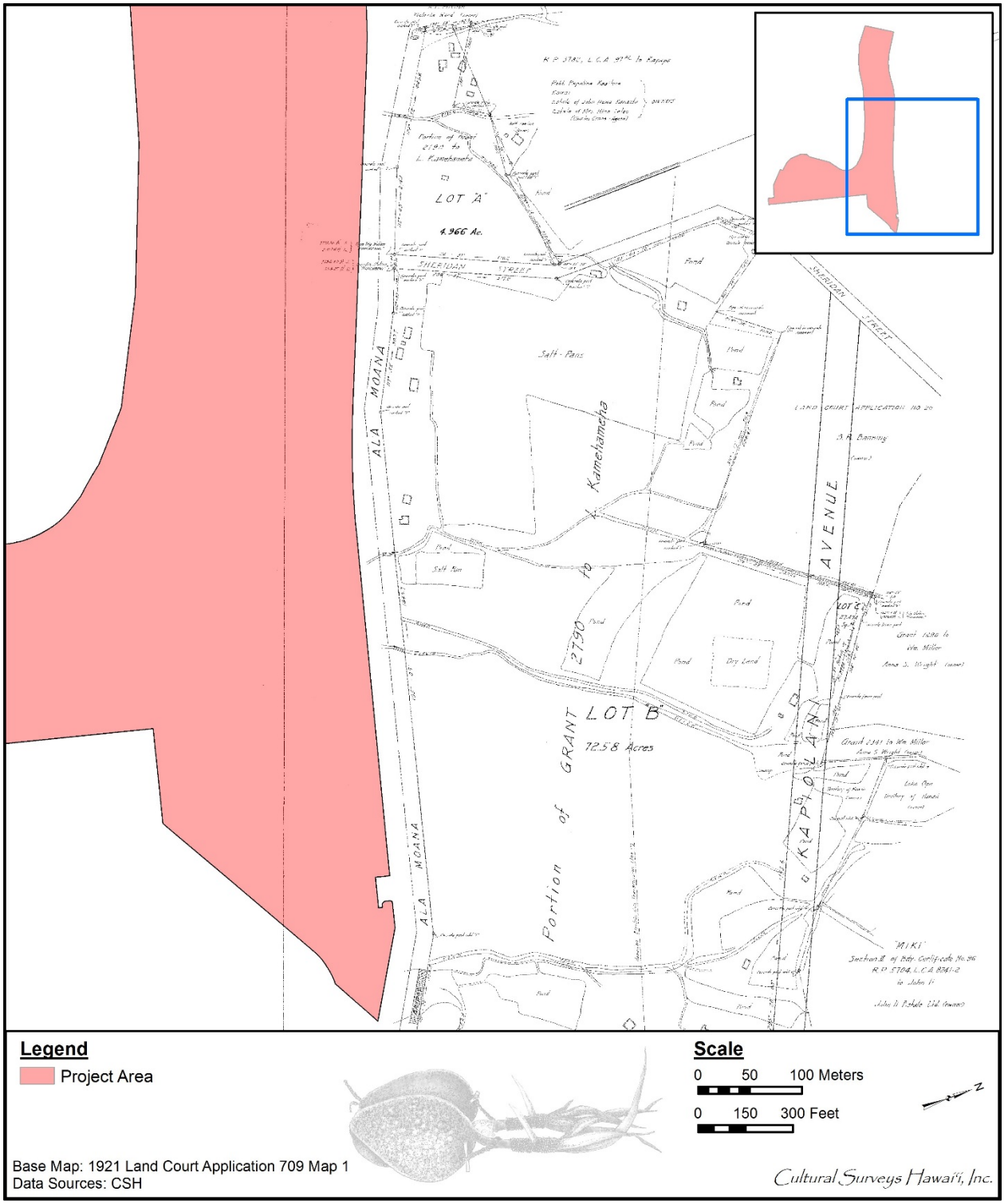

Figure 16. 1921 Land Court Application 709 Map 1 showing the project area (Hawai‘i Land Survey Division 1921)

Figure 17. Open-air burning of trash in area between Kewalo Basin and Ala Moana Regional Park, 1921 photograph (Hill 1921, reprinted in Scott 1968:578)

3.4.1 The Ala Wai Canal and the Waikīkī Reclamation Project

The land surface of modern Honolulu and Waikīkī is the result of a decades-long dredging and fill project that included the creation of the Ala Wai Canal. In Nakamura's (1979) *The Story of Waikīkī and the Reclamation Project*, he writes that this land "reclamation program, planned in 1906, changed the ecology of Waikīkī from a once viable and important agriculture and aquaculture center . . . destroyed by profit-seeking capitalist entrepreneurs . . . under the subterfuge of 'drainage' and 'sanitation'" (Nakamura 1979:113). Many of the original property owners lost their land or suffered serious damage to their property as a result of the reclamation activities and/or costly expense for the mandatory filling in of their properties.

Dredging for the Ala Wai Canal began in 1921 and was completed seven years later. The final result was a "canal three miles long, with an average depth of twenty-five feet and a breadth of two hundred fifty feet" (*Honolulu Advertiser*, 17 October 1928). Nakamura (1979:85) writes that the government of the Territory of Hawaii solicited bids in 1920 for the dredge and fill project planned for the environs of Waikīkī. The plan was to create hundreds of acres of urban land at the expense of wetland agriculture and aquaculture in the area. The advertisement soliciting bids for the project put forward by Lyman H. Bigelow masked the significance of the project by stating it was "for Dredging a Drainage Canal and Filling and Reclaiming Certain Unsanitary Lands at Waikīkī" (Nakamura 1979:85). Territorial laws were passed requiring property owners to pay for the filling in of their lands, which apparently was going to be done whether they wanted it or not. A lien would be fixed against their property and if all payment was not made on time, land would

be foreclosed. Nakamura points out that the cost was so high for some property owners that the bank lien could extend into a 15-year mortgage (Nakamura 1979:89).

Once land that the Territory of Hawaii government wanted filled in (for state buildings) was filled, any further dredged materials became the property of the dredging company—the Hawaiian Dredging Company—and they could sell the materials to the property owners who in turn,were forced to buy the product. Walter F. Dillingham, of the Hawaiian Dredging Company, died in 1963. *Time* magazine, in their article about him and his involvement in the project, stated that "Walter Dillingham used the muck dragged up from the sea to fill in low, marshy areas around Honolulu, over the years created 5,000 acres of solid ground that now holds a full third of the city's population" (Nakamura 1979:112). The Ala Wai Canal is listed as SIHP # 50-8-14-9757.

3.4.2 Ala Moana Regional Park

Ala Moana Regional Park is a 75.209-acre public park stretching along the modern shoreline from the Kewalo Basin in Honolulu to the west end of the Ala Wai Canal in Waikīkī. It is built almost entirely on fill land, land that was formerly a shallow reef off the Kaka‘ako District. This original shoreline and reef area can be seen in an 1880 photograph of the Kaka‘ako shore (see Figure 9). The peninsula in the background of this photo would later be expanded and filled to create the Fort Armstrong area, adjacent to the west side of Kewalo Basin, which was also created by dredging the reef. The history of the development of the park has been presented in Robert Weyeneth's (1987) book *Ala Moana: The People's Park*, and this book is the main source for the historical information in this section, unless otherwise noted.

Ala Moana Regional Park was one of the many public works projects carried out in the 1930s during the Great Depression. The idea for the park first originated in the 1920s. The park was especially backed by the Outdoor Circle, a club organized in 1911 by the wives of prominent Honolulu businessmen who organized to beautify and clean the city (Watts 1993:50). This group wielded a large influence and was instrumental in municipal planning. They were the main organization that led the push to ban large roadside advertising signs in Hawai‘i in 1927 (Watts 1993:154). The club envisioned Ala Moana as a park that could be used by all of the people of Hawai'i.

The U.S. Federal government assumed the title to the site in 1897 with annexation of the new territory and began to use the site as a dump and open air burning area in ca. 1900. They transferred the original 78.87-acre lot to the Territory of Hawaii as Presidential Proclamation No. 1818 in 1927, as shown on a 1927 map (see Figure 20). There were two provisions for the transfer of the land. The first was that the territorial government dredge a channel through the reef to allow boats to travel from the Ala Wai Canal on the east to Kewalo Basin on the west, and the second was to fill a portion of the submerged reef to construct a public park. The dredging of the channel was completed in 1928 by the Hawaiian Dredging Company, managed by Walter Francis Dillingham. Walter Dillingham's wife, Louise Dillingham was a member of the Outdoor Circle and one of the park's main proponents. She was also a member of the Honolulu Park Board from the 1930s until her death in 1964.

The dredging plans (including the depths of the original reef) are shown in a 1911 map of Honolulu (see Figure 14). The initial dredged areas for Kewalo Basin, the boat channel in front of

the park, and a dredged channel that extended from the west end of the Ala Wai Canal to this boat channel and a second channel across the reef to the sea can be seen in a 1934 map (see Figure 27).

A 1923 map (Figure 18) shows a “Proposed Park” that would be developed into Ala Moana Regional Park. Almost everything depicted on this map is “proposed” including a “proposed public park” on the *mauka* side of the (proposed) Ala Wai Canal, a “Proposed Channel” from the proposed Ala Wai Canal extending into what is now Magic Island, and a vast grid of dashed-in proposed streets. Some of the proposed streets between Kapi‘olani Boulevard and Ala Moana would be cancelled by the construction of the (not yet proposed) Ala Moana Shopping Center. Kewalo Basin is newly created (but does not yet have its present configuration).

A 1925 map (Figure 19) shows the original shoreline in some detail with named three-letter survey points. This surveyed map gives us confidence that very little, if any, of Ala Moana Regional Park is actually built on naturally occurring dryland. This 1925 map offers an explanation for how the proposed park land was anticipated to be created as five areas seaward of Ala Moana Road are called out as “dump” or “city dump” along the “mud shore.” The configuration of “dumps” certainly suggests they are being expanded south onto the shallow shoal.

A 1927 map (Figure 20) does indeed show substantial movement seaward of the “Edge of Dump.” This map explicitly shows a surveyed perimeter of what would become Ala Moana Regional Park (Magic Island being a much later addition) as a result of the reclamation project in the “Tide Lands.” This 1927 map specifies Presidential Proclamation No. 1818 dedicating an area of 78.87 acres for the park.

A 1927 aerial photograph (Figure 21) shows the original shoreline and reef edge of the project area. This photograph shows expanding and coalescing dumps on the shallow reef. The plume of smoke over the largest dump almost certainly relates to the pattern of open-air burning of trash depicted in Figure 17. Weyeneth (1987:5) reports a tradition of local wags pointing out the plumes of smoke to gullible ship-board visitors “as Honolulu's active downtown volcano.”

The Ala Moana Regional Park area was deeded by the federal government to the Territory of Hawaii on 25 October 1927 and then from the territory to the City and County of Honolulu on 16 January 1928 (Weyeneth 1987:5).

It may be noted that the only dredging shown in 1927 is off the mouth of the new Ala Wai Canal which takes a right angle turn southeast toward Diamond Head. The Hawaiian Dredging Company, Ltd. received the contract to dredge the channel and fill the future park site; the work was completed in October 1930 (Weyeneth 1987:5).

A 1931 photograph as viewed from the west (Figure 22) shows a radically different situation from the aerial photograph of four years earlier in that the substrate of Ala Moana Regional Park has just been created as a field of bright white crushed coral. There is a dark patch in the center of this bright field of crushed coral *makai* of Ala Moana Boulevard in the central portion of the park understood to be the large area of “dumps” shown in the 1927 aerial. Evidently the burned dumped material was high enough there was no need for further fill or there was a wish not to interfere with on-going dump activities.

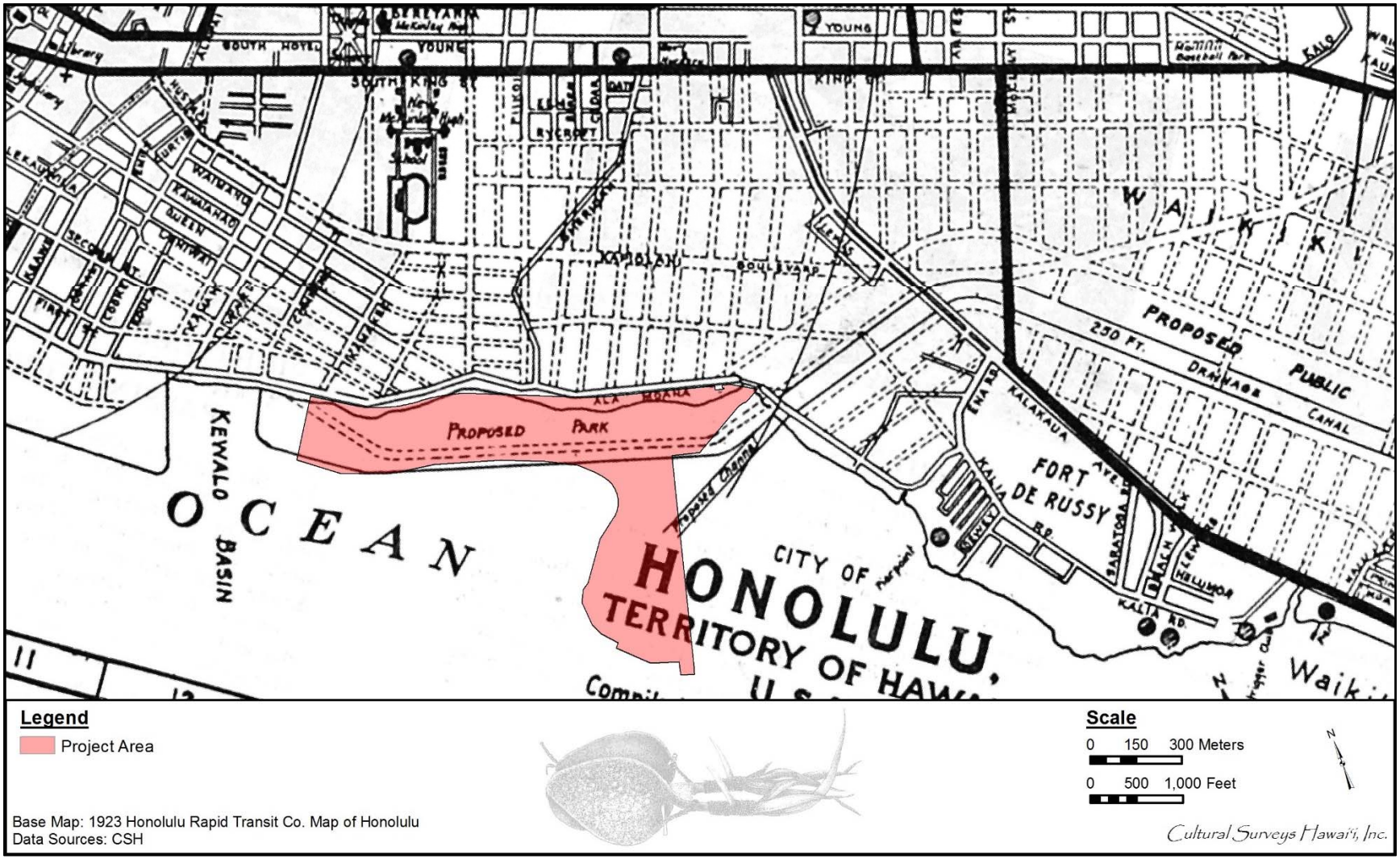

Figure 18. 1923 Honolulu Rapid Transit Company map of Honolulu showing the project area

Figure 19. 1925 U.S. Coast and Geodetic Survey map of Honolulu Harbor to Diamond Head (portion) showing the project area; note areas labeled “dump” or “city dump” on the *makai* “mud shore” side of Ala Moana Boulevard

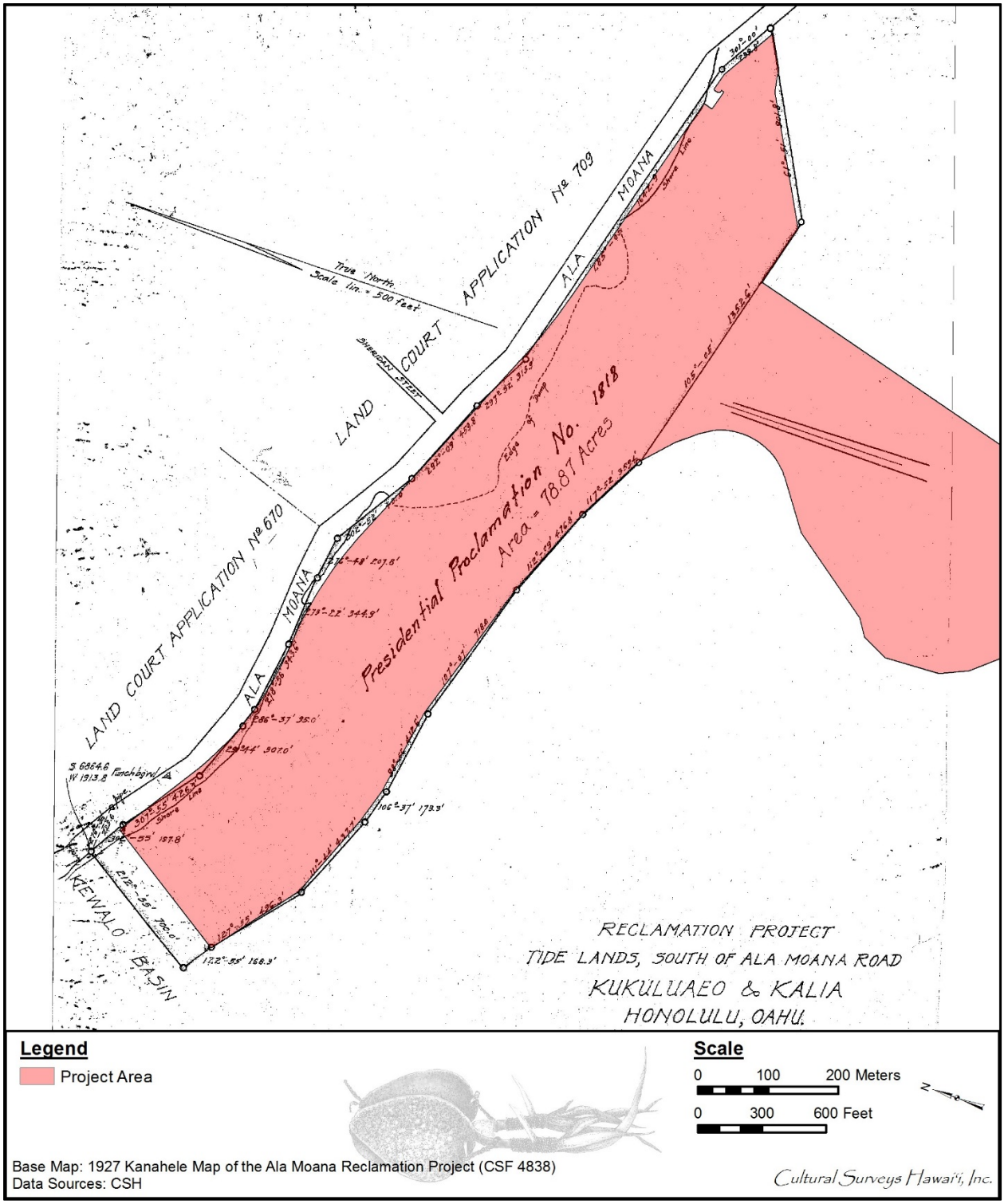

Figure 20. 1927 Kanahele map of the Ala Moana Reclamation Project showing the project area land transfer for the Ala Moana Regional Park from the federal government to the City and County of Honolulu (Hawai‘i Land Survey Division 1927)

Figure 21. 1927 Kakaako/Waikiki Coast Aerial Photograph (UH SOEST 2012a) showing the project area and showing the Ala Moana Regional Park area after the construction of the Ala Wai Canal but before construction of the park; note the initial dredging for Kewalo Basin can be seen on the left side of the photograph

Figure 22. 1931 photograph of the Honolulu to Waikīkī Coast; the dredged boat channel and the recent fill for the Ala Moana Regional Park can be clearly seen (Hawai‘i State Archives 1931)

In July 1931, the Honolulu Park Board approved the designs for the park, originally called Moana Park, by two Hawai‘i landscape architects, Catherine Jones Richards and Robert Oliver Thompson, later Mr. and Mrs. Robert O. Thompson (Weyeneth 1987:9).

> As landscape architects, Richards and Thompson proposed a design for the park layout that included six tennis courts, three baseball fields, volley ball courts, a children's wading pool, a playground, picnic spots with outdoor grills, a bridle path linking Ala Moana and Kapiolani parks, a small boat harbor designed as a public alternative to private yacht clubs, and clubhouses for local rowing clubs. The central architectural feature was to be an oceanfront recreational complex combining a dance pavilion, restaurant, and bath house, bordered on the mauka (mountain) side by a large sunken pool with fountain and allees (parallel rows) of banyan trees. Instead of a beach, Richards and Thompson proposed a shaded shoreline promenade. [Weyeneth 1987:10]

Plans for the park included a Hawaiian Village, a Japanese teahouse, and Chinese pagodas.

A clearer view of the emerging park land is provided in an oblique aerial photograph as viewed from the east in 1932 (Figure 23). The developing park roughly followed the configuration of the original 1932 landscape plan by Richards and Thompson (Figure 24). The 1932 aerial photograph (see Figure 23) shows the completion of the lagoon features, interior pathways, and seawall at the edge of the filled park land. This photograph also shows the small amount of land in the center, inland section of the park that was originally dry land (dark area of park near Ala Moana Boulevard), rather than former reef land filled with dredged spoils (white areas).

By 1932, the lagoons had been dredged, the central recreational area had been paved, and 600 coconut palms and 100 banyan trees, donated by the public, had been planted, as shown on a ca. 1935 photograph of the park (see Figure 31).

A 1933 map (Figure 25) depicts a grid of planned roads (shown as dotted lines) *mauka* of Ala Moana Boulevard. Many of these streets were never built, as the Hawaiian Dredging Company began to fill and level the land. The Ala Moana Regional Park fill land is shown but there are no structures within the park. On this map, Kewalo Basin has been dredged adjacent to the new fill land for Fort Armstrong and the western end of the Ala Wai Canal ends at the open ocean at the east end of the park. The blue dotted line off the coast indicates the edge of dredged areas for Kewalo Basin and the boat channel in front of the park.

The newly dredged fill from the Ala Wai Canal and from the reef just seaward of the emerging Ala Moana Regional Park was used not only to create the Ala Moana Regional Park but also to fill low-lying areas inland. One focus of the inland fill efforts was the low-lying area on the northwest side of the new Ala Wai Canal extending inland from the east corner of the new Ala Moana Regional Park. This area had been an extensive area of shallow ponds and marsh (see Figure 15). This inland extension of fill efforts is evident in the extension of bright white coral fill extending inland from the Diamond Head end of the park on the 1931 aerial photograph (see Figure 22). The Ala Wai Inn (Figure 26) was a very well-known restaurant and bar built on the northwest side of the Ala Wai Canal about midway between Ala Moana Boulevard and Kalākaua Avenue (see Figure 36 for specific location). The caption of a 1933 photo of the Ala Wai Inn by the Department of Parks and Public Grounds, City of County of Honolulu dated 9 August 1933 (see

Figure 23. 1932 photograph of former reef area filled with dredged material to create Ala Moana Regional Park (Hawai‘i State Archives 1932)

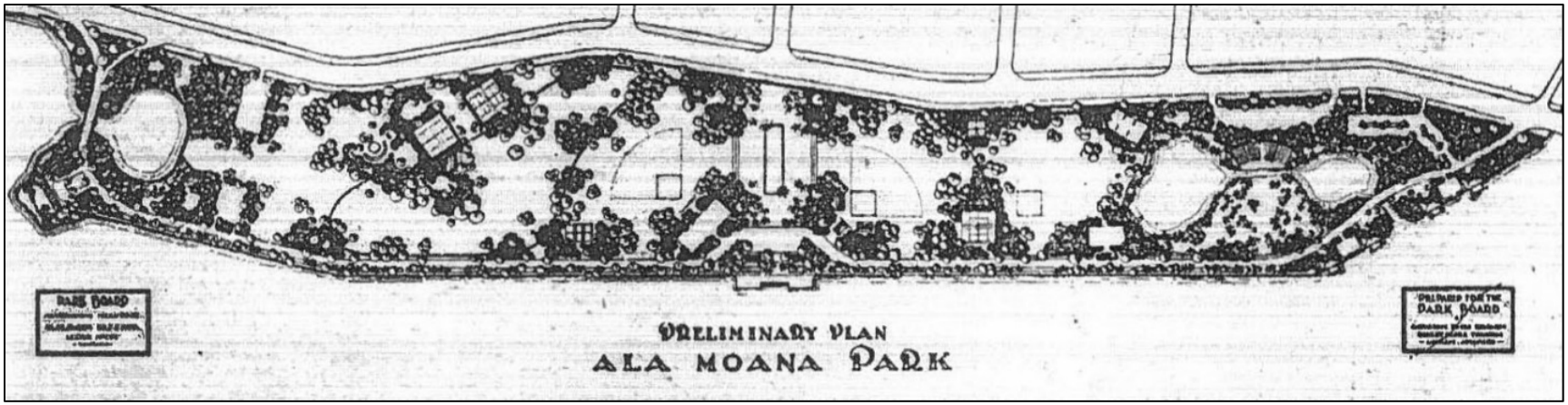

Figure 24. Original landscape plan by Richards and Thompson, 1932 (from Weyeneth 1987:55); the shoreline is bound by a promenade not a beach

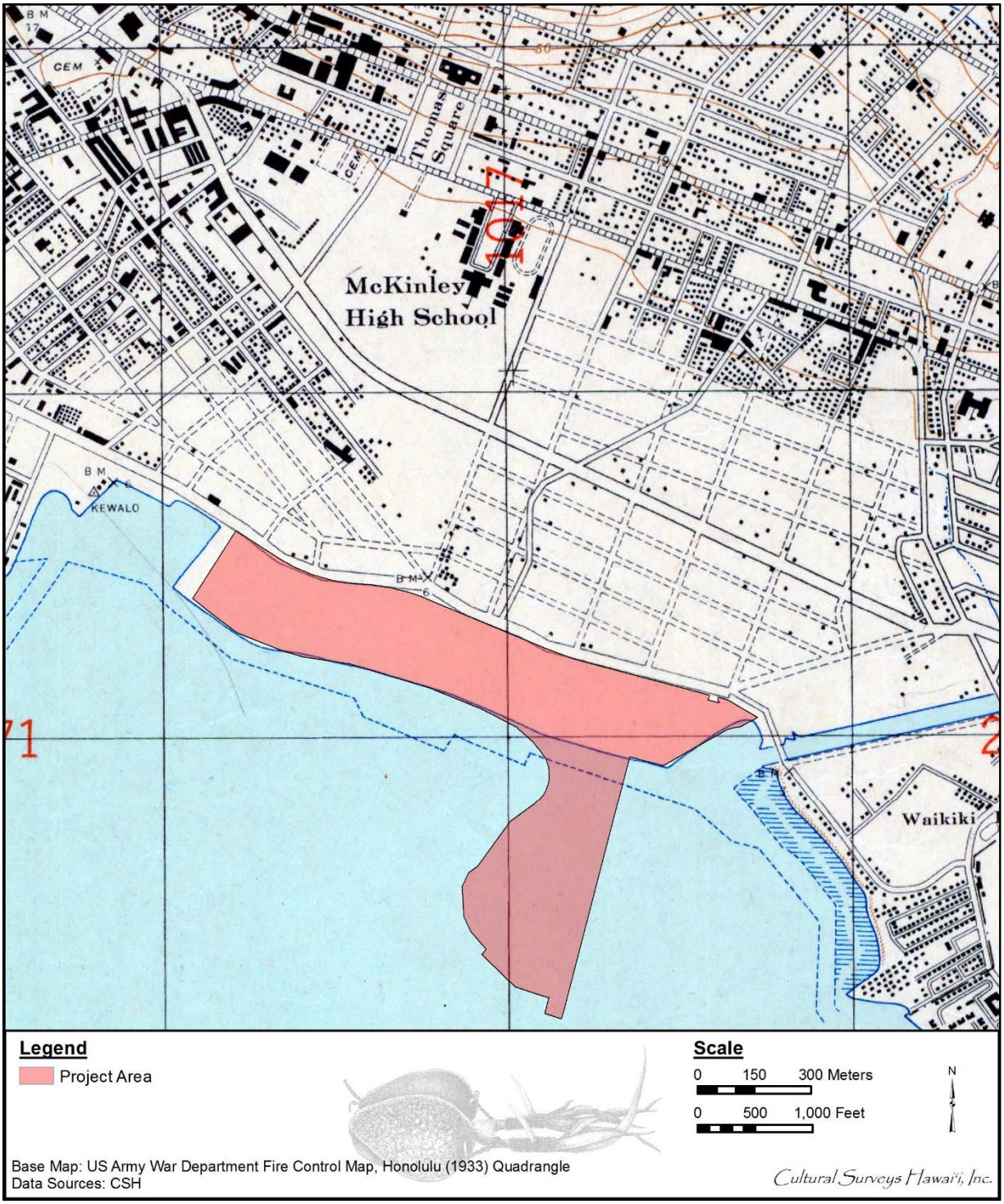

Figure 25. 1933 U.S. Army War Department Fire Control map of O‘ahu, Honolulu quadrangle, showing the project area; Ala Moana Regional Park has been constructed on fill land and the boat channel offshore has been dredged, but the park has not yet landscaped; note streets have been planned on the *mauka* side of Ala Moana Boulevard, as denoted by the dashed lines, but the majority were never built

Figure 26. 1933 photograph of the Ala Wai Canal and the Ala Wai Inn (on right); this land section between Ala Moana Boulevard and Kalākaua Avenue on the northwest side of the Ala Wai Canal adjacent to the northeast end of the Ala Moana Regional Park was first proposed as a promenade area connected to the park (Hawai‘i State Archives 1933)

Figure 26) seems incongruous to us in suggesting the Ala Wai Inn was part of "Ala Moana Park." The Ala Wai Inn is 300 m northeast of the northeast corner of Ala Moana Regional Park as we know it today. Part of the early vision for the park was that it would be "a link between Ala Moana and Kapiolani Park" (Weyeneth 1987:11), with the park continuing inland of Ala Moana Boulevard, southeast of Atkinson Boulevard as a promenade on the northwest side of the Ala Wai Canal extending on up past the Ala Wai Inn to Kalākaua Avenue. Presumably the difficulties of creating pedestrian access across Ala Moana Boulevard (and the value of the land) led to Ala Moana Regional Park remaining isolated *makai* of Ala Moana Boulevard.

A 1934 Wright, Harvey and Wright map of Honolulu (Figure 27) helps us visualize the plan where a strip of land along the northwest side of the Ala Wai Canal would connect the Ala Moana Park to a proposed park extending along the *mauka* side of the Ala Wai Canal toward Diamond Head. This 1934 map also shows a concept involving shallows *makai* of Ala Moana Regional Park separating the park from the dredged channel with seven short groins or piers extending perpendicular out from the shore connecting the park to the deeper water of the dredged channel.

In 1933, Lester McCoy (the "virtual founder of Honolulu's modern park system"; Weyeneth 1987:11) hired Henry Sims Bent to complete working drawings for the new park.

> It is Bent's work that today gives Ala Moana Park its unique character, exemplified in the whimsical canal bridge (completed in 1934), the portals at the Waikiki entrance (named for President Franklin Delano Roosevelt after he dedicated them in 1934), the sports pavilion and banyan garden (completed in 1937), and the lawn bowling green (completed in 1939).
>
> In addition to his work at Ala Moana, Bent designed the layout and structures of a number of smaller parks in Honolulu, including Mother Waldron Playground, Kawananakoa Playground, the Lanikila Park comfort station, Kalihi-Waena Playground, Haleiwa Beach Park, the wall at Hauula Beach Park, Ala Wai Clubhouse, the park service center near Kapiolani Park, and a design for the Kalakaua Recreational Center. Many of his park designs combined the angular zig-zag motifs associated with the Art Deco style with the curved surfaces typical of Streamline Moderne. [Weyeneth 1987:14]

It is largely due to the vision of landscape architects Richards and Thompson and architect Bent that Ala Moana "park stands as the crowning achievement of the golden age of Honolulu park building during the 1930s" (Weyeneth 1987:14). Ala Moana Regional Park was placed on the HRHP on 9 June 1988 as part of a City & County of Honolulu Art Deco Parks Thematic Group designated SIHP # 50-80-14-1388 and a NRHP Nomination for Ala Moana Regional Park was prepared in 1988 listing the period of significance as 1934.

Henry Sims Bent's first design was an equestrian bridge with the appearance from the side of two half-circles screening the single arch (Figure 28). It was meant to be part of a horse bridle path that connected to the Ala Wai promenade (Natonal Park Service 5-6).This was quickly followed by the Roosevelt portals that were formally dedicated in 1934 during a visit by President Roosevelt to Honolulu. (Weyeneth 1987:17) (Figure 29). The scalloped art deco walls at the portals that allow for planting space within their concave recesses (Figure 30) are understood to date from the same year (1934).

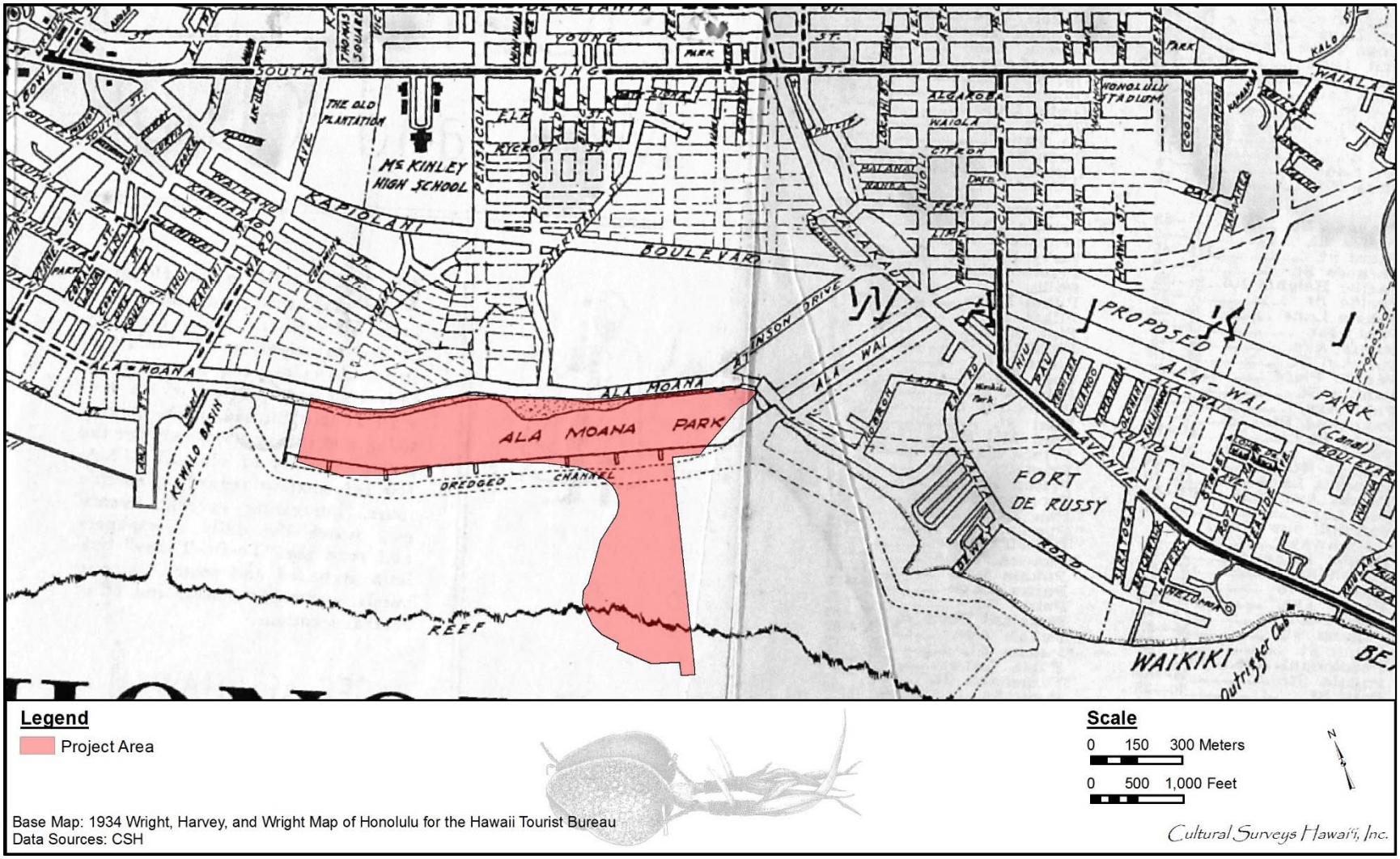

Figure 27. 1934 Wright, Harvey and Wright map of Honolulu for the Hawaii Tourist Bureau, showing the project area and dredged channels for the Kewalo Basin, the Ala Moana boat channel, and a separate channel from the Ala Wai Canal across the reef to the ocean (left to right)

Figure 28. Art Deco style Ala Moana Equestrian Bridge understood as completed in 1934 (Hawai‘i State Archives n.d.)

Figure 29. Roosevelt Portal understood as completed in 1934 (in Weyeneth 1987)

Figure 30. Scalloped Art Deco walls at portals (in Weyeneth 1987)

A 1935 aerial photograph (Figure 31) stands in quite sharp contrast to the 1932 aerial photograph (see Figure 23). What in 1932 was a white plain of compacted crushed dredged coral is now extensively landscaped with expanses of grass and many trees. The photographs from 1935 (Figure 32) show how the landscaping of Ala Moana Regional Park was quickly accomplished through the stockpiling and spreading of topsoil on new dredged coral rubble fill land. Other 1935 photographs (Figure 33) show the ongoing construction of the Banyan Tree Court in the central portion of the park and completed walkways and water features in the central McCoy Pavilion area.

The funds for the labor, at times as large as 800-900 workers, to complete the park came from the Federal Employment Relief Administration (FERA) and the Civil Works Administration (CWA). The land was filled with approximately 5 ft of sand and coral rubble dredged from the ocean in front of the park or with sand trucked in from north O‘ahu beaches, and placed on the coral reef with about a 1-ft thick layer of topsoil (Arthur Kimbal Thompson Architect, AIA 2004:16–17). The sand, coral rubble, and top soil can be seen in two 1935 photographs (see Figure 32).

Of note in the 1935 aerial photograph is the wide swath on the *makai* side of Ala Moana Boulevard between the two-lane road and the *mauka* park wall that would be used to triple the width of Ala Moana Boulevard seaward. This 1935 aerial photograph is of import in reconstructing the relationship of the Ala Moana Regional Park lands to the original land surface. From the earliest maps, the Beach Road that became Moana Road that became Ala Moana Boulevard is shown as

Figure 31. Ca. 1935 photograph of landscaped Ala Moana Regional Park (Hawai‘i State Archives 1935a); note the wide swath on the *makai* side of Ala Moana Boulevard between the two-lane road and the *mauka* park wall that would be used to triple the width of Ala Moana Boulevard on the seaward side

Figure 32. 1935 photographs showing dredged material and topsoil stockpiled and spread on new fill land of Ala Moana Regional Park (Hawai‘i State Archives 1935b)

Figure 33. 1935 photographs of Banyan Tree Court: aerial showing construction (top) and completed walkways and water features (bottom) (Hawai‘i State Archives 1935c)

pretty much flush on the *makai* edge of dry land (for relatively detailed maps see Figure 19 and Figure 20). This depiction of Ala Moana Boulevard width expansion quite significantly seaward after 1935 is an element of proof that Ala Moana Regional Park is built entirely on fill.

Weyeneth (1987:17) explains that the sports pavilion and banyan court were officially completed in 1937, although much of the sports pavilion had been finished somewhat earlier, by 1935 (see Figure 33). The pavilion itself was designed to be a recreation center, offering rooms for crafts and games and, across the courtyard, locker facilities for men and women. The two notable wall-sized murals depicting the Hawaiian *makahiki* (sports festival) and which depict Hawaiian sports such as *ulu maika* (game stones) rolling, *hōlua* (sled) sliding, spear throwing, canoeing, surfing, hula dancing, and wrestling were completed by artist Robert Lee Eskridge (Figure 34).

Many of the structures and walls (see Figure 33 and Figure 34) incorporate the angular, scalloped, and curved lines of the Art Deco style. The enclosed Banyan Tree Court, with its reflecting pools and stone planters, was designed to represent a “Pacific” style based partly on a picture of a Balinese garden. The artist, Marguerite Blasingame, later added low-relief sculptures of Hawaiian figures to the courtyard walls.

The many rock walls in the park were made of boulder concrete construction, where concrete is poured into wood molds filled with broken-up coral and lava rocks. This type of construction, chosen during the Depression era for its low expense, necessitated the making of rather massive wall sections. In some sections of the park, the coral/rock is exposed and in other areas the walls have been smoothed by the addition of stucco (Figure 35).

In 1935, the park board planned to acquire land on the *mauka* side of Ala Moana Boulevard so that a continuous parkway and promenade would connect Ala Moana Regional Park and Kapi‘olani Park, as shown on the 1936 park plan map (Figure 36). The early development of the western end of this parkway is shown in a 1933 photo, with wooden struts against the Ala Wai Canal next to a worker’s tent and the old Ala Wai Inn building. The Ala Wai Inn, a Japanese tea house, was a favorite haunt of pre-World War II naval officers. It became notorious in the 1930s as the opening location for the Massie Affair. In 1931, a naval wife, Thalia Massie, walked away from a party at the Ala Wai Inn to John Ena Road in Waikīkī. She claimed that five Hawaiian local boys kidnapped her off the road and raped her, which later led to the retaliatory “honor killing” of one of the boys (Daws 1968:319–327). Most recent books have discounted the kidnaping and rape and supported the innocence of the five accused boys (e.g., Stannard 2006). Some accounts mistakenly claimed that Massie said she was taken by the boys to Ala Moana Park (Riccio 2003) and that the park was built to erase this association, but this claim has been easily discounted as the park was planned long before this incident. Eventually this parkway area along the Ala Wai Canal was developed, with the current Hawaiian Convention Center built generally on the site of the old Ala Wai Inn, shown in a 1933 photograph (see Figure 26).

A 1936 map of the Ala Moana Regional Park Development shows the landscaping and structural plans developed by Sims and approved by McCoy (see Figure 36). The 1936 Ala Moana Regional Park development plan (see Figure 36) differs from the present configuration of the park in a number of ways. Virtually the entire perimeter of the park was developed differently from what was earlier envisioned; from the configuration of Kewalo Basin to the configuration of streets in the Ala Moana area, to the configuration of the Ala Wai Yacht Harbor, to the configuration of dredged channels seaward. The southeast and northwest ends of Ala Moana Regional Park were subsequently developed as depicted but the central focal area of the park was not developed

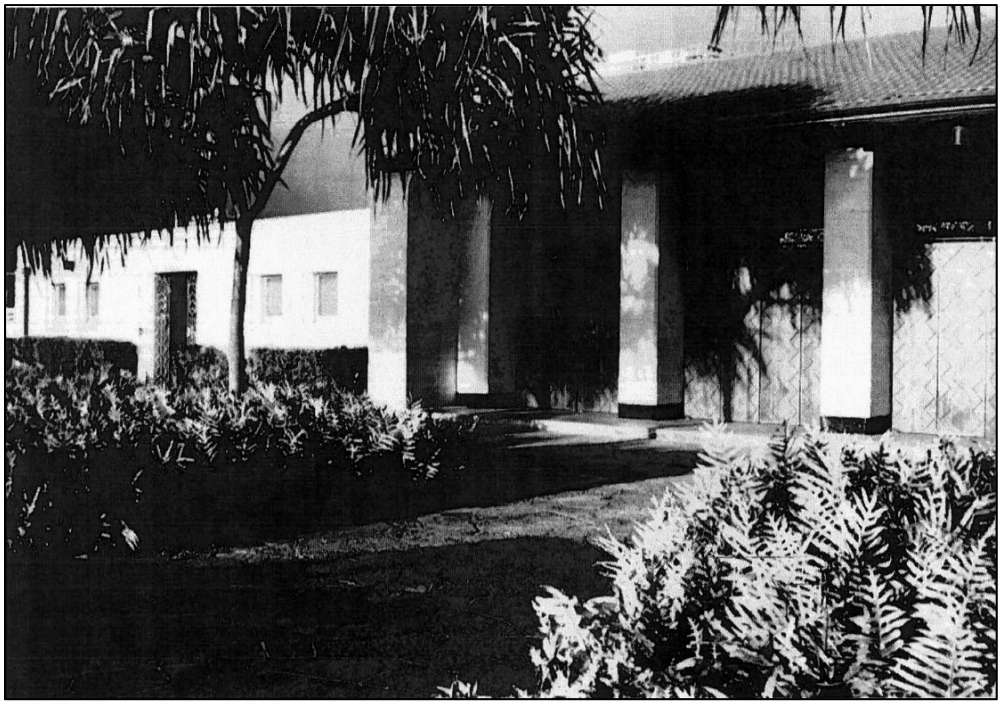

Figure 34. Ala Moana Regional Park Sports Pavilion completed ca. 1935-1937; exterior view (upper) (in Weyeneth 1987), with murals of Hawaiian games (lower) (Hawai‘i State Archives n.d.)

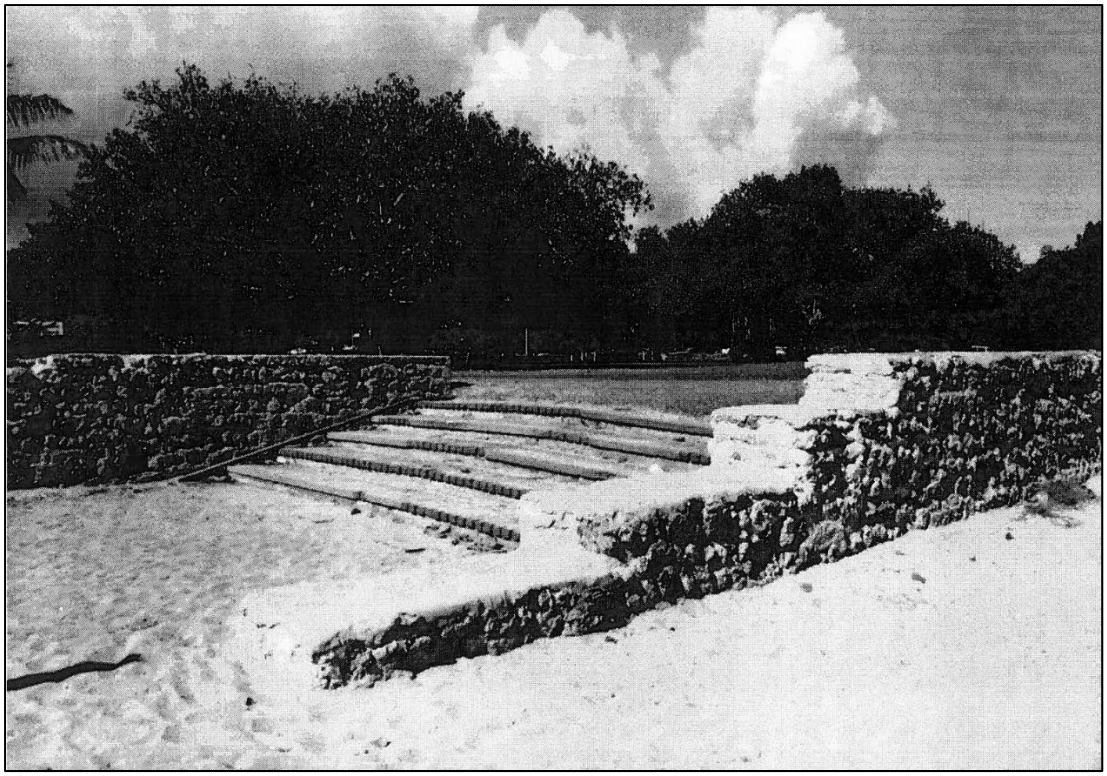

Figure 35. Boulder walls in the park, bare (upper) and stuccoed (lower) (photographs by Robert R. Weyeneth in Weyeneth 1987)

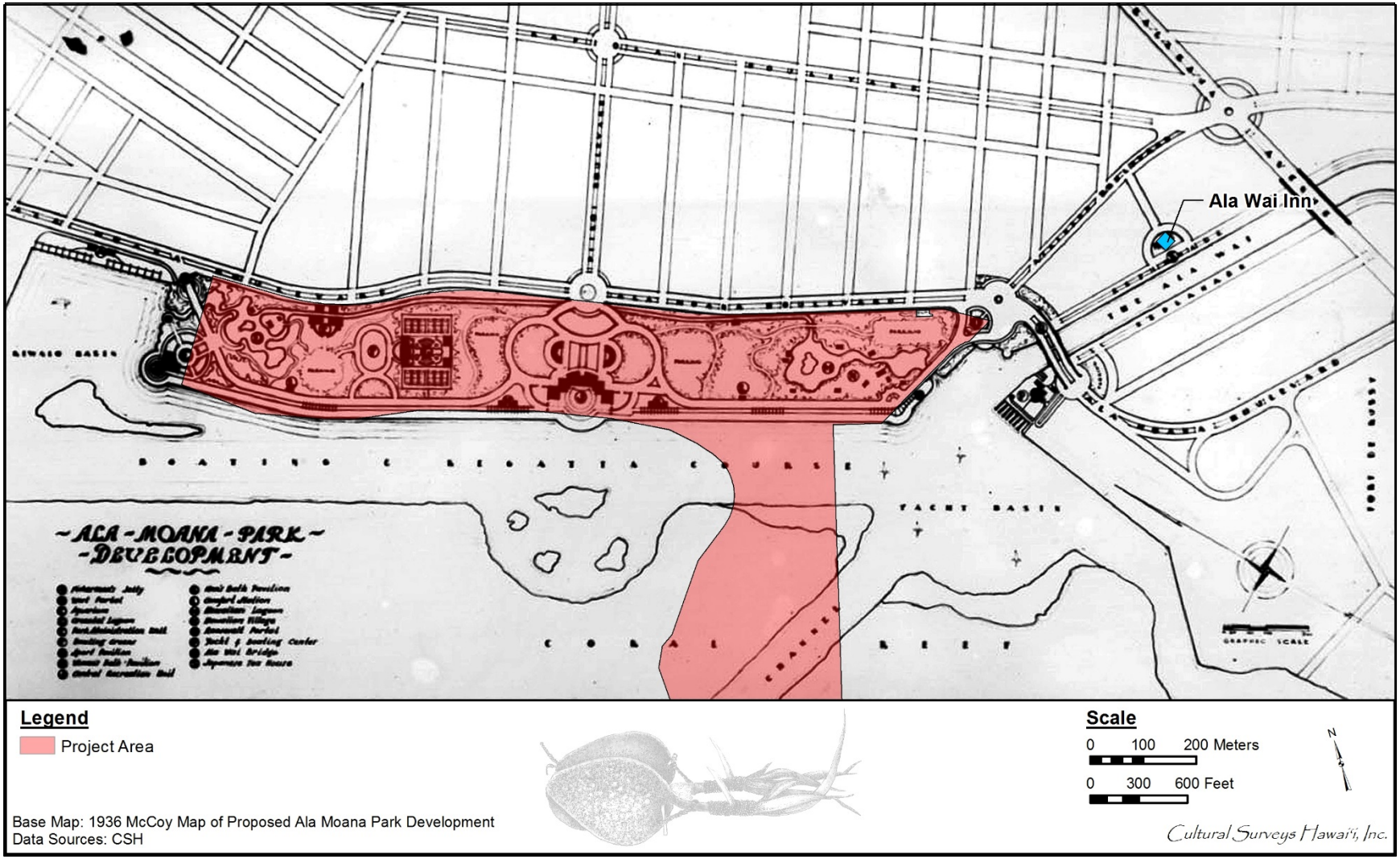

Figure 36. 1936 McCoy map of proposed Ala Moana Park Development showing the project area and landscaping and structural plans for Ala Moana Park; note location of the Ala Wai Inn (Japanese Tea House)

according to this plan. A 1943 Army War Department terrain map (Figure 37) similarly depicts Kewalo Basin, the streets in the Ala Moana area, and the Ala Wai Yacht Harbor differently from what would be developed. The central configuration of Ala Moana Regional Park is shown differently from the 1936 plan and also differently from what is present today.

In 1941, at the start of World War II, the park was taken over by the military and barbed wire was used to fence off the park from the public (Allen 1999:392). Temporary shacks for housing, bomb shelters, and a gun battery were built in the park. AMTB Battery Ala Moana had four 90 mm dual-purpose guns on a M1 mobile mount. These guns were used by the coast artillery as anti-aircraft and anti-motor-torpedo boat (AMTB) defenses (Williford and McGovern 2003:44). The general location of this battery is shown in Figure 38 and a typical AMTB battery (at Fort Monroe, Virginia) is shown in Figure 39 (Fort Wiki 2015). The battery was constructed in 1944 and destroyed in 1946 (Mason Architects, Inc. 2004: A-15).

In 1945, the army wished to keep half of the park for an Army Air Force rest and recuperation center, but the request was rejected by the city board. The temporary structures were taken down, the gun battery was destroyed, and wire fences were dismantled after the war, the damaged lawns and landscaping plants were resown, and the park was slowly restored.

In 1945, the Territorial Department of Public Works planned to build an airport off the reef of Waikīkī. The proposed location was on the reef off Ala Moana Regional Park. The reef would be dredged and filled for a 3,000-ft runway, hanger, and other structures. The airport would be used for small private airplanes while the new John Rodgers International Airport would take the larger private and commercial planes. The project was included in the Planning Board meetings, but was never taken up by the Legislature (State of Hawai‘i Department of Transportation, Airports Division 2015). A plan view of the proposed airport is shown in Figure 40 and Figure 41. These plans show for the first time an approximation of the configuration of Kewalo Basin and the Ala Wai Yacht Harbor. In these renditions a bridge was proposed at the west end of Ala Moana Regional Park across the channel that was dredged ca. 1931 (see Figure 22 and Figure 23). That portion of the dredged channel was apparently still present in 1953 (Figure 43 and Figure 44) but appears to have been filled by 1955 (Figure 46) and certainly by 1959 when the southwest corner of Ala Moana Regional Park looked much as it does today (Figure 47).

During the early decades of the park, a “Hawaiian Village” was constructed by the Diamond Head lagoon (Figure 42).Weyeneth (1987:27) relates that the “Hawaiian Village” of Ulu Mau was constructed in Ala Moana Regional Park in 1948, and park brochures in the 1950s advertised its “authentic grass huts” as must-see sights “for island visitors.” Ulu Mau would be renovated in 1960 but later moved to He‘eia Kea ca. 1963 for a while before it closed.

3.5 The Vicinity of Ala Moana Regional Park in the Late Twentieth Century

While the full integration of the Ala Moana Regional Park with the Ala Wai Promenade was never quite actualized, one aspect—the construction of “fishermen’s stands”—was common to recreation in both the Ala Wai and Ala Moana Regional Park areas. These fishing stands (Figure 45) were often constructed out in the shallows with a creative collection of wood scraps and were used primarily by fishermen attempting to catch mullet with bamboo poles.

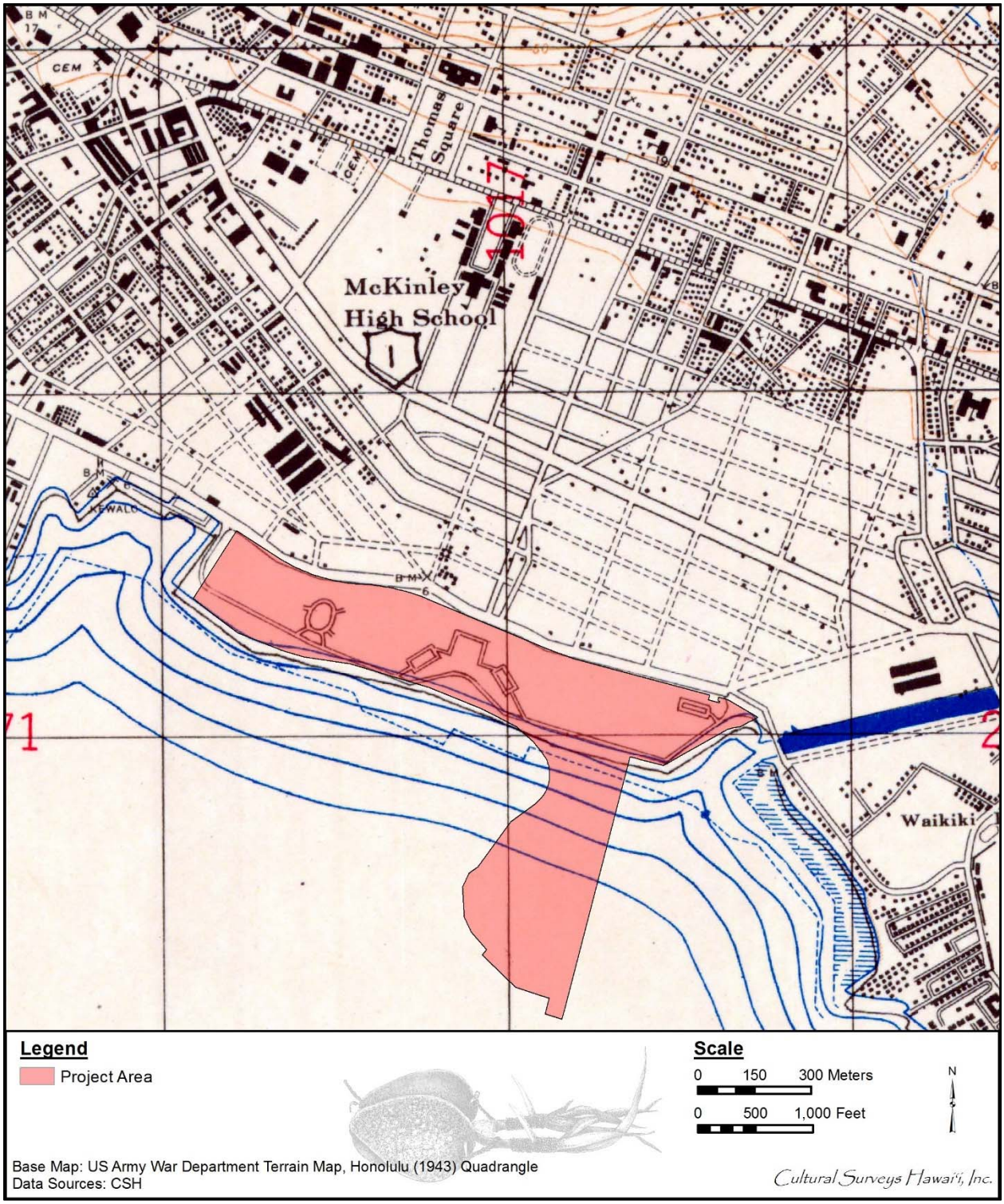

Figure 37. 1943 U.S. Army War Department terrain map of O‘ahu, Honolulu quadrangle, showing the project area; Ala Moana Regional Park has been constructed and landscaped

Figure 38. Former location of Battery AMTB (Anti-Motor-Torpedo Boat) at Ala Moana Regional Park, built in 1944 and destroyed in 1946 (Fort Wiki 2015)

Figure 39. Typical AMTB Battery with 90 mm gun (Fort Monroe, Virgina) (photograph from Fort Wiki 2015)

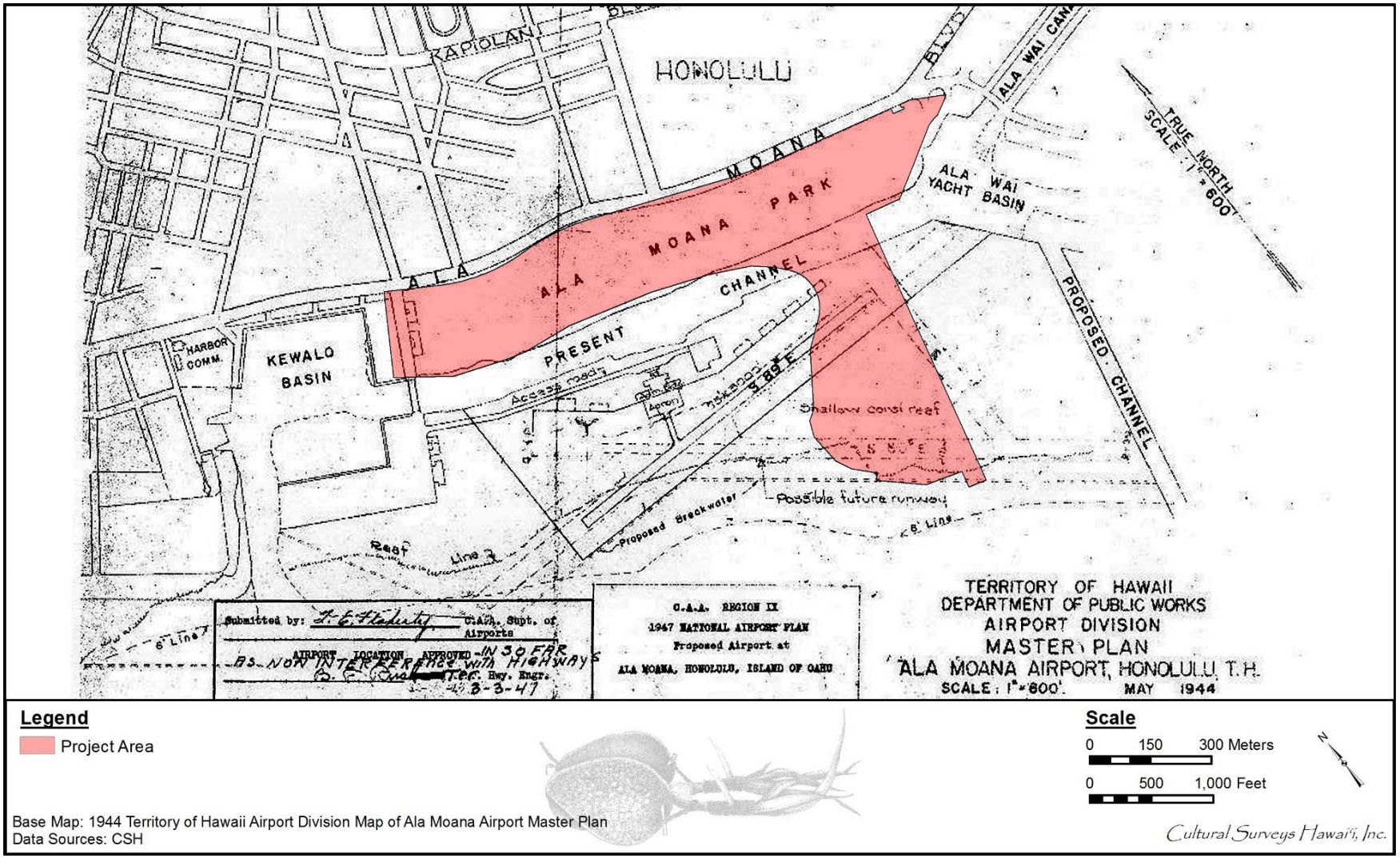

Figure 40. 1944 Territory of Hawaii Airport Division map of Ala Moana Airport Master Plan showing the project area

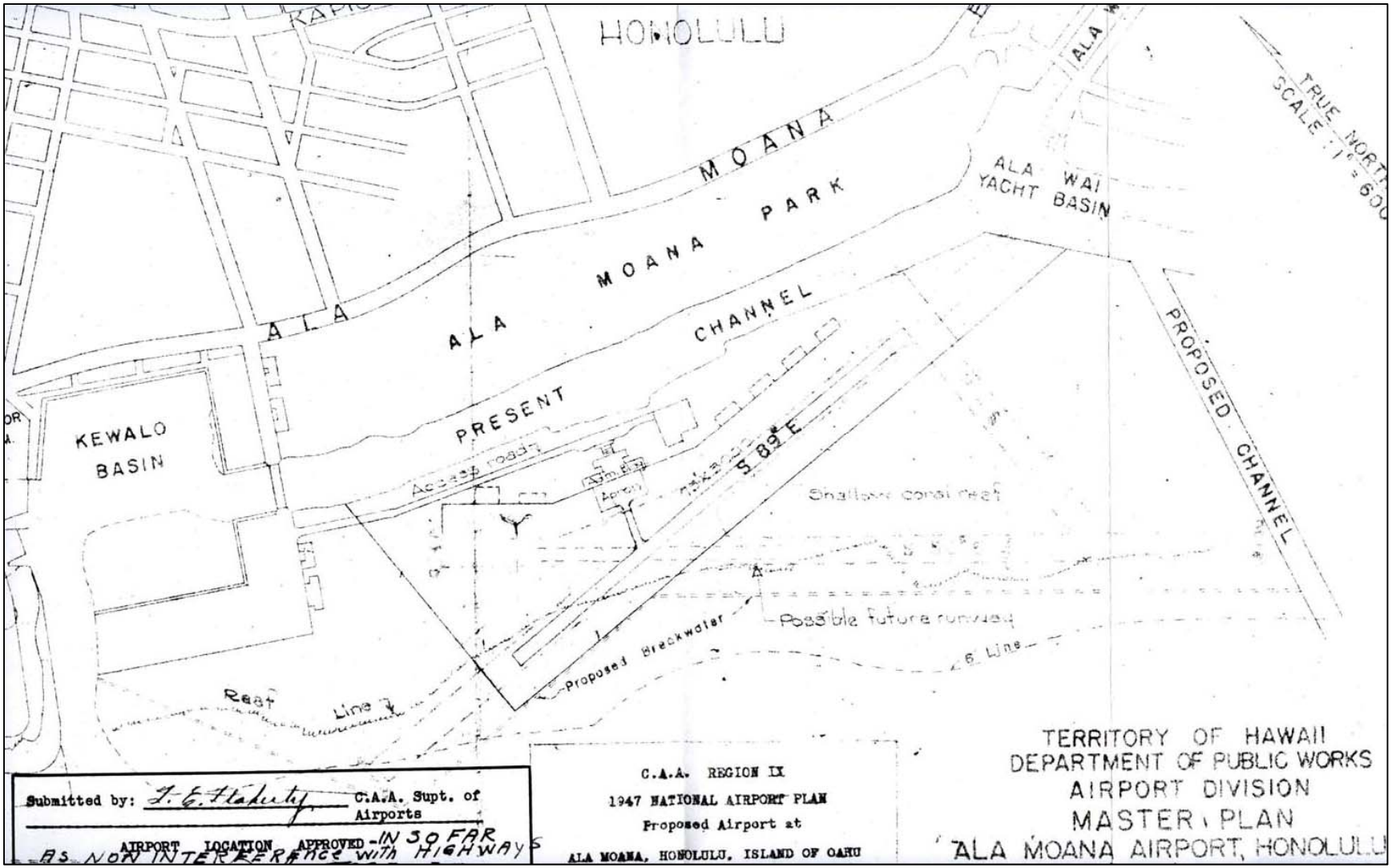

Figure 41. 1947 map of Territory of Hawaii’s plans for the Ala Moana Airport for private planes off Ala Moana Park (State of Hawaii Department of Transportation, Airports Division 2015)

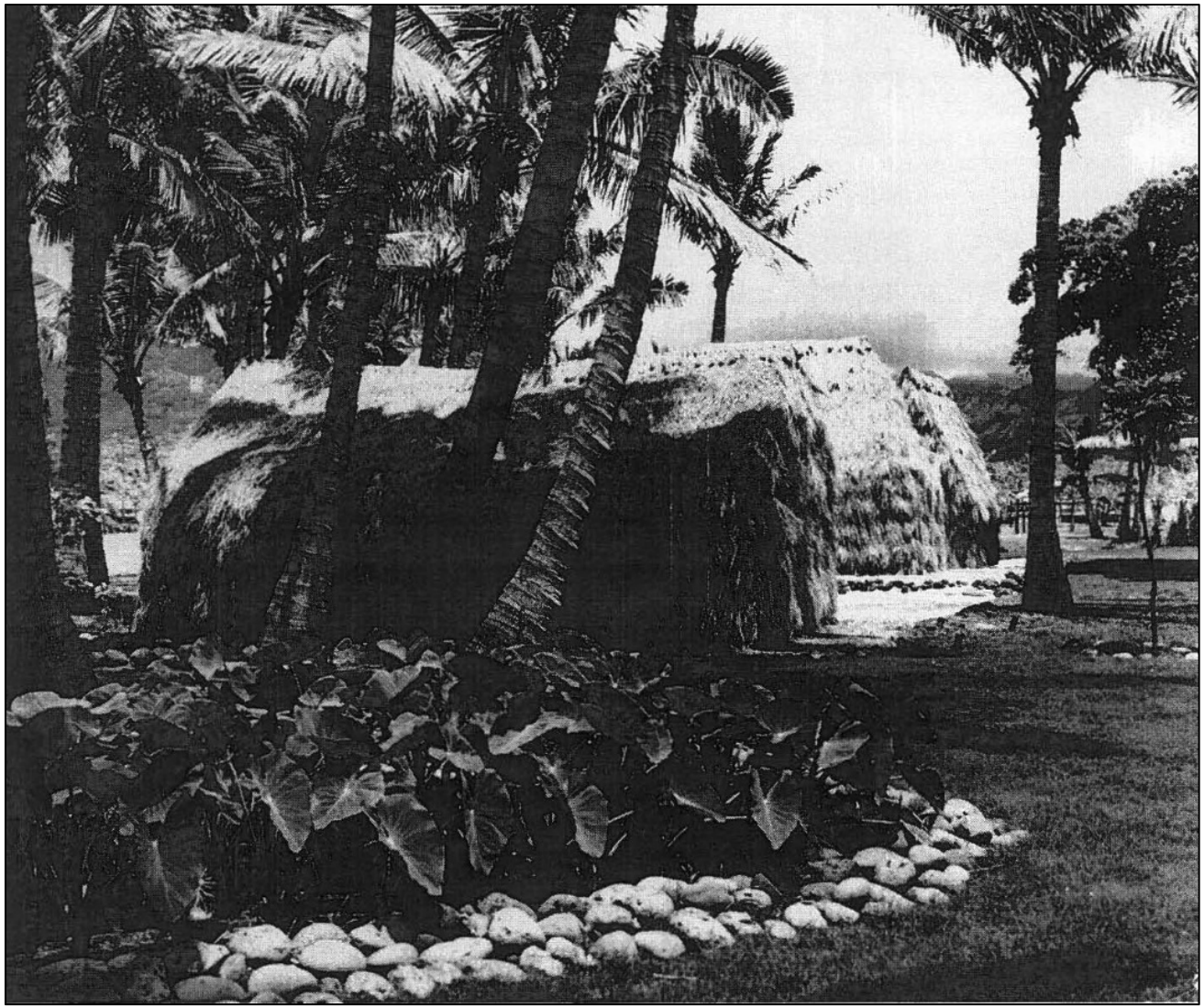

Figure 42. Hale Mau, Hawaiian Village at the East (Hawaiian) Lagoon (1950 photograph by Municipal Reference and Records Center, Honolulu in Weyeneth 1987)

Figure 43. 1952 aerial photograph of Ala Moana Regional Park (UH SOEST 2012b) with narrow beach area and boat channel still open from Kewalo Basin (left) to Ala Moana Yacht Harbor

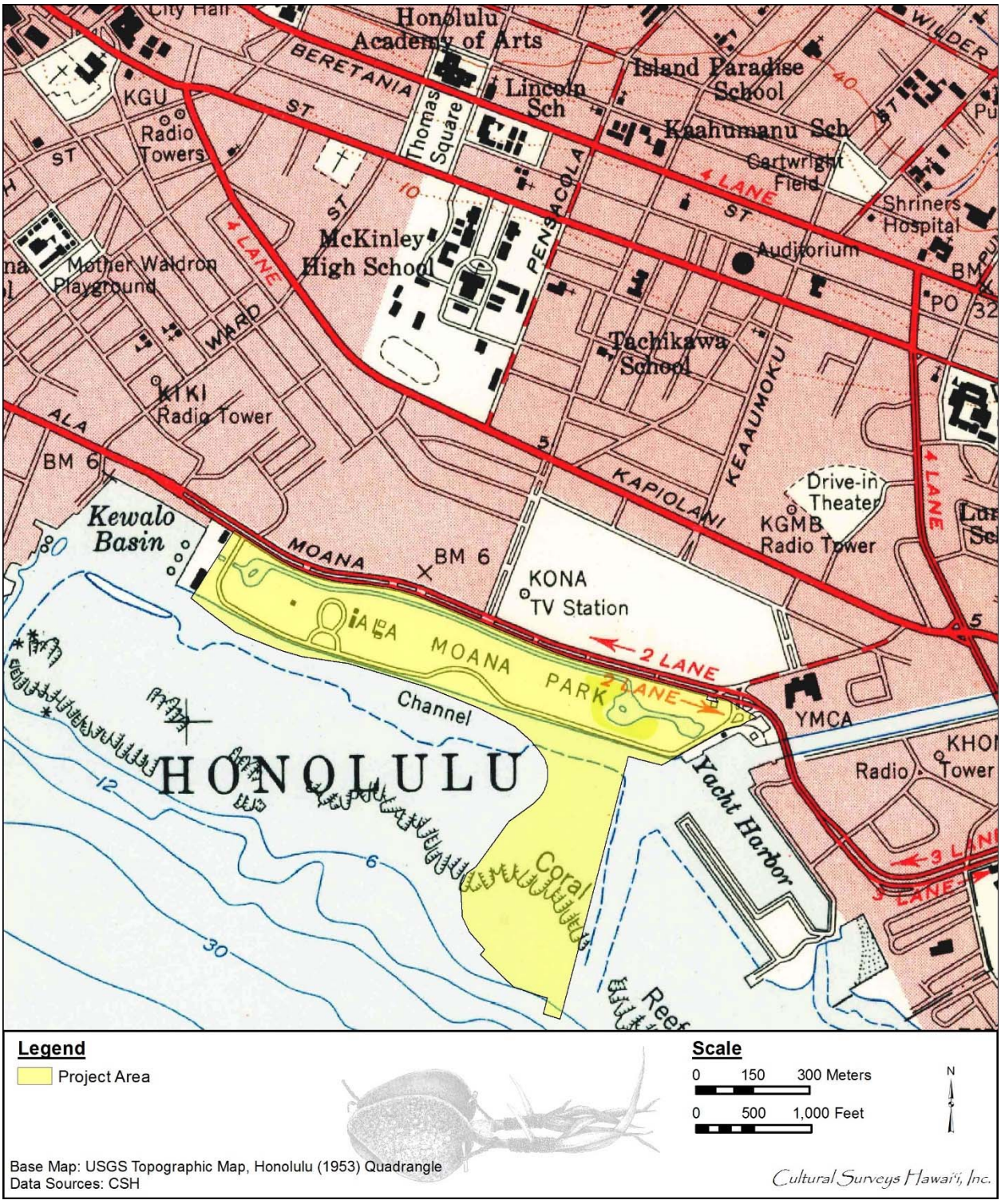

Figure 44. Portion of 1953 Honolulu USGS 7.5-minute topographic quadrangle, showing the project area; the boat channel still connects the Kewalo Basin to the Ala Wai Yacht Harbor

Figure 45. 1954 photograph of fishermen’s stands off seawall before construction of new and expanded beach area (photograph by Department of Parks and Recreation, City and County of Honolulu in Weyeneth 1987)

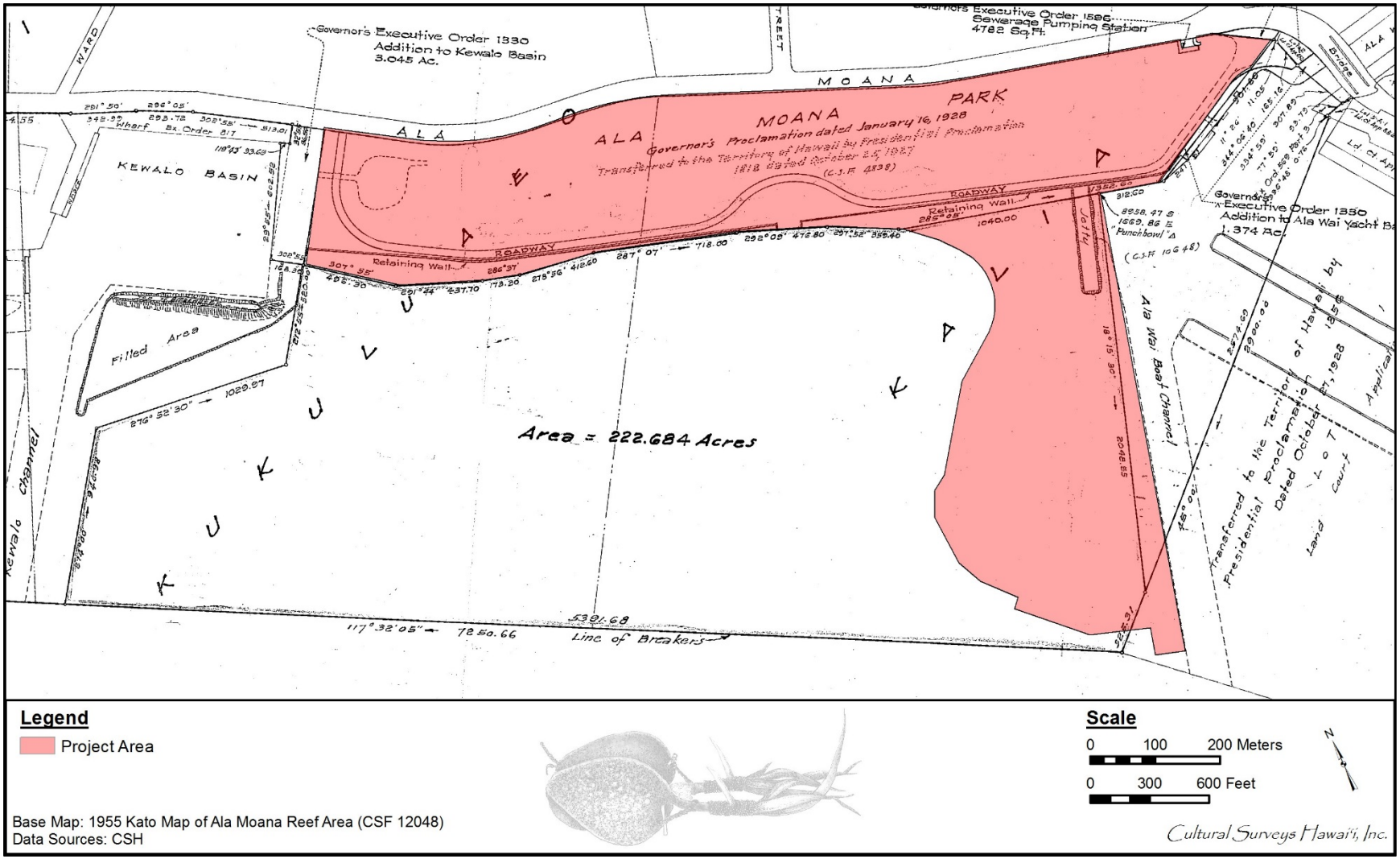

Figure 46. 1955 Kato map of Ala Moana reef area showing the project area

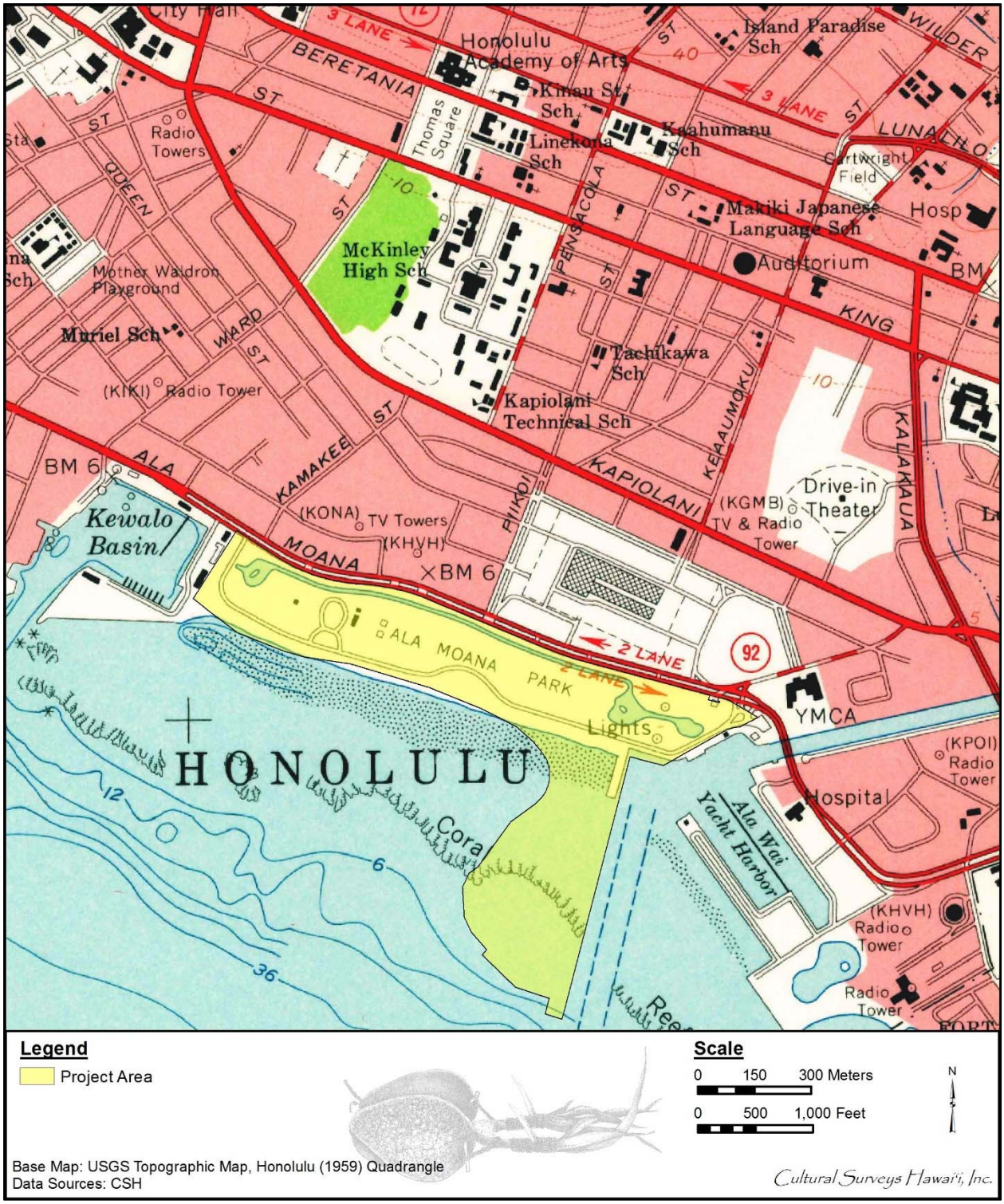

Figure 47. Portion of 1959 Honolulu USGS 7.5-minute topographic quadrangle, showing the project area; the boat channel has been dredged, access to Kewalo Basin has been blocked, and access to the Ala Wai Canal and Yacht Harbor have been partially blocked

The 1953 USGS map (see Figure 44) shows the planned area of the Ala Moana Center as a solid block. One new structure is a radio tower labeled “KONA.” The KONA-TV station (now KHON-TV, an affiliate of NBC) broadcast its first hour of television in 1952. The studio was located on Kō‘ula Street (west of the project area in Kaka‘ako); the transmitter was in the Ala Moana area and the executive offices were in downtown Honolulu. All of these facilities were moved to a new location on Auahi Street in Kaka‘ako in the mid-1950s (Stone 1983:243). The Ala Moana Yacht Basin has been created by dredging, and Ala Moana Boulevard is now a two-lane road. On a 1959 USGS map (see Figure 47), the boat channel connecting the Ala Wai Yacht Harbor to Kewalo Basin has been eliminated by expanding the beach area for Ala Moana Regional Park and by blocking the entrances to the harbor. The west end of Ala Wai Canal now is an open channel to the sea.

After the war several changes were made to the park. In 1947, the name of the park changed from Moana to Ala Moana Park. The Hawaiian Village, called Ulu Mau, consisting of a collection of grass huts near the Hawaiian Lagoon, was added in 1948 (see Figure 42), the Oriental Lagoon was remodeled in 1950, and a children’s center was added in 1954.

The most important change, however, was the construction of the beach and swimming area at the shoreline of the park. Before this time, swimming was discouraged as two sewers emptied into this area and the ocean was blocked off by a seawall with a narrow beach. Fishermen built wood fishing stands offshore (see Figure 45) and boats used the water channel on the *mauka* side of the park to move from the west end of the Ala Wai Canal where boats were moored to Kewalo Basin and the ocean. This boat channel became obsolete in 1951 when a channel was dredged directly from the Ala Wai Yacht Club across the reef to the ocean. The Territory built a jetty in 1952 that existed until 1959 (see Figure 46 through Figure 48) that kept the polluted waters of the Ala Wai Canal from entering the boating channel, and then filled a portion of the channel in 1954-1955 to create a platform for a beach. The open channel to Kewalo Basin shown in a 1952 aerial photograph (see Figure 43) had been filled in by 1955 (see Figure 46). To create a swimming area, the reef area was dredged 400 ft from the new shoreline. Sand was shipped in from Keawa‘ula Beach in Wai‘anae to create the beach (Clark 1977:62). This sand had to be replenished several times, first in 1976, when sand from a fossil beach ridge at Mokulē‘ia was trucked to Ala Moana. Dressing rooms and showers were added to each side of the McCoy Pavilion in 1959-1961. Two aerial photographs from 1952 and 1959 show the evolution of the beach and dredged areas during this period (compare Figure 43 and Figure 48).

The boom in tourism led to new schemes for resort development of the Ala Moana area. In 1955, there was a suggestion to move the park to a man-made off-shore island and develop the former park into an area of hotels, shops, and theaters. A 1961 plan called for the creation of two new peninsulas, one at the west Kewalo Harbor end and one at the Ala Wai Canal east end, with an island between the two peninsulas called “Magic Island” (Figure 49). In the end only one peninsula, a 36-acre acre filled reef section at the east end of the park, now called “Magic Island,” was created, built between 1962 and 1964 (Figure 50 and Figure 52 through Figure 56). Public demand in 1970 changed the peninsular use from resort development to public recreation.

Development of the Ala Moana Center land, *mauka* of the current project area, on the north side of Ala Moana Boulevard, was also moving forward in this same timeframe. The land was put up for sale as early as 1884 by the Bishop Estate, which had classified the 50-acre lot as

Figure 48. 1959 aerial photograph of Ala Moana Regional Park, with wide beach and swimming area; swimming area blocked from access to Kewalo Basin (left) by peninsula of fill land and from Ala Moana Yacht Harbor (right) by a jetty (UH SOEST 2012c)

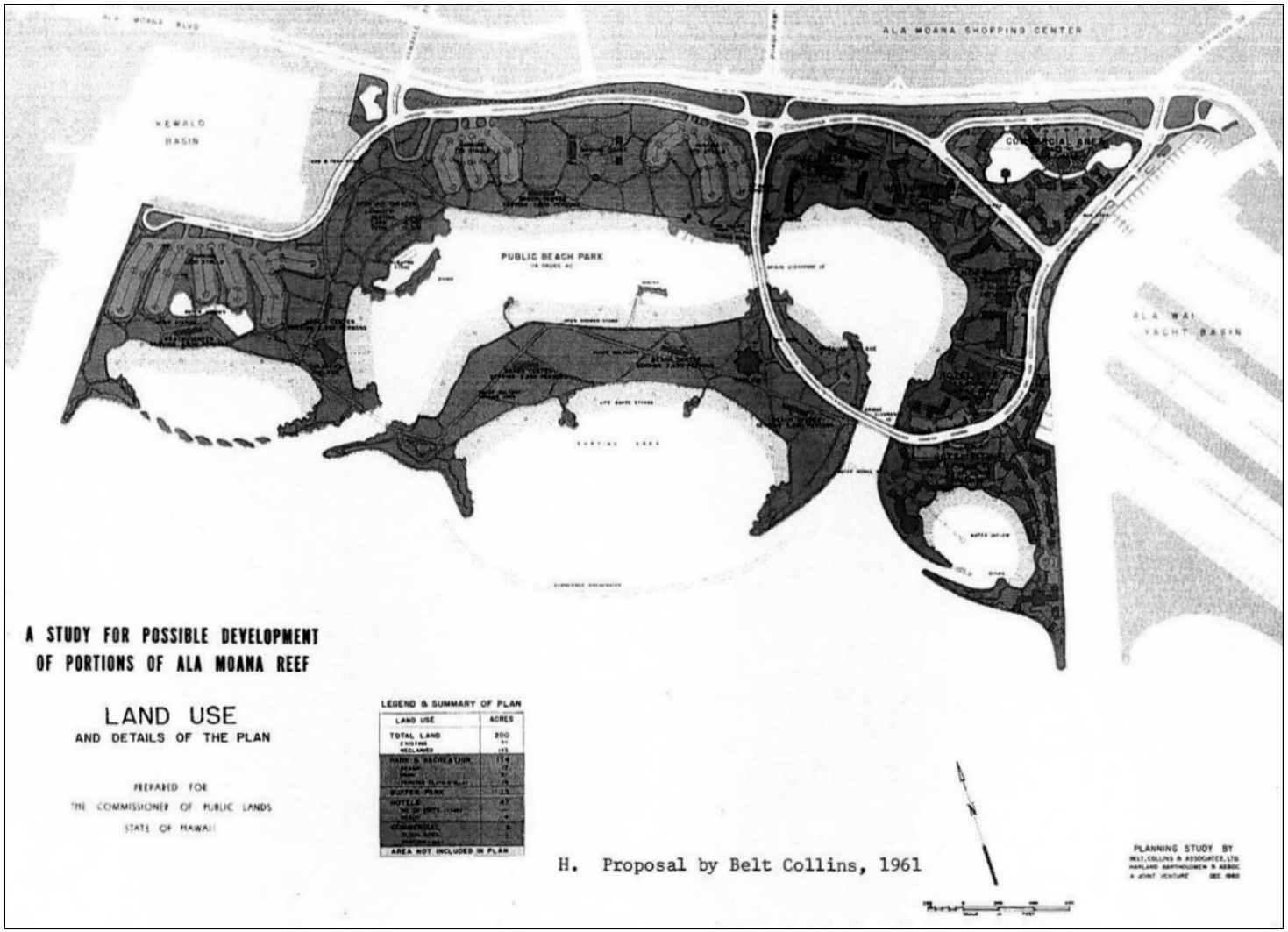

Figure 49. 1961 plans for construction of offshore island for the Ala Moana Regional Park and two peninsulas for resort development in *The Comprehensive Plan, Ala Moana Reef* (Belt Collins and Associates, Harland Bartholomew & Associates 1961) (map from Weyeneth 1987)

Figure 50. 1963 aerial photograph of the Ala Moana Regional Park with initial construction of the Magic Island peninsula (on right) (UH SOEST 2012d)

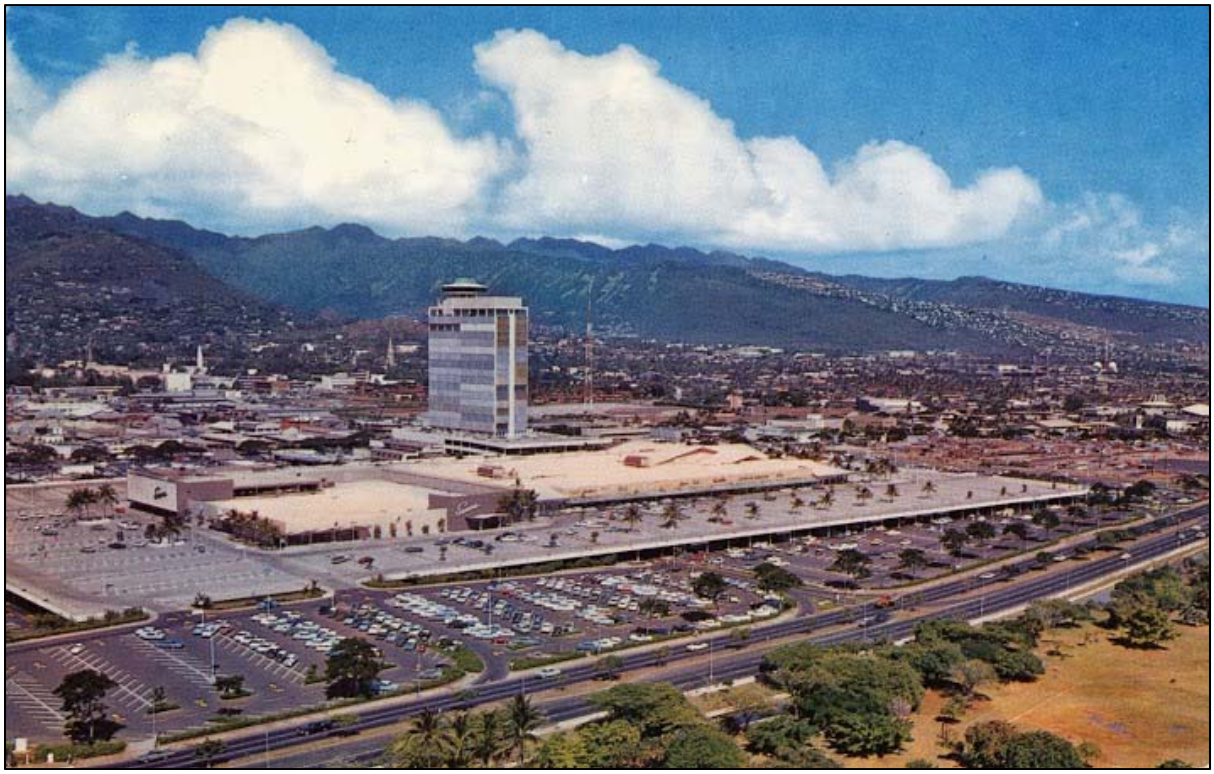

Figure 51. 1966 photograph of the Ala Moana Shopping Center; note Ala Moana Regional Park across from Ala Moana Boulevard on *makai* (lower) side (postcard, unknown photographer)

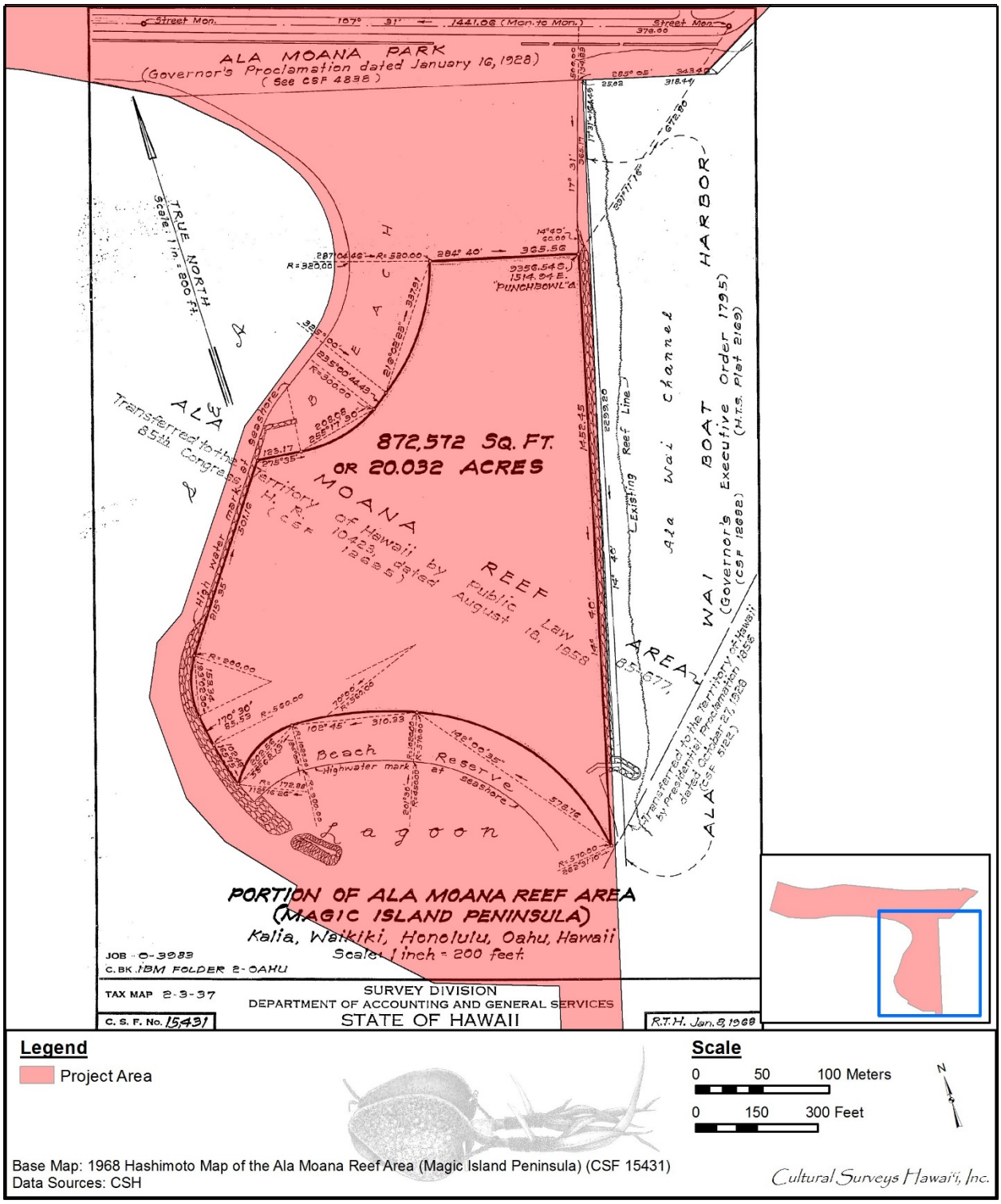

Figure 52. 1968 Hashimoto map of the Ala Moana reef area (Magic Island Peninsula) showing the Magic Island portion of the project area

Figure 53. 1968 aerial photograph of the Ala Moana Regional Park with completed construction of the Magic Island peninsula (on right) (UH SOEST 2012e)

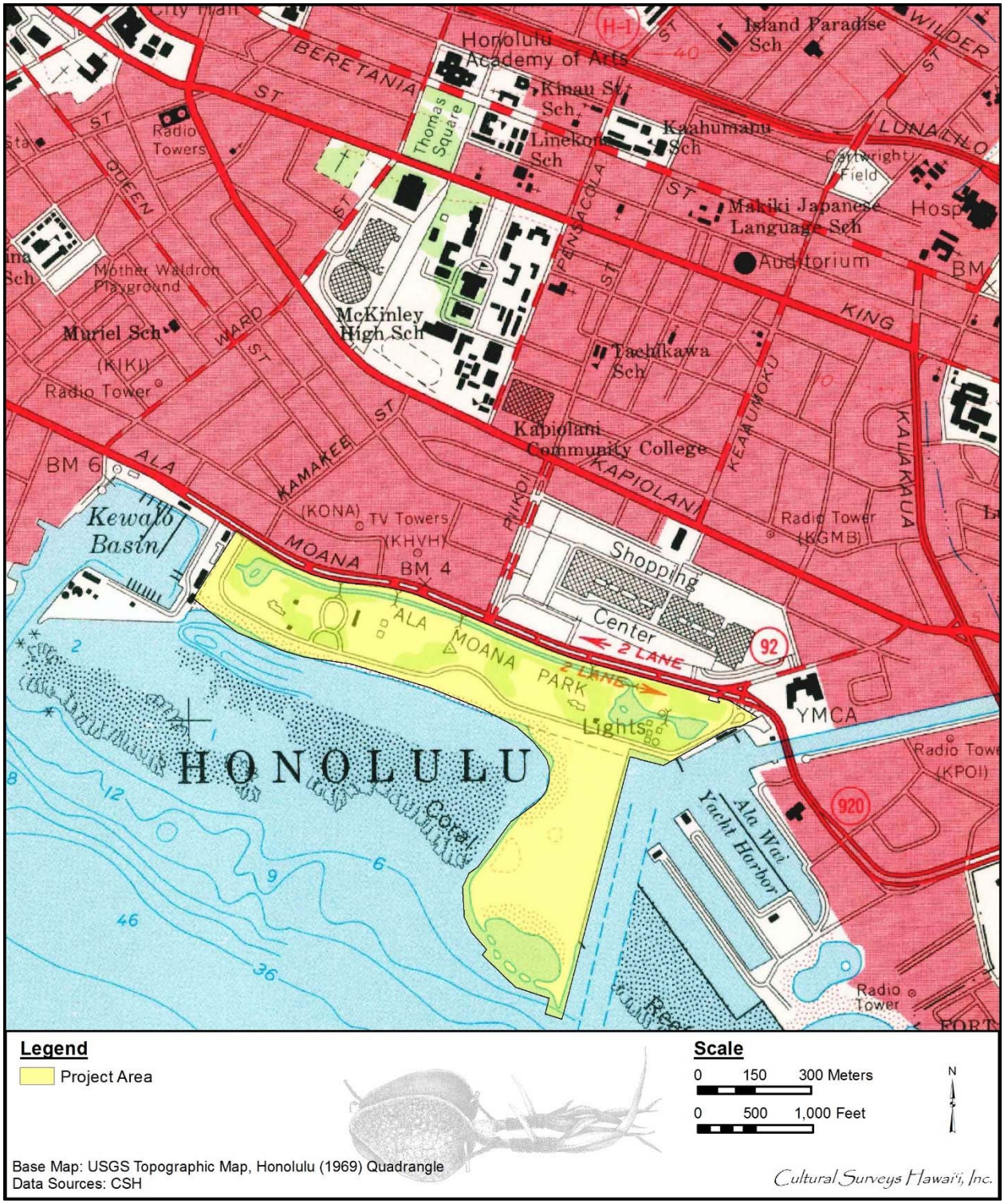

Figure 54. Portion of 1969 Honolulu USGS 7.5-minute topographic quadrangle, showing the project area; the construction of the Magic Island peninsula now completely blocks the Ala Moana Beach area from the Ala Wai Canal and boat harbor

Figure 55. 1970 Kakaako/Waikiki Coast Aerial Photograph (UH SOEST) showing the project area

Figure 56. Magic Island, ca. 2008 (public domain photograph from Wikipedia.com

unproductive land. They finally found a buyer in 1912, Walter F. Dillingham, head of the Hawaiian Dredging Company. Dillingham purchased the land for $25,000 in order to fill it with the coral left over from his many dredging projects.

The company’s first project was the dredging of the main channels for Honolulu Harbor and Pearl Harbor. In the 1920s, the company won the bid for construction of the Ala Wai Canal as the company had the only type of large dredge necessary for the project. Besides dredging the streams in Waikīkī to form the canal, the company also dredged offshore to obtain crushed coral to fill the ponds and wetlands around the new canal. As a bonus, Dillingham could sell dredged material to private landowners who, as part of the Waikiki Reclamation project, had to fill in their low-lying areas.

In their bid for the contract, Hawaiian Dredging stated that they proposed to “furnish and pay for all of the labor, material, tools and equipment required for the dredging of a Canal, transporting and depositing the dredged or other filling materials upon certain lands, and constructing bridges, dykes, drainage ditches, etc.” The company removed 140,000 cubic yards of dredged material and placed the majority of the crushed coral on the contractor’s property in District No. 1, an area bounded by Sheridan Street, Kapahulu Road, King Street, Wai‘alae Road, and the ocean (Hawaii Department of Public Works 1920).

By 1931, Hawaiian Dredging had already begun to fill in their Kālia lands with coral fill. By 1947, the Ala Moana Center area was filled with crushed coral and the western portion of the lot was used for equipment and lumber storage, as in many portions of coastal Kaka‘ako.

Walter’s son Lowell Dillingham initiated the Ala Moana Shopping Center project in 1948. Phase I of the shopping center construction project began in 1957. A 1959 map (see Figure 47) and 1959 aerial photograph (see Figure 48) show the shopping center nearing initial completion.

Sears, at the ‘Ewa side, and Shirokiya’s, on the Diamond Head side, were two of the original tenants of the mall, which had its grand opening on 13 August 1959 (Dashefsky 2009). In 1957, the mall had 87 stores and 4,000 parking spaces within a two-story complex. In 1966, Phase II construction was completed with the addition of 1.35 million sq ft, making it the largest shopping mall in the United States, with 155 stores and 7,800 parking spaces (Figure 51). New wings and levels were added in 1966, 1987, 1999, and 2008; today there are over 290 shops and restaurants on four levels (Gomes 2012; White and Kraus 2007).

The banyan court at Ala Moana Regional Park was altered in the 1970s, when Hazel McCoy donated a large sum to the park to build a new pavilion named for her husband, Lester McCoy. To construct the McCoy Pavilion, which contained assembly rooms and offices, a few of the original locker room structures and wall sections had to be demolished to provide room on the east side of the courtyard. The pavilion was completed in 1975 (Figure 57).

In the end, the park included large open areas, water and fountain features, a sports pavilion with an enclosed banyan garden, a lawn bowling green, an Art Deco style bridge crossing the Ala Wai Canal, a boat harbor, tennis courts, dressing rooms and showers, and extensive landscaping. In 1998, Ala Moana Regional Park was listed on the HRHP as one of Honolulu’s Art Deco Parks Thematic Group (see Appendix A).

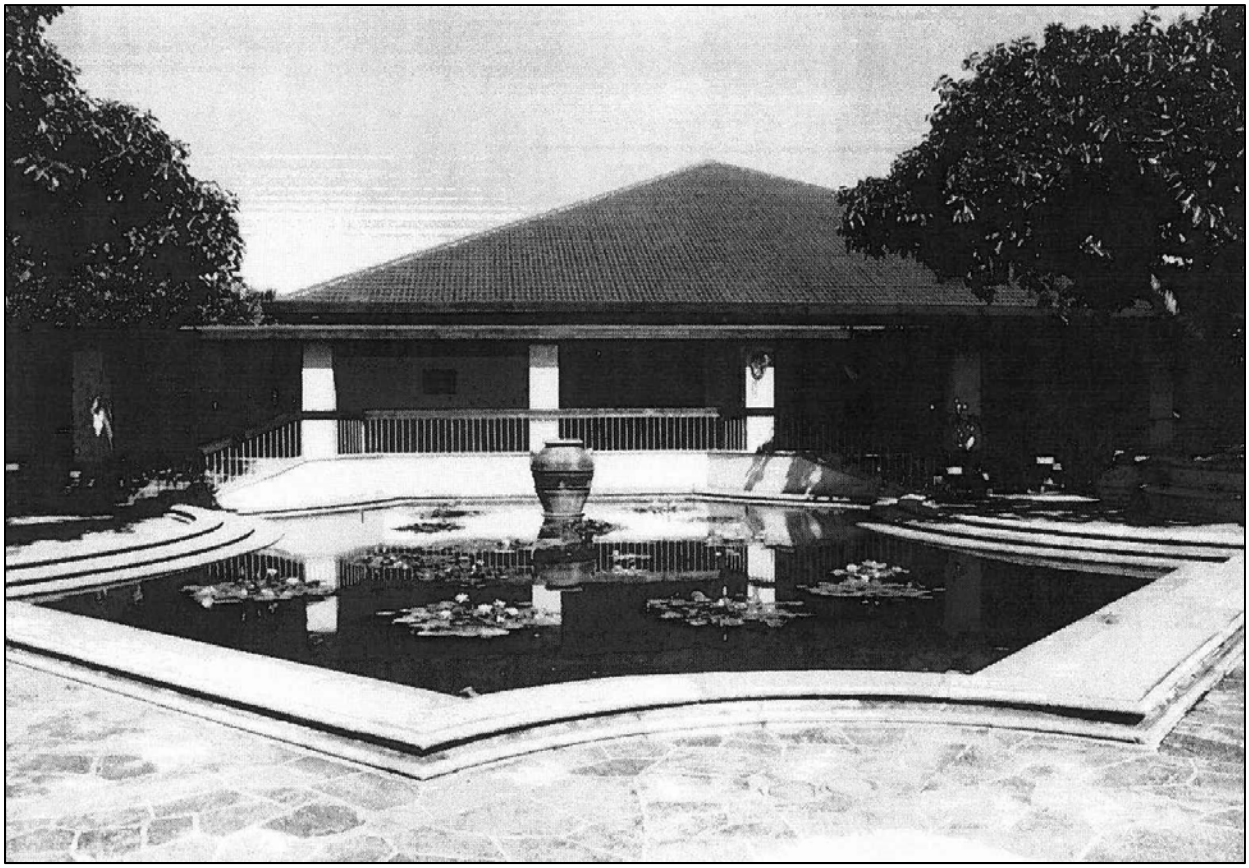

Figure 57. McCoy Pavilion, 1975 (in Weyeneth 1987)

Section 4 Previous Archaeological Research

4.1 Previous Archaeological Research in Ala Moana Regional Park

In 2003, archaeologists from Pacific Legacy (Ah Sam and Cleghorn 2003) conducted an archaeological assessment of a portion of Ala Moana Regional Park proposed for a canoe *hālau* (canoe shed). Their study emphasized the artificial nature of the park, which was created in the 1920s and 1930s by dredging the ocean in front of the former shoreline (around the Ala Moana Boulevard alignment), and filling the land *makai* of the boulevard to create a park, now 76 acres in size. A review of historic documents and maps and a visual inspection led them to conclude there was no evidence suggesting the possibility of cultural or historic features in the park (Ah Sam and Cleghorn 2003:2). Thus this section of previous archaeological work will focus on areas surrounding the park on areas once *mauka* of the reef on dry land. Previous archaeological study areas near Ala Moana Regional Park are shown on Figure 58, the locations of previously identified archaeological sites are shown on Figure 59; the archaeological studies and their results, including site numbers, are summarized in Table 1 and previously identified historic properties in the vicinity are summarized in Table 2. A more detailed discussion of each archaeological study follows.

4.2 Previous Archaeological Research in Coastal Kaka‘ako and Kālia

4.2.1 Smith 1989

In 1989, construction workers discovered four bone fragments in a property located on the southeast corner of Kapi‘olani Boulevard and Pi‘ikoi Street (TMK: [1] 2-3-039:019). The find was reported to Marc Smith (1989), State Parks archaeologist. Smith examined the bones and determined only one was human (SIHP # 50-80-14-4243); the remaining fragments were pig bones. The human bone was a right tibia shaft fragment. A 3 August 1989 memorandum to the “Historic Sites File” stated that “On 2 August 1989, Alan Yoshimoto, project supervisor for Nordic Construction . . . called our office to report ‘some bones’ found at a construction site at 1341 Kapiolani Boulevard.” A memorandum addressed to Dr. Ross Cordy (SHPD) dated 10 April 1991, mentioned a formal report for SHPD files with skeletal remains data collection forms appended. The bone was temporarily taken to the Honolulu SHPD office and the site was designated SIHP # -4243.

4.2.2 Athens et al. 1994

During the 1994 excavation of a trench for an underground telephone line near the northeast corner of Pi‘ikoi Street and Kapi‘olani Boulevard, the remains of a single individual were inadvertently discovered and later disinterred (SIHP # -4847) (Athens et al. 1994). Osteological analysis revealed the skeletal remains were of a 12 to 15-year-old female. Radiocarbon analysis of a sample of bone collagen yielded a death date between AD 1295 and AD 1473, supporting the osteological determination of Hawaiian/Polynesian ancestry. The remains were found within a brackish water marsh environment (based on malacological findings) at a shallow depth of 50-80 cm below surface. A lack of burial goods and the presence of the remains within an unusual wetlands context strongly suggested the location of the remains did not reflect an intentional burial. Osteological analysis revealed a severe bone infection of the right pubis as the probable cause of

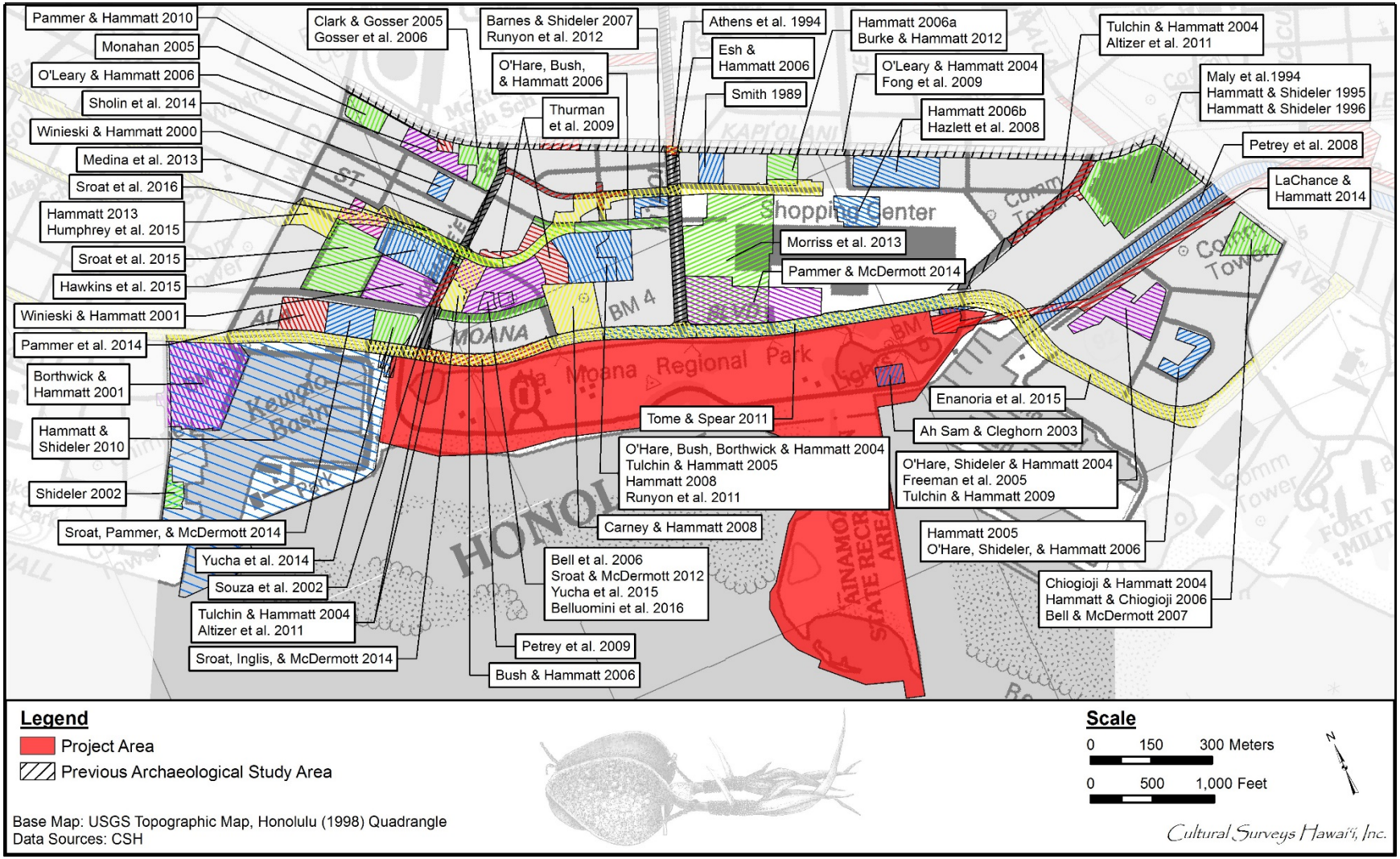

Figure 58. Previous archaeological studies in the vicinity of the current project area

Table 1. Summary of previous archaeological studies and their results

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Smith 1989	State Parks response to inadvertent discovery of human remains	1341 Kapi‘olani Ave	SIHP # -4243 (isolated long bone) found in a disturbed context
Athens et al. 1994	Investigation of inadvertently discovered human remains	Pi‘ikoi St and Kapi‘olani Blvd intersection	Identified SIHP # -4847, an inadvertently discovered scattered human burial dating to ca. 1450s
Maly et al. 1994	Archaeological and historical assessment	Convention Center, TMK [1] 2-3-035, 036	Historic research indicated project adjacent to Kūwili Pond
Hammatt and Shideler 1995, 1996	Subsurface inventory and data recovery	Convention Center, TMK [1] 2-3-035:001	Ten backhoe trenches and seven cores excavated; additional testing near former location of Kūwili Pond, but sediments believed to have been from pond found to be imported fill
Winieski and Hammatt 2000	Archaeological monitoring	Kaka‘ako Improvement District 4, Kamake‘e St	SIHP # -5598 (two adjacent coffin burials); old A horizon noted in some trenches
Borthwick and Hammatt 2001	Archaeological monitoring	Kaka‘ako Improvement District 6	Documented various fill layers over natural tidal flats, consistent with project area location within historic fill land seaward of previous coastline
Winieski and Hammatt 2001	Archaeological monitoring	Victoria Ward Theater, TMK: [1] 2-3-002:001	No pre-Contact materials, historic cultural materials, or human burials encountered
Shideler 2002	Historic American Buildings Survey	Incinerator Number One	Documentation of Incinerator Number One
Souza et al. 2002	Archaeological monitoring	Kaka‘ako Improvement District 7, Kamake‘e St	Three disturbed, pre-Contact burials recorded (SIHP #s -6376, -6377, -6378; location of -6378 unknown); old A horizon in seven of ten profiles

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Ah Sam and Cleghorn 2003	Archaeological assessment	Proposed Canoe Hālau, Ala Moana Regional Park, TMK: [1] 2-3-037	No archaeological or historic features identified
Chiojioji and Hammatt 2004	Archaeological literature review and field check	89,000 square foot parcel, TMKs: [1] 2-6-013:001, 003, 004, 007, 008, 009, 011, and 012	From archival research and field check, concluded there had been little subsurface disturbance within this area
O’Hare, Bush, Borthwick, and Hammatt 2004	Archaeological inventory survey	Ko‘olani Condominium, TMKs: [1] 2-3-004:073, 2-3-005:027; 2-3-006:014; 2-3-007:002	Original wetland surface of Kewalo (SIHP # -6636), three historic trash pits (SIHP # -6639), and a historic fill layer (SIHP # -6641) reported
O’Hare, Shideler, and Hammatt 2004	Archaeological assessment	Kapiolani Akahi project, TMKs: [1] 2-6-011:001, 002, 004, 032, 037, 040	Archival research indicated project area might contain evidence of wetlands, a fishpond, and historic fill layers with artifacts
Tulchin and Hammatt 2004	Literature review and field inspection	Kapi‘olani area, bounded by Ala Moana Regional Park, Ward Ave, Kalākaua Ave, and King St, TMKs:[1] 2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, and 038	No archaeological or historic features identified
O’Leary and Hammatt 2004	Archaeological monitoring	Kapi‘olani Blvd from Kalākaua Ave to Kamake‘e St, TMK: [1] 2-3-003	No cultural material observed
Clark and Gosser 2005	Subsurface archaeological inventory survey	TMKs: [1] 2-3-003:075, 085, and 086	SIHP # -6636 designates a subsurface remnant of a small pond present in northern portions of project area

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Freeman et al. 2005	Archaeological inventory survey and cultural impact evaluation	4-acres bounded by Ala Wai and Ala Moana Blvds, Hobron Lane, Lipe‘epe‘e St, TMKs: [1] 2-6-011:001, 002, 004, 032, 037, and 040	Identified four sites: disturbed and incomplete human remains (SIHP # -6700), an in situ coffin burial with grave goods (SIHP # -6701), a culturally enriched A horizon (SIHP # -6702), and remnants of a fishpond (SIHP # -6703; location outside area shown on figures)
Hammatt 2005	Literature review and field inspection	Kaio‘o Dr Development, TMKs. [1] 2-6-012:various	Recommended archaeological survey for project area as historic maps indicated area was once a wetland with fishponds
Monahan 2005	Archaeological Assessment	Three parcels on corner of Waimanu St. and Ward Ave, TMKs: [1] 2-3-003:073, 096	Nine backhoe trenches excavated on one parcel; no cultural deposits observed
Tulchin and Hammatt 2005	Addendum to an archaeological inventory survey	Ko‘olani Condominium, TMKs: [1] 2-3-004:073, 2-3-005:027, 2-3-006:014, 2-3-007:002	Eight backhoe test trenches excavated; SIHP # -6636, original wetland surface of Kewalo area; SIHP # -6641, historic garbage layer
Bell et al. 2006	Archaeological inventory survey	Victoria Ward Village Shops, TMKs: [1] 2-3-5:013–017, 022, 023	Eleven burials (SIHP #s -6854 and -6855) found during AIS and additional 50+ burials found during monitoring; historic privy/activity area (SIHP #s -6854 and -6855) and fishpond sediments (Kolowalu Pond, SIHP # -6856) recorded
Bush and Hammatt 2006	Archaeological monitoring	Hokua Tower, Ala Moana Blvd, TMKs: [1] 2-03-004:073; 2-03-005:027; 2-03-006:014; 2-03-007:002	No burials or cultural deposits observed; old A horizon found at eastern end of Auahi St

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Esh and Hammatt 2006	Archaeological monitoring	Pi‘ikoi St from Ala Moana Blvd to Matlock St, TMKs: [1] 2-3-006, 007, 010, 011, 012, 014, 015, 035, 038; 2-4-003, 004, 011, 012	No cultural material observed
Gosser et al. 2006	Archaeological monitoring	Kapi‘olani Blvd and Kamake‘e St corner, TMKs: [1] 2-3-003:075, 085, 086	No cultural material observed
Hammatt 2006a	Archaeological literature review and field inspection	1391 Kapi‘olani Blvd, TMK: [1] 2-3-039:011	No surface historic properties identified
Hammatt 2006b	Archaeological inventory survey	6-acres bounded by Kapi‘olani Blvd, Keaumoku St, Ala Moana Blvd, and Pi‘ikoi St, TMKs: [1] 2-3-038:001, 2-3-040:005, 007, 009, 011, 014, 016, 018	Thirty test trenches excavated; SIHP # -6847, a small, subsurface feature (wooden box with chopsticks, brushes, a bead, animal bones) dating to late nineteenth/early twentieth century
Hammatt and Chiogioji 2006	Literature review and field inspection	Waikīkī Allure Condo Development	Potential for subsurface archaeological resources in project area, including pre- and post-Contact habitation and burial deposits
O’Hare, Bush and Hammatt 2006	Archaeological monitoring	Kaka‘ako Improvement District 10, TMKs: [1] 2-3-004–007	Cluster of 28 historic burials (SIHP # -6658), two isolated disturbed burials (SIHP # -6659), and a historic trash dump (SIHP # -6660); weak A horizon; some fishpond sediments observed
O’Hare, Shideler, and Hammatt 2006	Archaeological inventory survey	Kaio‘o Dr Development, TMKs. [1] 2-6-012:varioius	Twenty backhoe trenches excavated on lots; SIHP # -6848, a pre-Contact fire pit, recorded and radiocarbon dated to AD 1470-1660

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
O’Leary and Hammatt 2006	Archaeological inventory survey	Moana Vista, Kapi‘olani Blvd, TMKs: [1] 2-3-003:072, 088, 102	Twenty-four test trenches excavated; extensive prior subsurface disturbance noted; no historic properties observed; small area of sand layers noted
Barnes and Shideler 2007	Literature review and field inspection	1235 Kona St/1226 Waimanu St, TMKs: [1] 2-3-007:026 and 049	No surface historic properties identified
Bell and McDermott 2007	Archaeological inventory survey	Block bounded by Ala Wai Blvd, Kalākaua Ave, Ena Rd, Hobron Lane, and Līpe‘epe‘e St	Documented three historic properties: SIHP #s -6873 and -6875, consisting of isolated traditional Hawaiian burials; and SIHP # -6874, subsurface cultural layer of pre-Contact and post-Contact origin
Carney and Hammatt 2008	Archaeological monitoring	Hokua Tower project, Ala Moana Blvd, TMKs: [1] 2-3-005:001, 002, 003 (por.), 024, 026, 027	Isolated human mandible fragment and a historic trash pit (SIHP # -6765) observed
Hammatt 2008	Archaeological monitoring	Ko‘olani Condominium, Waimanu St, TMKs: [1] 2-3-004:073, 2-3-005:027, 2-3-006:014, 2-3-007:002	Two isolated burials (SIHP #s -6910 and -6912) and a cluster of 16 coffin burials (SIHP # -6911) found
Hazlett et al. 2008	Archaeological monitoring	Ala Moana Center expansion project, TMKs: [1] 2-3-38:001, 2-3-040:005, 007, 009, 011, 014, 016, 018	No cultural material observed; monitoring results within current project area (Kona St Block) indicate fill sediments to below water table; document research indicated Ala Moana Center Phase II project completed in 1960s completely removed prior natural sediments to below water table and replaced them with fill
Petrey et al. 2008	Archaeological monitoring	Ala Wai to Magic Island, TMKs: [1] 2-3-034, 036, 037; 2-6-017, 018; 2-7-036	No cultural material observed

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Fong et al. 2009	Archaeological monitoring	Kapi‘olani Blvd from Kalākaua to Ward Ave, Kamake‘e St from Kapi‘olani Blvd to Auahi St and Atkinson Dr from Kapi‘olani to Ala Moana Blvd	No cultural material observed
Petrey et al. 2009	Archaeological monitoring	Nitmitz Hwy and Ala Moana Blvd, TMKs: [1] 2-1-014 and 027	No cultural deposits identified
Thurman et al. 2009	Archaeological inventory survey	Queen St Parks	Identified one previously documented historic fishpond remnant (SIHP # -6856)
Tulchin and Hammatt 2009	Archaeological monitoring	4-acre area bounded by Ala Wai Blvd, Hobron Lane, Lipe‘epe‘e St, and Ala Moana Blvd, TMKs: [1] 2-6-011:001, 037	Identified additional fragments of previously identified disturbed human burial (SIHP # -6700), as well as second set of human remains (SIHP # -7057)
Hammatt and Shideler 2010	Cultural anthropology and archaeology summary	Kewalo Basin, TMK: [1] 2-1-058	Concluded no pre-twentieth century in situ deposits present within majority of project area
Pammer and Hammatt 2010	Archaeological assessment	0.26-acre Moana Vista project, Kapi‘olani Blvd, TMK: [1] 2-3-003:084	Four test trenches excavated; no cultural material observed
Altizer et al. 2011	Archaeological monitoring	Kapi‘olani Area Revised Sewer System, TMKs: [1] 2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, 038, and 041	One site documented: previously identified SIHP # -6636, a wetland deposit with signs of historic modification for rice cultivation

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Runyon et al. 2011	Archaeological inventory survey	Ko‘olani Phase II project, TMK:[1] 2-3-006:017	Five sites documented: two previously identified sites: an historic trash layer and a wetland sediment (SIHP #s -6641 and -6636); three newly identified sites: a buried pre-Contact and post-Contact cultural layer (SIHP # -7115), an alluvial layer (SIHP # -7116), and a concentration of 27 post-Contact burials (SIHP # -7117)
Tome and Spear 2011	Archaeological monitoring	Ala Moana, TMKs: [1] 2-3-006 and 038	No cultural materials or subsurface features identified
Burke and Hammatt 2012	Archaeological inventory survey	1391 Kapi‘olani Blvd parcel	Identified SIHP # -7193, a historic trash layer
Runyon et al. 2012	Archaeological inventory survey	Corner of Pi‘ikoi St and Kona St, TMKs: [1] 2-3-007:026 and 049	Identified Kewalo wetland sediments (SIHP # -6636) in all 13 test excavations
Sroat and McDermott 2012	Supplemental archaeological inventory survey	Ward Village, TMKs: [1] 2-3-005:013–017, 022, and 023	Further documented SIHP # -6855, subsurface cultural layer/activity area comprised of traditional Hawaiian cultural layer that included numerous pit features and six previously identified human burials
Hammatt 2013	Archaeological inventory survey	Numerous locations between Middle St and Ala Moana Center	Identified Kewalo wetland land surface (SIHP # -6636), Kolowalu Fishpond (SIHP # -6856), a pre- to post-Contact cultural layer containing an isolated human bone fragment (SIHP # -7429), and subsurface privy remnant (SIHP # -7430)
Medina et al. 2013	Archaeological monitoring	Intersection of Kamake‘e St and Queen St, TMKs: [1] 2-3-002 001; 2-3-003:087, 103; 2-3-004:080 (por.)	Identified multiple fill layers and truncated sand A horizon
Morriss et al. 2013	Archaeological inventory survey	Ala Moana Center, TMK: [1] 2-3-038:001 (por.)	Identified potential salt pan signatures in nine trenches and further documented SIHP # -6636 (Kewalo wetland sediments)

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
LaChance and Hammatt 2014	Archaeological monitoring	Sewer line along Ala Wai Park adjacent to Ala Wai Canal	No cultural deposits identified
Pammer and McDermott 2014	Archaeological inventory survey	Park Lane, TMK: [1] 2-3-038:001 (por.)	Eight backhoe trenches excavated; two historic properties identified, SIHP # - 6636, pre-Contact to early twentieth century natural wetland deposit and SIHP # -7596, a subsurface trash deposit with historic artifacts
Pammer et al. 2014	Archaeological inventory survey	Ward Neighborhood Block B East (Ward Village Gateway)	Identified five historic properties in 38 test excavations: 1) SIHP # -7655, subsurface salt pan remnants; 2) SIHP # -7656, human skeletal remains; 3) SIHP # -7658, historic buried surfaces; 4) SIHP # -7659, historic water channel; and 5) SIHP # -7660, historic fill layer
Sholin et al. 2014	Archaeological inventory survey	Ola Ka ‘Ilima Artspace Loft, Waimanu St	Six test trenches excavated; scattered historic artifacts found in fill layers
Sroat, Inglis, and McDermott 2014	Archaeological inventory survey	Ward Neighborhood Block K	Identified portions of two historic properties in 35 test excavations: 1) SIHP # -6855, subsurface cultural deposits; and 2) SIHP # -7422, burned trash layer; majority of project area contained modern developed land surface, fill layers, and hydraulic (dredged) fill overlying remnant buried A horizon or organic-rich peat material, Jaucas sand, and gleyed marine sandy clay
Sroat, Pammer, and McDermott 2014	Archaeological inventory survey	Ward Neighborhood Block C West (Ward Village Gateway)	Identified two historic properties in 36 test excavations: 1) SIHP # -7655, subsurface salt pan remnants; and 2) SIHP # -7658, historic buried surfaces
Yucha et al. 2014	Archaeological inventory survey	Ward Neighborhood Block C	Identified burned trash layer (SIHP # -7422); majority of project area contained sand or peat A horizon and Jaucas sand beneath reclamation fill layers; no cultural material or features observed

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Enanoria et al. 2015	Archaeological monitoring	Ala Moana Blvd/ Nimitz Hwy Resurfacing and Lighting project	Identified three historic properties, only one near project area, SIHP # -7435, four sets of human skeletal remains within sand deposits near Ala Moana Blvd and Queen St
Hawkins et al. 2015	Archaeological inventory survey	Ward Neighborhood Block M	Identified two historic properties in 68 test excavations: 1) SIHP # -7429, subsurface cultural deposits consisting of two discrete cultural deposits and associated features; and 2) SIHP # -7686, twentieth century commercial infrastructure remnants
Humphrey et al. 2015	Supplemental archaeological inventory survey	HRTP (City Center)	Fifteen test excavations identified additional components of SIHP # -7429, including three pit features and human burial
Sroat et al. 2015	Archaeological inventory survey	Ward Neighborhood Block I	Eighty-eight test excavations identified two historic properties: SIHP # -7429, subsurface cultural deposits and associated features including burial sites; and SIHP # -7655, subsurface salt pan remnants; pedestrian inspection documented SIHP # -7659, concretized water channel (*‘auwai*)
Yucha et al. 2015	Archaeological monitoring	Ward Village Shops Project Kaka‘ako, TMKs: [1] 2-3-005:013 through 017, 022, and 023.	Four significant historic properties were identified. Three were originally identified during the AIS for this project (Bell et al. 2006) and one was originally identified by Yucha et al. (2014) during an AIS for a Block C project area and was reassessed for the current study by Sroat et al. (2014): 1) SIHP # -6854 is a subsurface cultural layer/activity area, 2) SIHP # -6855 is a buried cultural layer indicating a former traditional Hawaiian activity area, 3) SIHP # -6856 is comprised of buried fishpond remnants (Kolowalu Fishpond) 4) SIHP # -7422 is a post-Contact subsurface cultural deposit (burned trash layer) associated with open-air burning practices.

Reference	Nature of Study	Location	Results (SIHP #s 50-80-14)
Belluomini, et al. 2016	Archaeological monitoring	Ward Village Shops project, Kaka‘ako, TMKs: [1] 2-3-005:013 through 017, 022, and 023	Monitoring conducted from March 2006 through December 2008; four historic properties discussed, three originally identified during the initial (Bell et al. 2006) AIS for the project and one initially identified during another AIS (Yucha et al. 2014); SIHP # -6854, subsurface cultural layer/activity area remnant; SIHP # -6855, an activity area remnant comprised of a subsurface cultural layer that included numerous pit features and six human burial finds; SIHP # -6856, buried fishpond remnants (Kolowalu Fishpond); SIHP # -7422, a post-Contact subsurface cultural deposit (burnt trash layer)
Sroat et al. 2016	Archaeological inventory survey	Block N East project, Kaka‘ako, TMKs: [1] 2-3-002:001 (por.), 067, 086, 087	Two historic properties documented: SIHP # -7429 consists of pre- and post-Contact cultural deposits with associated features, including human burials; SIHP # -7686 consists of subsurface historic infrastructure remnants

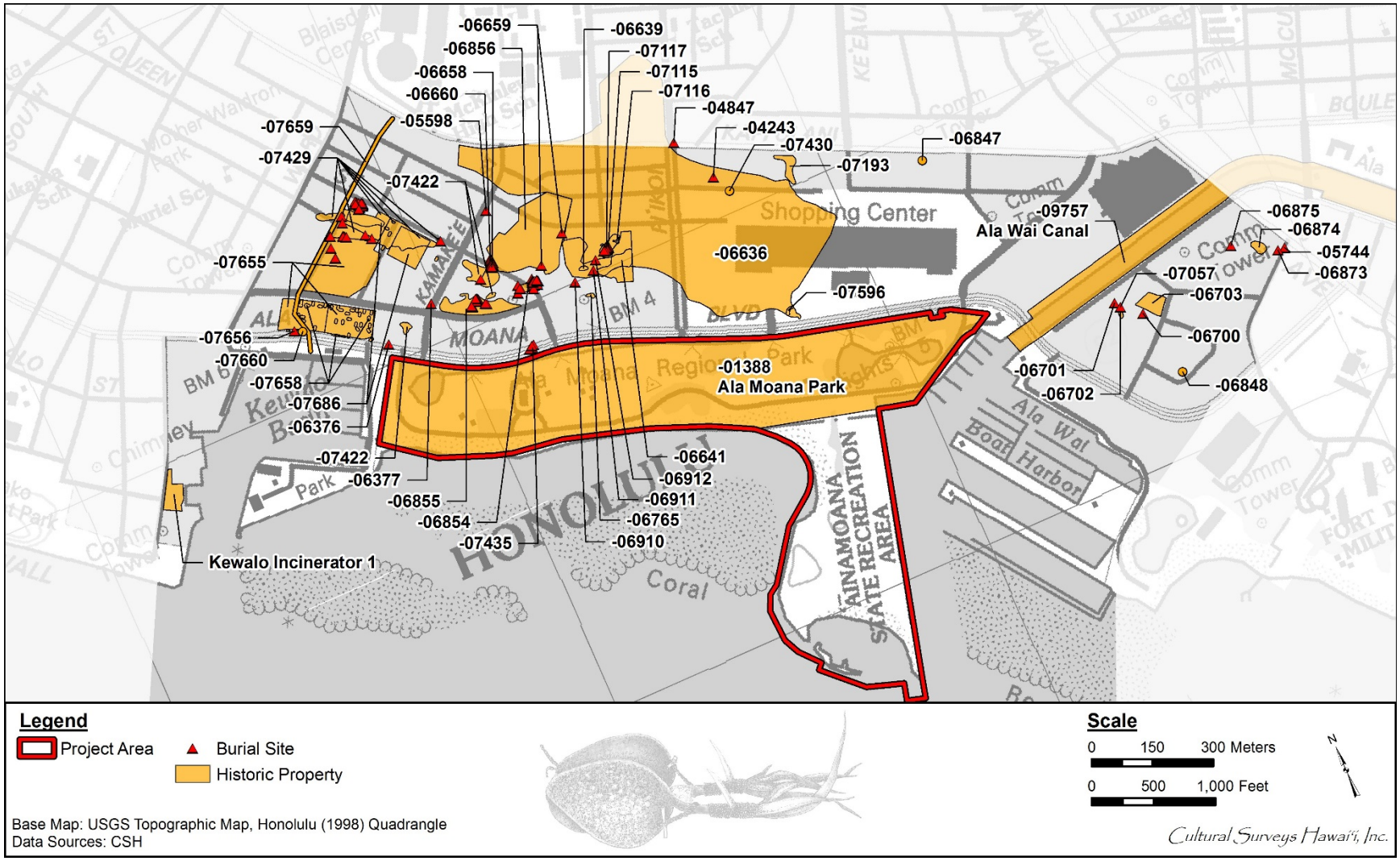

Figure 59. Previously designated archaeological sites in the vicinity of the project area

Table 2. Previously identified historic properties in the vicinity of the project area

SIHP # 50-80-14-	Description of Site	Source
1388	Ala Moana Park	HRHP
4243	Human bone	Smith 1989
4847	Scattered human burial dating to ca. 1450s	Athens et al. 1994
5598	Two adjacent coffin burials	Winieski and Hammatt 2000
5744 (2)	Human burials	Perzinski
6376	Human burial (1)	Souza et al. 2002
6377	Human burial (1)	Souza et al. 2002
6636	Subsurface wetland sediments	O’Hare, Bush, Borthwick, and Hammatt 2004, Clark and Gosser 2005, Runyon et al. 2012, Hammatt 2013
6639	Historic trash pit	O’Hare, Bush, Borthwick, and Hammatt 2004
6641	Historic trash pit	O’Hare, Bush, Borthwick, and Hammatt 2004
6658	Human burials	O’Hare, Bush, Borthwick, and Hammatt 2004
6659	Human burials	O’Hare, Bush, Borthwick, and Hammatt 2004
6660	Historic trash pit	O’Hare, Bush and Hammatt 2006
6700	Human burial (1)	Freeman et al. 2005
6701	Human burial (1)	Freeman et al. 2005
6702	Subsurface cultural deposit	Freeman et al. 2005
6703	Buried fishpond sediments	Freeman et al. 2005
6765	Historic trash layer	Carney and Hammatt 2008
6847	Wood-lined subsurface feature	Hammatt 2013
6848	Subsurface cultural deposit	O’Hare, Shideler, and Hammatt 2006
6854	Subsurface cultural deposit and human burials (5)	Bell et al. 2006, Belluomini 2016
6855	Subsurface cultural deposit and human burials (7)	Bell et al. 2006, Yucha et al. 2015, Belluomini 2016
6856	Kolowalu Fishpond	Thurman et al. 2009, Belluomini 2016
6873	Human burial (1)	Bell and McDermott 2007
6874	Subsurface cultural layer	Bell and McDermott 2007
6875	Human burial (1)	Bell and McDermott 2007
6910	Human burial (1)	Hammatt 2008
6911	Cluster of 16 coffin burials	Hammatt 2008
6912	Human burial (1)	Hammatt 2008

SIHP # 50-80-14-	Description of Site	Source
7057	Human skeletal remains	Tulchin and Hammatt 2009
7115	Subsurface cultural deposit	Runyon et al. 2011
7116	Pond sediment	Runyon et al. 2011
7117	Burial cluster	Runyon et al. 2011
7193	Historic trash pit	Burke and Hammatt 2012
7422	Subsurface burnt trash deposit	Sroat et al. 2014, Yucha et al. 2015, Belluomini 2016
7429	Subsurface cultural deposit and a human burial	Hammatt 2013, Hawkins et al. 2015, Humphrey et al. 2015, Sroat et al. 2015, Sroat et al. 2016
7430	Subsurface privy remnant	Hammatt 2013
7435 A-D	Human skeletal remains	Enanoria et al. 2015
7596	Subsurface trash deposit	Pammer and McDermott 2014
7655	Salt pan sediments and human burials	Sroat et al. 2015
7656	Human burial (1)	Pammer et al. 2014
7658	Subsurface infrastructure remnants	Sroat et al. 2014
7659	Ward ditch	Pammer et al. 2014, Sroat et al. 2015
7660	Historic trash deposit	Pammer et al. 2014
7686	Commercial infrastructure remnants	Hawkins et al. 2015, Sroat et al. 2016
9757	Ala Wai Canal	NRHP, Maly et al. 1994
No SIHP # assigned	Kewalo Incinerator 1	National Park Service

death. The individual may have passed away at the very spot of interment and remained undiscovered. Alternatively, the individual may have been interred in an elevated sand berm. Several burials in Kaka‘ako have been found in similar sand berms located around fishponds.

4.2.3 Maly et al. 1994

The firm Paul H. Rosendahl, Inc. (PHRI) (Maly et al. 1994) conducted an archaeological and historical assessment study for the proposed Convention Center, on the *makai* side of the Ala Wai Canal adjacent to the east end of the current project area. Historic research indicated the project area was adjacent to the large Kūwili Fishpond. For this reason, the authors recommended subsurface testing to report subsurface remains and to look for the pond walls.

4.2.4 Hammatt and Shideler 1995, 1996

In 1995, CSH (Hammatt and Shideler 1995) conducted subsurface testing at a site proposed for the Waikīkī Convention Center (now called the Hawai‘i Convention Center). The crew excavated ten backhoe trenches and seven cores. Most of the excavations had fill material down to within a few centimeters of the original coral reef, an indication that this former wetland area had been extensively filled during the 1920s and 1930s Waikīkī Reclamation Project. Four radiocarbon dates were recovered, and the oldest sediment, from just above the coral reef, wielded a date of AD 985-1920. The pollen analysis of samples from older deposits indicated a dominance of *Pritchardia* palms, which virtually disappeared before the arrival of the Polynesians to the Islands. Additional testing was conducted (Hammatt and Shideler 1996) near one of the trenches located in a former fishpond (Loko Kūwili Pond) in 1994. Results of the data recovery research showed the Stratum III sediments believed to have been related to Kūwili Fishpond were in fact imported fill.

4.2.5 Winieski and Hammatt 2000

In 2000, archaeological monitoring for the Kaka‘ako Improvement District (ID) 4 project was conducted by CSH (Winieski and Hammatt 2000). The project documented two isolated historic coffin burials (SIHP # -5598) on Kamake‘e Street, between Kawaiaha‘o and Waimanu streets. The two adjacent burials were within an undisturbed beach sand deposit, directly underlying an A horizon, which itself was beneath approximately 50 cm of construction fill and pavement. Well-defined burial pits were present, as well as staining from the deteriorated coffin wood. Apart from the coffins, no associated artifacts were discovered during disinterment. During a nearby excavation on Waimanu Street, approximately 2 m west of Kamake‘e Street, a horse or mule skeleton was discovered within an undisturbed sand layer, approximately 1 m below the surface. No other materials were observed during the Kaka‘ako ID 4 project, apart from several modern bottles and bottle fragments discovered within fill materials. One “Star Soda Works” bottle was dated to ca. 1900.

4.2.6 Borthwick and Hammatt 2001

Between 1999 and 2001, CSH conducted archaeological monitoring for the Kaka‘ako Improvement District 6 project, located adjacent to Kewalo Basin and *makai* of the Ward Avenue and Ala Moana Boulevard intersection (Borthwick and Hammatt 2001). The project included an extension of Ward Avenue *makai* of Ala Moana Boulevard, connecting with ‘Āhui Street, as well as improvements to drainage, water, sewer, and utility systems, the construction of a parking lot,

and landscaping. Consistent with the project area's location within infilled coastal waters *makai* of the previous shoreline, the documented stratigraphy consisted of various fill deposits over natural tidal flats characterized by gleyed sandy clay to loamy clay. No historic properties were observed.

4.2.7 Winieski and Hammatt 2001

In 2000, CSH performed archaeological monitoring for Victoria Ward Ltd. at the site of the Ward Village Phase II (Ward Theaters) construction project in Kaka‘ako (Winieski and Hammatt 2001). No pre-Contact materials, historic cultural materials, or human burials were encountered. Stratigraphic profiles within the project area revealed fill materials placed over a pre-existing marsh surface. In the northwest corner of the project area, an old A horizon, naturally deposited pond sediments, and calcareous sand were observed. Similarly, an old A horizon and naturally deposited calcareous sand were observed in the southwest corner of the project area.

4.2.8 Souza et al. 2002

In 2000, CSH completed a monitoring program for the Kaka‘ako ID-7 construction project, encountering three human burials severely disturbed by excavation activities (Souza et al. 2002). The ages and ancestries of the individuals could not be identified; however, the lack of grave goods may indicate they were pre-Contact or early post-Contact. Burial 1 (SIHP # -6376), a single cranium, was inadvertently discovered by construction personnel in the back dirt pile at the base yard. Burial 2 (SIHP # -6377), an adult individual, was encountered by a CSH archaeologist during backhoe excavations for a box drain. The burial was within an undisturbed beach sand deposit. Burial 3 (SIHP # -6378), consisting of a femur and several rib fragments, was also recovered in the base yard.

4.2.9 Chiogioji and Hammatt 2004

In 2004, CSH (Chiogioji and Hammatt 2004) prepared an archaeological literature review and field inspection for the 2.3-acre former Wave nightclub, later used for the Waikīkī Allure condominium development, at the corner of Kalākaua Boulevard and ‘Ena Road in Waikīkī. Background research indicated the study area, from traditional Hawaiian times to the modern era, comprised a drier portion of Waikīkī, at least partially elevated above the region's fishponds and wetland agricultural fields. An inventory survey with subsurface testing was recommended.

4.2.10 O'Hare, Bush, Borthwick, and Hammatt 2004

In 2003, CSH conducted the Phase I portion of the archaeological inventory survey for the Ko‘olani Condominium project in the Kewalo area (O'Hare, Bush, Borthwick, and Hammatt 2004). A total of 13 trenches were excavated. Two previously unrecorded historic properties were newly identified, SIHP #s -6639 and -6641, both historic trash pits dated to the early twentieth century. In addition, one previously recorded historic property, the original wetland surface of Kewalo (SIHP # -6636), was documented.

4.2.11 O'Hare, Shideler, and Hammatt 2004

In 2004, an assessment consisting of archival research and a field inspection was conducted by CSH (O'Hare, Shideler, and Hammatt 2004) at the proposed Kapiolani Akahi project site on Hobron Lane in Waikīkī. From these two sources, a predictive model was generated. Historic maps

indicated the project area once had a fishpond and an *‘auwai* (water ditch), and possibly taro *lo‘i* (irrigated patches). Historic artifacts within fill layers were also anticipated.

4.2.12 O’Leary and Hammatt 2004

Between August and October 2004, CSH conducted archaeological monitoring along Kapi‘olani Boulevard for sewer line repairs (O’Leary and Hammatt 2004). A total of five 0.6-m deep trenches were excavated. The stratigraphy of these trenches consisted of fill materials associated with the original placement of the sewer pipes. No cultural materials were observed.

4.2.13 Tulchin and Hammatt 2004

In 2004, CSH completed a literature review and field inspection for the Kapi‘olani Area Revised Sewer System project (Tulchin and Hammatt 2004). No subsurface testing was conducted as part of the archaeological assessment. No archaeological or historical features were observed within the project area.

4.2.14 Clark and Gosser 2005

Pacific Consulting Services (Clark and Gosser 2005) carried out subsurface testing for a storage facility on the southwest corner of Kapi‘olani Boulevard and Kamake‘e Street, documenting SIHP # -6636, a subsurface remnant of a small pond.

4.2.15 Freeman et al. 2005

In 2004, CSH completed an archaeological inventory survey and cultural impact evaluation for the Ala Wai Gateway project site (Freeman et al. 2005). Twenty-two backhoe trenches were excavated within the project area. Four sites were identified during excavation: disturbed and incomplete human remains (SIHP # -6700), an in situ coffin burial with grave goods (SIHP # -6701), a culturally enriched A horizon (SIHP # -6702), and the remnants of a fishpond (SIHP # -6703). The buried A horizon was only observed in one trench (Trench 11). It contained cultural material, including marine shell midden, fishbone, charcoal, historic glass, and a large mammal bone. Radiocarbon analysis on charcoal samples collected from the A horizon indicate the cultural layer accumulated in the late pre-Contact or early historic period.

4.2.16 Hammatt 2005

In 2005, CSH conducted archival research and a brief field inspection of a proposed condominium development on Kaio‘o Drive in Waikīkī. Archival research, including historic maps, indicated that before the construction of the Ala Wai Canal and the filling in of Waikīkī’s marshes and fishponds, the project area comprised dry land and portions of ponds. Based on this report’s findings and the cultural sensitivity of the entire Waikīkī area, CSH recommended an archaeological inventory survey with a substantial subsurface testing component for the project area.

4.2.17 Monahan 2005

A crew from Scientific Consultant Services, Inc. (SCS) completed a report on an archaeological assessment of three parcels at the corner of Waimanu Street and Ward Avenue in 2005 (Monahan 2005). Nine backhoe trenches were excavated through hard, severely impacted, fill layers. No cultural layers or burials were recorded.

4.2.18 Tulchin and Hammatt 2005

In 2005, CSH conducted Phase II of the archaeological inventory survey for the Ko‘olani Condominium project (Tulchin and Hammatt 2005). Two historic properties previously recorded by O'Hare et al. (2004) were identified, SIHP #s -6636 (an original wetland surface of Kewalo) and -6641 (a historic trash fill layer).

4.2.19 Bell et al. 2006

In 2006, CSH completed an archaeological inventory survey for the Victoria Ward Village Shops project (Bell et al. 2006). A total of 86 trenches were excavated within the project area. Three historic properties were identified: 1) SIHP # -6854, a subsurface cultural layer/activity area that contained an immature pig skeleton, remnants of a historic privy, remnants of a culturally enriched A horizon (containing both historic and prehistoric cultural material), and five previously identified human burials; 2) SIHP # -6855, a subsurface cultural layer/activity area comprised of a traditional Hawaiian cultural layer that included numerous pit features and six previously identified human burials; and 3) SIHP # -6856, a historic fishpond that is part of Land Commission Grant 3194, "Kolowalu," awarded to Kalae and Kaaua. Subsequent archaeological monitoring associated with the project documented approximately 50 additional pre-Contact or early post-Contact burials associated with SIHP #s -6854 and -6855 (see Thurman et al. 2009). All burials were found in Jaucas sand deposits. Of historic interest in the monitoring results are the frequent discoveries of late nineteenth century ammunition and animal burials. The Ward Village Shops project area correlates to areas shown on historic maps as a rifle range (1893) and an animal quarantine station (1911), which likely explains these findings.

4.2.20 Bush and Hammatt 2006

Between 2003 and 2005, CSH conducted archaeological monitoring along Auahi Street for the Hokua Tower project (Bush and Hammatt 2006). Excavations took place using a backhoe with a 3-ft-wide bucket, as well as by hand shoveling. Excavations included 350 m of electrical line trenching and two associated manholes. No archaeological finds were encountered during monitoring.

4.2.21 Esh and Hammatt 2006

In 2004, CSH conducted archaeological monitoring for the Rehabilitation of Streets, Unit 5 B project on Pi‘ikoi Street between Ala Moana Boulevard and Matlock Street (Esh and Hammatt 2006). Construction activities in the area primarily consisted of the resurfacing of Pi‘ikoi Street. This activity did not extend deeper than 30 cm below base course, and it did not require archaeological monitoring. Construction activity requiring monitoring was limited to excavation at the intersection of Pi‘ikoi and Young streets for traffic signal improvements. No cultural materials were encountered.

4.2.22 Gosser et al. 2006

In 2006, archaeological monitoring was performed for a 1.84-acre parcel at the west corner of Kapi‘olani Boulevard and Kamake‘e Street (Gosser et al. 2006). Remnants of an unnamed fishpond that had been previously identified (SIHP # -6636) were discovered (Clark and Gosser 2005); however, no cultural materials were observed during monitoring.

4.2.23 Hammatt 2006a

In 2006, CSH completed an archaeological literature review and field inspection of a 1.43-acre area proposed for development of a residential condominium (Hammatt 2006a). No surface historic properties were observed within the project area.

4.2.24 Hammatt 2006b

In late 2005 and early 2006, CSH conducted an archaeological inventory survey of the Ala Moana Expansion project (Hammatt 2006). The investigation's 30 backhoe trenches revealed no Jaucas sand deposits within the project area. The natural land surface, prior to historic/modern fill episodes, was either a sandy clay or a highly organically enriched peaty layer. This natural surface was largely removed by prior construction-related disturbances within portions of the project area. One historic property (SIHP # -6847) was identified. It consisted of a wooden box placed in a pit cut into the former land surface. The box contained a mix of historic artifacts including, among other things, printed material, wooden chopsticks, pig bone, and a horse brush. It was tentatively dated to the late nineteenth or early twentieth century.

4.2.25 Hammatt and Chiogioji 2006

In 2006, CSH prepared an archaeological literature review and field inspection for the 2.3-acre Waikīkī Allure condominium development at the corner of Kalākaua Boulevard and ‘Ena Road in Waikīkī, an update for a previous literature report (see Chiogioji and Hammatt 2004). Background research indicated the study area, from traditional Hawaiian times to the modern era, comprised a drier portion of Waikīkī, at least partially elevated above the region's fishponds and wetland agricultural fields. Fieldwork included only a brief pedestrian inspection of the project area. No surface archaeological resources or historic buildings or structures were noted. Based on background research, the authors indicated a potential for subsurface archaeological resources in the project area, including pre- and post-Contact habitation and burial deposits.

4.2.26 O'Hare, Bush, and Hammatt 2006

In 2006, CSH completed archaeological monitoring for the Queen Street Extension project, part of the Kaka‘ako Improvement District 10 (O'Hare et al. 2006). During monitoring of the construction, 30 human burials were found and disinterred. Analysis of their distribution and associated grave goods indicates 28 of the burials (SIHP # -6658) constituted a cemetery, possibly used between the 1840s and the 1880s. The cemetery was located on an elevated sandbar that formed the margin of Kolowalu Pond (SIHP # -6856). Two burials (SIHP # -6659) were isolated finds and were not related to the main cemetery cluster. Historic trash pits (SIHP # -6660) that intruded into the eastern edge of the cemetery were also discovered during monitoring. The human remains and associated grave goods were reburied on site in a specially constructed vault complex.

4.2.27 O'Hare, Shideler, and Hammatt 2006

In 2005, CSH excavated 20 backhoe trenches for the Kaio‘o Drive Condominium project on in Waikīkī. Based on nineteenth and early twentieth century maps and photographs, two ponds once existed in the project area, surrounded by higher ground. In the eastern portion of the project area, six trenches had a layer of organic clay loam that formed at the bottom of a still-water environment. When the location of ponds on a 1927 map is overlain on a modern map of the project area, five of the six trenches fell within the eastern pond and three of the trenches in the western half of the

project area fell within or near the predicted location of the second pond. SIHP # 6848 was a fire pit within a buried A horizon found in one trench. Radiocarbon determination of charcoal and rocks from this fire pit date to AD 1470-1660. Additional testing took place to clear a 10 m by 4 m area near this fire pit to determine its extent. No other cultural material was noted near the fire pit.

4.2.28 O'Leary and Hammatt 2006

In 2005, CSH conducted an archaeological inventory survey for the Moana Vista Condominiums project (O'Leary and Hammatt 2006). The project included the excavation of 24 backhoe trenches. The project area was divided into three stratigraphic groups (A–C). Group A contained fill over a disturbed organic A horizon containing coarse gray marine sand. Group B contained fill over Jaucas sand. Group C contained fill over an intact organic A horizon and coarse gray marine sand, similar to Group A. No historic properties were designated.

4.2.29 Barnes and Shideler 2007

In 2007, CSH completed a literature review and field inspection for the 1235 Kona Street/1226 Waimanu Street Reserved Housing project (Barnes and Shideler 2007). No surface historic properties were identified within the project area.

4.2.30 Bell and McDermott 2007

In 2006, CSH conducted an AIS for the Allure Waikīkī Development project between Ala Wai Boulevard, Kalākaua Avenue, and ‘Ena Road. After a pedestrian inspection was conducted and 35 backhoe assisted trenches were excavated, three historic properties were documented: SIHP #s -6873 and -6875, consisting of isolated traditional Hawaiian burials found in sand deposits, and SIHP # -6874, a subsurface cultural layer of pre- and post-Contact origin.

4.2.31 Carney and Hammatt 2008

From 2003 to 2005, CSH conducted archaeological monitoring for the Hokua Tower project (Carney and Hammatt 2008). One historic property was documented (SIHP # -6765) consisting of an historic trash layer containing rusted metal, broken glass, and various bottles dating to the mid-1900s. In addition, a human mandible fragment was found in a displaced secondary context. It was thought that the mandible may have been exposed by coring activities (over 200 cores were drilled); however, the exact origin of the find was unknown.

4.2.32 Hammatt 2008

In 2008, CSH completed archaeological monitoring for the Ko‘olani Condominium project (Hammatt 2008). Three new historic properties were identified, SIHP # -6910, a single pre-Contact burial; SIHP # -6911, a cluster of 16 historic coffin burials believed to comprise a discrete cemetery; and SIHP # -6912, a single burial. The burials were associated with Jaucas sand deposits buried beneath historic and modern fill. Additionally, various historic trash deposits were observed throughout the project area but were not assessed as significant.

4.2.33 Hazlett et al. 2008

In 2008, CSH performed archaeological monitoring for the 6-acre Ala Moana Expansion project (Hazlett et al. 2008), within the same project area as an earlier archaeological inventory survey (Hammatt 2006b). Hazlett et al. (2008) reported that no cultural materials were observed. Additionally, the monitoring results confirmed the prior inventory survey's observation (Hammatt

2006) that the natural sediments were largely removed to below the water table in areas and replaced by various fill sediments.

4.2.34 Petrey et al. 2008

Between 2006 and 2007, CSH performed archaeological monitoring from Ala Wai to Magic Island for the City and County of Honolulu's Emergency Sewer Bypass project (Petrey et al. 2008). No cultural deposits were identified during monitoring. The investigation concluded the project area's subsurface deposits were disturbed by imported fill materials.

4.2.35 Fong et al. 2009

In 2009, CSH completed archaeological monitoring of construction associated with upgrading existing drainage, water, and sewer systems. The project area included Kapi‘olani Boulevard from Kalākaua Avenue to Ward Avenue, Kamake‘e Street from Kapi‘olani Boulevard to Auahi Street, and Atkinson Drive from Kapi‘olani Boulevard to Ala Moana Boulevard (Fong et al. 2009). No historic properties were observed. The stratigraphy consisted primarily of imported fill material associated with the installation of utilities and road construction. In some instances, pockets of naturally deposited sediment (Jaucas sand and wetland clays) were observed beneath fill deposits.

4.2.36 Petrey et al. 2009

In 2007, CSH completed archaeological monitoring for the Nimitz Highway/Ala Moana Boulevard resurfacing project (Petrey et al. 2009). Project excavations were generally to depths of only 0.6 m below surface, with a maximum depth of 1.0-1.25 cmbs, and exposed various layers of fill. No historic properties were identified.

4.2.37 Thurman et al. 2009

In 2009, CSH completed an archaeological inventory survey for the Queen Street Parks project. Fieldwork involved the excavation of 29 backhoe trenches. One previously identified historic property was recorded, SIHP # -6856, remnants of a historic fishpond, originally identified by Bell et al. (2006). Documented stratigraphy consisted of varying layers of fill, overlying various naturally deposited sediments atop the coral shelf. The fill consisted of imported terrigenous sediment, incinerator material containing burnt historic refuse, crushed coral, and hydraulic pump dredge sediment. Natural sediments consisted primarily of backshore marsh or pond sediments associated with SIHP # -6856 (Kolowalu fishpond). Naturally deposited Jaucas sand deposits were also observed.

4.2.38 Tulchin and Hammatt 2009

Between 2005 and 2008, CSH completed archaeological monitoring for the Ala Wai Watermark project (Tulchin and Hammatt 2009). Monitoring identified additional skeletal fragments associated with a previously identified disturbed human burial (SIHP # -6700), as well as a second set of human remains (SIHP # -7057). Observed stratigraphy consisted of various fill deposits overlying natural marine sands and clays indicative of a marshland environment. In general, the observed naturally deposited sediments had been previously disturbed.

4.2.39 Hammatt and Shideler 2010

In 2010, CSH completed a summary report on the cultural anthropology and archaeology of the Kewalo Basin area to document potential cultural resources (Hammatt and Shideler 2010). The

study concluded that no pre-twentieth century in situ deposits are located within the majority of the project area. Potential early twentieth century in situ deposits may be located in the extreme inland portion of the project area. No human burials are expected in the project area with the possible exception of the vicinity of the seaward curb of the Ala Moana/Nimitz alignment.

4.2.40 Pammer and Hammatt 2010

In 2010, CSH conducted an archaeological assessment for a 0.26-acre parcel for the Moana Vista project (Pammer and Hammatt 2010). Four trenches were excavated, but no cultural materials were observed. The study found layers of imported fill over an organic A horizon. The organic A horizon consisted of brown clay loam (peat) containing compressed roots.

4.2.41 Altizer et al. 2011

From 2008 to 2009, CSH conducted archaeological monitoring for the Kapi‘olani Area Revised Sewer System project (Altizer et al. 2011). The project comprised multiple sewer line segments located throughout Kaka‘ako, Kewalo, and Kālia. The study documented two layers of former wetland sediments, identified as SIHP # -6636. The portion of SIHP # -6636 observed during monitoring was located in an easement off Pensacola Street, between Ho‘olai and Kamaile streets, and extended between two low-rise apartment buildings. The location of SIHP # -6636 was consistent with the 1884 Bishop Waikiki Survey map (RM 1090) and the 1897 Monsarrat map (RM 1910), both of which show a pond present in the vicinity of the Kapi‘olani Area Revised Sewer System project area. The pond is not named on either map, but is present within former rice fields. The sediments encountered during project-related sewer line excavation are described as a black clay loam, potentially related to rice cultivation. Abundant quantities of freshwater snail shells may indicate the former wetland deposits were modified for rice cultivation.

4.2.42 Runyon et al. 2011

Between 2009 and 2010, CSH conducted an archaeological inventory survey for the 1.73-acre Ko‘olani Phase II project in Kaka‘ako (Runyon et al. 2011). A total of 29 test trenches were excavated. Five historic properties were identified, two of which had been previously identified. SIHP # -6636 consists of portions of the former wetland surface of the Kewalo area. SIHP # -6641 is an historic burnt trash layer that was used as fill material to raise the original ground surface. Diagnostic artifacts provided a date range between the 1880s and 1940s. SIHP # -7115 is a subsurface culturally enriched sandy A horizon (cultural layer) containing multiple pit features, and pre- and post-Contact artifacts. Traditional Hawaiian artifacts included two basalt adzes. The historic artifacts dated to the early twentieth century. SIHP # -7116 is a subsurface low-energy alluvial layer characterized as pond sediment. Remnants of the site were found in four trenches whose location corresponds with a pond depicted on historic maps. SIHP # -7116 is a concentration of 27 human burials, 20 of which were found in wooden coffins. The burials were found in sand deposits below historic and modern fill layers. The presence of a glass bottle dated to between 1879 and 1907 suggests the burials were interred before ca. 1900. The SHPD determined the burials were of Native Hawaiian ancestry.

4.2.43 Tome and Spear 2011

In 2011, Scientific Consultant Services, Inc. conducted archaeological monitoring for the Ala Moana Sewer Reconstruction project (Tome and Spear 2011). No cultural materials or subsurface

features were identified. In general, the observed stratigraphy consisted of multiple fill deposits overlying natural sediments (i.e., sand and silty sand).

4.2.44 Burke and Hammatt 2012

In 2011, CSH conducted an AIS of a 1.43-acre parcel located at 1391 Kapi‘olani Boulevard. A layer of historic trash, designated as SIHP # -7193, was noted throughout the northern and eastern portions of the project area (Burke and Hammatt 2012). The trash layer corresponds to land reclamation activities during the early to mid-twentieth century, similar to deposits noted in the surrounding area. Artifacts collected range in date from the 1930s to the 1950s.

4.2.45 Runyon et al. 2012

In 2012, CSH completed an archaeological inventory survey for the Senior Residence at Pi‘ikoi at the corner of Pi‘ikoi and Kona streets (Runyon et al. 2012). Subsurface Kewalo wetland sediments (SIHP # -6636) were observed in all 13 test excavations within the project area. In general, the wetland deposits consisted of very dark brown silty clay loam containing abundant decomposing organic materials (peat), snail shells, rootlets, and charcoal flecking. These sediments were found overlying gleyed sandy clay sediments over the coral shelf. Historic documentation suggests the site was capped with imported fill during early twentieth century land reclamation fill events. The site has been previously documented in nearby areas in Kaka‘ako (O’Hare et al. 2003; O’Hare et al. 2004; Tulchin and Hammatt 2005; and Runyon et al. 2011).

A sediment sample collected from SIHP # -6636 was analyzed by Dr. Carl Christensen, professional malacologist. The analysis also noted the snail species represented in the samples were “little changed from those present there and in similar environments in pre-Contact times” (Christensen 2011:9). Of three snail species commonly found in these wetland environments (*T. porrecta*, *M. tuberculata*, and *T. granifera*), one species (*T. porrecta*) found within SIHP # -6636 is now virtually extinct.

4.2.46 Sroat and McDermott 2012

In 2012, CSH completed a supplemental archaeological inventory survey for the Ward Village Shops Phase 2 project (Sroat and McDermott 2012). Five test units were excavated within or adjacent to the extrapolated location of SIHP # -6855. The stratigraphy observed with the five test excavations substantiated the previously extrapolated boundaries of SIHP # -6855, including the sub-boundaries demarcating concentrated areas of traditional Hawaiian deposits.

4.2.47 Hammatt 2013

Between November 2011 and February 2013, CSH conducted an archaeological inventory survey for the Honolulu High-Capacity Transit Corridor project (HHCTCP)—City Center (Section 4), which extended from Kalihi Stream in the west to Ala Moana Center in the east. Two hundred-fifty test excavations were documented. A total of 19 historic properties were identified along the length of the project corridor; however, only one historic property was documented within the vicinity of the current project area (SIHP # -7429).

Hammatt (2013) performed AIS testing within numerous locations between Middle Street and Ala Moana Center. Testing revealed multiple sites, three of which were identified near the current project area—SIHP # -6636 (former wetland land surface), SIHP # -6856 (Kolowalu Fishpond), and SIHP # -7430 (subsurface privy remnant). These wetland sediments represent the natural

wetland surface of the Kewalo area. Wetland sediments were identified within 25 AIS test excavations in the East Kaka‘ako and Kālia Geographic Zones for the Honolulu High Capacity Transit Corridor project (T-186 through T-193, T-195, T-196, T-198 through T-200, T-202, T-202A, T-203, T-205, T-207, T-208, T-210 through T-212, T-214, T-219, and T-220). In general, the wetland sediments were documented as variations of brown and gray silty clays, sandy clays, clay loams, and, similar to the current AIS, black silt loam peat layers.

4.2.48 Medina et al. 2013

In 2010, CSH conducted archaeological monitoring for utility relocations, traffic signal installations, and road widening at the intersection of Kamake‘e and Queen streets. Four profiles were drawn for excavated utility trenches at the junction of Queen and Kamake‘e streets, all on the western side. In general, stratigraphy within the project area consisted of various fill materials overlying a remnant or truncated sand A horizon, Jaucas sand, and the coral shelf. On average, the A horizon and lower sand layers began at 50–65 cmbs, and the coral shelf began at 75–120 cmbs. No historic properties were encountered.

4.2.49 Morriss et al. 2013

In 2012, CSH conducted an archaeological inventory survey for the Ala Moana Center ‘Ewa Mall Expansion project (Morriss et al. 2013). The 15.7-acre project included the excavation of 26 test trenches within the western portion of Ala Moana Center. One previously identified site, SIHP # -6636 (Kewalo wetland sediments), was documented. Possible salt pan signatures were observed in nine trenches (Trenches 3, 6, 8, 9, 13, 16, 18, 19, and 23) characterized by greenish-gray clays overlying natural wetland sediment. Seven samples of clay associated with potential salt pans and of natural wetland sediments were analyzed by the Paleo Research Institute for pollen, phytolith, and resistivity. Five samples were analyzed for pollen and phytoliths to determine their correlation with the nearby wetland surface. Resistivity testing was completed on six samples to identify differences between potential salt pan lining clay, marsh, and hydraulic fill deposits. The results of the resistivity testing on the potential salt pan lining clay sediments were suggestive but inconclusive. It was determined that additional testing of the deposits was necessary as well as a more comparative analysis of potential salt pan lining clay and wetland deposit datasets would need to be undertaken.

4.2.50 LaChance et al. 2014

In 2011 and 2012, a crew from CSH (LaChance et al. 2014) monitored the installation of a sewer force main from Ala Wai Park along and across Ala Wai Boulevard to Ala Moana Regional Park. Ground disturbance related to this project included excavation of four access shafts used in microtunneling techniques applied to excavation of the new 72-inch sewer tunnel. As a result of construction techniques applied to this project, such as microtunneling and the use of sheet piles for shoring, documentation of monitoring efforts was often limited to photographic recordation of events and written descriptions. No cultural deposits or human burials were identified during this project’s monitoring program. The project area’s subsurface deposits appear to have been disturbed by past land use, which likely included extensive earthmoving activity and importation of fill sediments into the project area.

4.2.51 Pammer and McDermott 2014

In 2014, CSH conducted an archaeological inventory survey of the Park Lane Ala Moana project, located at the southeastern corner of the Ala Moana Center, across Ala Moana Boulevard from the present project area. A total of eight backhoe trenches were excavated. Two historic properties were identified, SIHP # - 6636 , a pre-Contact to early twentieth century natural wetland deposit with culturally modified components, likely associated with agriculture, aquaculture, and possible salt production. It has been previously documented in different portions of the Kewalo area. SIHP # -7596 is a subsurface trash deposit, likely originating from open air burning common in the Kewalo coastal areas. The collected artifacts dated to the turn of the nineteenth century, with diagnostic date ranges of 1890–1902. Although the observed bottles and ceramics did not appear to have been burned or melted, they were collected from within a layer of blackened sediments containing charred wood in addition to the historic artifacts.

4.2.52 Pammer et al. 2014

Between 14 April and 9 June 2014, CSH conducted archaeological inventory surveys of Block B East (Pammer et al. 2014), part of the proposed Ward Village Gateway project. A total of 38 test excavations were completed within Block B East. Five historic properties were identified within the Blocks B East and C West (Ward Village Gateway) project areas. SIHP # -7658 represents the structures of previous twentieth century development land surface consisting of asphalt, concrete, coral and tar pavement, and oil-rolled surfaces. SIHP # -7655 is the remnants of historic salt pans. SIHP # -7656 consisted of a single human cranial fragment encountered within disturbed sand along the *makai* boundary of the project area. SIHP # -7659 consisted of the concretized and rerouted Ward Estate *‘auwai* (water channel). SIHP # -7660 consisted of an historic trash fill deposit located within an abandoned storm drain box along the *makai* boundary of the project area. The historic trash included bottles, ceramic, metal fragments, and boat trash likely related to the nearby fishing and tuna cannery industry.

4.2.53 Sroat, Inglis, and McDermott 2014

Between 14 January and 13 December 2013, CSH conducted an archaeological inventory survey of the Block K project area within the Ward Neighborhood Master Plan (Sroat, Inglis, and McDermott 2014). The Block K project area is located along the southeast side of Kamake‘e Street between Queen and Auahi streets. Thirty-five test excavations were documented within the project area. The stratigraphic sequence within the Block K project area was relatively consistent. It consisted of the modern developed land surface, numerous and variable layers of fill, and hydraulic (dredged) fill overlying natural layers, including a remnant buried A horizon or organic-rich peat material, Jaucas sand, gleyed marine sandy clay, and the coral shelf. Portions of two previously identified historic properties were recorded within the Block K project area: 1) a portion of SIHP # -6855, consisting of 24 subsurface cultural deposits; and 2) a portion of SIHP # -7422, a cultural deposit consisting of a burned trash layer. A sample of 61 artifacts from SIHP # -7422 dated generally to between 1870 and the mid-twentieth century and two artifacts post-date 1930 and 1935, suggesting the deposit likely dates to sometime after 1935.

4.2.54 Sroat, Pammer, and McDermott 2014

Between 14 April and 9 June 2014, CSH conducted archaeological inventory Block C West (Sroat, Pammer, and McDermott 2014), part of the proposed Ward Village Gateway project. A

total of 36 test excavations were completed within Block C West. Five historic properties, SIHP # -7658, -7655, -7656, -7659, and -7660 were identified (see Pammer et al. 2014, above, for site descriptions).

4.2.55 Sholin et al. 2014

In 2014, archaeologists from T.S. Dye & Colleagues (Sholin et al. 2014) completed an archaeological inventory survey into the proposed Ola Ka ~Ilima Artspace Lofts project on a 0.6-acre lot, currently used as a parking lot, at 1025 Waimanu Street in Kaka‘ako. The crew monitored the excavation of several construction boreholes and excavated six archaeological test trenches. The stratigraphy of the trenches consisted of asphalt and fill materials over a thin deposit of clay and basalt marine sand. Historic artifacts and faunal bone were collected from the fill layers and were dated to ca. 1880-1960.

4.2.56 Yucha et al. 2014

Between December 2012 and January 2013, CSH conducted an archaeological inventory survey of the Ward Neighborhood Block C project, located within a parking lot at the intersection of Ala Moana Boulevard and Kamake‘e Street (Yucha et al. 2014). Forty-one test excavations were distributed across the project area. Only one historic property was identified, a burned trash layer located near the corner of Kamake‘e and Auahi streets (SIHP # -7422). Stratigraphy within the project area was largely consistent. A deposit of hydraulic fill material associated with the reclamation infilling of Kaka‘ako during the 1913 to 1930 period was found within the north, west, and south portions of the project area. Beneath the fill layers, a coarse sand A horizon was documented within 25 test excavations throughout the project area, while a peat A horizon was found within three excavations within the northern portion of the project area. A majority of the project area (35 test excavations) contained Jaucas sand. No cultural material or features were observed within the test excavations or within screened sediment samples.

4.2.57 Hawkins et al. 2015

Between 13 January and 1 June 2014, CSH conducted an archaeological inventory survey of the Block M project area within the Ward Neighborhood Master Plan project (Hawkins et al. 2015). The Block M project area is located at the western corner of the intersection of Queen and Kamake‘e streets, and is bound to the southwest by Ward Theaters and to the northwest by the Ward Industrial Center. Sixty-eight test excavations were documented. Portions of two historic properties were identified within the Block M project area: 1) a portion of previously identified SIHP # -7429, consisting of two layered cultural deposits and associated features; and 2) SIHP # -7686, consisting of twentieth century commercial infrastructure remnants.

4.2.58 Humphrey et al. 2015

A 2014 supplemental AIS of the HHCTCP (now termed Honolulu Rail Transit Project –HRTP) City Center project area, from the location of the Kaka‘ako Station to just east of Kamake‘e Street, further identified SIHP # -7429 within two cultural deposits (Humphrey et al. 2015). The cultural deposits consist of an in situ loamy sand A horizon and an overlying historic fill deposit comprised of redeposited local sediments. These two cultural deposits are designated Component 1 (culturally enriched historic fill) and Component 2 (culturally enriched natural A horizon). Four additional features of SIHP # -7429 were identified, including a fire pit feature within Component 2 and a

flexed human burial within the underlying natural Jaucas sand. Stratigraphy consisted of interspersed sand and wetland deposits.

4.2.59 Sroat et al. 2015

Between 17 March and 2 August 2014, CSH conducted an archaeological inventory survey for the Ward Neighborhood Block I project (Sroat et al. 2015). The AIS consisted of 88 test excavations within a parcel. Three historic properties were identified, including SIHP # -7429, pre-Contact to early post-Contact subsurface cultural deposits including human burial sites, SIHP # -7655, subsurface historic salt pan remnants, and SIHP # -7659, a historic subsurface concrete water channel (*‘auwai*) associated with the Ward Estate.

4.2.60 Enanoria et al. 2015

Between 2011 and 2014, CSH conducted archaeological monitoring for the Ala Moana Boulevard/Nimitz Highway Resurfacing and Highway Lighting Replacement project, which extended from Fort Street to Kalākaua Avenue (Enanoria et al. 2015). The project area was divided into five sections. Three sites were identified, but only SIHP # -7435 is near the current project area. Near the intersection of Ala Moana Boulevard and Queen Street, four sets of human remains, including three in situ or partially in situ burials and one previously disturbed individual, were encountered during utility trenching with sand deposits (SIHP # -7435).

4.2.61 Yucha (J.) et al. 2015

From July 2010 through August 2011, CSH conducted archaeological monitoring for the Ward Village Shops Project bounded by Kamake‘e Street to the west, Queen Street to the north, Auahi Street to the south, and Queen Lane to the east in Kaka‘ako (TMKs: [1] 2-3-005:013 through 017, 022, and 023) (Yucha et al. 2015).

Four significant historic properties were located within the project area. Three were originally identified during the archaeological inventory survey for this project (Bell et al. 2006) and one was originally identified by Yucha et al. (2014) during an archaeological inventory survey of Block C and reassessed for the current study by Sroat et al. (2014):

1) SIHP # -6854 is a subsurface cultural layer/activity area, which contained an immature pig skeleton, remnants of a historic privy, remnants of a culturally enriched A horizon (containing both historic and traditional cultural material), and 28 previously identified human burials. No evidence of SIHP # -6854 was identified during the current archaeological monitoring effort.
2) SIHP # -6855 is a buried cultural layer indicating a former traditional Hawaiian activity area, which contained numerous pit features and human burials. The layer also contains historic cultural material and has extensive previous disturbance from modern activities.
3) SIHP # -6856 is comprised of buried fishpond remnants (Kolowalu Fishpond), part of Land Commission Grant 3194, “Kolowalu,” awarded to Kalae and Kaaua. No evidence of SIHP # -6856 was identified during the current archaeological monitoring effort.
4) SIHP # -7422 is a post-Contact subsurface cultural deposit (burned trash layer) associated with open-air burning practices.

4.2.62 Belluomini et al. 2016

The Belluomini et al. 2016 archaeological monitoring report documents monitoring conducted from March 2006 through December 2008 in a project area bounded by Kamake‘e Street to the west, Queen Street to the north, Auahi Street to the south, and Queen Lane to the east in Kaka‘ako.

Four significant historic properties are located in the project area. Three were originally identified during the initial archaeological inventory survey for the project (Bell et al. 2006) and one was initially identified during an archaeological inventory survey (Yucha et al. 2014) of the Howard Hughes Corporation Block C East project and reassessed for the current study during the Howard Hughes Corporation Block K archaeological inventory survey (Sroat et al. 2014):

1) SIHP # -6854 is a subsurface cultural layer/activity area remnant, which contained an immature pig skeleton, remnants of a historic privy, remnants of a culturally enriched A horizon (containing both historic and prehistoric cultural material), and five human burial finds.
2) SIHP # -6855 is an activity area remnant comprised of a subsurface cultural layer that included numerous pit features and six human burial finds. There are two distinct portions to this cultural layer separated by areas of disturbance and/or a slightly culturally enriched buried A horizon that contains both traditional Hawaiian and historic cultural material.
3) SIHP # -6856 is buried fishpond remnants (Kolowalu Fishpond), part of Land Commission Grant 3194, “Kolowalu,” awarded to Kalae and Kaaua.
4) SIHP # -7422 is a post-Contact subsurface cultural deposit (burnt trash layer), which was most likely associated with open-air burning.

4.2.63 Sroat et al. 2016

Sroat et al. 2016 reported on an archaeological inventory survey for the Block N East project area located within the Ward Industrial Center, along the *makai* side of Queen Street between Ward Avenue and Kamake‘e Street. In Kaka‘ako, (TMKs: [1] 2-3-002:001 [por.], 067, 086, 087). Two historic properties were documented within the Block N East project area:

1. SIHP # -7429 consists of pre- and post-Contact cultural deposits with associated features, including human burials. SIHP # -7429 was previously documented by Hammatt (2013), Hawkins et al. (2015), Humphrey et al. (2015), and Sroat et al. (2015) within adjacent project areas. Within Block N East, SIHP # -7429 consists of culturally enriched natural sand deposits, including an associated human burial ground, and culturally enriched fill deposits utilized as historic living surfaces.
2. SIHP # -7686 consists of subsurface historic infrastructure remnants. SIHP # -7686 was previously identified by Hawkins et al. (2015) within the adjacent Block M project area as consisting of warehouse building remnants and asphalt road surfaces associated with twentieth century commercial development. Within Block N East, SIHP # -7686 consists of buried asphalt and oil-rolled surfaces.

4.3 Summary of Previous Archaeological Research

Several in situ pre-Contact burials and cultural layers have been found in sand deposits in the Kaka‘ako/Kālia coastal area. Cultural layers associated with habitations, agricultural fields, fishponds, salt ponds, and wetlands have also been recorded near the coast. Historic salt works remains, coffin burials, and trash associated with late nineteenth-early twentieth century open-air burning are also commonly identified historic properties. Five burials have been recorded along the northern boundary of the park, one in situ burial, SIHP # -6376, on Kamake‘e Street near the northeastern corner of the park (Souza et al. 2002), and four possibly in situ burials, SIHP # -7435, at the termination of Queen Street near the north, central area of the park (Enanoria et al. 2015).

Other sites near the project area include SIHP # -6636, a wetland surface (Altizer et al. 2011; Clark and Gosser 2005; O’Hare, Bush, Borthwick, and Hammatt 2004; Tulchin and Hammatt 2005, etc.), SIHP # -7422, a burned historic trash layer (Sroat, Inglis, and McDermott 2014), and SIHP # -7596, another subsurface historic trash deposit (Pammer and McDermott 2014). In areas of the park near Ala Moana Boulevard, it is possible some pre-Contact burials and cultural layers may still be present, and it is very likely historic trash deposits remain in areas of the park where the old open-air burning grounds extended past the Old Beach Road (now Ala Moana Boulevard) into the present area of Ala Moana Regional Park.

Section 5 Results of Field Check

David W. Shideler, M.A., under the general supervision of Dr. Hallett H. Hammatt, conducted a field check of the Ala Moana Regional Park on 29 December 2016. The archaeologist walked the entire perimeter and took photographs of representative buildings and landscape areas (Figure 60 through Figure 69). The field check photographs begin at the northeastern corner of the park near the Roosevelt Portal, then follow along the east boundary of the park next to the Ala Wai Yacht Harbor, along the coast to the southwest corner of the park at Kewalo Basin, along the west end of the park, and along the Ala Moana Boulevard side east to the starting point. A sidewalk and a drainage canal parallels Ala Moana Boulevard for most of its length, and the drainage canal is spanned by several bridges, including the arched Equestrian Bridge. Building letter designations correspond to the plan view map in the Introduction section of this report (see Figure 4).

Figure 60. Roosevelt Portal, northeast corner of the park, view to northeast

Figure 61. East (Hawaiian) Lagoon, note top soil fill over dredged coral rubble and sand

Figure 62. Southeastern corner of park, East Lagoon beyond coconut trees, Equestrian Bridge in background, view to north

Figure 63. Building D concession stand (east) (not on original 1936 plan), view to northwest

Figure 64. Beach from southwest corner of park, Magic Island and Diamond Head in the background, view to east

Figure 65. Ocean from beach, note color differences between dredged swimming area, former low reef, and deep ocean, view southwest

Figure 66. McCoy Pavilion complex (includes Sports Pavilion and remnant of Banyan Court), view to northeast

Figure 67. West (Oriental) Lagoon, at west end of park, view to southwest

Figure 68. Sidewalk and drainage canal parallel to Ala Moana Boulevard, view to west

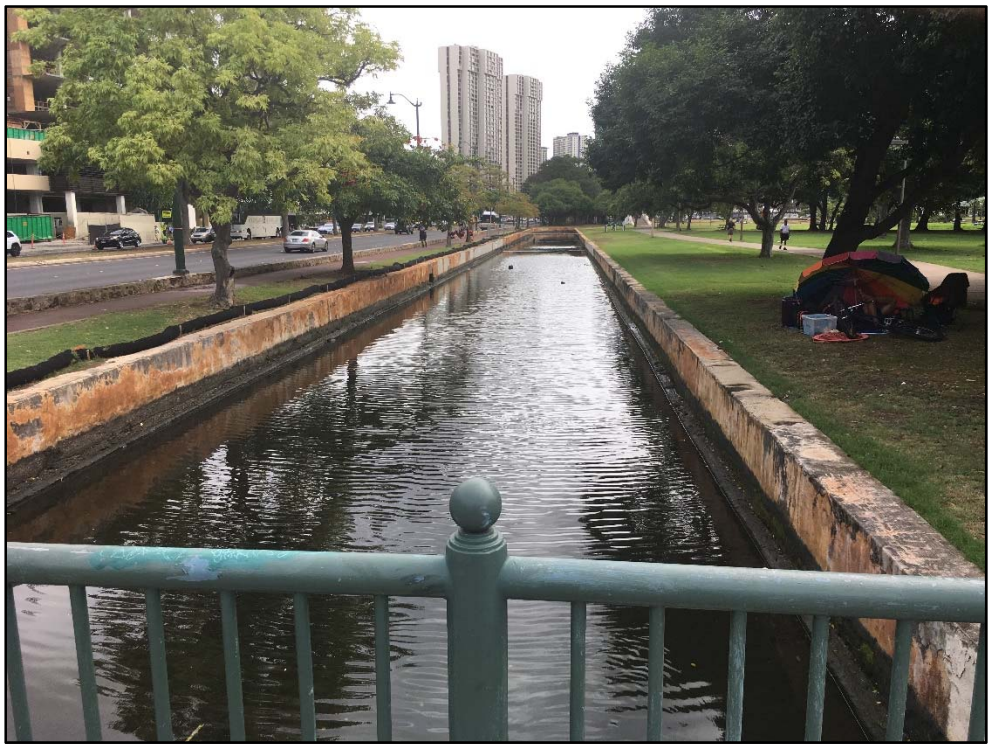

Figure 69. Drainage canal with stucco boulder wall parallel to Ala Moana Boulevard, view to east

Section 6 Cultural Impact Evaluation

The preceding discussion documents in detail the filling operations that created the land that became today's Ala Moana Regional Park. Plans to fill these shallows were developed at least as early as 1911 (see Figure 14) with highly developed plans by 1927 (see Figure 20). Most of the fill activity is understood to have taken place in 1930/1931 (see Figure 22, Figure 23, and Figure 25) although toping the marine fill with terrestrial top soil extended at least as late as 1935 (see Figure 32).

6.1 Traditional Hawaiian Use of the Project Area

The shallows of present Ala Moana Regional Park were probably utilized by Native Hawaiians for close to a millennium for traditional Hawaiian patterns of marine exploitation. The western third of the present Ala Moana Regional Park footprint was within the Kukuluaeo Fishery and the eastern portion was within the Kālia Fishery (see Figure 13) The specificity of the boundaries of the fisheries suggest these were desirable coveted lands for fishing and gathering of marine resources.

It seems likely access to off-shore fishing grounds would have been preferentially to the west at the natural deep channel that was later developed as Kewalo Basin and at the mouth of Pi‘inaio Stream to the east. Thus fishing within the former shallows that became Ala Moana Regional Park likely would have focused more on mollusks, crabs, and seaweed, particularly *‘alamihi* (*Metopograpsus messor*) crabs and the edible *limu* called *limu ‘ele‘ele* (*Enteromorpha prolifera*), or black seaweed for which the shallows of Kālia were famous (see Section 2.2 above). The shallows of Kālia were also famous for the netting of fish with a special fishing technique used to catch schools of mullet. When a school of mullet appeared, a bag net was set and the men swam out in a row. They surrounded the fish, slapped the water and kicked their feet, thus driving the frightened fish into the opening of their bag net. The fishermen of Kālia became known as human fishnets (Pukui 1983:150). This particular type of net was used because the water off Kālia was very shallow (Pukui 1983:74).

6.1.1 Trail

Early maps such as Kotzebue's map of 1817 (see Figure 8) supports our general understanding that pre-Contact and early post-Contact Hawaiian coastal population densities were significantly higher just to the west (Kou and Honolulu) and the east (Waikīkī east of Pi‘inaio Stream).

6.2 Hawaiian Use of the Project Area Post 1930s Land Creation

The present lands of Ala Moana Regional Park only came into being with the completion of topping the marine fill with terrestrial top soil that was on-going at least as late as 1935. Access to traditional resources that have been planted as part of Ala Moana Regional Park landscaping (such as to *Pandanus* trees for *lauhala* leaves) presumably would be available to Native Hawaiian practitioners within standard park rules.

The case of Ulu Mau village merits further consideration. From the beginning the landscape design was to feature a showcase for Hawaiian culture. “The eastern lagoon was to provide a setting for a "Hawaiian village" for municipal pageants (Weyeneth 1987:10). “On the drawing boards in 1936 were plans for …a ‘village’ of grass huts "harking back to the atmosphere of old

Hawaii," (Weyeneth 1987:27). Weyeneth (1987:30, 49) relates that Ulu Mau opened in 1948 and was renovated in 1960.

While perhaps few remember the opening in 1948 the “re-opening” in 1960 is better remembered.

> In 1960, Herman and Malia Solomon created Ulu Mau Village, grass shacks and all, at the Diamond Head end of Ala Moana Park as a way to revive the Hawaiian culture, offering demonstrations of tapa-weaving, poi pounding and other crafts. [Watanabe 2009]

George Kanahele (1979:3) mentions Ulu Mau Village with its emphasis on culture as one of the few bright spots between the 1930s and 1969 leading up to the Hawaiian Renaissance. The village later moved to He‘eia Kea ca. 1963 for a while before it closed. As one online review notes: “Ulu Mau Village is often fondly recounted from the memories of those who remember the 1950’s-1960’s era in Hawai‘i” and “Everyone who knew of Ulu Mau Village seemed to love it” (Kealoha 2012). It might be wished that the dignified presentation of Hawaiian arts led by Aunty Maria Malia Blanchard Solomon, “cultural village co-founder, *kapa* maker and ambassador of good will and aloha” (Blakeman 2005) could be resurrected at Ala Moana Regional Park.

Section 7 Summary and Recommendations

Original buildings such as the Sports Pavilion, the Ala Moana Equestrian Bridge, the Roosevelt Portals, and the Lawn Bowling Green were completed between 1934 and 1939. Many of the park walls were also built in the early 1930s. In the 1970s, the pavilion/courtyard complex was altered with the construction of the McCoy Pavilion, and now the entire complex is known by this name. There are now no visible surface remains of the Ulu Mau Village near the East (Hawaiian) Lagoon, built in 1948, or any World War II structures, including the gun emplacement near the beach (see Figure 39). Several other structures such as the West (Oriental) Lagoon have been altered and many comfort stations have been added. There are still original and unaltered features in the park that are older than 50 years old, and are thus historic properties. Ala Moana Regional Park was listed on the Hawai‘i Register of Historic Places as SIHP # 50-80-14-1388 (part of the County of Honolulu’s Art Deco Parks Thematic Group) and nominated to the National Register of Historic Places in 1988. An architectural review of the age, condition and integrity of the current structures in the park is needed before alteration (if any) during the proposed improvements to the park.

Summarizing the history of the development of the park, Weyeneth (1987:4) concluded that “the site has no known pre-contact or archaeological significance.” This present study largely supports Weyeneth’s conclusion that there are no pre-fill in-situ sediments or archaeological resources above the water table at Ala Moana Regional Park. There are, however, some caveats about archaeological significance.

It must be noted that sand for the park was trucked in from beaches on the north and western shores of O‘ahu and burials and pre-Contact cultural layers have been recorded from the sources of the sand, Keawa‘ula Beach in the Wai‘anae District (summarized in Gaskell and Desilets 2007:7), and Mokulē‘ia Beach in the Waialua District (summarized in Monahan et al. 2007). Thus, it is possible human skeletal remains and pre-Contact artifacts may be found in a secondary context in the sand fill substratum of the park.

In the later nineteenth and early twentieth century, the former shoreline of Kaka‘ako was used for open-air incineration of historic trash, especially on the mud shores that extended past the old Beach Road, and thus within the present park (see Figure 19, Figure 21, and Figure 23). Remnants of dumps and their contents extend back at least as far as 1925 (see Figure 19) and Weyeneth (1987:5) may well be correct that “the city had been using a portion of the area as a garbage and refuse dump since the turn of the century.” Numerous fill layers with bottles, ceramics, and other trash have been recorded from this open-air burning area during previous archaeological projects (see Section 4 of this report), and it is probable some subsurface historic trash layers are still present along the northern boundary of the park.

There was a Battery AMTB (Anti-Motor-Torpedo Boat) at Ala Moana Regional Park, built in 1944 and destroyed in 1946. Remnants of this World War II installation are possible within Ala Moana Regional Park and potentially would constitute a historic property.

It might be wished that the dignified presentation of Hawaiian arts at Ala Moana Regional Park’s Ulu Mau Village led by Aunty Maria Malia Blanchard Solomon, “cultural village co-founder, *kapa* maker and ambassador of good will and aloha” (Blakeman 2005) could be resurrected at Ala Moana Regional Park.

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Appendix A NRHP Nomination Form

80-14-1388

NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

COPY

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name ALA MOANA PARK

other names/site number

2. Location

street & number Ala Moana Boulevard ☐ not for publication

city, town Honolulu ☐ vicinity

state Hawaii code HI county Honolulu code 03 zip code NA

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☒ building(s)	1	buildings
☒ public-local	☐ district	1	sites
☐ public-State	☒ site	3	structures
☐ public-Federal	☐ structure		objects
	☐ object	5	Total

Name of related multiple property listing: City & County of Honolulu Art Deco Parks & Playgrounds

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☐ entered in the National Register.
☐ See continuation sheet.
☐ determined eligible for the National Register. ☐ See continuation sheet.
☐ determined not eligible for the National Register.
☐ removed from the National Register.
☐ other, (explain:)

Signature of the Keeper Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Recreation & Culture	Recreation & Culture

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
Modern Movement	foundation NA
Art deco	walls NA
	roof NA
	other NA

Describe present and historic physical appearance.

Ala Moana Park is a 76 acre beach park located in Honolulu between downtown and Waikiki. It features a mile-long, white sand beach, an offshore coral reef and lawns dotted by palms, banyans and flowering tropical trees. The spatial arrangement for the landscape includes alternating areas of massed foliage and open space, with lagoons located at the eastern and western sides. The eastern lagoon was an Oriental one, "in the characteristic Chinese and Japanese manner." The western one was the Hawaiian Lagoon, "featuring native palms and plants." A drive loops through the park, running parallel to and near the beach for most of its route. The beach itself was created in 1955.

On the Waikiki side the park is entered via a roadway which was originally flanked by fifteen foot concrete portals of curved and angular shapes, scalloped walls and wedge indentations. Scalloped walls that adjoin the outer portals allowing planting space within their concave recesses.

A canal runs along the mauka side of the park and diverts water from mountain streams to the lagoons at either end. An equestrian bridge spans the canal, and its playful semi-circular form and inclined approaches give the appearance of a hump-backed animal.

The largest structure within the park is the sports pavilion. From the exterior this is a modest, stucco walled structure, which houses on the interior a banyan courtyard. This courtyard is perhaps Bent's most noteworthy park design. The sports pavilion, itself stands at one end of the courtyard. It is a gable roofed, open structure with two wall-sized murals by Robert Lee Eskridge depicting the Hawaiian makahiki.

The courtyard is paved with coral stone flagging, and features six intricately detailed planters with benches, four of which contain banyan trees, surrounded by exotically shaped reflecting pools. Two Marguerite Blasingame sculptures in marble are located in niches on the mauka and makai walls of the courtyard. The mauka wall niche contains a stylized Hawaiian man and woman, back-to-back, playing nose flutes. The makai side features another couple sitting face to face with arms and faces touching. Figures of Hawaiians playing traditional games are also present in the coral stone flagging of the passages of the sports pavilion. In 1975 the McCoy Pavilion was built at the Diamond Head side of the banyan courtyard. This modern structure is a sympathetic addition that blends well with the older sports pavilion.

Mauka of the Sports pavilion and banyan courtyard are tennis courts and a lawn bowling green. This is a raised square lawn area of eight lanes enclosed by a wide coral stone walkway and a five-foot decorative cement brick wall. The corners of the wall are rounded, and curved brick benches are inside each curve. These are capped by red Padre tile.

☐ See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☒ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Recreation	1934	1934
Architecture		

Cultural Affiliation: NA

Significant Person: NA

Architect/Builder: Harry Sims Bent

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

Ala Moana Park is significant for its associations with the development of parks in Honolulu during the 1930s as discussed under the context section of the multiple property documentation form. Similarly its architectural significance is covered in that form.

Ala Moana Park is entirely a man-made development. Its oceanfront bathing area has been carved from the fringing coral reef. Its beach the creation of hydraulic engineers. The park lands are a tidal area filled by excavating the offshore reef. The land on which it stands was purchased by the City and County in 1928, even though the city had been using the site as a garbage and refuse dump since the turn of the century. The idea of a park on the present site of Ala Moana Park can be traced to the 1920s, and an interest in civic beautification among socially prominent Honolulu women, especially those involved in the Outdoor Circle.

Louise Dillingham, who was president of the Outdoor Circle from 1929 to 1931 and a member of the city's Shade Tree Commission, the predecessor of the Honolulu Park Board, was an outspoken proponent of the park and fashioned some of the initial ideas for the park's form. In 1931 the Parks Board hired Catherine Jones Richards and Robert O. Thompson, major landscape architects of the period in Honolulu, to plan the park. Their proposal for the spatial arrangement of two lagoons and alternating areas of massed foliage and wide open spaces continue to delineate the contours of the park's design today.

Harry Sims Bent was responsible for the design of such structures as the Waikiki entrance portals (completed 1934), the canal bridge (completed 1934), a lawn bowling green (completed 1939) and the sports pavilion with its banyen courtyard (completed 1937). In addition federal relief labor constructed a small boat harbor, tennis courts, dressing rooms and showers. The park stands as the crowning achievement of the golden age of Honolulu park-building during the 1930s. It is an attractive and functional urban space created in Depression-era Hawaii.

☐ See continuation sheet

9. Major Bibliographical References

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☐ See continuation sheet

Previous documentation on file (NPS):
- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # ____
- ☐ recorded by Historic American Engineering Record # ____

Primary location of additional data:
- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: ____

10. Geographical Data

Acreage of property 76 Acres

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			

☐ See continuation sheet

Verbal Boundary Description

This nomination includes all the property owned by the City & County of Honolulu in 1988 as described by Tax Map Key 2-3-37:1.

☐ See continuation sheet

Boundary Justification

This is the historic boundary of the park.

☐ See continuation sheet

11. Form Prepared By

name/title Don Hibbard,
organization State Historic Preservation Office date 4/20/88
street & number 1151 Punchbowl Street, Room 310 telephone 548-6408
city or town Honolulu state Hawaii zip code 96813

APPENDIX D-3

Ala Moana Regional Park Improvements Plan
Historic Feature Review and Retrofit Assessment

Ala Moana Regional Park Improvements Plan
Historic Feature Review and Retrofit Assessment

Introduction

The City and County of Honolulu Department of Design and Construction on behalf of the Mayor's Office has proposed to make improvements to Ala Moana Regional Park (AMRP), tax map key: (1) 2-2-037:001. A master plan for the park was recently completed, which identified needs and preferences of the park users based on public meetings and consultant studies.[1]

The original portion of the park, essentially the portion excluding Magic Island, is listed on the Hawaii Register of Historic Places (HRHP). That portion of AMRP is Site #50-8-14-1388 on the State Inventory of Historic Places, identified as one of the Art Deco Thematic Parks Group of Hawaii. An archaeological literature review and field inspection were undertaken for the master plan to provide an overview of the existing archaeological conditions.[2] The intent of the archaeological study was to facilitate planning and identify possible archaeological constraints to implementing the proposed improvements. The recommendations in the review and inspection report noted that, "An architectural review of the age, condition and integrity of the current structures in the park is needed before alteration (if any) during the proposed improvements to the park."

This report discusses proposed improvements to the HRHP-listed portions of AMRP, specifically the:

- Drainage canal;
- Japanese and Hawaiian Ponds;
- McCoy Pavilion parking area; and
- Repair of the Bridle Bridge and Roosevelt Portals

[1] "Preferred Concept Master Plan Ala Moana Reginal Park", Biederman Redevelopment Ventures, December 2017.
[2] "Draft Literature Review and Field Inspections with Cultural Section for the Ala Moana Regional Park Master Plan Waikīkī Ahupuaʻa, Honolulu (Kona) District, Oʻahu", Cultural Surveys Hawai'i, Inc., January 2017.

Drainage Canal Crossing and Canal Repairs

Proposed Scope:

1. Replace two up to 100-foot long segments of the existing drainage canal in AMRP
2. Repair existing failed sections of the canal walls

Background:

1. There are no specific records on the construction of the canal. Anecdotal information presented in, "The People's Park" is that:
    - Louise Dillingham proposed water waterways because a waterway was less expensive to maintain than landscape grounds.
    - Lagoons along with a drainage canal were dredged in the park to control the runoff from mountain showers toward the ocean at the site.

    The book also discusses how "boulder concrete" was used for the park improvements. The material was reportedly, "…a thin gruel of concrete…poured into wood forms packed solid with boulders of coral and lava rock...". The rocks were debris from park board property and there was no quality control. The use of boulder concrete is specifically noted for being used in the central terrace area pergolas and Roosevelt Portals where it was finished with stucco painted white. There was no discussion on the canal construction[3].
2. Work on the Park was done under the Civil Works Administration, a short-lived U.S. job creation program established by the New Deal during the Great Depression to rapidly create manual labor jobs for millions of unemployed workers. Created November 9, 1933 by Executive Order No. 6420B, under the power granted to President Roosevelt by Title II of the National Industrial Recovery Act of 1933. The CWA ended in July of 1934 (although most employment ended by March 31, 1934). There was no mention if the work was done by local or imported laborers.
3. Due to the lack of skilled labor and material limitations, the canal walls were constructed without footings or with shallow footings, and of poor quality materials. Failure of the walls has occurred several times since in recent years.
4. Adding to the instability of canal walls are the surrounding soils. The park area is reclaimed land with the fill material being dredged spoils from the channel that connected the Ala Wai Boat Harbor and the Kewalo Basin. Geotechnical explorations along the canal show the soils to consist of very loose lagoonal deposits extending to 21.5 feet below the ground surface. In the borings done, the deposits were found to be sand, sandy-gravel and silt. The fill has limited bearing capacity.
5. The City is concerned for public health and safety.

    a. They wish to create a properly engineered box culvert crossing in two sections of the canal to create a wider pedestrian access/egress into the Park at Pi'ikoi Street and Queen Street to provide for emergency evacuation from the park. The wider promenade will also enhance pedestrian and non-motorized vehicles access to the park from the major area streets, and not channel such traffic to the roadway entrances at the Roosevelt Portal and Kamakee Street. Separating pedestrian traffic from vehicular traffic also promotes public safety.

[3] "The People's Park", Robert Weyeneth, 1987

b. The instability of the canal walls is a liability and a collapse could be hazardous to users in the area at the time the failure occurs. Due to the poor soil conditions, the City cannot predict when a failure may occur or how extensive it will be.

Options Considered:

1. Canal Crossing

A discussion of the options considered to expand the canal crossing at the two roadway intersections is presented below. The current condition at the Ala Moana Boulevard crosswalk at the Queen Street intersection is shown in the photo below; the conditions at Pi'ikoi Street are similar.

a. Parallel Drain / Backfill Existing Canal
Under this option the canal would be replaced with a piped system, and the canal backfilled to preserve in-place. Upon review of the available space between the Ala Mona Boulevard right-of-way and the canal, it was found that there was inadequate space for a parallel system on the mauka side of the canal. On the makai side there were conflicts with a 12-inch diameter water line and a 69-inch diameter sewer line. As such, this option was not considered viable.

b. Bridge Crossing
Information and quotes for prefabricated bridges were solicited from various manufacturers. The quotes ranged from $50,000 to $85,000 for fabrication and shipping. Another manufacturer quote $280 as square foot installed, which would put the 20-foot wide bridge at $200,000. For the stability of the bridge removal of the section of canal beneath it was recommended by the project structural engineer for construction of the abutments. A precast concrete structure was also considered. The precast supplier also recommended to remove the

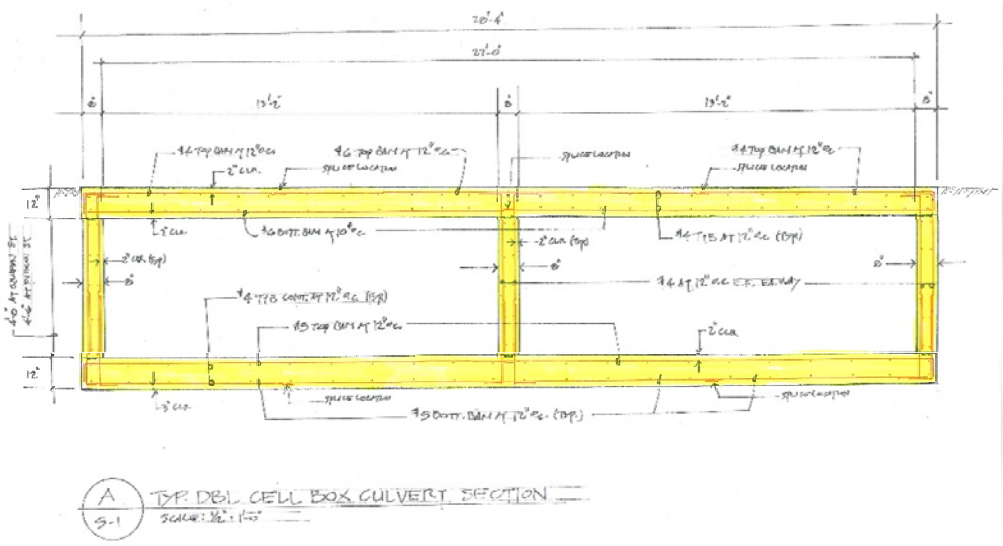
existing canal walls for proper support of the bridge, and would not warrant the installation without replacement of the existing walls. Below are images of a prefabricated steel bridge and a precast concrete structure, ConSpan, installed along with the estimated costs.

Prefabricated Steel Bridge, 25 feet wide – estimated cost $530,000

ConSpan Structure – estimated cost $800,000

c. Box Culvert

The box culvert crossing has the benefits of the bridge without the exposed steel truss system, and maintains the rectilinear form of the canal compared to the ConSpan type structure. The box culvert exposed face can blend into the existing canal walls, which as shown in the above Queen Street crossing photograph, are plastered with no underlying construction visible. A double cell box culvert was proposed by the structural engineer to minimize concrete wall thicknesses. The box culvert was priced at $440,000 for a 25-foot wide Pi'ikoi Street crossing, making the cost comparable (or less) than the bridge option, which would also require removal of a section of the canal for the abutment as noted above.



A rendering pf the crossing at Piʻikoi Street is shown below.

2. Canal Wall Repair

a. Restoration

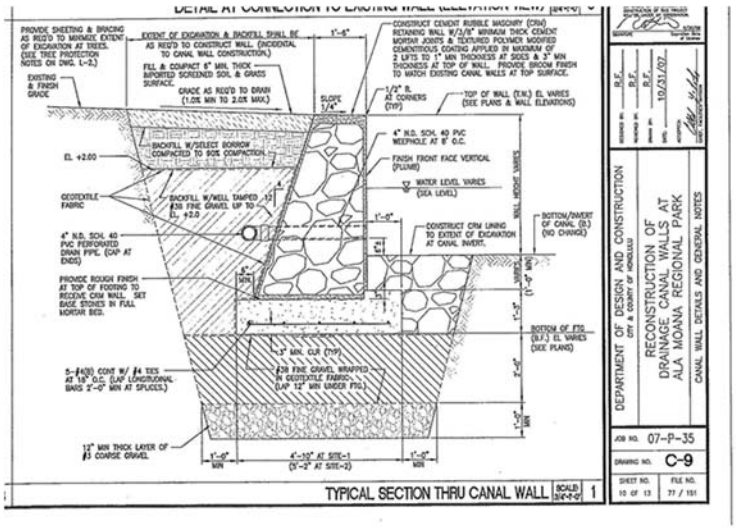
Boulder concrete, while cost effective during the Great Depression is not a recognized suitable construction material. In discussions with Aaron Uno at HD&C, the largest concrete ready mix supplier on Oʻahu, he informed that HD&C stopped making large aggregate concrete mix. The requirements for aggregate density testing in accordance with industry standards cannot be done on the larger stone and the mixes weren't accepted by agencies without the tests. The largest aggregate used is 1-1/4" size. Additionally, he informed that boulders and large stones are hard to come by in quantities needed for commercial mixes. The material is not readily or reliably sourced and the quality is not consistent.

The City needs to comply with current building codes and industry standard test methods to ensure public safety. Using a concrete mix comparable to that used in construction of the park improvements in 1933 is not possible. No design engineer or concrete ready-mix supplier will take liability for specifying or making such an inferior material by today's standards, and the City cannot jeopardize public safety by assuming the liability to use it. As such restoration with boulder concrete is not a viable option.

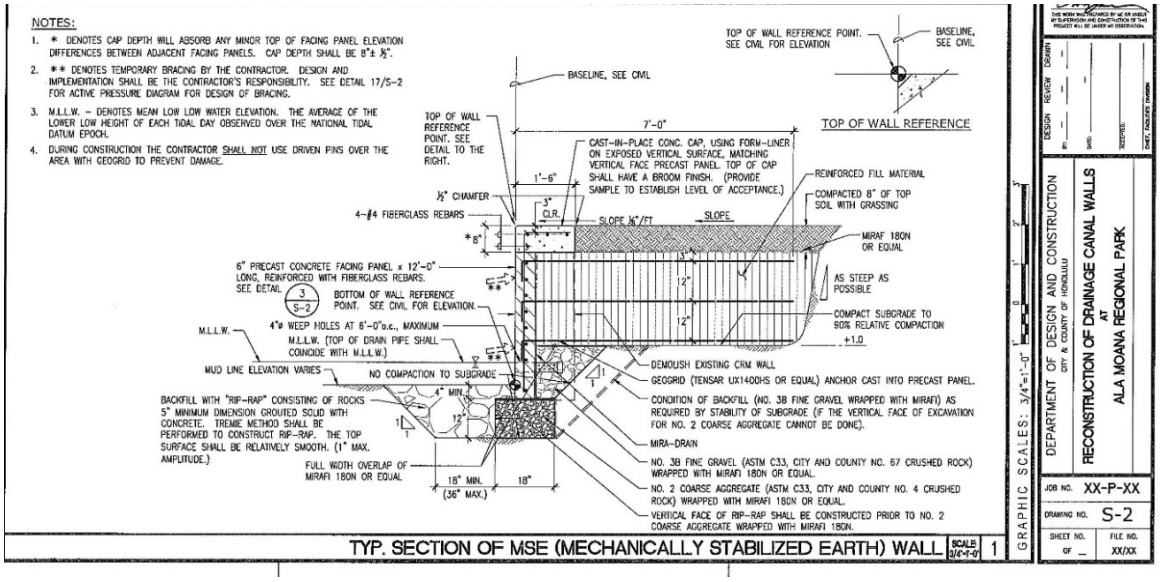
b. Reconstruction to mimic existing construction.

In 2007 the City hired a structural engineering firm to develop a wall design that mimicked the existing plastered finished canal wall construction. The wall design was essentially a concrete rubble masonry (CRM) retaining wall with an approximate 5-foot wide footing that extended into the bottom of the canal for support. In addition to not matching the existing construction, the wall construction was very costly. The current estimated cost for this section, is about $3,400 per lineal foot.

CRM Gravity Wall Section



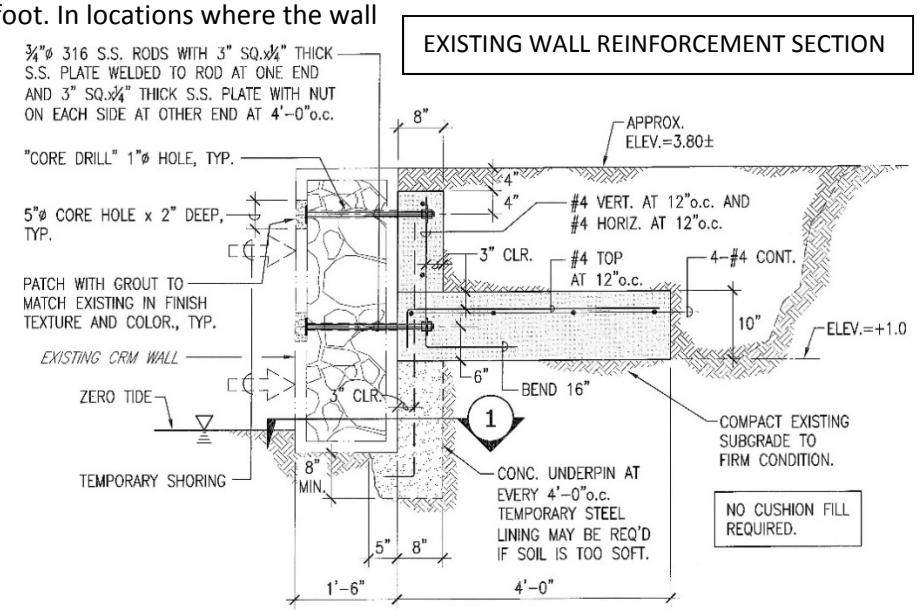
In 2012 the City engaged another structural engineering firm for design of the wall repairs. Two alternatives were developed. One proposed mechanically stabilized earth with 7-foot long tie-back rods. The only similarity of this alternative to that of the existing canal construction is that there was no was foundation, and that the surface finish of the precast concrete panel could be somewhat matched to the that of the existing plaster finished canal wall surface. The current estimated cost for this repair section is about $1,850 per linear foot.



The other alternative developed in 2012 was to try and salvage the existing wall by constructing a structural support behind it and installing anchor bolts through it. This design was applicable

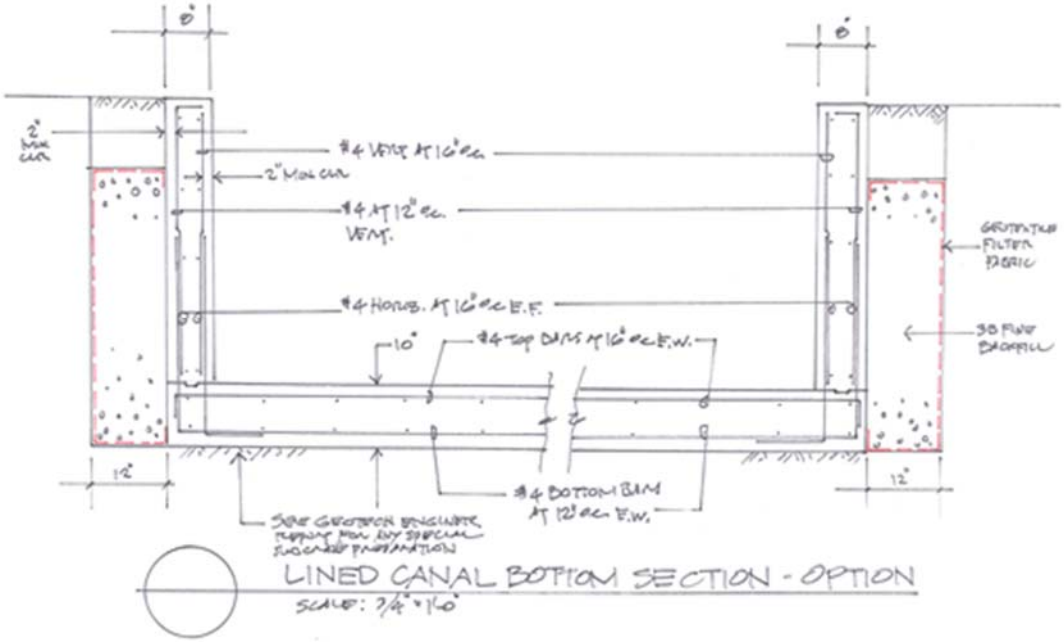
only where the existing wall was relatively sound and could be disturbed to install the under pinning and support. It required drilling through the existing wall and re-plastering the face.

The reinforcement section is not well suited to failed canal wall sections, which would require reconstruction of the wall because of the poor quality of the existing material and need so reconstruct the wall with a footing. The current estimated cost for the reinforcement section is about $1,230 per linear foot. In locations where the wall has failed, a precast concrete facing panel on a coarse aggregate footing, as shown in mechanically stabilized earth wall detail above would be required. The cost for the replacement would probably be similar to the $1,850 per lineal foot.



c. Replacement

The project structural engineer provided the sketch below to indicate the "ideal" replacement section for the existing canal, without consideration for the existing details of construction. The estimated cost for replacement of the existing with the lined section was $4,760 per lineal foot.



Recommendations:

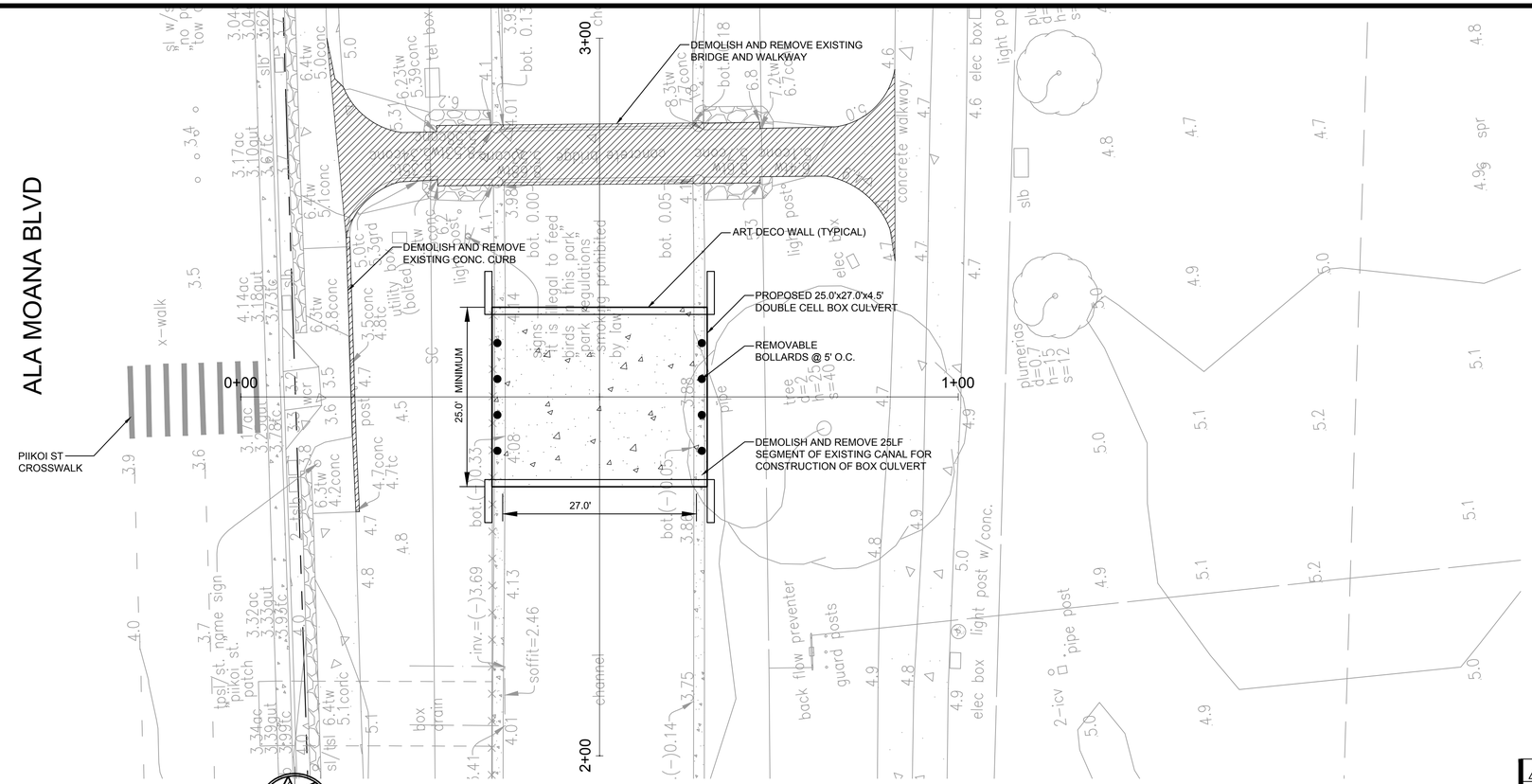
1. Canal Crossing

A box culvert crossing is recommended to achieve the improved pedestrian access/egress for the park. It provides the desired canal crossing in the most cost-effective manner and has the flexibility to be buried and be an extension of the park's lawn. It also has a lower long-term maintenance cost than the steel bridge which will require more maintenance in the highly corrosive environment.

The concrete finish of the box will blend in with the plastered canal wall and the structural mid-span support will not obstruct fish and other aquatic life residing in and passing through the canal. Preliminary construction plans showing the proposed box culvert crossing at Pi'ikoi Street and at Queen Street are included on the following pages.

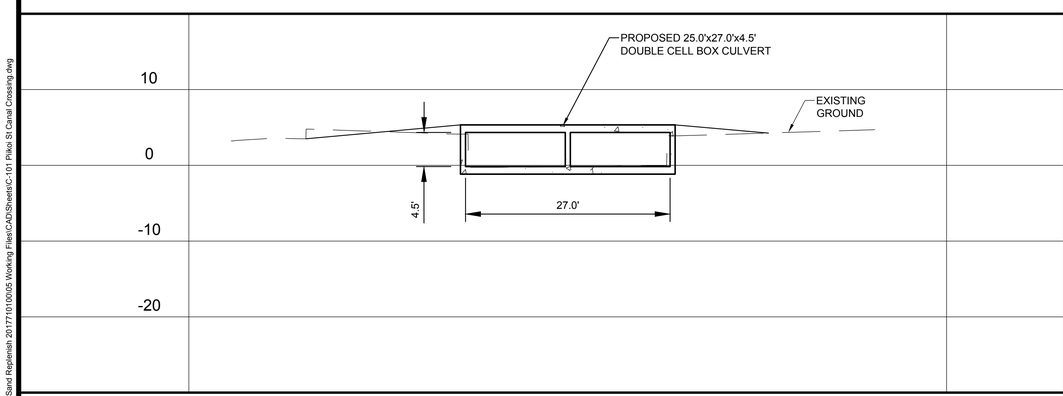
2. Canal Wall Repair

For the wall repair section, in cases where the existing structure has failed, the mechanically stabilized earth or similar system replacing the existing wall with a precast concrete panel is recommended. The panel should be finished to resemble the adjacent plastered canal walls. Removal of the existing wall should be limited to the extent needed to remove the failed section, with adjacent existing canal walls reinforced with a structural support as indicated in the second detail developed for the 2012 repair work. The repairs need to be undertaken as soon as possible on the existing failed section, the preliminary construction plans for which are also included at the end of this section.



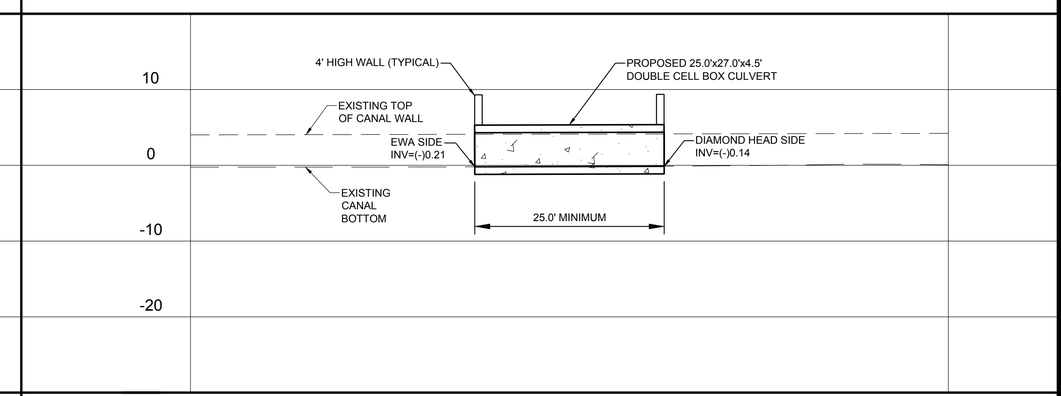
PLAN - PIIKOI STREET CANAL CROSSING

SCALE: 1"=10'



CULVERT CROSS SECTION - PIIKOI STREET

SCALES: HORIZ 1"=10'
VERT 1"=10'



CANAL PROFILE - PIIKOI STREET

SCALES: HORIZ 1"=10'
VERT 1"=10'

Rev	Date	Description	Eng	App

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

BELT COLLINS
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Consultant:

Client:
CITY AND COUNTY OF HONOLULU
842 BETHEL STREET, BASEMENT
HONOLULU, HI 96813

ALA MOANA REGIONAL PARK

CANAL COVERING

Designed By: JS
Drawn By: JS
Project No. 2017.71.0100
Date: DECEMBER 2017

Approved By:

Date
Date
Date

Thu, 08 Feb 2018 - 2:47pm
P:\Projects\Ala Moana Canal Cover & Sand Replenish 2017\10100\05 Working Files\CAD\Sheets\C-101 Piikoi St Canal Crossing.dwg

Trim: 22"x36"

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SHEET _____ of ___-___ Sheets

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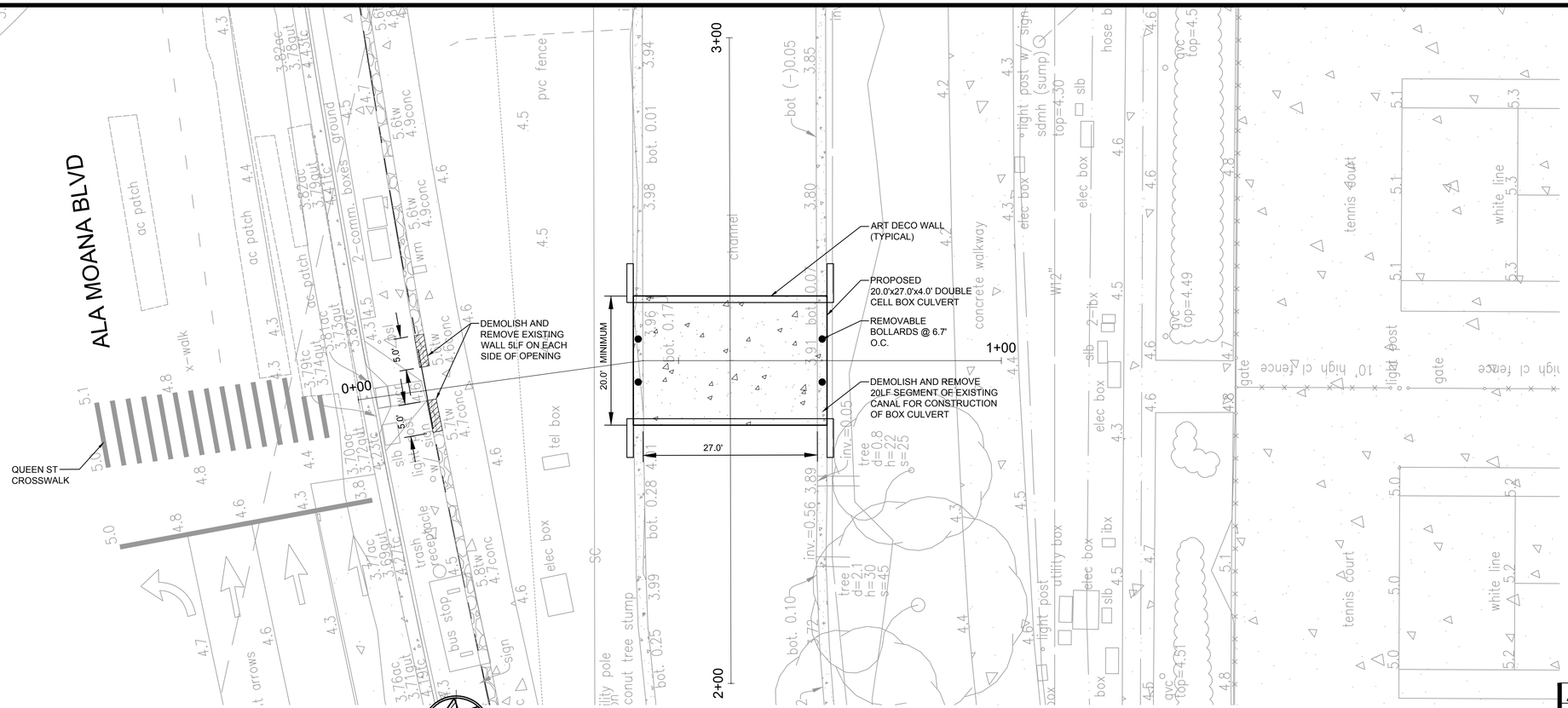
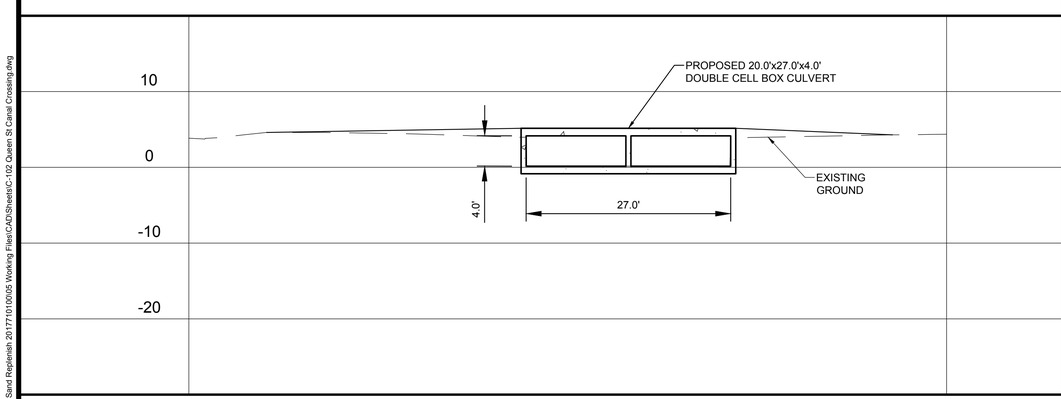


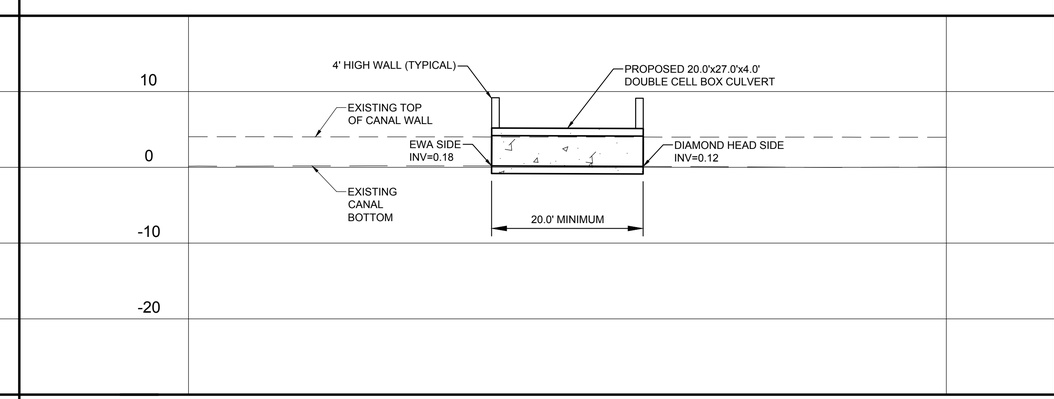
PLAN - QUEEN STREET CANAL CROSSING

SCALE: 1"=10'



CULVERT CROSS SECTION - QUEEN STREET

SCALES: HORIZ 1"=10'
VERT 1"=10'



CANAL PROFILE - QUEEN STREET

SCALES: HORIZ 1"=10'
VERT 1"=10'

Rev	Date	Description	Eng	App
△				
△				
△				

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APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

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Consultant:

Client:
CITY AND COUNTY OF HONOLULU
842 BETHEL STREET, BASEMENT
HONOLULU, HI 96813

ALA MOANA REGIONAL PARK

CANAL COVERING

Designed By: JS
Drawn By: JS
Project No. 2017.71.0100
Date: DECEMBER 2017

Approved By:

Date
Date
Date

Thu, 08 Feb 2018 - 9:52pm
P:\Projects\Ala Moana Canal Cover & Sand Replenish 2017\71010\05 Working Files\CAD\Sheets\C-102 Queen St Canal Crossing.dwg

Trim: 22"x36"

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SHEET _____ of ___-___ Sheets

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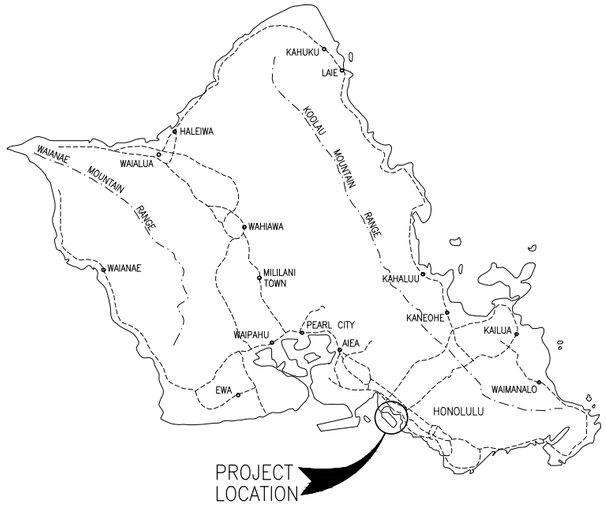
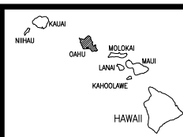


ISLAND OF OAHU

VICINITY MAP

NORTH



HAWAIIAN ISLANDS

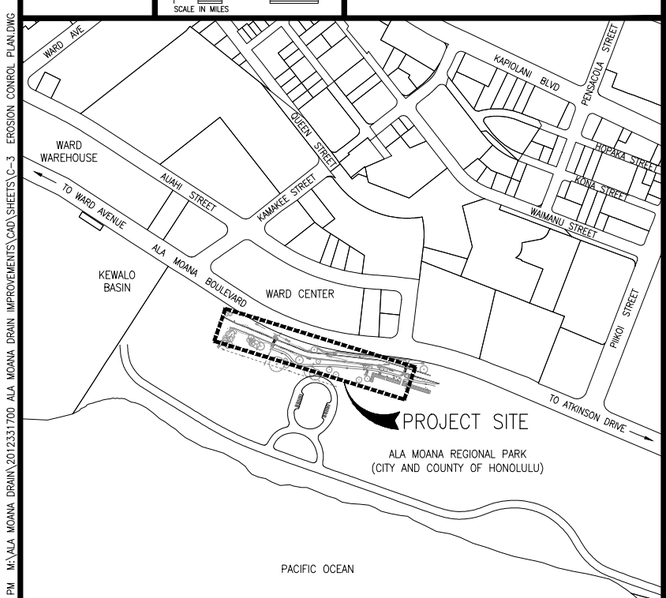
12 6 0 12 24

SCALE IN MILES

PROJECT LOCATION MAPS

400 0 400 800

SCALE IN FEET



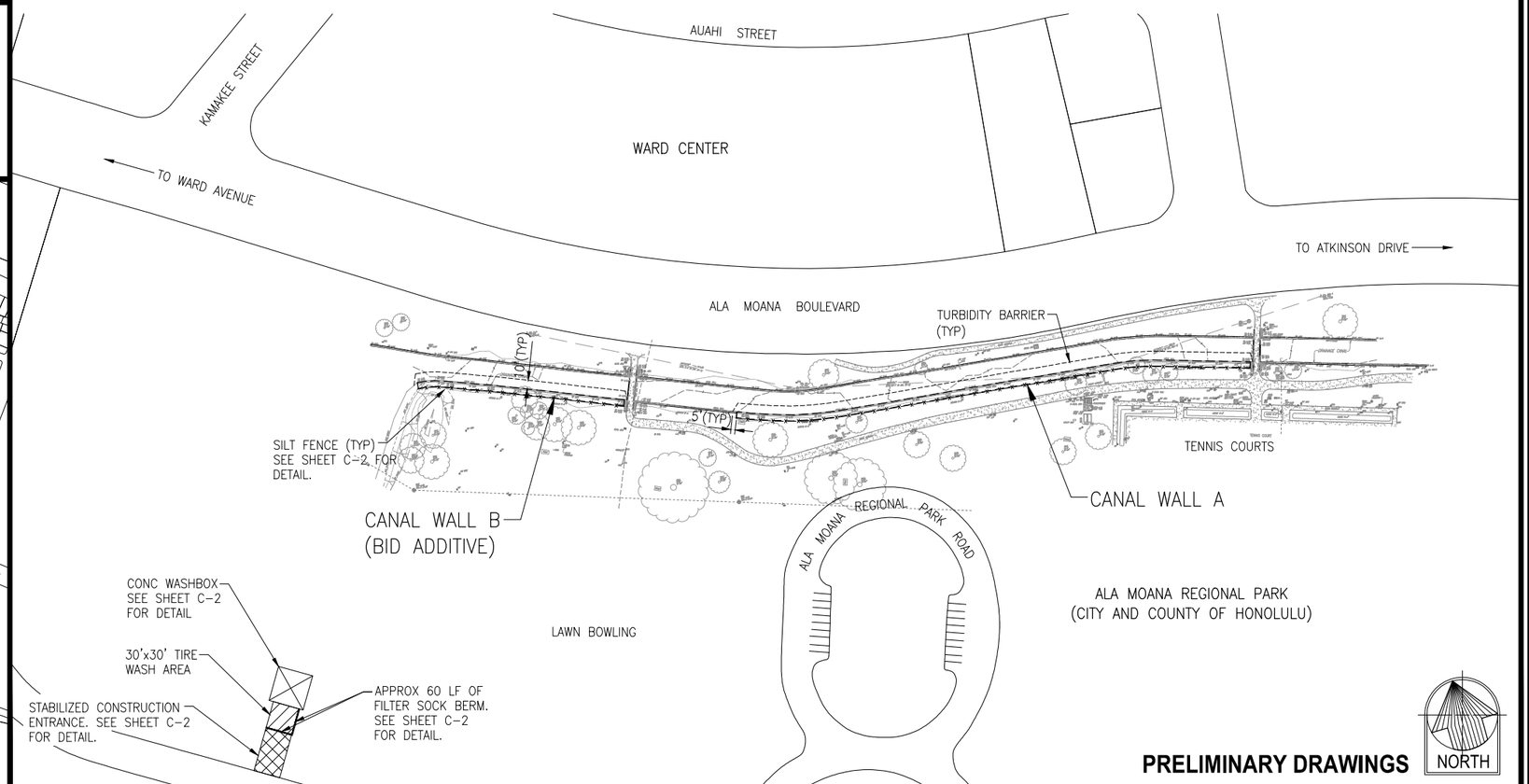
LOCATION MAP

EROSION CONTROL AND BEST MANAGEMENT PRACTICE (BMP) NOTES

1. MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY DEMOLITION OR EARTH MOVING WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. INSTALL PERIMETER PROTECTION (SILT FENCE, FIBER ROLLS, COMPOST FILTER SOCK, OR SNAKE BAG) AS SHOWN ON THE EROSION CONTROL PLAN. PERIMETER PROTECTION MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS.
3. CONSTRUCT TEMPORARY STABILIZED CONSTRUCTION ENTRANCE/EXIT AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. ALL VEHICLES EXITING THE SITE ARE TO SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. CONSTRUCTION ENTRANCE/EXIT MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS.
4. STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES, AS PRACTICAL.
5. LOCATE STOCKPILES, INCLUDING WASTE AND SOIL, AWAY FROM CONCENTRATED DRAINAGE FLOWS, DRAINAGE SWALES AND INLETS. INSTALL PERIMETER PROTECTION (SILT FENCE, FIBER ROLLS, COMPOST FILTER SOCK, OR SNAKE BAG), BERMS OR TRENCHES AROUND ERODIBLE MATERIAL STOCKPILES.
6. ALL EROSION CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24-HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE CONTRACTOR SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.
7. IF HEAVY RAINS ARE PREDICTED DURING A WORKDAY, ALL CONTROL MEASURES WILL BE INSPECTED IMMEDIATELY AND REINFORCED AS NECESSARY.
8. CONTRACTOR SHALL REMOVE SEDIMENT FILTERS DURING ABOVE-NORMAL RAINFALL EVENTS AND REPLACE FILTER AFTER THE EVENT HAS PASSED.
9. CLEARING, GRUBBING AND GRADING SHALL BE HELD TO THE MINIMUM NECESSARY. GRADING AND GRUBBING SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.
10. THE FINAL LIFT OF EACH DAY'S WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
11. DUST CONTROL WITH WATER SPRAY (BY TRUCK OR TEMPORARY SPRINKLERS) SHALL BE APPLIED AS NEEDED. DO NOT OVERWATER.
12. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE.
13. GOOD HOUSE KEEPING BEST MANAGEMENT PRACTICES:
    - A. MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
    - B. ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER COVER OR IN AN ENCLOSURE.
    - C. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
    - D. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
    - E. WHENEVER POSSIBLE, THE ENTIRE CONTAINER CONTENTS WILL BE USED UP PRIOR TO DISPOSAL OF THE CONTAINER.
    - F. MANUFACTURER'S RECOMMENDATION FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
    - G. ALL HAZARDOUS MATERIALS, FUEL, OIL AND CHEMICAL SPILLS SHALL BE STOPPED AND CLEANED UP WITH PROPER ABSORBENT MATERIALS. ABSORBENT MATERIAL SPILL KITS SHALL BE MAINTAINED ON-SITE.

EROSION CONTROL AND BEST MANAGEMENT PRACTICE (BMP) NOTES (CONT)

    - H. THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPOSER USE AND DISPOSAL OF MATERIALS ONSITE.
    - I. CONCRETE TRUCK CHUTE WASH WATER WILL BE DISCHARGED TO A DESIGNATED AREA WHERE COMMINGLING WITH STORM WATER WILL BE PREVENTED BY LOCATING OUTSIDE OF DRAINAGEWAYS, CUT-OFF DITCH OR PERIMETER BERM. WATER SHALL NOT BE DISCHARGED INTO DRAINAGE SYSTEMS OR WATERS OF THE UNITED STATES. THE CONTRACTOR SHALL CLEAN THE DISPOSAL SITE AS REQUIRED.
14. SANITARY AND SEPTIC WASTES SHALL BE COLLECTED FROM ON-SITE FACILITIES ON A REGULAR BASIS BY A LICENSED HAULER. SANITARY AND SEPTIC FACILITIES SHALL NOT BE LOCATED IN OR NEAR WATERCOURSES.
15. VEHICLE AND EQUIPMENT MAINTENANCE AND FUELING SHALL BE DONE OFF-SITE (WHERE AT ALL POSSIBLE).
16. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE TRAINED ON THE BEST MANAGEMENT PRACTICES.
17. PERIMETER PROTECTION (SILT FENCE, FIBER ROLLS, COMPOST FILTER SOCK, OR SNAKE BAG) SHALL BE CLEARED OF SILT IMMEDIATELY FOLLOWING THE END OF ANY RAINFALL THAT CAUSES SILT BUILDUP OR WHEN DEPTH REACHES 1/3 OF PERIMETER PROTECTION HEIGHT.
18. STABILIZATION SHALL BE ACCOMPLISHED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF WITH PLANTING, GRAVEL, GEOTEXTILE FABRICS OR COMPOST BLANKETS. FOR STABILIZATION WITH PLANTING, TEMPORARY IRRIGATION SHALL BE INSTALLED TO FACILITATE GROWTH. DO NOT OVERWATER.
19. FERTILIZER AND PESTICIDE APPLICATION SHALL NOT OCCUR IF HEAVY RAINS ARE ANTICIPATED DURING THE WORKDAY, OR DURING HEAVY RAINS.
20. EROSION CONTROL MEASURES MAY BE REMOVED IN AREAS THAT ARE STABILIZED AND COMPLETED.
21. EROSION CONTROL AND BMPS ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT. CONTRACTOR MAY INSTALL AND IMPLEMENT NEW/BETTER PRODUCTS TO CONTROL AND PREVENT EROSION AND POLLUTANTS FROM THE SITE.
22. FOR ADDITIONAL EROSION CONTROL AND BEST MANAGEMENT PRACTICE REQUIREMENTS, REFER TO THE PROJECT'S NPDES PERMIT.



NORTH

PRELIMINARY DRAWINGS

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

JOHN C.H. CHUNG
LICENSED PROFESSIONAL ENGINEER
No.9774-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 4/30/14

DESIGNED BY: SMY
REVIEWED BY: JCC
DRAWN BY: EAQ
DATE: AUGUST, 2012
ACCEPTED: CHIEF, FACILITIES DIVISION

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

EROSION CONTROL PLAN, NOTES AND DETAILS

JOB NO. XX-X-XX

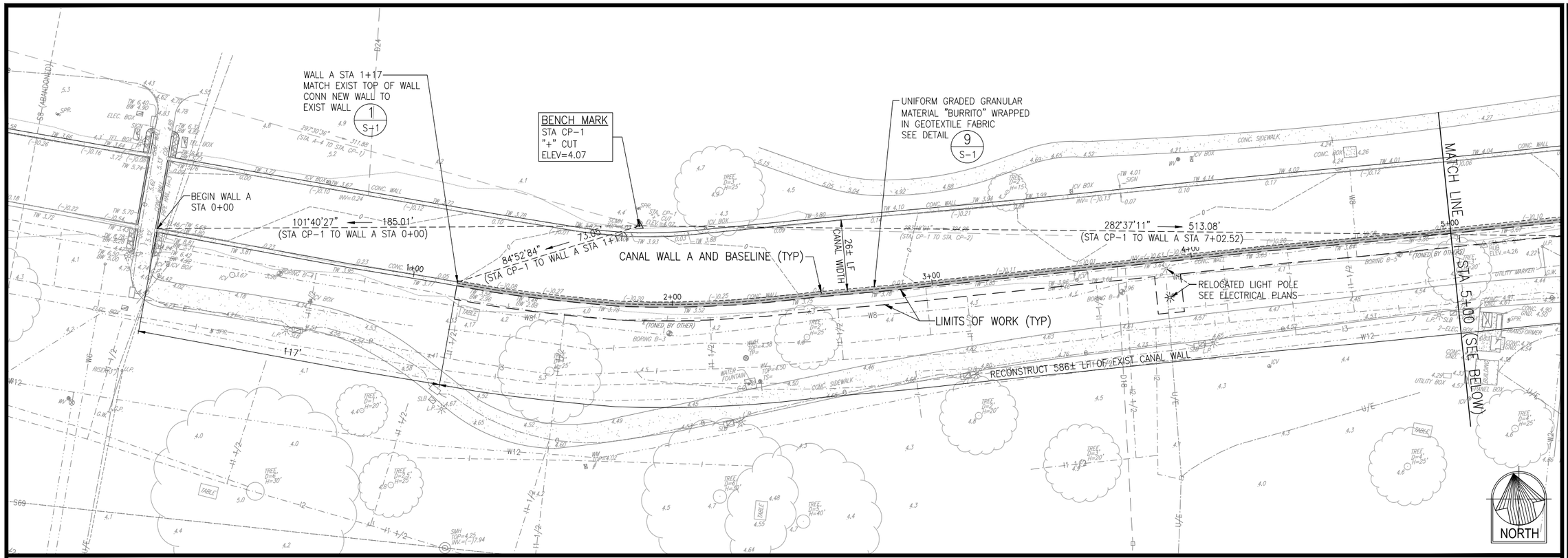
DRAWING NO. C-3

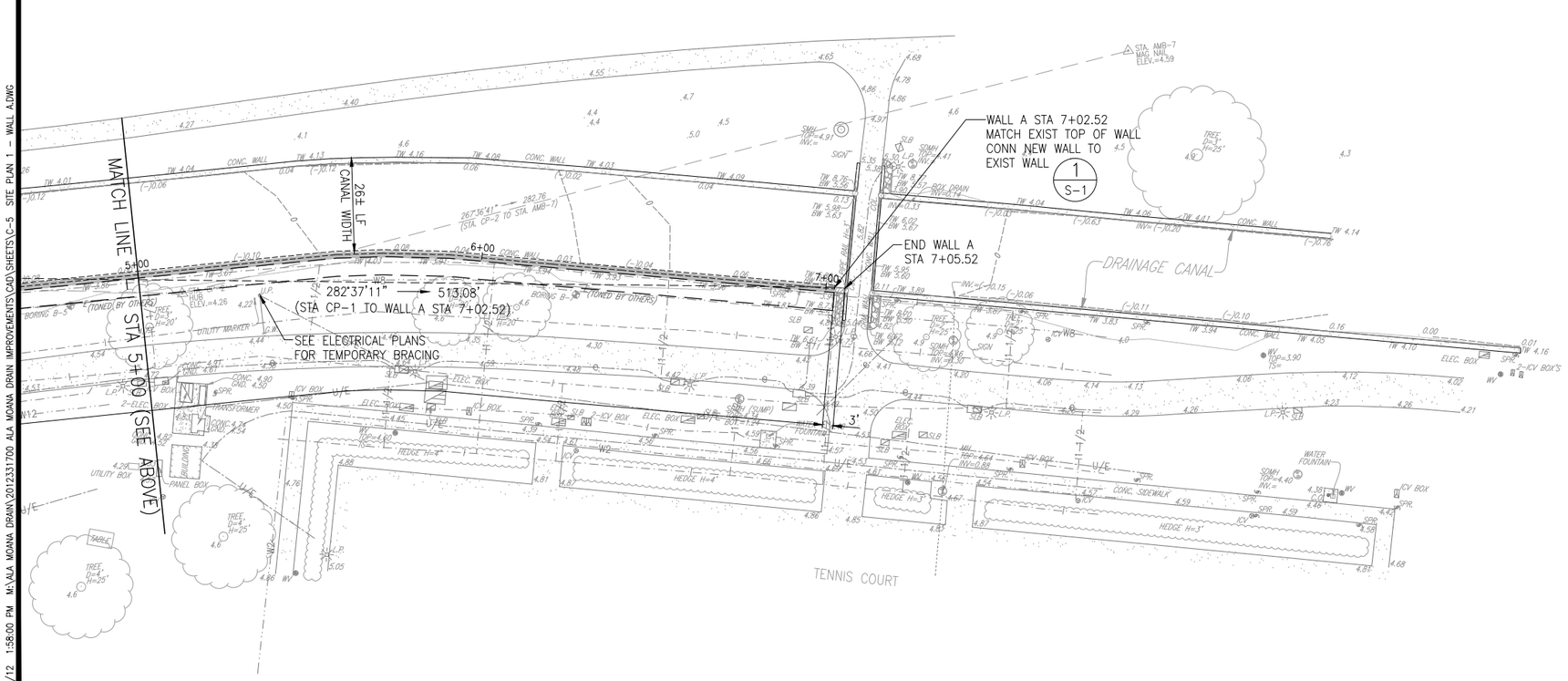
SHEET NO. 4 OF TBD

FILE NO. XXX

EROSION CONTROL PLAN, NOTES AND DETAILS | SCALE: 1"=80' | 1

08/28/12 2:05:23 PM M:\ALA MOANA DRAIN\20123317.00 ALA MOANA DRAIN IMPROVEMENTS\CAD\SHEETS\C-3 EROSION CONROL PLAN.DWG





NOTES:

1. FOR ABBREVIATIONS AND ADDITIONAL NOTES, SEE SHEETS C-1 AND C-2.
2. BASELINE IS LOCATED AT THE TOP EDGE (FACING INTO CANAL) OF THE EXISTING OR NEW CANAL WALLS.
3. FOR CANAL WALL A ELEVATIONS, SEE 1 / C-8
4. FOR CANAL WALL SECTION, SEE 9 / S-1
5. SEE SHEET S-1 FOR STRUCTURAL NOTES.
6. FOR REMOVAL AND RELOCATION OF THE LIGHT POLE AND ASSOCIATED INFRASTRUCTURE, SEE ELECTRICAL PLANS.
7. FOR LANDSCAPE AND IRRIGATION WORK, SEE LANDSCAPE PLANS.

PRELIMINARY DRAWINGS

SITE PLAN - 1 | SCALE: 1"=20' | 1

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

JOHN C.H. CHUNG
LICENSED PROFESSIONAL ENGINEER
No.9774-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXP. DATE: 4/30/14

DESIGNED BY: SMY
REVIEWED BY: JCC
DRAWN BY: EAQ
DATE: AUGUST, 2012
ACCEPTED: CHIEF, FACILITIES DIVISION

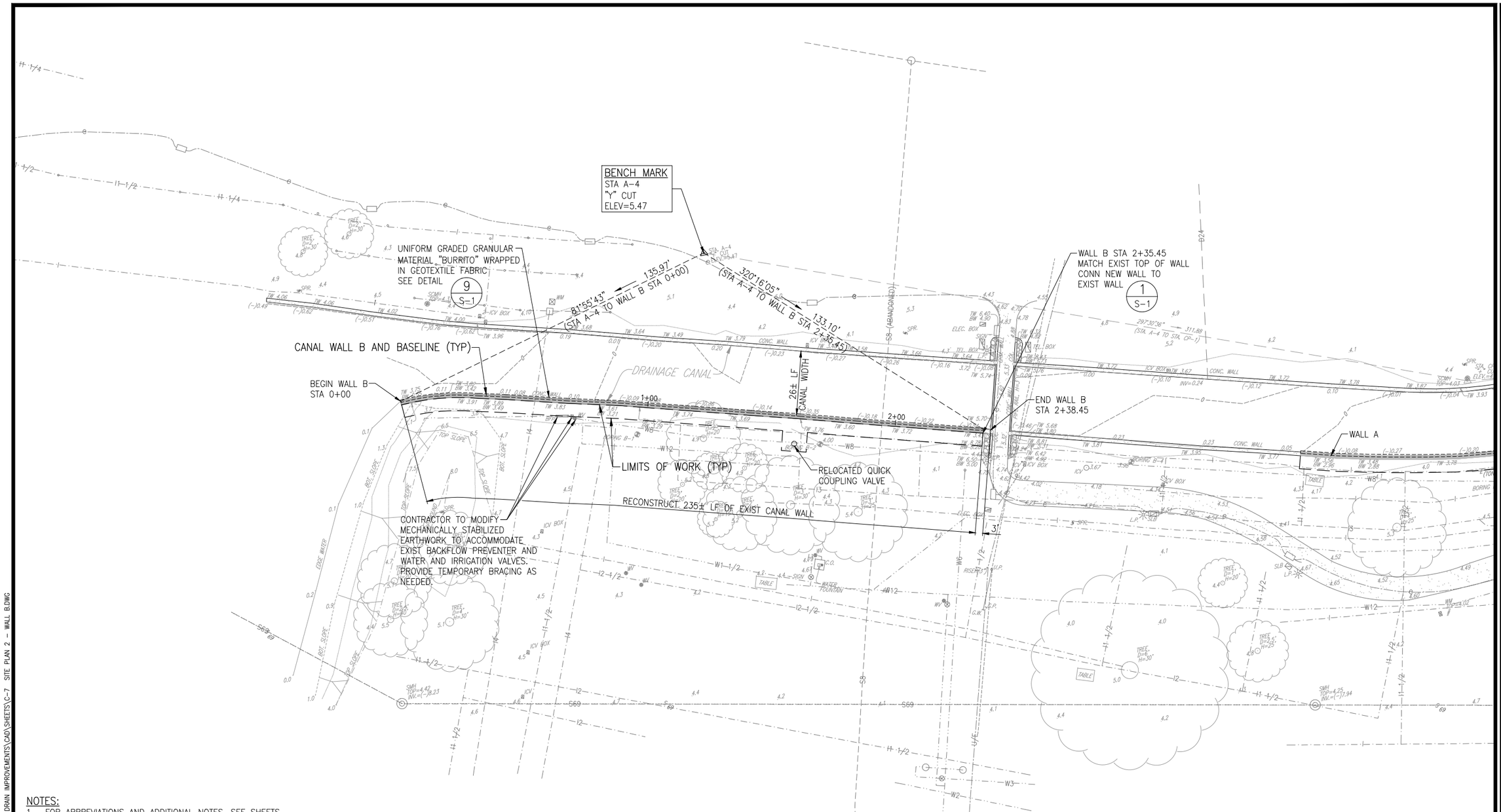
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

SITE PLAN - 1

JOB NO. XX-X-XX
DRAWING NO. C-5
SHEET NO. 6 OF TBD
FILE NO. XXX

08/28/12 1:58:00 PM M:\ALA MOANA DRAIN\2012331700 ALA MOANA DRAIN IMPROVEMENTS\CAD\SHEETS\C-5 SITE PLAN 1 - WALL A.DWG



NOTES:

1. FOR ABBREVIATIONS AND ADDITIONAL NOTES, SEE SHEETS C-1 AND C-2.
2. BASELINE IS LOCATED AT THE TOP EDGE (FACING INTO CANAL) OF THE EXISTING OR NEW CANAL WALLS.
3. FOR CANAL WALL B ELEVATIONS, SEE 3/C-8
4. FOR CANAL WALL SECTION, SEE 9/S-1
5. SEE SHEET S-1 FOR STRUCTURAL NOTES.
6. FOR REMOVAL AND RELOCATION OF THE LIGHT POLE AND ASSOCIATED INFRASTRUCTURE, SEE ELECTRICAL PLANS.
7. FOR PLANTING AND IRRIGATION WORK, SEE LANDSCAPE PLANS.

NORTH

PRELIMINARY DRAWINGS

SITE PLAN - 2 (BID ADDITIVE) SCALE: 1"=20' 1

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

JOHN C.H. CHUNG
LICENSED PROFESSIONAL ENGINEER
No.9774-C
HAWAII, U.S.A.

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DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

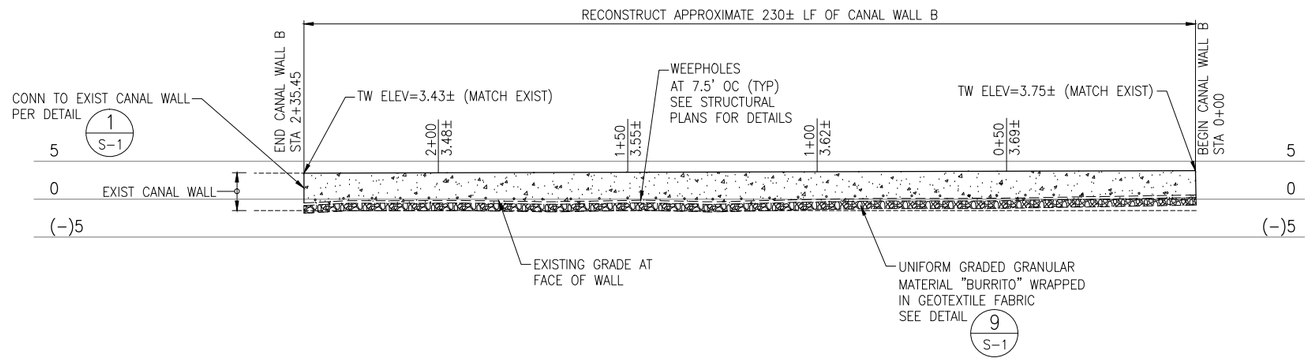
RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

SITE PLAN - 2 (BID ADDITIVE)

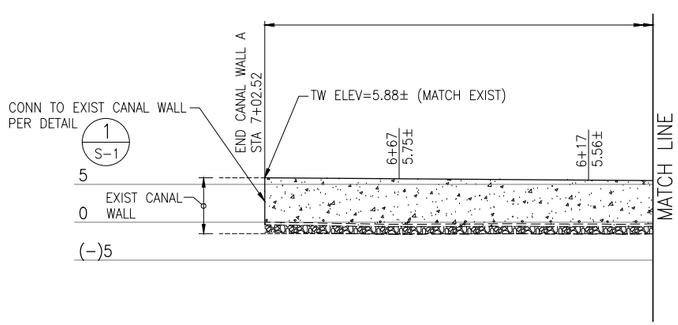
JOB NO. XX-X-XX
DRAWING NO. C-7
SHEET NO. 8 OF TBD
FILE NO. XXX

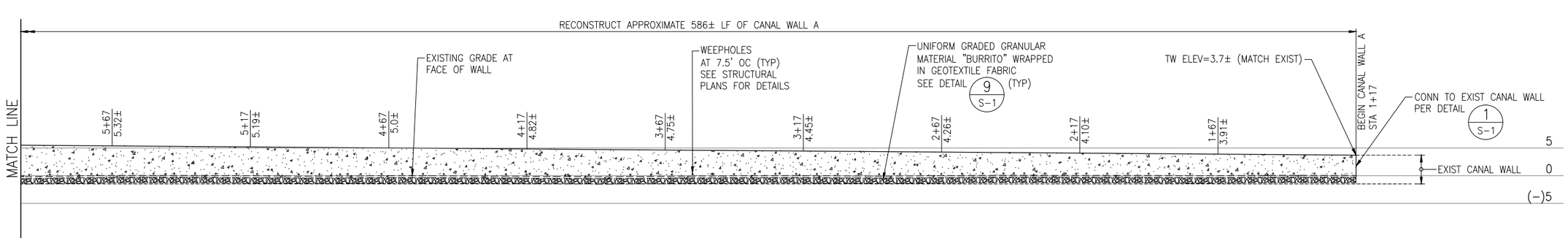
08/28/12 1:57:01 PM M:\ALA MOANA DRAIN\20123317.00 ALA MOANA DRAIN IMPROVEMENTS\CAD\SHEETS\C-7 SITE PLAN 2 - WALL B.DWG

NOTES:
1. TOP OF WALL ELEVATIONS ARE APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY EXIST AND NEW GRADES, AND TO CONSTRUCT IMPROVEMENTS PER TYPICAL SECTION ON SHEET S-1.



ELEVATION OF CANAL WALL B (LOOKING SOUTH AT EXPOSED FACE OF WALL) (BID ADDITIVE) | HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=10' | 3





PRELIMINARY DRAWINGS

ELEVATION OF CANAL WALL A (LOOKING SOUTH AT EXPOSED FACE OF WALL) | HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=10' | 1

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

JOHN C.H. CHUNG
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DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

CANAL WALL ELEVATIONS

JOB NO. XX-X-XX
DRAWING NO. C-8
SHEET NO. 9 OF TBD
FILE NO. XXX

08/28/12 1:56:18 PM M:\ALA MOANA DRAIN\2012331700 ALA MOANA DRAIN IMPROVEMENTS\CAD\SHEETS\C-8 ELEVATION OF CANAL WALLS.DWG

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE OFFICER-IN-CHARGE.
2. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OFFICER-IN-CHARGE BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.

TOLERANCES FOR CONSTRUCTION:

1. TOLERANCE FOR PLACEMENT OF REINFORCING SHALL BE IN ACCORDANCE WITH ACI 117-10, "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS". SECTIONS 1 AND 2.
2. TOLERANCES FOR PRECAST CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 117-10, SECTION 5.
3. TOLERANCES FOR CANAL LINING SHALL BE IN ACCORDANCE WITH ACI 117-10, SECTION 9.

PRECAST CONCRETE NOTES:

1. THE MANUFACTURER OF THE PRECAST CONCRETE FACING PANELS SHALL PROVIDE COMPLETE SHOP DRAWINGS, INCLUDING PLANS, ELEVATIONS (PROFILE VIEW), TOP OF WALL ELEVATIONS, REINFORCING, FABRICATION DETAILS, LIFT/HANDLING DETAILS, METHODOLOGY OF CONSTRUCTION, FINISHES AND INTEGRAL COLOR ADMIXTURE TYPE AND DOSAGE.
2. THE TEXTURE AND COLOR OF EXPOSED FACE OF PRECAST PANELS SHALL MATCH THE EXISTING CONCRETE MONUMENTS ON EITHER SIDE OF THE DIAMOND HEAD ENTRANCE INTO ALA MOANA BEACH PARK. THE TEXTURE SHALL BE ACHIEVED WITH THE USE OF A FORM-LINER. THE COLOR SHALL BE ACHIEVED BY PLANT ADDED INTEGRAL COLOR ADMIXTURE TO THE CONCRETE. A PAIR OF PANELS EACH REPRESENTING A SAMPLE COLOR AND TEXTURE, MEASURING 12-INCHES X 12-INCHES X 3-INCHES THICK IN DIMENSION SHALL BE SUBMITTED TO THE OFFICER-IN-CHARGE FOR ACCEPTANCE PRIOR TO ANY FABRICATION. BASIS OF ACCEPTANCE SHALL BE AT THE COMPLETE DISCRETION OF THE OFFICER-IN-CHARGE. ONE PANEL FROM THE PAIR THAT IS EVENTUALLY ACCEPTED BY THE OFFICER-IN-CHARGE SHALL BE GIVEN TO THE OFFICER-IN-CHARGE AS A REFERENCE STANDARD.
3. INTEGRAL COLOR ADMIXTURE SHALL CONFORM TO THE REQUIREMENTS OF ACI 303.1, ASTM C979, ASTM C494 AND AASHTO M194. THE MORE STRINGENT OF ANY CONFLICTING REQUIREMENTS SHALL GOVERN. DOSAGE RATE OF COLOR ADMIXTURE SHALL NOT EXCEED 10 PERCENT OF WEIGHT OF CEMENTITIOUS MATERIALS IN MIX. INTEGRAL COLORING ADMIXTURE SHALL BE COMPATIBLE WITH OTHER ADMIXTURES, CEMENTITIOUS MATERIALS AND SHALL NOT CONTAIN CALCIUM CHLORIDE.
4. LIQUID CURING COMPOUND SHALL CONFORM TO ASTM C309.
5. ALL WORK SHALL CONFORM TO THE FOLLOWING:
   - A) ACI 301 "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS"
   - B) ACI 117-10 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
   - C) ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
   - D) ACI 305R "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING"
   - E) ASTM C309 "LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE"
   - F) ASTM C31 STANDARD TEST FOR MAKING CYLINDERS
   - G) ASTM C143 STANDARD TEST FOR SLUMP OF CONCRETE

   ALL REFERENCES ABOVE SHALL BE THE LATEST AVAILABLE EDITION UNLESS NOTED OTHERWISE.
6. TYPICAL REINFORCING AS REQUIRED FOR IN SITU CONDITION IS SHOWN ON THESE CONTRACT DRAWINGS. IF ADDITIONAL REINFORCING IS REQUIRED DUE TO THE STRESSES CAUSED BY LIFTING, HANDLING AND/OR TRANSPORTATION, THOSE REINFORCING SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER HIRED BY THE PRECAST MANUFACTURER, REGISTERED IN THE STATE OF HAWAII.
7. THE 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 4,000 PSI WITH A MAXIMUM WATER/CEMENT RATION OF 0.43. CONTRACTOR SHALL SUBMIT 5 SETS OF CONCRETE MIX DESIGN TO THE OFFICER-IN-CHARGE FOR HIS ACCEPTANCE. INCLUDING TYPE, BRAND, SOURCE AND AMOUNT OF CEMENT, FLY ASH, ADMIXTURES AND APPLICABLE REFERENCE SPECIFICATIONS.
8. QUALITY CONTROL, INCLUDING INSPECTION OF THE REINFORCING BARS, COMPRESSION TESTING OF CYLINDERS, AND ALL ASPECTS RELATED TO THE INTEGRAL COLOR ADMIXTURE SHALL BE THE RESPONSIBILITY OF THE PRECAST MANUFACTURER.

GLASS FIBER-REINFORCED BARS:

1. THE FOLLOWING TERMS SHALL ALL BE INTERCHANGABLE:
   - A) "FIBER-GLASS REINFORCING"
   - B) "GLASS FIBER-REINFORCING"
   - C) GFRP OR "GLASS FIBER-REINFORCING POLYMER BARS"
2. THE TERM "FRP" INDICATES FIBER-REINFORCED POLYMER, OF WHICH THERE ARE TWO TYPES, CFRP CARBON FIBER-REINFORCED POLYMER BARS AND GFRP GLASS FIBER-REINFORCED POLYMER BAR. IN THIS PROJECT ALL "FRP" ARE "GFRP" TYPE.
3. FIBER-GLASS REINFORCING SHALL HAVE THE FOLLOWING PROPERTIES:
   - A) GRADE F60
   - B) MODULUS OF ELASTICITY E5.7
4. FIBER-GLASS REINFORCING SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE, ACI 440.6-08, "SPECIFICATION FOR CARBON AND GLASS FIBER-REINFORCED POLYMER BARS MATERIALS FOR CONCRETE REINFORCEMENT"
5. CONSTRUCTION USING FIBER-GLASS REINFORCING SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE, ACI 440.5-08, "SPECIFICATION FOR CONSTRUCTION WITH FIBER-REINFORCED POLYMER REINFORCING BARS" AND ACI 440.1R-06.
6. DESIGN OF FIBER-GLASS REINFORCING IS BASED ON THE AMERICAN CONCRETE INSTITUTE, ACI 440.1R-06, "GUIDE FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL CONCRETE REINFORCING WITH FRP BARS"
7. CLEAR COVER FOR FIBER-GLASS REINFORCING SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

   FORMED SURFACES EXPOSED TO EARTH OR WEATHER 2-INCHES
   CONCRETE POURED AGAINST FILL OR SUBGRADE 3-INCHES

FORM-LINER:

1. FORM-LINER SHALL BE USED ON EXPOSED TO VIEW VERTICAL FACE OF PRECAST PANELS AND CAST-IN-PLACE VERTICAL EXPOSED FACE OF CHANNEL.
2. THE TEXTURE OF THE CONCRETE CREATED BY THE FORM-LINER SHALL MATCH THE EXISTING CONCRETE MONUMENTS ON EITHER SIDE OF THE DIAMOND HEAD ENTRANCE TO ALA MOANA BEACH PARK.
3. FORM-LINER SHALL ONLY BE RE-USED AS MANY TIMES AS RECOMMENDED BY THE MANUFACTURER. THE MANUFACTURER SHALL SUBMIT A LETTER CERTIFYING HOW MANY TIMES THE FORM-LINER MAY BE RE-USED.
4. REFERENCES:
   - A) ACI 117 "STANDARD TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
   - B) ACI 303-91 "GUIDE TO CAST-IN-PLACE ARCHITECTURAL CONCRETE"
   - C) ACI 347-78 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK", CHAPTER 5.2

   ALL REFERENCES ABOVE SHALL BE THE LATEST AVAILABLE EDITION UNLESS NOTED OTHERWISE.
5. MOCK-UP SAMPLES USING THE PROPOSED FORM-LINER AS INDICATED UNDER PRECAST NOTES SHALL BE SUBMITTED TO THE OFFICER-IN-CHARGE FOR ACCEPTANCE.

CAST-IN-PLACE CONCRETE NOTES:

1. ALL WORK SHALL CONFORM TO THE FOLLOWING:
   - A) ACI 301 "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS"
   - B) ACI 117-10 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
   - C) ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
   - D) ACI 305R "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING"
   - E) ASTM C309 "LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE"
   - F) ASTM C31 STANDARD TEST FOR MAKING CYLINDERS
   - G) ASTM C143 STANDARD TEST FOR SLUMP OF CONCRETE

   ALL REFERENCES ABOVE SHALL BE THE LATEST AVAILABLE EDITION UNLESS NOTED OTHERWISE.
2. THE TEXTURE AND COLOR OF EXPOSED FACE OF CAST-IN-PLACE CONCRETE CAP SHALL MATCH THE EXISTING CONCRETE MONUMENTS ON EITHER SIDE OF THE DIAMOND HEAD ENTRANCE INTO ALA MOANA BEACH PARK. THE TEXTURE SHALL BE ACHIEVED WITH THE USE OF A FORM-LINER. THE COLOR SHALL BE ACHIEVED BY PLANT ADDED INTEGRAL COLOR ADMIXTURE TO THE CONCRETE. SAMPLES AS STATED IN PRECAST CONCRETE NOTES SHALL BE SUBMITTED TO THE OFFICER-IN-CHARGE FOR ACCEPTANCE.
3. INTEGRAL COLOR ADMIXTURE SHALL CONFORM TO THE REQUIREMENTS OF ACI 303.1, ASTM C979, ASTM C494 AND AASHTO M194. THE MORE STRINGENT OF ANY CONFLICTING REQUIREMENTS SHALL GOVERN. DOSAGE RATE OF COLOR ADMIXTURE SHALL NOT EXCEED 10PERCENT OF WEIGHT OF CEMENTITIOUS MATERIALS IN MIX. INTEGRAL COLORING ADMIXTURE SHALL BE COMPATIBLE WITH OTHER ADMIXTURES, CEMENTITIOUS MATERIALS AND SHALL NOT CONTAIN CALCIUM CHLORIDE.
4. LIQUID CURING COMPOUND SHALL CONFORM TO ASTM C309.
5. SECURE ALL FORM-LINERS PRIOR TO PLACING CONCRETE.
6. 48-HOURS PRIOR TO THE POURING OF ANY CONCRETE, THE CONTRACTOR SHALL NOTIFY THE OFFICER-IN-CHARGE SO THAT AN INSPECTION CAN BE MADE OF ALL FORMS AND REINFORCING.
7. ALL CAST-IN-PLACE CONCRETE (EXCEPT FOR RIP-RAP) MAY BE TREMIE POURED OR POURED IN THE DRY. CONCRETE FOR RIP-RAP SHALL BE INSTALLED IN THE DRY.
8. THE 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE AS FOLLOWS:

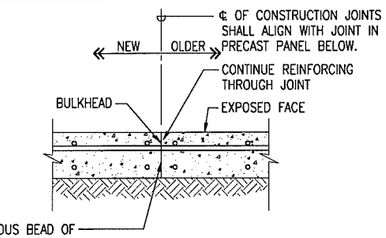
   CAST-IN-PLACE CONCRETE CAP ..... 4,000 PSI
   TREMIE CONCRETE ..... 5,000 PSI
   CONCRETE FOR RIP-RAP ..... 4,000 PSI
   ALL OTHER CAST-IN-PLACE CONCRETE ..... 4,000 PSI
9. WATER TO CEMENT RATIO BY WEIGHT SHALL NOT EXCEED 0.43 FOR ALL CONCRETE.
10. CONCRETE FOR TREMIE POUR SHALL BE FORMULATED BY READY MIX PLANT FOR SUCH PROCEDURE. FORMULATION MAY INCLUDE ADMIXTURES SUCH AS PLASTICIZER AND SMALLER AGGREGATE FOR WORKABILITY.
11. CONCRETE TESTING OF DELIVERED CONCRETE SHALL BE PREFORMED BY AN INDEPENDENT TESTING LABORATORY. ALL TESTING SHALL BE PAID FOR BY CONTRACTOR. CONTRACTOR SHALL SUBMIT THE NAME OF THE INDEPENDENT TESTING LABORATORY TO THE OFFICER-IN-CHARGE, PRIOR TO ANY WORK FOR APPROVAL.

FOUNDATION NOTES:

1. DESIGN PARAMETERS ARE BY GEOLABS, AS CONTAINED IN A DRAFT REPORT DATED JUNE 15, 2012 AND MEMORANDUM DATED MAY 20, 2013.
2. DESIGN PARAMETERS FOR CONVENTIONAL RETAINING WALL:
   - A. ALLOWABLE BEARING CAPACITY ..... 1,200 PSF
   - B. COEFFICIENT OF FRICTION 0.30
   - C. ACTIVE LATERAL PRESSURE (ABOVE WATER) ..... 35 PCF
   - D. ACTIVE LATERAL PRESSURE (BELOW WATER) ..... 77 PCF
   - E. PASSIVE PRESSURE ..... 370 PCF
   - F. FACTOR OF SAFETY FOR OVERTURNING 2.0
   - G. FACTOR OF SAFETY FOR SLIDING ..... 1.5 (1.0 WHEN DYNAMIC LATERAL PRESSURE IS ADDED)
   - H. DYNAMIC LATERAL EARTH PRESSURE: $9.0H^2$ POUNDS PER FOOT ACTING AT MID-HEIGHT OF THE WALL WITH LATERAL DISPLACEMENT OF ABOUT 2½-INCHES MAXIMUM.
3. THE REINFORCEMENT FILL MATERIAL SHALL CONSIST OF COARSE GRAIN MATERIAL FREE FROM ORGANIC OR OTHER DELETERIOUS MATERIALS. THE BACKFILL MATERIAL SHALL CONFORM TO THE FOLLOWING GRADING REQUIREMENTS AND THE TOP 3-FEET SHALL CONTAIN SUFFICIENT FINES (MINUS NO. 10) TO FILL THE VOIDS IN A COMPACTED STATE.

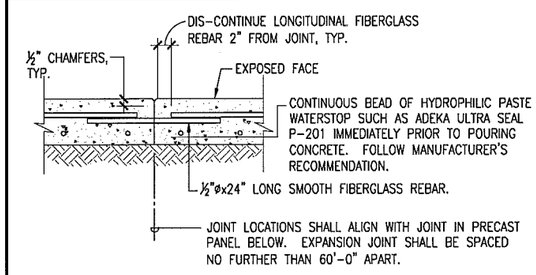
U.S. STANDARD SIEVE SIZE	PERCENT PASSING BY WEIGHT
3-INCH	100
3/4-INCH	75-100
NO. 4	20-60
NO. 200	3-15

   THE REINFORCED FILL MATERIAL SHALL ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:
   - A. THE MATERIAL SHALL BE NON-PLASTIC. PLASTICITY INDEX (PI) AS DETERMINED BY AASHTO T-90 SHALL BE 0.
   - B. THE FRACTION FINER 15 MICRONS (0.015 MM) AS DETERMINED BY AASHTO T-88 SHALL NOT EXCEED 5 PERCENT.
   - C. THE MATERIAL SHALL EXHIBIT AN ANGLE OF INTERNAL FRACTION OF NOT LESS THAN 34 DEGREES, AS DETERMINED BY THE STANDARD DIRECT SHEAR TEST BY AASHTO T-235 (ASTM D-3070), UTILIZING A SAMPLE OF THE MATERIAL COMPACTED TO 95% OF AASHTO T-180, METHODS C OR D AT OPTIMUM MOISTURE CONTENT.
4. THE CONSTRUCTION PROCEDURE FOR THE REINFORCED FILL MATERIAL IS PROVIDED BELOW:
   - A. ORIENT GEOGRID WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.
   - B. PLACE THE GEOGRID AT THE ELEVATIONS AND TO THE EXTENT SHOWN ON THE DRAWINGS UNLESS OTHERWISE ORDERED BY THE OFFICER-IN-CHARGE.
   - C. LAY GEOGRID HORIZONTALLY ON COMPACTED BACKFILL. PULL THE GEOGRID TAUT AND ANCHOR BEFORE PLACING BACKFILL ON THE GEOGRID.
   - D. PLACE ONLY THAT AMOUNT OF GEOGRID REQUIRED FOR THE IMMEDIATE PENDING WORK TO PREVENT UNDUE DAMAGE. TRACK-TYPE VEHICLES SHALL BE PROHIBITED UNTIL THE GEOGRID HAS AT LEAST 6-INCHES OF REINFORCEMENT FILL MATERIAL PLACED OVER IT.
   - E. SPREAD REINFORCING FILL MATERIAL AND COMPACT IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID.
   - F. PLACED REINFORCED FILL MATERIAL AND COMPACT IN LIFTS NOT TO EXCEED 6-INCHES.
   - G. COMPACTED REINFORCED FILL MATERIAL TO 95 PERCENT RELATIVE COMPACTION. MAINTAIN MOISTURE WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT THROUGHOUT EACH LAYER OF THE BACKFILL MATERIAL BEFORE AND DURING COMPACTION.
   - H. USE LIGHT-WEIGHT HAND-OPERATED COMPACTION EQUIPMENT WITHIN 3-FEET FROM THE BACK OF THE NEW WALL.
   - I. AT THE END OF EACH DAY'S OPERATION, SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL TO DIRECT RUNOFF AWAY FROM THE WALL FACE. IN ADDITION, SURFACE RUNOFF FROM ADJACENT AREAS SHALL NOT ENTER THE WALL CONSTRUCTION SITE.
5. FOR THE NO. 3B FINE GRAVEL (ASTM C33, CITY & COUNTY NO. 67 CRUSHED ROCK), AND NO. 2 COARSE AGGREGATE (ASTM C33, CITY & COUNTY NO. 4 CRUSHED ROCK), THERE IS NO COMPACTION REQUIREMENTS EXCEPT THAT THE TOP OF THE MATERIAL SHALL BE TAMPED TO FIRM CONDITION.



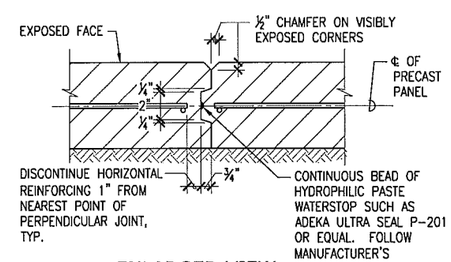
PLAN VIEW OF CONSTRUCTION JOINT

CAST-IN-PLACE CONCRETE CAP — SCALE: NTS — 3



CONTRACTION JOINT

CAST-IN-PLACE CONCRETE CAP — SCALE: NTS — 2



ENLARGED VIEW

CONDITION AT VERT. JOINTS BETWEEN PRECAST PANELS — SCALE: NTS — 1

GRAPHIC SCALES:

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

CRAIG H. SAKANASHI — LICENSED PROFESSIONAL ENGINEER — No. 5509-S — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

DESIGN — REVIEW — DRAWN — BY: — DATE: — ACCEPTED: — DIRECT. FACILITIES DIVISION

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

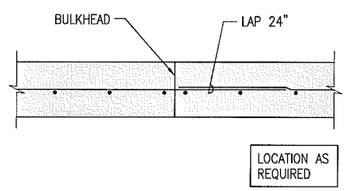
RECONSTRUCTION OF DRAINAGE CANAL WALLS AT ALA MOANA REGIONAL PARK

JOB NO. XX-P-XX

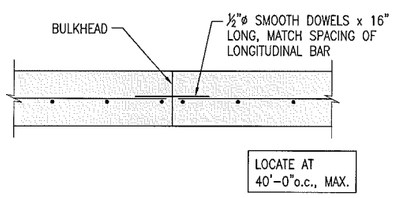
DRAWING NO. S-1

SHEET NO. OF _ — FILE NO. XX/XX

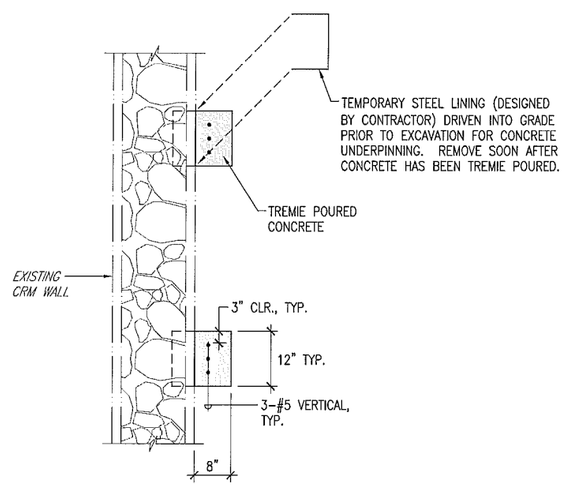
O:\2011\11A082_Ala Moana Canal Wall Repairs\S-1 GN & TD.dwg
O:\2011\11A082_Ala Moana Canal Wall Repairs\S-1 GN & TD.dwg



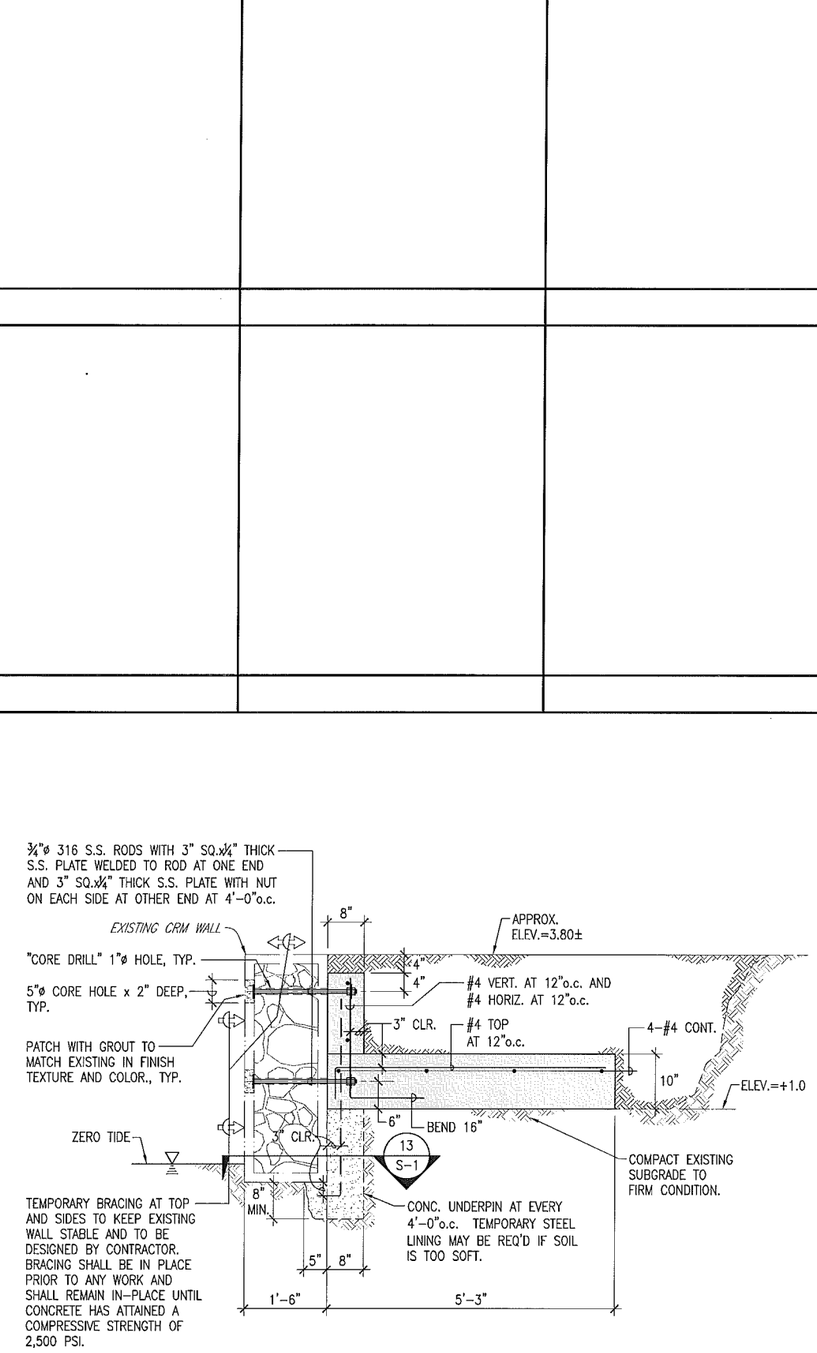
CONSTRUCTION JOINT | SCALE: NTS | 22



CONTRACTION JOINT | SCALE: NTS | 21



PLAN VIEW SECTION | SCALE: 3/4"=1'-0" | 13



TYPICAL SECTION | SCALE: 3/4"=1'-0" | 1

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DESIGN — BY: — | REVIEW — | DRAWN — | DATE: — | ACCEPTED: — | CHIEF, FACILITIES DIVISION

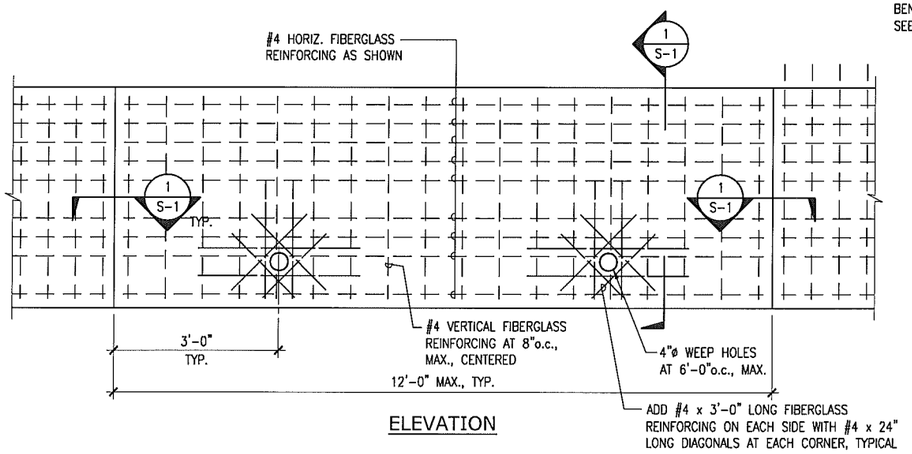
DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

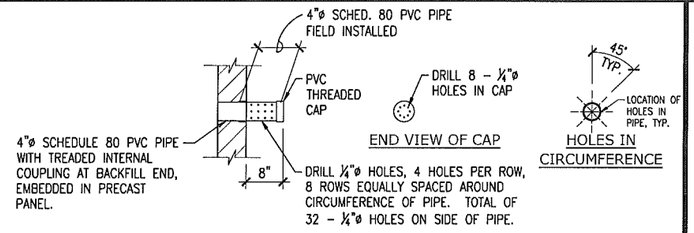
JOB NO. XX-P-XX

DRAWING NO. S-1

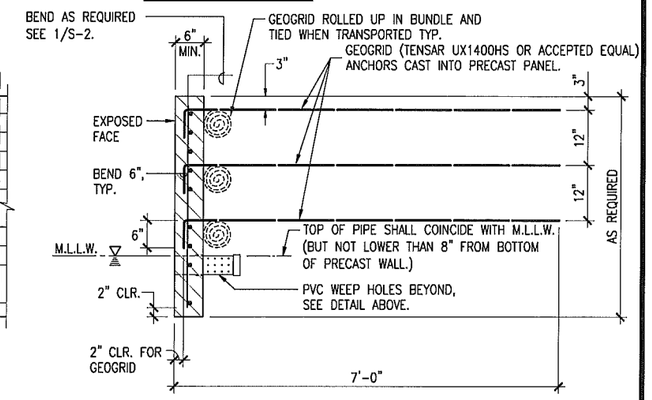
SHEET NO. OF _ | FILE NO. XX/XX



ELEVATION



PVC WEEP HOLES



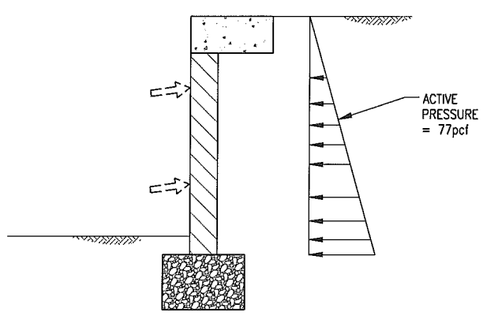
END VIEW

PRECAST CONCRETE FACING PANEL REINFORCED WITH FIBERGLASS REBARS

SCALE: 3/4"=1'-0" | 3

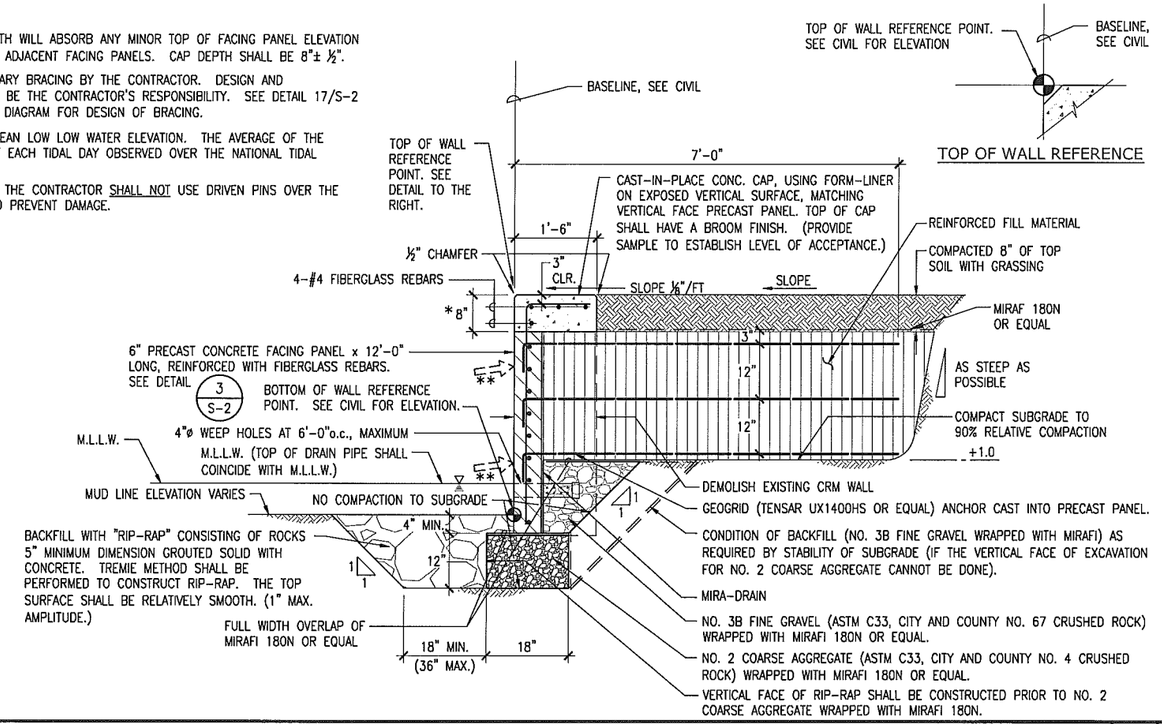
NOTES:

1. * DENOTES CAP DEPTH WILL ABSORB ANY MINOR TOP OF FACING PANEL ELEVATION DIFFERENCES BETWEEN ADJACENT FACING PANELS. CAP DEPTH SHALL BE 8"± ½".
2. ** DENOTES TEMPORARY BRACING BY THE CONTRACTOR. DESIGN AND IMPLEMENTATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. SEE DETAIL 17/S-2 FOR ACTIVE PRESSURE DIAGRAM FOR DESIGN OF BRACING.
3. M.L.L.W. - DENOTES MEAN LOW LOW WATER ELEVATION. THE AVERAGE OF THE LOWER LOW HEIGHT OF EACH TIDAL DAY OBSERVED OVER THE NATIONAL TIDAL DATUM EPOCH.
4. DURING CONSTRUCTION THE CONTRACTOR SHALL NOT USE DRIVEN PINS OVER THE AREA WITH GEOGRID TO PREVENT DAMAGE.



ACTIVE PRESSURE DIAGRAM FOR TEMP. BRACING

SCALE: 3/4"=1'-0" | 17



TYP. SECTION OF MSE (MECHANICALLY STABILIZED EARTH) WALL

SCALE: 3/4"=1'-0" | 1

GRAPHIC SCALES: 3/4"=1'-0"

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

CRAIG H. SAKANASHI
LICENSED PROFESSIONAL ENGINEER
No. 5509-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

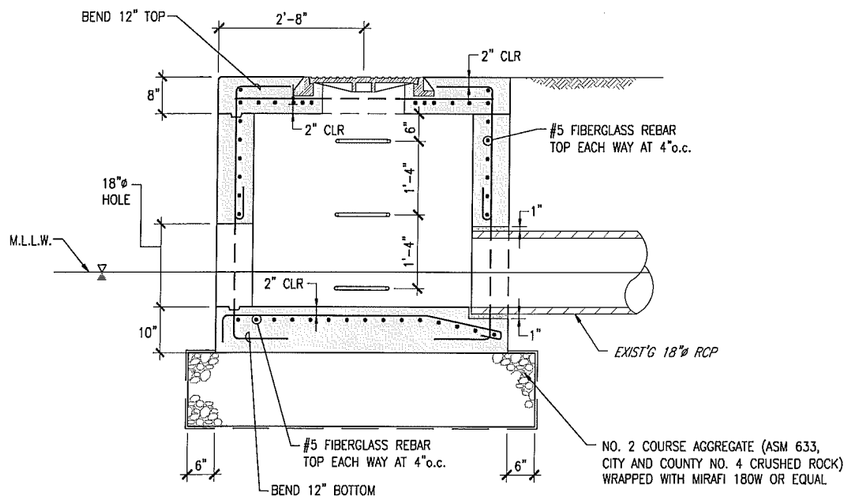
DESIGN | REVIEW | DRAWN
BY: | DATE: | ACCEPTED: | CHIEF, FACILITIES DIVISION

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

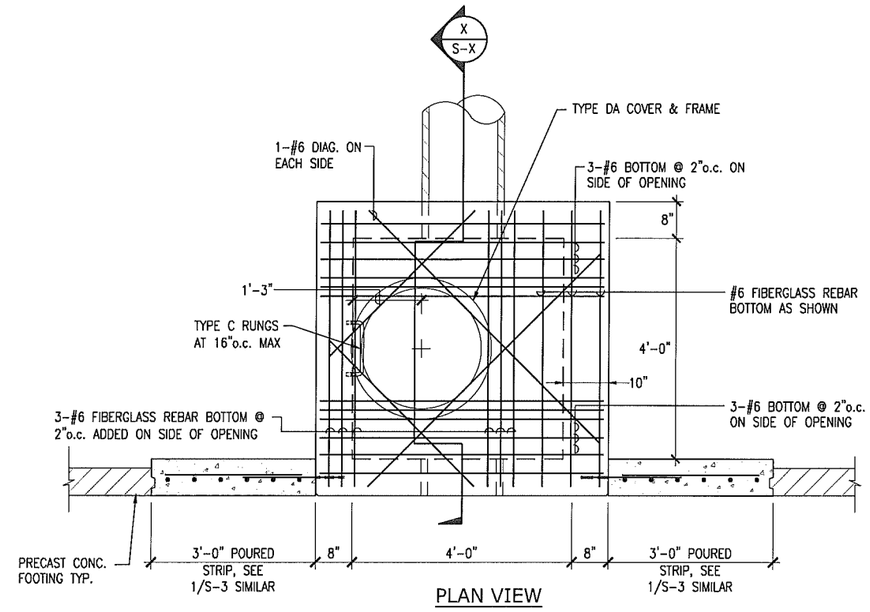
RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

JOB NO.	XX-P-XX
DRAWING NO.	S-2
SHEET NO. OF _	FILE NO. XX/XX

O:\2011\11A082_Ala Moana Canal Wall Repairs\S-2 Canal Sections.dwg
C:\2011\11A082_Ala Moana Canal Wall Repairs\S-2 Canal Sections.dwg

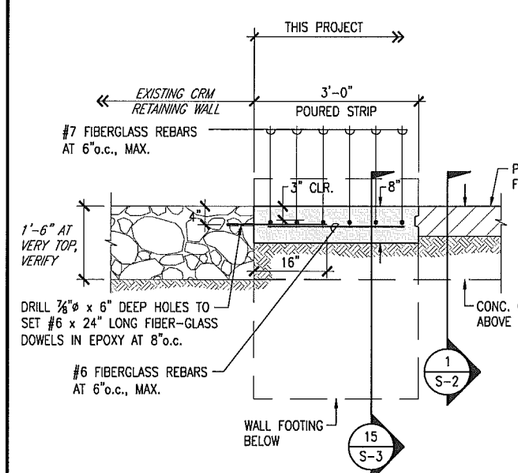


SECTION SCALE: 3/4"=1'-0" 15

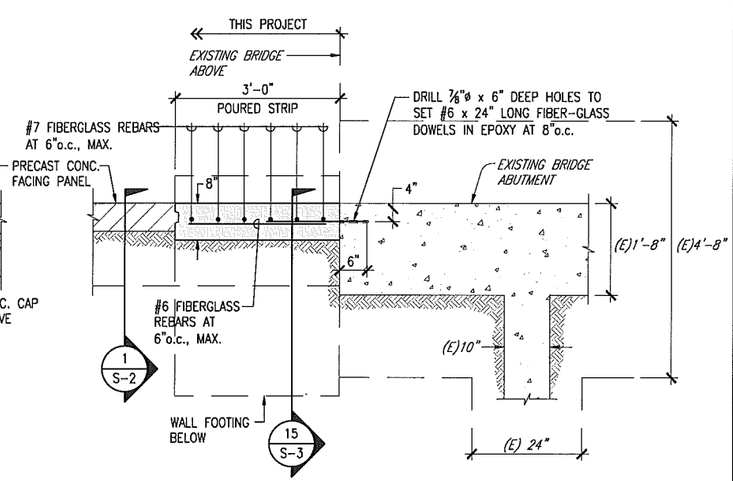


PLAN VIEW

MANHOLE SCALE: 3/4"=1'-0" 3



PLAN VIEW AT EWA-END



PLAN VIEW AT DIAMOND HEAD-END

ADJOINMENT AT EACH END OF PROJECT SCALE: 3/4"=1'-0" 1

GRAPHIC SCALES: 3/4"=1'-0"

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

CRAIG H. SAKANASHI
LICENSED PROFESSIONAL ENGINEER
No. 5509-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

DESIGN BY: REVIEW DATE: DRAWN ACCEPTED: CHIEF, FACILITIES DIVISION

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY & COUNTY OF HONOLULU

RECONSTRUCTION OF DRAINAGE CANAL WALLS
AT
ALA MOANA REGIONAL PARK

JOB NO. XX-P-XX

DRAWING NO. S-3

SHEET NO. OF _ | FILE NO. XX/XX

O:\2011\11A082_Ala Moana Canal Wall Repairs\S-3 Canal Sections.dwg
C:\2011\11A082_Ala Moana Canal Wall Repairs\S-3 Canal Sections.dwg

Japanese Pond and Hawaiian Pond Edge Improvements

Proposed Scope: Improve the edge conditions along the Japanese Pond, on the ‘Ewa side of the AMRP and the Hawaiian Pond, on the Diamond Head end of the park.

Background:

1. The two ponds were noted as being dredged by 1932 based on an aerial photograph.[4] The edges appear unimproved in the available photos, which are generally aerial views of the early construction.
2. A Hawaiian Village, called ‘Ulu Mau, was added south of the Hawaiian Pond in 1948. No pond edges are apparent in the available photos of the village. Photos from a site visit in December 2016, note the edge condition to be, “top soil fill over dredged coral rubble and sand”.[5]
3. A 1987 photo in “The People’s Park” (below) shows unimproved edges with spotty vegetation cover and bare dirt.[6]

Eastern Lagoon, showing visual intrusion of recent buildings along park boundary. (RRW)

4. The current edge conditions along the Hawaiian Pond are very similar to those of 1987, as shown in the photo below taken March 17, 2017. However, with increased concern for storm

[4] Ibid, Cultural Surveys Hawai’i, Inc., January 2017.
[5] Ibid
[6] Ibid, Robert Weyeneth, 1987.

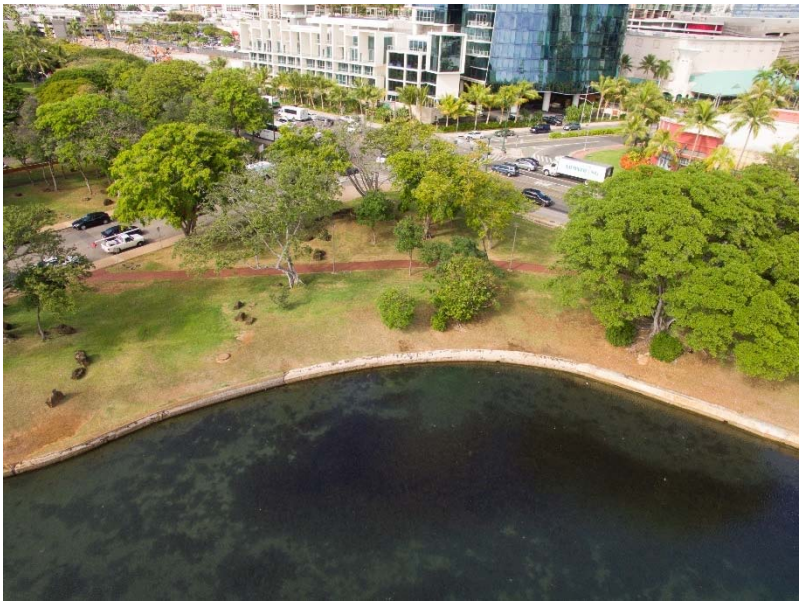
water quality and the conditions in the City's Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit, addressing the soil runoff from the park grounds is required. As such, dual rows of compost filter socks have been installed along the banks which block park user access to the pond, take away area for recreational use and significantly detract from the aesthetics of the water feature and area around it.

5. The Japanese Pond was cited as being remodeled in 1950[7], but no photos of the pond edges before or after the remodeling are available.
6. The photo in "The People's Park", on the next page, shows the Japanese Pond edges to be covered with dense bushes along the Ewa and mauka edges with the Diamond Head side having a low concrete-faced wall. No bank erosion is apparent in the photo.

[7] Ibid, Cultural Surveys Hawai'i, Inc., January 2017.

Western lagoon (RRW)

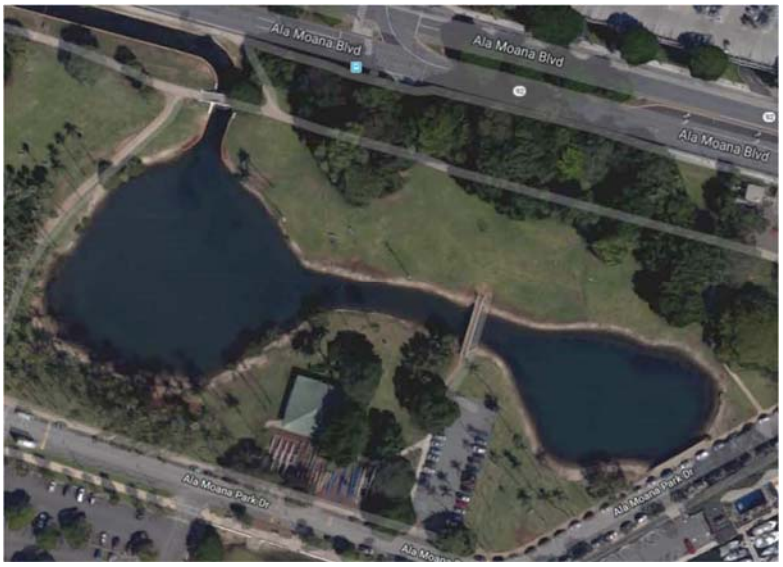
7. As of December 2017, when the photos immediately below were taken, the bushes on the Ewa side of the Japanese Pond have been thinned out compared to the conditions documented in 1987. Also, a portion of the wall along the pond on the downslope side of the bushes is in disrepair.



8. Along the mauka edge of the Japanese Pond the bushes have been removed and the wall exposed. A portion of the wall on the Diamond Head side of the Japanese Pond has been removed with the bank consisting of loose soil and mud.

9. In general, the edge conditions along both ponds is poor and not conducive to either passive or active recreational use. The limited funding at the time of park development in the 1930s did not allow the edges around the ponds to be improved. The edge renovations, assumingly done in 1950 around the Japanese Pond have failed and been removed around at least half of the circumference.

Japanese Pond – December 2017



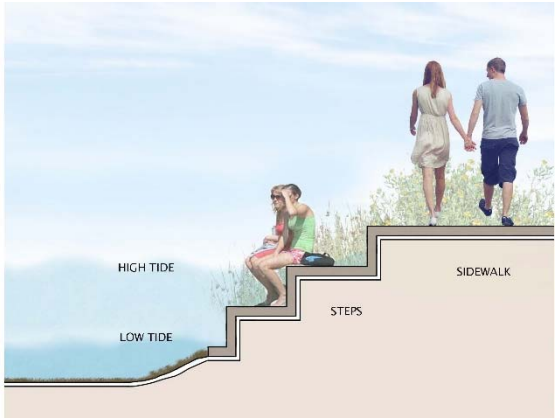
Hawaiian Pond - Google image

Options Considered:

Retaining a grassed edge around the ponds is not considered a viable option given the water surface elevation fluctuations due to tidal influences and storm water flows received by ponds. The edges, as documented in the above historic and current photos, are muddy and uninviting.

Creating a hardened edge all around the ponds will allow park visitors to be closer to the water, but will limit interaction at the water's edge such as for model boat floating, exploring near-edge aquatic life and other similar activities. Hence, a mix of edges is proposed.

Along the unimproved edges of both ponds, a combination of vegetative and hardened edges will be used. It is generally thought that access to the water would be provided at limited areas along the makai sides of both ponds and possibly at one location of each portion of the Hawaiian Pond on the mauka side. Conceptual sketches of the pond edge concepts considered are shown below.



Recommendations:

It is recommended that the historical pond edges be improved. It is proposed that the existing hardened pond edges around the Japanese Pond, and near the Bridal Bridge and at the Ala Moana Park Drive outlet of the Hawaiian Pond be retained. The areas in disrepair should be addressed. Restoring the walls with a similar rocky concrete mix as evidenced in the photos will not be possible, as previously cited for the canal repair. However, the exposed top of wall and pond face can be finished with a concrete or plaster surface to generally match those of the intact portions of the existing walls.

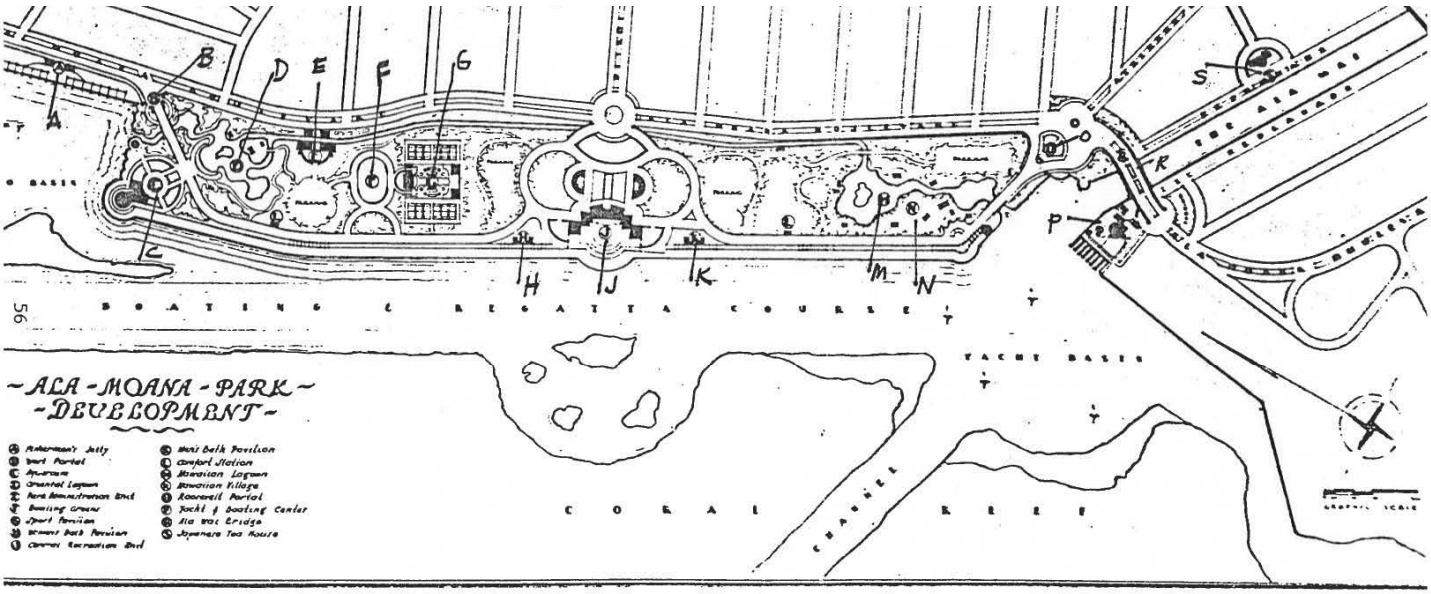
Along the unimproved edges a landscape design should be developed to address the park user activities as identified in the AMRP Master Plan to provide opportunities for interacting with the ponds. The edge treatment at the various locations around the pond should be determined based on existing topography and aesthetics, along with park staff input regarding general park visitor activities and maintenance considerations and requirements. Extensive grading is not to be done and the pond layouts are to be unchanged. It is recognized that the improvements will probably need to be phased based on available funding.

McCoy Pavilion Parking Area

Scope: Reconfigure McCoy Pavilion, "keyhole", parking to optimize the number of parking spaces.

Background:

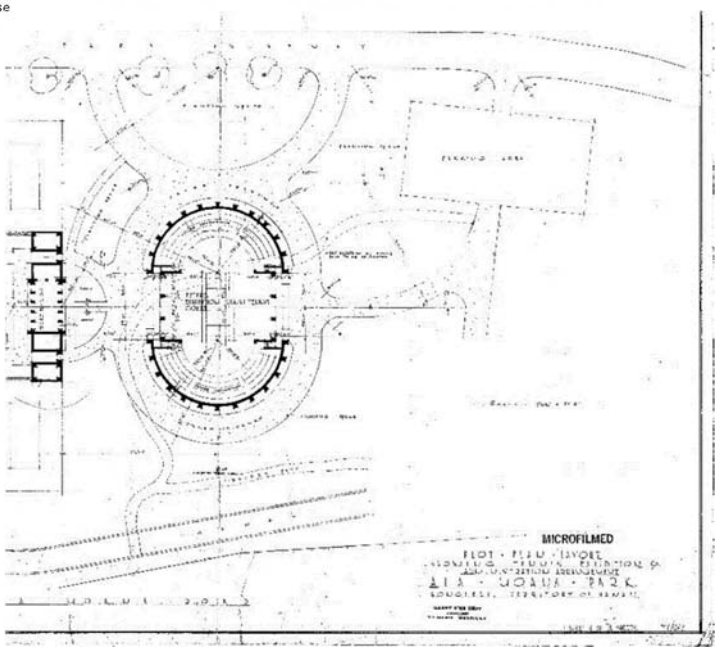
1. The 1932 Preliminary Plan for Ala Moana Park, as shown in the "The People's Park", proposed only Ala Moana Park Drive with no driveways into the mauka lawn areas or parking lots. The 1936 Ala Moana Park Development plan, also from the "The People's Park", has no parking areas shown. The area currently referred to as the "keyhole" parking area on the 'Ewa side of McCoy Pavilion is designated as the "bowling green" in this plan.
2. The Harry Sims Bent plans, dated, February 1, 1954, for the park show the center area to be an



A Fishermen;s Jetty
B West Portal
C Aquarium
D Oriental Lagoon
E Park Administration
F Bowling Green
G Sports Pavilion
H Women's Bath Pavilion
J Central Recreation Unit
K Men's Bath Pavilion
L Comfort Station
M Hawaiian Laggon
M Hawaiian Lagoon
N Hawaiian Village
O Roosevelt Portal
P Yacht and Boating Center
R Ala Wai Bridge
S Japanese Tea House

C. Proposal by Lester McCoy, 1936

exhibition lawn tennis court, with a parking area makai of what is now the lawn bowl facility that is occupied by landscaping.



3. A photo dated 2-9-35 during construction of McCoy Pavilion shows the coral roads in the keyhole area graded with about 4 parallel parking stalls on each side along the middle of the loop. There was no documentation found as to why the parking area as shown in the Bent plan was not developed, or when the lawn bowling area was moved the west of the keyhole. The photos in "The People's Park" show the lawn bowling area in its current location.

4. No vehicle parking is discussed in "The People's Park", except for proposals in the 1960s and 1970s. The City record drawings, show no parking lots within the park until 1949, when the lot by the current canoe hālau was constructed with 42 stalls. Parking areas along the keyhole driveways opposite McCoy Pavilion and the Lawn Bowling area were changed from the parallel configuration to 8 perpendicular stalls on each side at this time as well.[8] No construction drawings for the current configuration of the keyhole parking, which consists of parallel stalls along the driveways, are available. It appears that the parking was to be along the roadways, which were originally unpaved and unstriped.
5. Additional parking was provided with the development of Magic Island in 1962 to 1964. A 1967 Magic Island parking lot improvement plan identified 702 stalls in the area of the existing lot. The drive isles were about 20 feet wide and there were no landscape islands, planters or planting areas within the lot.[9]
6. In general, parking is along Ala Moana Park Drive, which has a total of 356 stalls along both sides of its approximate 1.1-mile length. There are three public parking lots within the park. The 469-stall Magic Island lot is the largest, with the 32- stall lot by the Canoe Halau nearby, on the Diamond Head side of the park. The most centrally located parking is at McCoy Pavilion, where

[8] Ala Moana Park Road Improvements, Kewalo, Honolulu, T.H., Board of Public Parks & Recreation, County & County of Honolulu Planning Division, approved 6/29/49, File No. 77/23.
[9] Parking Lot & Utility Improvements at Magic Island, Job No. 67-P-38, Department of Parks & Recreation City & County of Honolulu, approved 3/9/67, File No. 260/1.

there are 77 stalls along the keyhole driveway, in both a parallel and perpendicular configuration. There is also a small, 5-stall, lot at the maintenance facility reserved for staff use.

7. One of the reoccurring comments in the public meetings on the current park master plan was that parking was inadequate. The City undertook a parking assessment in August 2017 which determined that parking was near capacity, around 90% utilized in the early evening, around the 5 PM hour, during the weekday count, and that the demand exceeded the supply between 10 AM and 5 PM on weekends.

Options Considered:

Based on the current needs of the community, additional parking at AMRP is required. While parking near the beach is favored by most park users, having parking along the makai side of Ala Moana Park Drive is not desirable, as it detracts from ocean vistas and pedestrian and bicyclist promenade areas. As such, the master planning consultant team evaluated locations for a parking lot with the goal of replacing the parking lost along Ala Moana Park Drive by providing drop off and some seating areas along the makai shared use path.

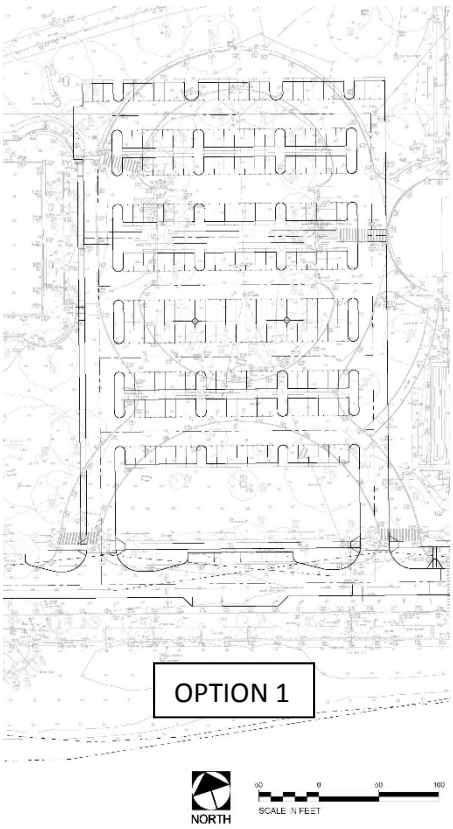
The AMRP Master Plan proposes to decrease the width of the Magic Island parking to expand the beach area and Ala Wai Boat Harbor shared used path. Expanding the Magic Island parking lot further makai is proposed, but only by 260 feet, which is inadequate to replace all the stalls lost with the narrowing of the lot and parking layout changes along Ala Moana Park Drive. Extending the lot too far makai is not preferred as it takes away open lawn areas that are used by private and community groups. Also, having parking centrally located is preferable to concentrating all the parking on the Diamond Head side of the park, as is currently the case.

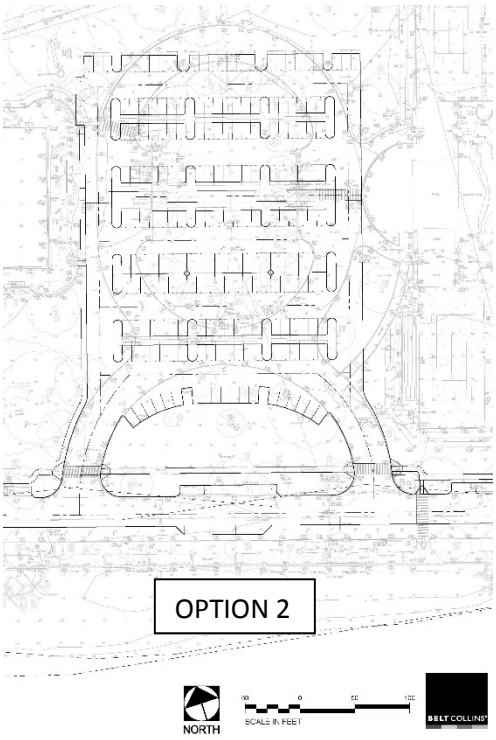
Constructing on existing open lawn areas on either side of the high spot, where Ala Moana Park Drive curves mauka, would decrease recreational areas and locations which are assignable by permit for private and community event use. For similar reasons, adding a parking lot near the Japanese Pond is not favored.

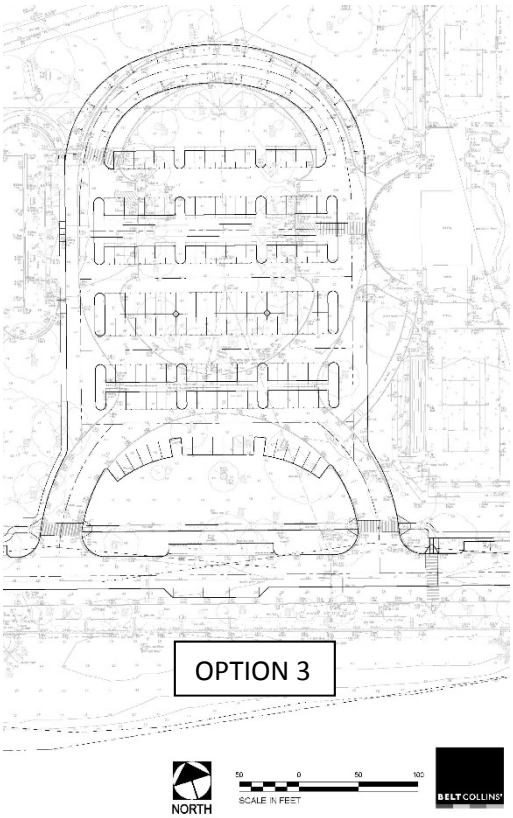
The keyhole area was thus considered an appropriate area to evaluate for expanded parking. The area was originally designated for parking, which was not developed, either due to cost constraints, lack of demand given the limited number of vehicle owners driving to the park in the 1930s, or both. The lawn areas are separated by the driveways that give the keyhole its nickname and are not extensively used. The area is already paved and vehicle-centric with some parking, but it is not efficiently laid out. The area is centrally located and near McCoy Pavilion which holds events that have a demand for participant parking. The keyhole area is also in between the tennis courts and lawn bowling area, with the latter being identified for more intense and diversified use in the master plan, which will increase the demand for nearby parking.

Three parking lot layouts were considered. Option 1 was an engineered layout focused on maximizing the stall count, 175 total, and have conventional T-intersection. The other options considered the existing configuration of the keyhole driveways, as an element of the historical layout of the Bent plan. These layouts retained the curved driveway configurations at Ala

Moana Park Drive to create an arched shaped lawn area. The Option 2 layout shown below loses only one stall compared to the engineering layout, for a total of 174 stalls. Option 3 retained the top of the keyhole generally in its current configuration, providing 167 stalls. This layout was thought to be too inefficient for parking given the 1,155 square yards of additional paving for 24 stalls and the one-way circulation required through the upper semicircle driveway.







Recommendations:

After review of the park areas and uses, expanding parking in the keyhole area, traditionally used as access and parking for the Sports Pavilion, Banyan Court and Lawn Bowling Green, was determined to be the best suited location. It is generally centrally located, is not well suited to open recreational use due to the driveway network with associated parking, and not efficiently laid out for parking. In the interest of maintaining the historical connection to the park's original development plan, the curved driveway connections with an arched shaped lawn area along Ala Moana Park Drive, Option 2, is proposed to be incorporated into the design.

Repair of the Bridle Bridge and Roosevelt Portals

Proposed Scope:

Maintenance repair of the Bridle Bridge, also referred to as the equestrian bridge, and the Roosevelt Portals to address areas of exposed steel reinforcing and underlying concrete.

Background:

1. The Bridle Bridge and Roosevelt Portals were both designed by Bent and completed in 1934 as part of the original improvements to the park.[10]
2. Details of the construction of the bridge are not available. Photos of it, immediately below, taken as part of the AMRP Master Plan show reinforcing steel with small size aggregate concrete, overlain with painted cement plaster.[11] It is therefore not known if boulder concrete was used in the original construction.

Severe spalling with missing concrete and exposed rebar at underside of bridge

Cracked and fallen concrete on the exterior portion of the Diamond Head arch

Moisture infiltration at underside of the Ewa side of the bridge has loosened plaster and paint

Concrete column foundations were cracked and broken at the bases

3. The portals were reportedly constructed of boulder concrete.[12] The AMRP Master Plan recommended patching and refinishing of the portals to restore and preserve it historic character, even though a separate structural assessment of it was not completed.[13]
4. A more recent structural assessment of the AMRP pedestrian bridges engaged by the City found the condition of the Bridle Bridge to be poor to fair.[14] The assessment recommended repairs and improvements.

[10] Ibid, Cultural Surveys Hawai'i, Inc., January 2017.
[11] "Inspection Report of Ala Moana Beach Park Bridges", Realty Inspections Inc., May 2015.
[12] Ibid, Robert Weyeneth, 1987.
[13] Ibid, Biederman Redevelopment Ventures, December 2017.
[14] "Ala Moana Regional Park Structural Assessment of Pedestrian Bridges", Nagamine Okawa Engineers, Inc., September 2016.

Options Considered**:**

The 2016 Bridle Bridge structural assessment recommended to coat the entire bridge with a corrosion inhibiting concrete penetrating sealer on an immediate basis as a temporary measure to stop further deterioration of the exposed areas of the bridge. The long-term recommendations were to:

- repair cracks, spalls and delaminated concrete;
- repair of abutment and pier wall footings;
- seal the deck topping slab and railing;
- repair the undermined areas of the abutment, footings and adjacent channel wall; and
- installing a higher railing at the crow of the bridge safety.

Penetrating sealer materials identified by the project structural engineer include Sika© FerroGard©-903, Andek Corporation Polaseal VCI™ and Cortec MCI-2018. All materials are clear and stop concrete deterioration caused by water penetration and reinforcing steel corrosion. The sealers applied will thus not alter the appearance of the Art Deco structures and will protect them.

As discussed above for repair and restoration of the canal wall, use of historic materials that may have been used in construction of the bridge is not possible given current building codes and industry standards. Therefore, the options considered are more related to selection of a sealer or concrete admixture which will allow application of a cement plaster and painting to have the repaired areas restored to match the existing adjacent portions of the structure and retain the original design of the bridge.

The same materials and restoration will be used on the Roosevelt Portals. The condition of the portals is not as bad as that of the bridge, and extensive spall repair and footing work are not needed. The portals will likely be treated with a corrosion inhibiting concrete penetrating sealer which will provide a protective surfacing for the structure, without altering its character or structure.

Recommendation:

It is recommended that repair of the Bridle Bridge with current industry standard materials be undertaken as soon as possible to stop the corrosion and repair the foundation. A railing should be added as recommended, with the design to match that of the existing and retain the Art Deco character of the structure. The Roosevelt Portals should be repaired as needed with the entire structure sealed to preserve the surface integrity and underlying construction.

APPENDIX E

Biological Resources Survey Report for Ala Moana Regional Park and Magic Island, Island of O‘ahu

SWCA®
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

Biological Resources Survey Report for Ala Moana Regional Park and Magic Island, Island of O‘ahu

Submitted to

Belt Collins Hawai‘i LLC

Prepared by

SWCA Environmental Consultants

April 2017

BIOLOGICAL RESOURCES SURVEY REPORT FOR ALA MOANA REGIONAL PARK AND MAGIC ISLAND ISLAND OF O‘AHU

Submitted to

Belt Collins Hawai‘i LLC
2153 North King Street, Suite 200
Honolulu, Hawai‘i 96819
Attention: Joanne E. Hiramatsu

Prepared by

SWCA Environmental Consultants
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Honolulu, Hawai‘i 96813
(808) 548-7899
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SWCA Project No. 30476

April 2017

EXECUTIVE SUMMARY

Belt Collins Hawaii LLC requested that SWCA Environmental Consultants (SWCA) conduct a terrestrial flora and fauna survey, an aquatic fauna survey, and a water quality survey in support of an Environmental Impact Statement and related permits for a proposed project at Ala Moana Regional Park and Magic Island on the island of Oʻahu. This report summarizes the findings of the surveys.

SWCA conducted a pedestrian survey for terrestrial flora on March 17, 2017, to record all vascular plant species in the survey area. SWCA conducted a pedestrian survey for terrestrial fauna on March 23, 2017, during the morning hours when wildlife were most likely to be active. This survey consisted of visual and auditory observations. SWCA conducted the aquatic fauna survey on March 27, 2017, which consisted of visual searches from the connecting canal walls and bridges, as well as benthic grab sampling from kayaks. This survey focused on fish and large aquatic invertebrates. SWCA conducted the water quality survey on March 27, 2017, which consisted of collecting water quality parameters and samples from three locations.

The naturally occurring vegetation types and plant species identified during the survey are not considered unique. However, there were 11 native Hawaiian plant species observed in the survey area that were cultivated in the park by the city of Honolulu: ʻākulikuli (*Sesuvium portulacastrum*), *Polyscias racemosa*, loulu lelo (*Pritchardia hillebrandii*), kou (*Cordia subcordata*), kīpūkai (*Heliotropium curassavicum*), naupaka kahakai (*Scaevola taccada*), hau (*Hibiscus tiliaceus*), milo (*Thespesia populnea*), aʻe (*Sapindus saponaria*), ʻuhaloa (*Waltheria indica*), and hala (*Pandanus tectorius*). *Polyscias racemosa* is listed as critically endangered but occurs in the survey area as a cultivated plant only.

In general, the plant and wildlife species observed are typical of urban areas on Oʻahu. No federally listed endangered birds were observed in and around the waterways of the survey area. However, one state-listed species, the white tern (*Gygis alba*), was observed in the survey area amongst other common species. Based on current distribution and habitat requirements, the federal and state endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) may forage or roost in the survey area. For these reasons, avoidance and mitigation measures are recommended for these listed species.

Other federally or state-listed terrestrial fauna species with potential to occur on the island of Oʻahu are not likely to occur in the survey area because it is either outside the range of the species or because appropriate habitat is not found in the survey area. The survey area does not overlap critical habitat of any listed terrestrial faunal species. Therefore, the proposed project is not expected to have a significant, adverse effect on terrestrial wildlife.

None of the aquatic fauna recorded in the aquatic survey area are federally or state-listed threatened, endangered, proposed listed or candidate species. Because no threatened or endangered aquatic species were recorded in the area, the proposed project is not expected to have a significant, adverse effect on biological marine resources.

The water quality sampling showed exceeding values for pH, turbidity, and dissolved oxygen. There is no acceptable standard for total suspended solids for estuaries, and salinity and dissolved oxygen concentration standards are based on deviations from ambient conditions and cannot be assessed against the water quality standards in Hawaiʻi Administrative Rules 11-54. This one-time testing of the water quality at the two ponds and canal is not sufficient for determining water quality standards compliance. The data can only provide background information.

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INTRODUCTION

Belt Collins Hawaii LLC requested that SWCA Environmental Consultants (SWCA) conduct a terrestrial flora and fauna survey, an aquatic fauna survey, and a water quality survey in support of an Environmental Impact Statement and related permits for a proposed project at Ala Moana Regional Park and Magic Island on the island of O‘ahu (Figure 1). This report summarizes the findings of the surveys. The terrestrial flora survey was conducted on March 17, 2017, the terrestrial fauna survey was conducted on March 23, 2017, and the aquatic fauna and water quality surveys were conducted on March 27, 2017.

DESCRIPTION OF THE SURVEY AREA

The survey area is in the southern portion of the island of O‘ahu, and encompasses the entire Ala Moana Regional Park and Magic Island (Tax Map Key: 230370010000 and 230370250000 see Figure 1). The survey area includes two ponds and a canal that runs parallel to the northern boundary of the park along Ala Moana Boulevard. North of Ala Moana Boulevard is a busy urban area occupied by several commercial and residential properties. The west end of the survey area is bordered by Kewalo Basin, which is a mix-use: commercial and recreational boat harbor, and the east end is bordered by Ala Wai Boat Harbor. The survey area is near the most densely populated community in the state and is frequently used by visitors and residents for recreational activities. The survey area encompasses approximately 40.5 hectares (100 acres).

Ala Moana Regional Park was built by the city and county of Honolulu in the 1930s. Similar to nearby Sand Island, the park sits on a human-made landscape, which consists of dredge material on top of a coral reef. The original shoreline is covered by Ala Moana Boulevard, and the current coastline extends seaward approximately 200 meters (m) from its original location.

Mean annual rainfall for the survey area is approximately 29.1 inches (738.6 millimeters [mm]). Rainfall is typically highest in December and lowest in June (Giambelluca et al. 2016). The nearest National Oceanic and Atmospheric Administration (NOAA) weather recording station to the survey area is the Aloha Tower station (ALOH1), which is 1.8 miles from the survey area. This station recorded lower than average rainfall for 2017 through the end of March (NOAA 2016a).

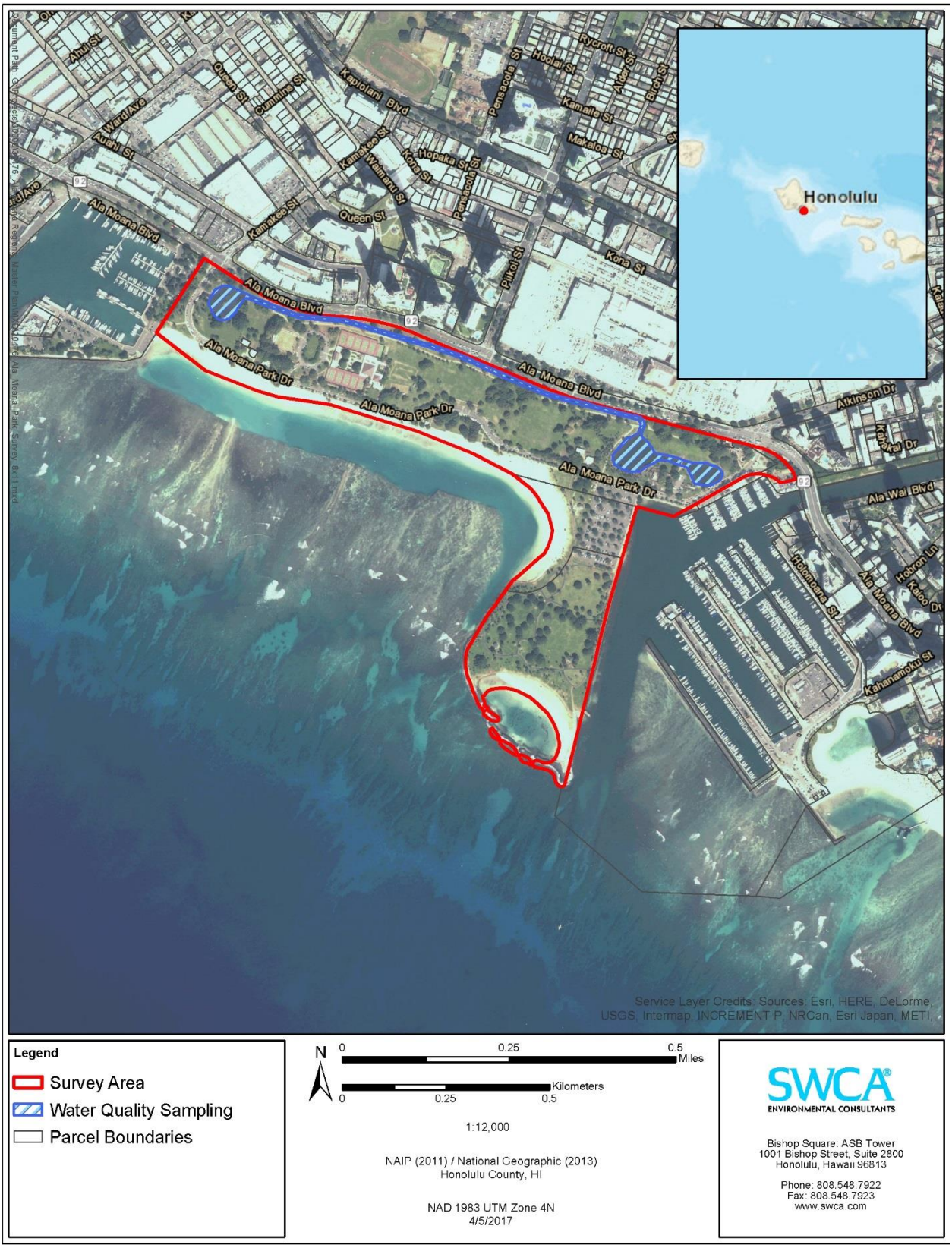

Figure 1. Ala Moana Regional Park and Magic Island survey area (TMK: 230370010000 and 230370250000).

METHODS

SWCA reviewed available scientific and technical literature regarding natural resources in and near the survey area. This literature review encompassed a thorough search of referenced scientific journals, technical journals and reports, environmental assessments, environmental impact statements, relevant government documents, U.S. Fish and Wildlife Service (USFWS) online data, and unpublished data that provide insight into the area’s natural history and ecology. SWCA also reviewed available geospatial data, aerial photographs, and topographic maps of survey area.

Terrestrial Flora

SWCA conducted a pedestrian survey for terrestrial flora on March 17, 2017, to record all vascular plant species in the survey area. Areas more likely to support native plants (e.g., rocky outcrops and unmanaged areas) were more intensively examined. Plants recorded during the survey are indicative of the season (“rainy” vs. “dry”) and the environmental conditions at the time of the survey. As environmental conditions change, it is likely that plant community composition, species, and abundances will undergo temporal or seasonal changes.

Terrestrial Fauna

SWCA conducted a pedestrian survey for terrestrial fauna on March 23, 2017, during the morning hours (06:45–08:45) when wildlife were most likely to be active. Visual and auditory observations were made. All observed birds, mammals, reptiles, amphibians, and invertebrate species were noted during the survey. Acoustic surveys for the Hawaiian hoary bat (*Lasiurus cinereus semotus*)—the only native terrestrial mammal species that is still extant within the Hawaiian Islands—were not conducted, but areas of suitable habitat for roosting and foraging were noted during the survey.

Aquatic Fauna

SWCA conducted the aquatic fauna survey on March 27, 2017, which consisted of visual searches from the connecting canal walls and bridges. The two ponds were surveyed from shore, and a kayak was deployed to collect benthic grab samples from the middle of each pond. The survey focused on fish and large aquatic invertebrates. Benthic sediment samples were obtained using a 3.5-liter (0.9-gallon) Ekman SS Grab Sampler. Nine samples were taken—three samples from each pond and three from the canal—between 14:00 and 17:00 during the rising tide (see Figure 15). The samples were sifted through a 1.8-milimeter (mm) sieve to record species and identify them to the lowest taxonomic level.

Water Quality

SWCA conducted the water quality survey on March 27, 2017, which consisted of collecting water quality parameters and samples from three locations between 15:00 and 17:00. A kayak was deployed to collect one water sample from the middle of the east pond, one water sample from the west pond, and one water sample from the eastern end of the connecting canal (see Figure 15). In situ physical parameters include temperature, dissolved oxygen (DO), salinity, pH, and turbidity (Table 1). These were measured using a Horiba Model U53 portable sonde. Before initiating fieldwork, the probes were calibrated according to the manufacturer’s specifications to ensure accuracy. The sonde was fully submerged at the sample site, and data were recorded once a stable value was measured. In addition to probe-based measurements, light extinction was measured in the field using a Secchi disk.

Total suspended solids (TSS) samples were collected by submerging sample containers provided by the analytical laboratory approximately 25 centimeters (10 inches) below the water column and collecting a sample free of floating debris and sediment. Poor access to the channel required that this sample be collected using a bucket and then pouring it into a sample container. Samples were labeled with the sample identification number, date, time, and name of sampler before being placed in a cooler with ice and cooled to 6 degrees Celsius (°C). A chain-of-custody form was completed, and the samples were delivered to Food Quality Labs in Honolulu, Hawai‘i, for analysis.

Table 1. Water Quality Field Parameters and Corresponding Analytical Methods

Parameter	Analytical Method	Sample Type	Analytical Location
Temperature	SM 2550	In situ	Field measured
DO	EPA 360.1	In situ	Field measured
Salinity	SM 2520 B	In situ	Field measured
pH	EPA 150.1	In situ	Field measured
Turbidity	SM 2130	In situ	Field measured
Secchi depth	Not applicable	Visual	Field measured
TSS	EPA160.2	Grab	Food Quality Labs

Other information recorded during water quality sampling included tide height, weather conditions and recent weather events, and other activities that may have impacted water quality. Field measurements and laboratory results were compared to the water quality standards (WQS) promulgated through Hawai‘i Administrative Rules (HAR), Title 11, Chapter 54 (HAR 11-54). WQS are generally based on a geometric mean for each parameter; therefore, a minimum of three samples must be collected to compare to the standard. Although a single data point for each parameter is insufficient to determine compliance with WQS, individual data points can provide insight into additional studies that may be needed for the waterbody. All parameters were collected on the same day for the purpose of describing the water quality.

RESULTS

In general, the flora and fauna assemblages are typical of those found in disturbed and urban areas of O‘ahu. No federally listed threatened or endangered plant or animal species or proposed listed or candidate species were directly observed during the pedestrian surveys. However, the state-threatened white tern (*Gygis alba*) was observed and may nest in the survey area (Vanderwerf 2003). In addition, the federally endangered Hawaiian hoary bat may forage and/or roost in the survey area because suitable habitat is present in the survey area (see Mammals results section). The survey area does not encompass any designated or proposed critical habitat for threatened or endangered species.

Terrestrial Flora

No naturally occurring state or federally listed threatened, endangered, proposed listed, or candidate plant species, or rare native Hawaiian plant species, were observed in the survey area. In all, 102 plant species were recorded in the survey area during the survey. Of these, 11 species are native to the Hawaiian Islands: ‘ākulikuli (*Sesuvium portulacastrum*), *Polyscias racemosa*, loulu lelo (*Pritchardia hillebrandii*), kou (*Cordia subcordata*), kīpūkai (*Heliotropium curassavicum*), naupaka kahakai (*Scaevola taccada*), hau (*Hibiscus tiliaceus*), milo (*Thespesia populnea*), a‘e (*Sapindus saponaria*), ‘uhaloa (*Waltheria indica*), and hala (*Pandanus tectorius*). *Polyscias racemosa* is listed as critically endangered but occurs in

the survey area as a cultivated plant only. All other native plant species observed are not rare (Wagner et al. 1999).[1] Appendix A provides a list of all plant species observed by SWCA biologists in the survey area.

The vegetation in the survey area consists of two vegetation types: landscaped and ruderal.

Landscaped Vegetation

Landscaped areas at Ala Moana Regional Park and Magic Island are frequently mowed lawns consisting of a mixture of introduced lawn grasses and herbaceous weeds, with a diverse mixture of ornamental trees and shrubs (Figures 2 and 3). Many of the ornamental trees are well established, and at least 25 have been designated as exceptional trees by the Outdoor Circle of Hawai'i. Outdoor Circle defines *exception trees* as "a tree, stand or grove of trees with historic or cultural value, or that by reason of age, rarity, location, size, aesthetic quality or endemic status, is designated by a county arborist advisory committee as worthy of preservation" (The Outdoor Circle 2017). Pitted beardgrass (*Bothriochloa pertusa*) and Bermuda grass (*Cynodon dactylon*) are the most abundant grasses in the landscaped areas. Various cultivated ornamental trees are present throughout the park along pathways in open lawn spaces and adjacent to canals and waterbodies. The cultivated ornamental trees are diverse, but common species include Chinese banyan (*Ficus microcarpa*), coconut (*Cocos nucifera*), *Tabebuia heterophylla*, false olive (*Elaeodendron orientale*), and monkeypod (*Samanea saman*).

Ruderal Vegetation

Ruderal vegetation is found along the edges of cultivated areas where mowing or other maintenance activities are not practical, such as pond or canal edges (Figure 4), or surrounding existing buildings or construction areas. Most of the plant species found in this vegetation type are herbaceous species adapted to colonizing disturbed areas, with some weedy shrubs and small trees. The most common tree and shrub species in these areas are milo, buttonwood (*Conocarpus erectus*), red mangrove (*Rhizophora mangle*), and Indian fleabane (*Pluchea indica*). Abundant and common herbaceous species found in the ruderal vegetation are pitted beardgrass, *Sida ciliaris*, nut sedge (*Cyperus rotundus*), *Boerhavia coccinea*, and Bermuda grass. Milo and 'ākulikuli were the only native plant species observed in this vegetation type.

[1] The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999), Wagner and Herbst (2003), and Staples and Herbst (2005). Recent name changes are those recorded in Wagner et al. (2012). Common/Hawaiian names are provided first, followed by scientific names in parenthesis. If no common or Hawaiian name is known, only the scientific name is provided.

Figure 2. Typical landscaped vegetation in the survey area, showing ornamental trees and mowed areas. Species in this photograph include the broad-crown species *Enterolobium cyclocarpum.*

Figure 3. Landscaped vegetation on the mauka portion of the site includes diverse ornamental trees and mowed herbaceous species. Species in this photograph include pitted beardgrass (*Bothriochloa pertusa*), Bermuda grass (*Cynodon dactylon*), and Indian banyan (*Ficus benghalensis*).

Figure 4. Ruderal vegetation exists at the margins of maintained areas in the survey area, such as pond edges. Species in this photograph include Species specific in these areas include Indian fleabane (*Pluchea indica*).

Terrestrial Fauna

Avifauna

Most of the bird species observed in the survey area were foraging near the beach front or along the shores of the two ponds (Figures 5–7). Several bird species were observed scavenging on what was likely discarded food scraps from park visitors. Birds like the wandering tattler (*Tringa incana*) were observed at the ponds, likely foraging on small aquatic invertebrates (Figure 6). Ducks are common in the survey area and were seen feeding on food provided by park visitors. Black-crowned night-herons observed were likely feeding mostly on the fish in the system (Figure 7).

Figure 5. Spotted dove, common mynahs, and ruddy turnstones foraging in the survey area.

Figure 6. Wandering tattler foraging in the survey area.

Figure 7. Water birds along the water edges. Mallards (left), black-crowned night-heron (*Nycticorax nycticorax*) (right).

Most of the bird species observed in the survey area are species commonly found in disturbed, low- to mid-elevation areas on O‘ahu. In all, 20 bird species were documented (Table 2), including seven birds protected by the Migratory Bird Treaty Act (MBTA) (see Table 2). In addition, the MBTA-protected white tern (*Gygis alba*) is also listed as threatened on O‘ahu by the State of Hawai‘i.

Table 2. Birds Observed in and Near the Survey Area

Common Name	Scientific Name	Status	MBTA
Black-crowned night-heron	*Nycticorax nycticorax*	N	X
Cattle egret	*Bubulcus ibis*	NN	X
Common myna	*Acridotheres tristis*	NN	–
Common waxbill	*Estrilda astrild*	NN	–
Japanese white-eye	*Zosterops japonicus*	NN	–
Hawaiian duck-mallard hybrids*	*Anas* sp.	NN	X
House finch	*Haemorhous mexicanus*	NN	–
House sparrow	*Passer domesticus*	NN	–
Java sparrow	*Lonchura oryzivora*	NN	–
Pacific golden-plover	*Pluvialis fulva*	M	X
Red-vented bulbul	*Pycnonotus cafer*	NN	–
Red-crested cardinal	*Paroaria coronata*	NN	–
Rock dove	*Columba livia*	NN	–
Ruddy turnstone	*Arenaria interpres*	N	X
Spotted dove	*Streptopelia chinensis*	NN	–
Wandering tattler	*Tringa incana*	M	X
White-rumped shama	*Copsychus malabaricus*	NN	–
White tern	*Gygis alba*	N	X
Yellow-fronted canary	*Serinus mozambicus*	NN	–
Zebra dove	*Geopelia striata*	NN	–
Total		**20**	**7**

*These ducks are likely hybrids of the native Hawaiian duck (*Anas wyvilliana*) and the introduced mallard (*Anas platyrhynchos*).

Mammals

The endangered Hawaiian hoary bat is the only native terrestrial mammal species that is still extant within the Hawaiian Islands (USFWS 1998). Hawaiian hoary bats are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands (U.S. Department of Agriculture 2009). The waterways in the survey area would be considered suitable bat foraging habitat.

Hawaiian hoary bats typically roost in dense canopy foliage (or in the subcanopy when canopy is sparse) with open access for launching into flight (U.S. Department of Agriculture 2009). Hawaiian hoary bats have been observed roosting in Chinese banyan, kukui (*Aleurites moluccana*), milo, and rainbow shower tree (*Cassia* x *nealiae*) and could roost in these tree species in the landscaped vegetation type within the survey area. Other trees in the survey area also possess characteristics of roosting trees, and although not yet documented as Hawaiian hoary bat roost trees, they could be used as a day or night roost if bats were present. In addition, Hawaiian hoary bat foraging habitat occurs over the open water of the Ka‘elepulu Pond tributaries; this habitat is similar to the ponds and canal that are in the survey area’s ruderal and landscaped vegetation types.

The survey area is in Ala Moana Regional Park, a recreational park where it is common to find people walking their dogs (*Canis familiaris*). No mammals were observed during the pedestrian survey. Although the small Indian mongoose (*Herpestes javanicus*), feral cat (*Felis catus*), house mouse (*Mus musculus*), and rats (*Rattus* spp.) were not detected, they are likely to occur in the survey area.

Reptiles and Amphibians

No terrestrial reptiles or amphibians were detected. There are no terrestrial reptiles and amphibians native to the Hawaiian Islands.

Insects and Other Invertebrates

The non-native carpenter bee (*Xylocopa sonorina*) was the only invertebrate observed during the survey.

Aquatic Fauna

The survey for aquatic fauna in the canal and ponds was conducted on March 27, 2017.

Canal

The canal connects two ponds and runs parallel to Ala Moana Boulevard along the northern margin of the park. The western pond connects to Kewalo Basin through a culvert that runs under Ala Moana Park Drive where it enters the park at the western end. The eastern pond is connected by a 1-meter-diameter pipe to the Ala Wai Boat Harbor. This pipe runs under the eastern end of Ala Moana Park Drive.

The pedestrian survey for aquatic fauna began at 10:30 at the eastern pond where it connects to the canal. At this time, the tide was fairly low (0.1 meter, NOAA 2016b), and the margins of the pond were exposed. The canal was also dry in many paces (Figure 8).

Figure 8. Partly dry canal at the easement bridge.

This survey continued until the water was deep enough to deploy the grab samplers. High tide was 0.46 meter at 17:00, so the tide was rising during the entire the survey. Flow of water from the direction of Kewalo Basin, where the canal opens into the harbor, was observed during the survey. Once the water depth was sufficient for sampling, the length of the canal was walked from east to west. Grab samples were taken at three locations along the canal (Table 3; see Figure 15).

Table 3. Grab Sampling Results for the Canal

Location	Time	Bottom Type	Substratum	Organisms
C1	14:05	Soft bottom	Black silt with algae on the surface	Algae and snails
C2	14:15	Soft bottom	Black silt	Algae and snails
C3	15:50	Hard (concrete?)	Some coarse gravel	No organisms

The algae observed in the canal grab samples were *Acanthophora spicifera*, *Hypnea* sp., and *Gracilaria salicornia*. The *Gracilaria* occur as small loose fragments. These were probably washed into the canal from the reef. The 1.2-mm sieve only retained shells of the freshwater snail *Tarebia granifera*. These shells were empty, meaning they had probably washed into the canal from freshwater sources. The algae that appeared to be resident in the canal—*Acanthophora* and *Hypnea*—were colonized by small crustaceans (amphipods and tanaids). These crustaceans would have passed through the sieve if they had not been enmeshed in the algae.

The canal is dominated by abundant schools of cichlids (i.e., tilapia) (*Sarotherodon* and/or *Oreochromis* sp.) of all sizes. As water moves into the system, these tightly packed schools spread to the newly submerged sections of the canal (Figure 9).

Figure 9. School of tilapia dispersing as the water rises.

The canal has several openings. A large culvert passes water to and from Kewalo Basin at the western end of the system (Figure 10). Several other culverts to the canal pass under Ala Moana Boulevard. Because of the construction at Ala Moana, some of these culverts are fitted with barriers (Figure 11).

Figure 10. Opening of the culvert that transmits water between the Ala Moana Regional Park system and Kewalo Basin.

Figure 11. Openings into the canal from culverts passing under Ala Moana Boulevard. Only one has a detritus collector (right).

Water quality measurements were also taken at one location in the canal (at grab sample location C3). These data are discussed in the Water Quality results sections.

In summary, the canal can be characterized as a tidal conduit connecting the two ponds, which in turn, are connected to two marine inlets, the Kewalo Basin and the Ala Wai Boat Harbor. At low tides, much of the bottom of the canal is exposed, whereas at high tide, all surfaces are submerged. The bottom of the canal is a mixture of hard substrata (concrete in many places and gravel and rubble and fine black silt). No large infauna (benthic species) were found in the sediments in the canal, though algae, mostly unattached, were common and often moving with the tides. The algae were colonized by micro-invertebrates, but they were too small to be captured by the 1.2-mm sieve.

Western Pond

This western pond is directly connected to Kewalo Basin by a culvert that passes under Ala Moana Park Drive. The survey for the western pond began at 14:25 when the tide had reached 0.38 m. The flow of the incoming water was evident as was the surge from the offshore surf.

The northern banks of the pond have been invaded by mangroves (Figure 12), and the southern side has mowed lawn maintained by park personnel.

Figure 12. Margins of the western pond with mangroves on the north side (left) and open grass on the south side (right).

The shallow waters at the margin of the pond has dense populations of small tilapia and poeciliid fishes (either *Gambusia* or *Poecilia reticulata).* Samoan crabs (*Scylla serrata*) were also noted.

In the middle of the pond, large fish were seen jumping, but they could not be identified. Three grab samples were taken in the pond (Table 4; see Figure 15).

Table 4. Grab Sampling Results for the Western Pond

Location	Time	Bottom Type	Substratum	Organisms
W1	14:25	Soft bottom	Mostly gravel not too silty	Algae; many very small amphipods and taenids
W2	14:45	Soft bottom	Black silt	Dead, black plant matter and some crustacean exoskeletal parts; amphipods not abundant
W3	15:55	Soft bottom	Coarse sand and gravel; some silt, but washed off easily; some coarse gravel	No organisms

The grab samples comprised mostly gravel and sand; however, grab sample W1 (see Table 4) contained the same three algae species that were observed in the canal grab samples: *Acanthophora spicifera*, *Hypnea* sp., and *Gracilaria salicornia*. The presence of algae and the presence of silt in only one sample are a result of the tidal influence from the culvert that channels water from nearby Kewalo Basin. Water quality measurements were also taken at one location in the western pond (at grab sample location W2). These data are discussed in the Water Quality results sections.

Eastern Pond

The eastern pond is larger than the western pond (see Figure 15). It is divided into an eastern and a western basin by a narrow strait crossed by a bridge (Figure 13).

Figure 13. Eastern pond. East basin (left), isthmus and bridge (center), and west basin (right).

The eastern pond has large populations of tilapia. Most of the pond margins are covered in litter. The pond is used by model boat enthusiasts and is also used for fishing. Unlike the western pond, there are few mangroves, and the pond’s littoral zone is cleared of vegetation. Two grab samples were taken in the larger west basin and one was taken in the east basin (Table 5; see Figure 15).

Table 5. Grab Sampling Results for the Eastern Pond

Location	Time	Bottom Type	Substratum	Organisms
E1	16:20	Soft bottom	Heavy black silt	No organisms
E2	16:45	Soft bottom	Heavy black silt	No organisms
E3	16:55	Soft bottom	Sticky black silt	No organisms

All three grab samples produced black silt with blackened vegetable matter and litter (Figure 14). There are no living macro-organisms in any of the samples.

Figure 14. Results of grab sample from the eastern pond (left): entire sample (right) after silt washed away.

The grab samples of the east pond produced similar substrate type throughout the pond. The thick black, lifeless mud indicates a lack of flow and tidal influence. The absence of tidal exchange allows detritus to settle and decompose, creating a thick layer of mud and silt at the bottom of the pond.

Water quality measurements were also taken at one location in the eastern pond (near grab sample location E2) (see Figure 15). These data are discussed in the Water Quality results sections.

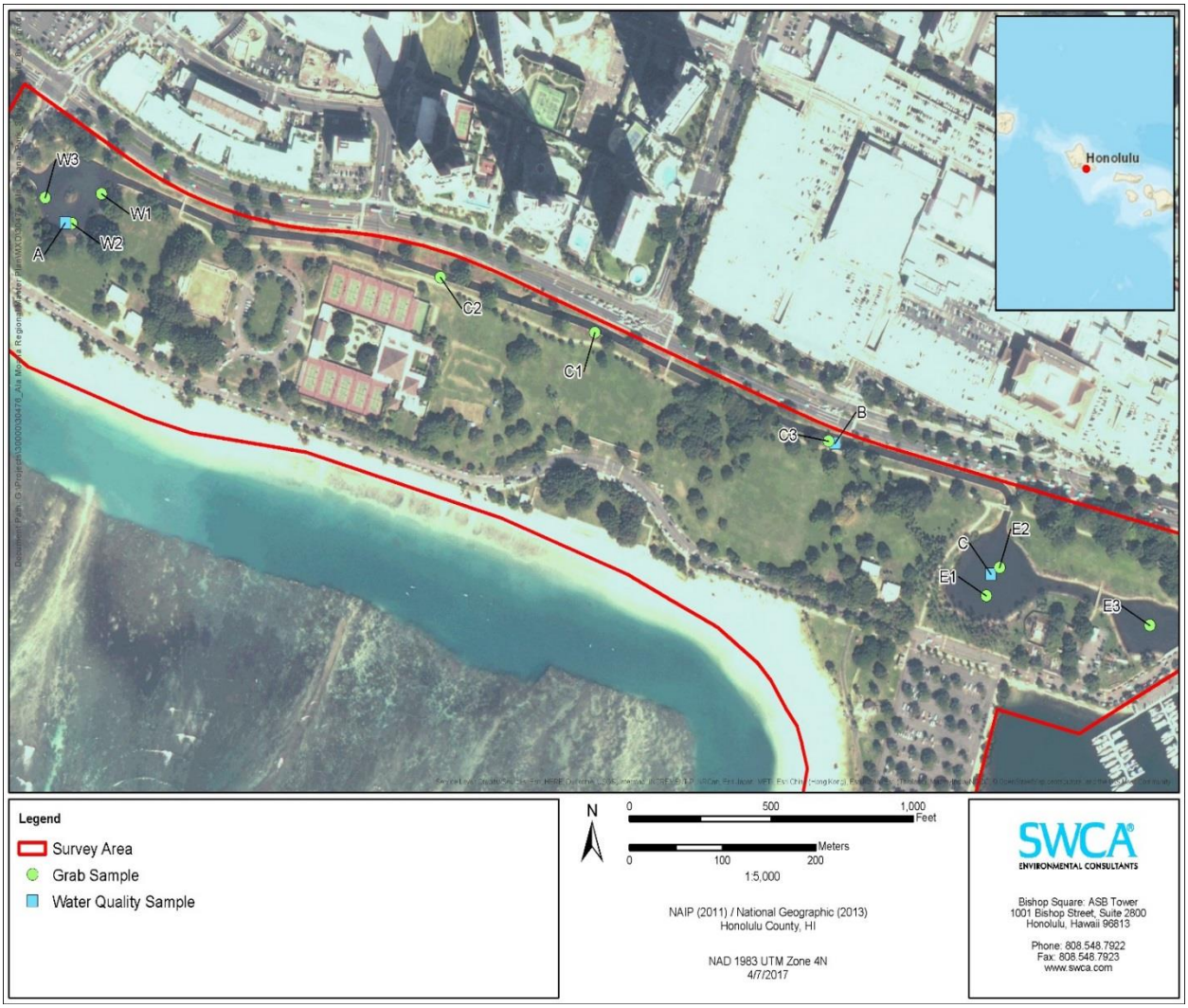

Figure 15. Canal and ponds benthic and water quality sample locations.

Water Quality

Detailed background research was conducted to obtain past data results and analyses to provide context for the water quality survey points; however, no historical data were found. Although water quality testing is performed regularly at several locations within Ala Moana Regional Park, they are all collected from the beach or ocean. These marine sample points are incomparable to the data collected within the system.

It is worth noting, according to the *2014 State of Hawai‘i Water Quality Monitoring and Assessment Report* (Hawai‘i State Department of Health 2014) and numerous other studies, that several waterbodies

within the Ala Wai Watershed, of which Ala Moana Regional Park is a part, have been designated as impaired. In addition, the Ala Moana Beach (Diamond Head) survey point has been listed as Category 5 for turbidity, indicating that the waters do not meet water quality criteria for this parameter, and a total maximum daily load study is needed.

The results for the in situ and collected water samples in the canal and ponds are provided in Table 6.

Table 6. Water Quality Results for the Western Pond, Eastern Pond, and Canal

Parameter	Western Pond		Eastern Pond		Canal	
Depth (approximate inches)	6	15	6	35	60	6
Time	15:00	15:00	17:00	17:00	17:00	15:56
Temperature (°C)	24.93	24.52	25.97	25.77	25.01	26.66
Salinity (‰) (grams per liter)*	26.5	27.0	26.1	26.4	26.6	26.1
DO (milligrams per liter ([mg/L])	8.07	6.82	7.88	7.24	6.11	8.37
DO saturation (%)	116.9	98.5	102.9	106.1	88.7	124.2
pH	8.96	8.97	8.87	8.89	8.9	8.84
Estimated tide (feet)	1.79		1.07		1.43	
Turbidity (nephelometric turbidity unit)	8.6		3.2		5.0	
Secchi depth (inches)	18/bottom		67		7/bottom	
TSS (mg/L)†	2.0		4.0		6.0	

*Salinity was above 0.5 parts per thousand (ppt); estuary WQS were used for comparison.

† Method detection level for TSS = 1.0.

The USFWS National Wetlands Inventory program identifies two estuarine classifications within the pond system. Most of the system is identified as an excavated, subtidal estuarine system with an unconsolidated bottom (E1UBLx). A portion of the western pond is classified as an intertidal estuarine system with broad-leaf evergreen scrub-shrub vegetation that is regularly flooded (E2SS3N). These classifications are generally supported by field observations as well as the salinity values collected in the field. Therefore, SWCA is comparing the collected data with the metrics described in HAR 11-54 WQS (Table 7) for estuaries. HAR 11-54 provides specific values for estuaries and brackish coastal waters (salinity above 0.5 parts per thousand [ppt]). It should be noted, however, that the data collected by SWCA can only provide background information about the waterbody and is not sufficient for determining compliance with the WQS.

Table 7. Pertinent HAR 11-54 Water Quality Standards for Estuaries

Parameter	Water Quality Standards
Temperature	Shall not vary more than 1 degree Celsius (°C) from ambient condition
DO (%)	Not less than 75% saturation
Salinity (‰)	Shall not vary more than 10% from ambient conditions
pH	7.0–8.6
Turbidity (nephelometric turbidity unit)	Geometric mean not to exceed 1.5 Not to exceed 3 more than 10% of the time Not to exceed 5 more than 2% of the time
TSS (mg/l)	N/A

Measured pH values exceeded the acceptable range by 0.2 to 0.3 at all locations. Turbidity values exceeded the mean standard. DO saturation values exceeded the 75% saturation standard.

Currently, there is no accepted water quality standard for TSS for estuaries; therefore, there is no definitive criterion to which the TSS results can be compared. Similarly, salinity and DO concentration WQS are based on deviation from ambient conditions and therefore cannot be assessed against the WQS.

DISCUSSION AND RECOMMENDATIONS

Terrestrial Flora

The vegetation types and species identified during the survey are not considered unique, and none of the naturally occurring native plant species recorded at the site are threatened or endangered, proposed for listing, or candidate plants. Ninety percent of the plant species observed in the survey area are not native to the Hawaiian Islands. However, some of these non-native species are designated as exceptional trees, affording them protection under the Exceptional Tree Act (Act 105). Any action that may endanger these plants is reviewed by the Arborist Advisory Committee of the City and County of Honolulu. A map of protected trees is provided by the Outdoor Circle at their website. With the exception of these exceptional trees, the proposed project is not expected to have a significant, adverse impact on botanical resources.

Weedy non-native plant species are common in the survey area. Most of these weedy species are widespread in Hawai‘i, and their control is not expected to result in a significant decrease in their number or distribution. However, construction activities are known to spread invasive species to new areas through the movement of vehicles and materials. For this reason, SWCA recommends the following invasive species minimization measures to avoid the unintentional introduction or transport of new terrestrial invasive species to O‘ahu:

- All construction equipment and vehicles arriving from outside O‘ahu should be washed and inspected before entering the survey area.
- Construction materials arriving from outside of O‘ahu should also be washed and/or visually inspected (as appropriate) for excessive debris, plant materials, and invasive or harmful non-native species (plants, amphibians, reptiles and insects).
- Inspection and cleaning activities should be conducted at a designated location prior to entry to the project site. The inspectors should be qualified botanists and/or entomologists able to identify invasive species that are of concern relevant to the point of origin of the equipment, vehicle, or material.
- When possible, raw materials (e.g., gravel, rock, soil) should be purchased from a local supplier on O‘ahu to avoid introducing non-native species not present on the island.
- If landscaping occurs as part of the project, native Hawaiian plants or non-invasive plants should be used to the maximum extent possible. Additional information on selecting appropriate (non-invasive) plants for landscaping can be obtained from the following online sources:
    - http://www.nativeplants.Hawaii.edu/
    - http://www.plantpono.org/non-invasive-plants.php
    - http://www.hear.org/alternativestoinvasives/pdfs/mcaac_hpwra_a2i_list.pdf
    - http://www.hear.org/oisc/oahuearlydetectionproject/pdfs/oedposterwhatnottoplant.pdf

Terrestrial Fauna

One state-threatened species—the white tern—was recorded in the survey area. One additional federally and state endangered fauna that may occur in the survey area based on the available habitat is the Hawaiian hoary bat. Other threatened and endangered species were considered initially but dismissed from further analysis because of a lack of suitable habitat or because the survey area is out of their habitat range.

Federally and State-Listed Species

WHITE TERN

The white tern is the only state-listed (threatened) species observed in the survey area and is also protected under the MBTA. On O‘ahu, white terns most commonly nest in trees, such as banyan (*Ficus* spp.), monkeypod (*Samanea saman*), and kukui, although other species have been used for nesting and roosting (Vanderwerf 2003). White terns were not specifically observed nesting in the survey area, but suitable nest trees are present.

The white tern lays eggs directly on branches; therefore, eggs and flightless chicks may be vulnerable to displacement and fatality from tree trimming and removal activities (Vanderwerf 2003). This species nests year-round, but egg production decreases in the fall and early winter. The mitigation measures identified below for this species would decrease the probability of chick fatality.

Construction at the site may temporarily displace white terns from nesting and roosting habitat, however long-term impacts are not expected. These birds (likely limited to a few individuals) are expected to find suitable habitat nearby. The temporary displacement of these individuals at the survey area is not expected to affect individual’s survival or the overall species’ populations.

Avoidance and mitigation measures to avoid white tern impacts include the following:

- Tree removal and trimming should be conducted in the fall and early winter when white tern breeding is at its lowest (Vanderwerf 2003).
- Trees should be inspected for white tern eggs or chicks before trees are removed.
- If a white tern nest or chick is found, the tree should not be trimmed or removed until the chick has fledged.

HAWAIIAN HOARY BAT

Hawaiian hoary bats occur on O‘ahu in native, non-native, agricultural, and developed landscapes (U.S. Department of Agriculture 2009; USFWS 1998). Hawaiian hoary bats forage in open, wooded, and linear habitats with a wide range of vegetation types. These animals are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands up to 300 feet (100 m) offshore (U.S. Department of Agriculture 2009). Hawaiian hoary bats typically roost in trees greater than 16 feet (5 m) with dense canopy foliage or in subcanopy when canopy is sparse, with open access for launching into flight (Gorresen et al. 2013; U.S. Department of Agriculture 2009). Hawaiian hoary bats have been documented roosting in Chinese banyan, coconut, kukui, milo, and rainbow shower trees and may roost in other trees in the survey area. However, direct effects to bats would only occur if a juvenile bat that is too small to fly but too large to be carried by a parent were present in a tree that was cut down.

Direct impacts to bats could occur during vegetation removal if a juvenile bat that is too small to fly but too large to be carried by a parent is present in a tree or branch that is cut down. To prevent direct impacts to the Hawaiian hoary bat, the following measures are recommended:

- No trees taller than 15 feet (4.6 m) in the survey area should be trimmed or removed between June 1 and September 15 when flightless juvenile bats may be roosting in the trees.
- Any fences that are erected as part of the project should have a barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire.

Implementation of these guidelines, which have been promulgated by the USFWS (1998), are expected to avoid all direct impacts to Hawaiian hoary bats. Because all impacts on the Hawaiian hoary bat will be discountable, the proposed action *may affect, but is not likely to adversely affect*, individuals or populations of the species.

Migratory Bird Treaty Act

SWCA observed seven bird species federally protected under the MBTA during this survey. These species consist of the black-crowned night-heron, cattle egret, Hawaiian duck-mallard hybrids, Pacific golden-plover, ruddy turnstone, wandering tattler, and white tern (see Table 2). Of these, the Pacific golden-plover, ruddy turnstone, and wandering tattler do not nest in Hawai‘i. The recommendations for the state-threatened white tern are discussed above in the Federally and State-Listed Species section. Construction in the survey area may temporarily displace some of these bird species; however, long-term effects are not expected. These birds (likely limited to a few individuals) are expected to find suitable foraging habitat in nearby areas. The temporary displacement of these individuals at the project site is not expected to affect individual survival or the overall species populations.

Aquatic Fauna

The Ala Moana Regional Park waterway consists of two ponds connected by one canal. Each pond has a connection to the sea, although the western pond’s connection is larger. The entire park waterway is human-made. The canal has vertical concrete walls, and in some places the bottom is evidently concrete. There are several large openings into the northern wall of the canal from culverts that pass under Ala Moana Boulevard. The entire waterway is tidal, and at low tide, the canal has no water except in scattered deeper portions. Under the rising tide conditions during the survey, the net flow appeared to be to the north, into these culverts. However, during storm events, these culverts can drain water into the canal. The presence of dead freshwater snails in the sediments indicates that this does occur. There were also several other smaller pipe drains leading into the canal. None of these had flowing water on the day of the survey. It is unclear where they originate and what their purpose is.

The condition of the waterway is heavily influenced by the heavy use of the park. All parts of the system are cluttered with litter, ranging from cups and cans to large pieces of cloth and plastic. The entire system has dense populations of tilapia. These move throughout the system as the canal fills and drains with the tidal flux. The western pond also has large numbers of poeciliid fishes. These likely occur throughout the system but were not identified. It is likely that some marine fishes can enter the western pond on rising tides, but if they do, there is no evidence of them in the canal.

The sediments in the canal varied according to the location. Stretches with hard bottom could not be sampled with the grab sampler. In some cases, it appeared that the bottom of the canal was the concrete used in its construction. In other places, there was enough accumulation of soft sediments that the grab sampler could be used. The deeper locations had black silty muds, whereas shallower areas had sand and

fine gravel. There were no infauna found in any of the grab samples. Three species of marine algae were found throughout the canal system and in the western pond. These algae generally rested on the bottom at low tide and were moved about when the tide was in. The only plants that appeared to be attached and growing in the canal were mangroves.

The western pond had sediments of different types in different areas. Sites close to the culvert where water from Kewalo Basin entered the system tended to be coarser with sand and small gravel. The grab sample closest to the point where the canal left the pond had black silty mud. These differences are probably the result of differential water movement in different places of the pond. Areas with more water flow had coarser sediments. No infauna were found in the sediments, but the three algal species seen in the canal also occurred in this pond.

Sediments in all three grab samples in the eastern pond comprised dense sticky mud. No infauna were found. Most of the exchange with ocean water appears to take place at the western end of the system. Water motion in the western pond is relatively high when the tides are changing. Water motion appears to decrease toward the east.

In summary, the substrate of the western pond consists of lose sand and gravel with algae and aquatic microorganisms present. The samples from the east pond yielded no living organisms with a thick, black soft substrate. The two ponds are both filled by culverts that channel water in from the ocean as the tides rise and fall and are connected by a single canal. The samples reveal that the tidal influence and exchange of water between the ponds differ significantly.

Water Quality

Ala Moana Regional Park has had numerous water quality problems in the past. These have included numerous sewage spill incidents that have led to beach warnings along the coastline from Sand Island to Diamond Head. The ponds are not used by swimmers, but they are aesthetically valuable to tourists as a point of attraction as well as a regular recreational spot for residents. Trash and other debris were observed within the canal and the eastern pond, which is not surprising given its location in urban O‘ahu.

The following best management practices are recommended during and after construction to protect water quality in the park waterway:

- Erosion- and sediment-control measures should be in place before earth-moving activities begin. Functionality should be maintained throughout the construction period.
- Turbidity and siltation from project-related work should be minimized and contained through the appropriate use of erosion-control practices, effective silt containment devices, and the curtailment of work during adverse weather and tidal/flow conditions.
- Fueling of land-based vehicles and equipment should take place at least 15.24 m (50 feet) away from the water, preferably over an impervious surface.
- No project-related materials (fill, revetment rock, pipe, etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.) or on beach habitats.
- Construction should be avoided during periods of heavy rainfall periods or other adverse weather conditions.

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Appendix A.

Checklist of Plants Observed during surveys for the Ala Moana Regional Park on March 17, 2017

Table A1 provides an inventory checklist of plant species observed by SWCA on March 17, 2017, during surveys for the Ala Moana Regional Park. The plant names are arranged alphabetically by family and then by species into two groups: monocots and dicots. The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999), Wagner and Herbst (2003), and Staples and Herbst (2005). Recent name changes are recorded in Wagner et al. (2012).

Table notes: P-Polynesian introduced, P?- probably Polynesian introduced but possibly introduced in historic times, I- indigenous, I?- probably indigenous but possibly naturalized, E- endemic, E?- probably endemic but possibly naturalized (Wagner et al. 1999:126–127), X- non-native, X*- non-native cultivated.

Table A1. Checklist of Plants Observed During Flora Surveys for the Ala Moana Regional Park on March 17, 2017

Family	Scientific Name and Authorship	Hawaiian and/or Common Name	Status
MONOCOTS			
Arecaceae	*Adonidia merrillii* (Becc.) Becc.	Manila palm	X*
Arecaceae	*Archontophoenix alexandrae* (F.Muell.) H.Wendl. & Drude	king palm	X
Arecaceae	*Cocos nucifera* L.	niu, ololani, coconut	P
Arecaceae	*Livistona chinensis* (Jacq.) R.Br. ex Mart.	Chinese fan palm, fountain palm	X
Arecaceae	*Phoenix* hybrid	–	X
Arecaceae	*Pritchardia affinis* Beccari	–	X*
Arecaceae	*Pritchardia hillebrandii* Becc.	loulu lelo, loulu	E
Arecaceae	*Pritchardia thurstonii* F. Mueller & Drude	–	X*
Arecaceae	*Pritchardia pacifica* Seem. & H.Wendl.	–	X*
Arecaceae	*Roystonea regia* (Kunth) O.F.Cook	–	X
Arecaceae	*Sabal mauritiiformis* (H. Karsten) Grisebach	–	X*
Arecaceae	*Sabal palmetto* (T. Walter) J. A. & J. H. Schultes	–	X*
Cyperaceae	*Cyperus gracilis* R.Br.	McCoy grass, mau‘u hunehune	X
Cyperaceae	*Cyperus rotundus* L.	nut grass, kili‘o‘opu, mau‘u mokae	X
Pandanaceae	*Pandanus tectorius* Parkinson ex Z	hala, pū hala, screwpine	I?
Poaceae	*Axonopus compressus* (Sw.) P.Beauv.	–	X
Poaceae	*Bothriochloa pertusa* (L.) A.Camus	pitted beardgrass	X

Table A1. Checklist of Plants Observed During Flora Surveys for the Ala Moana Regional Park on March 17, 2017

Family	Scientific Name and Authorship	Hawaiian and/or Common Name	Status
Poaceae	*Cenchrus ciliaris* L.	buffelgrass	X
Poaceae	*Cenchrus echinatus* L.	common sandbur, ʻumeʻalu, mauʻu kukū	X
Poaceae	*Cynodon dactylon* (L.) Pers.	Bermuda grass, mānienie, mānienie haole	X
Poaceae	*Dactyloctenium aegyptium* (L.) Willd.	beach wiregrass	X
Poaceae	*Digitaria ciliaris* (Retz.) Koeler	Henry's crabgrass, kūkaepuaʻa	X
Poaceae	*Eragrostis amabilis* (L.) Wight & Arn.	lovegrass	X
Poaceae	*Stenotaphrum secundatum* (Walter) Kuntze	St. Augustine grass, buffalo grass, ʻakiʻaki haole, mānienie ʻakiʻaki, mānienie ʻakiʻaki haole, mānienie māhikihiki	X
DICOTS			
Acanthaceae	*Pseuderanthemum carruthersii* (Seeman) Guillaumin	–	X*
Aizoaceae	*Sesuvium portulacastrum* (L.) L.	ʻākulikuli, sea purslane	I
Amaranthaceae	*Alternanthera pungens* Kunth	khaki weed	X
Apocynaceae	*Plumeria obtusa* L.	Singapore plumeria	X*
Apocynaceae	*Thevetia peruviana* (Pers.) K.Schum.	be-still tree, yellow oleander, lucky nut, nohomālie	X
Araliaceae	*Polyscias racemosa* (C.N.Forbes) Lowry & G.M.Plunkett	–	E
Araliaceae	*Schefflera actinophylla* (Endl.) Harms	octopus tree, umbrella tree	X
Asteraceae	*Calyptocarpus vialis* Less.	–	X
Asteraceae	*Carthamus tinctorius* L.	safflower	X*
Asteraceae	*Eclipta prostrata* (L.) L.	false daisy	X
Asteraceae	*Flaveria trinervia* (Spreng.) C.Mohr	–	X
Asteraceae	*Pluchea indica* (L.) Less.	Indian fleabane, Indian pluchea, marsh fleabane	X
Berberidaceae	*Nandina domestica* Thunberg	heavenly bamboo	X*
Bignoniaceae	*Catalpa longissima* (Jacq.) Dum.-Cours.	–	X
Bignoniaceae	*Crescentia cujete* L.	calabash tree	X*
Bignoniaceae	*Dolichandrone spathacea* (Linnaeus filius) K. Schumann	mangrove trumpet tree	X*

Table A1. Checklist of Plants Observed During Flora Surveys for the Ala Moana Regional Park on March 17, 2017

Family	Scientific Name and Authorship	Hawaiian and/or Common Name	Status
Bignoniaceae	*Kigelia africana* (Lamarck) Bentham	sausage tree	X*
Bignoniaceae	*Tabebuia donnell-smithii* Rose	gold tree	X*
Bignoniaceae	*Tabebuia heterophylla* (DC.) Britton	–	X
Bignoniaceae	*Tabebuia rosea* (Bertol.) DC.	–	X
Bombacaceae	*Adansonia digitata* L.	baobab	X*
Bombacaceae	*Bombax ceiba*	red silk-cotton tree	X*
Boraginaceae	*Cordia subcordata* Lam.	kou	I
Boraginaceae	*Heliotropium curassavicum* L.	kīpūkai, nena, seaside heliotrope, lau poʻopoʻohina (Niʻihau)	I
Boraginaceae	*Tournefortia argentea* L.f.	tree heliotrope	X
Brassicaceae	*Coronopus didymus* (L.) Sm.	swinecress	X
Caryophyllaceae	*Spergularia marina* (L.) Griseb.	saltmarsh sand spurry, mimiʻīlio	X
Celastraceae	*Elaeodendron orientale* N. Jacquin	false olive	X*
Clusiaceae	*Calophyllum inophyllum* L.	kamani, kamanu, Alexandrian laurel	P
Clusiaceae	*Clusia rosea* Jacq.	autograph tree, copey, Scotch attorney	X
Combretaceae	*Conocarpus erectus* L.	sea mulberry, buttonwood, button mangrove	X
Euphorbiaceae	*Aleurites moluccana* (L.) Willd.	kukui, kuikui, candlenut	P
Euphorbiaceae	*Euphorbia prostrata* Aiton	prostrate spurge	X
Fabaceae	*Albizia lebbeck* (L.) Benth.	siris tree, woman's tongue, ʻohai (Niʻihau)	X
Fabaceae	*Cassia fistula L.*	golden shower tree	X*
Fabaceae	*Cassia* x *nealiae* H.S. Irwin & Barneby	rainbow shower tree	X*
Fabaceae	*Delonix regia* (Bojer ex Hook.) Raf.	royal poinciana, flame tree, flamboyant, ʻohai ʻula	X
Fabaceae	*Enterolobium cyclocarpum* (Jacq.) Griseb.	–	X
Fabaceae	*Indigofera suffruticosa* Mill.	indigo, ʻinikō, ʻinikoa, kolū	X
Fabaceae	*Leucaena leucocephala* (Lam.) de Wit	koa haole, ēkoa, lilikoa	X
Fabaceae	*Melilotus indica* (L.) All.	sweet clover	X
Fabaceae	*Peltophorum pterocarpum* (DC.) K.Heyne	–	X

Table A1. Checklist of Plants Observed During Flora Surveys for the Ala Moana Regional Park on March 17, 2017

Family	Scientific Name and Authorship	Hawaiian and/or Common Name	Status
Fabaceae	*Piscidia piscipula* (L.) Sargent	–	X
Fabaceae	*Pithecellobium dulce* (Roxb.) Benth.	‘opiuma	X
Fabaceae	*Platymiscium stipulare* Benth.	–	X
Fabaceae	*Pterocarpus indicus* Willd.	narra	X*
Fabaceae	*Samanea saman* (Jacq.) Merr.	monkeypod, rain tree, ‘ohai, pū ‘ohai	X
Fabaceae	*Schotia brachypetala* Sonder	–	X*
Fabaceae	*Tamarindus indica* L.	tamarind	X
Fabaceae	*Tipuana tipu* (Bentham) Kuntze	tipa	X*
Fabaceae	*Wallaceodendron celebicum* Koorders	banuyo	X*
Goodeniaceae	*Scaevola taccada* (Gaertn.) Roxb.	naupaka kahakai, huahekili, naupaka kai, auaka (Ni‘ihau)	I
Lauraceae	*Cinnamomum camphora* (L.) J.Presl	camphor tree	X
Malvaceae	*Hibiscus tiliaceus* L.	hau	I
Malvaceae	*Lagunaria patersonii* (H. C. Andrews) G. Don	–	X*
Malvaceae	*Sida ciliaris* L.	–	X
Malvaceae	*Thespesia populnea* (L.) Sol. ex Corrêa	milo, portia tree	I
Moraceae	*Ficus benghalensis* L.	Indian banyan	X*
Moraceae	*Ficus benjamina* L.	weeping fig	X*
Moraceae	*Ficus microcarpa* L.f.	Chinese banyan, Malayan banyan	X
Nyctaginaceae	*Boerhavia coccinea* Mill.	–	X
Ochnaceae	*Ochna thomasiana* Engl. & Gilg	–	X
Oleaceae	*Ligustrum japonicum* Thunberg	Japanese privet	X*
Oleaceae	*Olea europaea* subsp. *europaea*	olive, ‘oliwa, ‘oliwa haole	X
Plantaginaceae	*Plantago major* L.	broad-leaved plantain, common plantain, laukahi, kūhēkili	X
Polygonaceae	*Coccoloba uvifera* (L.) L.	sea grape	X
Rhizophoraceae	*Rhizophora mangle* L.	American mangrove, red mangrove	X
Rosaceae	*Rhaphiolepis umbellata* (Thunberg) Makino	–	X*

Table A1. Checklist of Plants Observed During Flora Surveys for the Ala Moana Regional Park on March 17, 2017

Family	Scientific Name and Authorship	Hawaiian and/or Common Name	Status
Rubiaceae	*Morinda citrifolia* L.	noni, Indian mulberry	P
Rutaceae	*Murraya paniculata* (L.) Jack	–	X
Sapindaceae	*Sapindus saponaria* L.	aʻe, mānele	I
Solanaceae	*Solanum lycopersicum* var. *cerasiforme* (Dunal) D.M.Spooner, G.J.Anderson & R.K.Jansen	tomato, ʻōhiʻa lomi, kamako, ʻōhiʻa, ʻōhiʻa haole	X
Sterculiaceae	*Guazuma ulmifolia* Lamarck	–	X*
Sterculiaceae	*Heritiera littoralis* Dryand.	looking-glass tree	X
Sterculiaceae	*Sterculia apetala* (Jacq.) H.Karst.	–	X
Sterculiaceae	*Waltheria indica* L.	ʻuhaloa, ʻalaʻala pū loa, hala ʻuhaloa, hiʻaloa, kanakaloa	I?
Verbenaceae	*Citharexylum spinosum* L.	fiddlewood	X
Verbenaceae	*Vitex negundo* L.	–	X*
Zygophyllaceae	*Guaiacum officinale* L.	–	X

APPENDIX F

Baseline Assessment of the Marine Environment Ala Moana Regional Park Beach Replenishment Honolulu, Hawai‘i

BASELINE ASSESSMENT OF THE MARINE ENVIRONMENT ALA MOANA REGIONAL PARK BEACH REPLENISHMENT HONOLULU, HAWAII

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I. INTRODUCTION AND PURPOSE

In 2016, the City and County of Honolulu addressed the heavily eroded and rocky shoreline area at Ala Moana Regional Park by commissioning a project to relocate rocks from the beach face and to move sand from wider areas of the beach. The project was intended to produce a noticeable impact on the shoreline without the need for a full suite of permits. As such, DLNR allowed rock to be removed from the beach face as long as it did not leave the beach system. In July of 2016 an estimated 300 cubic yards of rock was relocated from the beach face to the back of the beach where it was buried. Sand was moved in October of 2016 from wider parts of the beach to the eroded area. The sand was placed inshore of the high tide line, thereby limiting the extensive permitting process required for placing sand in the water. This project, however, could only move approximately 1,500 cubic yards of sand into the eroded area.

The beach at Ala Moana Regional Park does not have a natural source of sand, and sand moving toward shore over the reef flat is blocked from reaching the beach by the deep swimming channel. The City wishes to artificially nourish the beach with sand to address the erosion problem and to cover the exposed rocks at the shoreline. The beach nourishment project is part of a master plan to produce improvements to the park, and an Environmental Impact Statement (EIS) has been commissioned. This report, intended to support the EIS, provides results of field assessments of the physical, chemical, and biological composition of nearshore waters encompassing the areas where sand nourishment will occur in Ala Moana Regional Park.

II. WATER QUALITY

A. Water Quality Methods

The purpose of the water quality assessment is to provide a quantitative depiction of the existing condition of marine water chemistry in the area that has the potential to be affected by the proposed beach nourishment project. Evaluation of the existing condition of the water chemistry provides an insight into the physical and chemical factors that influence the marine setting. Understanding the existing physical and chemical conditions of the marine environment that presently occur provides a basis for predicting the potential affects that might occur as a result of the proposed project.

Water chemistry field collection was conducted on April 30, 2018. Water chemistry was assessed by collecting four linear sets of samples (i.e. transects) extending perpendicular from the shoreline, extending from the highest wash of waves to the boundary of the dredged basin and undredged reef flat (Figure 1). All samples were collected by investigators working from stand-up paddleboards. Transect 1 was located off the east end of the Park basin and extended to the end of the channel bordering Magic Island. Transects 2 and 3 extended from the central regions of the Park through the dredged swimming basin, while transect 4 was located at the western end of the swim basin adjacent to Kewalo Basin (Figure 1).

Water samples were collected at five locations (six on transect 1) along each transect starting at the most landward area of water adjacent to the beach. Such a sampling scheme is designed to span the greatest range of salinity with respect to potential freshwater efflux at the shoreline. Sampling was more concentrated in the nearshore zone because this area is closest to the region where sand nourishment will occur, and hence is most important with respect to identifying the effects of shoreline modification. At sampling stations within 15 meters (m) of the shoreline, water samples were collected at a single depth approximately in the mid-point of the water column. Beyond 15 m from the shoreline two samples were collected at each station; a surface sample was collected within 10 centimeters (cm) of the air-water interface and a bottom sample was collected within 20 cm of the seafloor.

Water quality parameters evaluated included all specific criteria designated for open coastal waters in Chapter 11-54, Section 06 (b) (Open Coastal waters) of the State of Hawaii Department of Health (DOH) Water Quality Standards. These criteria include: total nitrogen (TN), nitrate + nitrite nitrogen (NO_3^- + NO_2^-, hereafter referred to as NO_3^-), ammonium nitrogen (NH_4^+), total phosphorus (TP), chlorophyll a (Chl *a*), turbidity, temperature, pH, and salinity. In addition, silica (Si) and orthophosphate phosphorus (PO_4^{-3}) were also reported because these parameters are sensitive indicators of biological activity and the degree of groundwater mixing.

Water samples were collected by filling pre-rinsed 500-milliliter (ml) acid-washed, triple rinsed, polyethylene bottles and stored on ice. Analyses for Si, NH_4^+, PO_4^{3-}, and NO_3^- were performed with a Technicon Autoanalyzer using standard methods for seawater analysis (Strickland and Parsons 1968, Grasshoff 1983). TN and TP were analyzed in a similar fashion following digestion. Total organic nitrogen (TON) and total organic phosphorus (TOP) were calculated as the difference between TN and dissolved inorganic N, and TP and dissolved inorganic P, respectively.

Water for other analyses was sub-sampled from 1-liter polyethylene bottles and kept chilled until analysis. Chl *a* was measured by filtering enough water through glass-fiber filters to detect color; pigments on filters were extracted in 90% acetone in the dark at -20 ºC for 12-24 hours. Fluorescence before and after acidification of the extract was measured with a Turner Designs fluorometer. Salinity was determined using an AGE Model 2100 laboratory salinometer with a readability of 0.01 parts per thousand (‰ or ppt). Turbidity was determined using a 90-degree nephelometer and reported in nephelometric turbidity units (NTU) (precision of 0.01 NTU). Vertical profiles of salinity, temperature, and depth were acquired using a RBR-Concerto CTD calibrated to factory standards.

EPA and Standard Methods (SM) methods that were employed for chemical analyses, as well as detection limits, are listed in the Code of Federal Regulations (CRF) Title 40, Chapter 1, Part 136, are as follows:

NH_4^+: EPA 350.1, Rev. 2.0 or SM4500-NH3 G, detection limit 0.42 µg/L.
$NO_3^- + NO_2^-$: EPA 353.2, Rev. 2.0 or SM4500-NO3F, detection limit 0.28 µg/L
PO_4^{-3}: EPA 365.5 or SM4500-P F, detection limit 0.31 µg/L.
Total P: EPA 365.1, Rev. 2.0 or SM4500-P E J, detection limit 0.62 µg/L.
Total N: SM 4500-N C., detection limit 5.60 µg/L.
Si: EPA 370.1 or SM 4500 SiO2 E, detection limit 5.32 µg/L.
Chlorophyll *a*: SM 10200, detection limit 0.006 µg/L.
pH: EPA 150.1 or SM4500H+B, detection limit 0.002 pH units
Turbidity: EPA 180.1, Rev. 2.0 or SM2130 B, detection limit 0.008 NTU.
Temperature: SM 2550 B, detection limit 0.01 degrees centigrade.
Salinity: SM 2520, detection limit 0.003 ppt.
Dissolved Oxygen: SM4500 O G, and detection limit 0.01% sat.

Dr. Steven Dollar and Ms. Andrea Millan conducted all fieldwork. Marine Analytical Specialists located in Honolulu, HI, (Labcode: HI 00009) conducted all laboratory analyses. This analytical laboratory possesses acceptable ratings from EPA-compliant proficiency and quality control testing.

B. Water Quality Results

1. Distribution of Chemical Constituents

The overall distribution of water chemistry constituents reflects the physical structure of the coastal area. The shoreline consists of a coarse sand beach with areas of exposed rubble and rock. The seaward edge of the linear dredged swim channel basin is bounded by a sharp edge cut in the shallow fossil reef flat that extends to the outer reef crest. Water depth is 10-15 feet in the swim channel. At the east side of the Park, an elongated channel extends from the shoreline along the edge of Magic Island and terminates at the reef crest. As there are no deep open channels leading from the open ocean to the inner basin, water circulation within the dredged area is driven mainly by tidal exchange and water flow across the shallow reef flat. As a result, water quality within the nearshore basin is affected by the long residence time.

Table 1 shows results of all water chemistry analyses on samples collected off the Ala Moana Regional Park beach on April 30, 2018. Concentrations of eight dissolved nutrient constituents are plotted as functions of distance from the shoreline in Figure 2. Values of salinity, Chl *a*, turbidity, pH, temperature, and dissolved oxygen are plotted as functions of distance from shore are shown in Figure 3.

Several patterns of distribution are evident in Table 1 and Figures 2 and 3. Most evident is that there are elevated values of several nutrient constituents at the shoreline on several of the transects. The values of Si are elevated at the shoreline of Transect 2, coupled with an anomalously low value of salinity (Figure 3). This pattern is indicative of freshwater entering the ocean at the shoreline. As this pattern is only evident at one site, it can be assumed that this is not the normal situation along the entire beach front.

The values of dissolved nutrients (NO_3^-, NH_4^+, and TN) all show a general trend of elevated values at the shoreline with decreasing concentrations through the swimming channel. This trend is most apparent at Transect 1, where the values at the shoreline are substantially elevated relative to values at the shoreline of the other three transects. As there is no indication of depressed salinity in the nearshore waters of Transect 1, the source of these elevated nutrients is not from groundwater input.

Nutrient composition throughout the swimming channel is relatively consistent on all transects. In the channel bounding the west side of Magic Island, nutrient

concentrations are overall lower than in the swimming channel and show consistent values between the sampling locations 250 m and 400 m from the shoreline.

Considering physical properties of the water column, turbidity, chlorophyll *a*, temperature, dissolved oxygen, and pH all display similar patterns, with peak values at the shoreline, and decreasing values with distance seaward (Figure 3). As with nutrients, the lowest values occur in the Magic Island channel.

In summary, at locations close to the shoreline at Ala Moana Regional Park most water chemistry constituents exhibit elevated values. Throughout the swimming channel, water chemistry is similar throughout the Park. The water column in the channel adjacent to Magic Island seaward of the swimming channel is characteristic of open coastal water conditions.

2. Compliance with DOH Criteria

State of Hawaii Department of Health Water Quality Standards (HDOH-WQS) that apply to the areas offshore of the Ala Moana Regional Park are listed as "open coastal water" in HRS Chapter §11-54-6(b). Two sets of standards are listed depending on whether an area receives more than 3 million gallons per day (mgd) of freshwater input per shoreline mile ("wet standards"), or less than 3 mgd of freshwater input per shoreline mile ("dry"). As the study area off the south coast of Oahu probably receives less than 3 mgd per mile, dry criteria were used for this evaluation.

The HDOH-WQS are also separated into three standards: geometric means, "not to exceed more than 10% of the time," and "not to exceed more than 2% of the time." As all these classifications require multiple samplings, they cannot be used for a strict evaluation of whether a single sampling is within compliance standards. However, these values provide a guideline to evaluate the overall status of sampled waters in terms of the relation to State standards.

Shown in Table 1 are all values that exceed the "not to exceed more than 10% of the time", and "not to exceed more than 2% of the time" under dry conditions. No values of nitrate nitrogen (NO_3^-) exceeded either standard, while all measurements of turbidity exceeded the 2% standard. The consistently elevated turbidity in excess of DOH standards criteria throughout the sampling regime is likely a result of resuspension of the fine-grained sediment that comprises the floor of the swim channel. Ammonium nitrogen (NH_4^+) exceeded the criteria at multiple sampling locations on all four

transects. Concentrations of TN, TP, and chlorophyll a were higher than the DOH limits are inshore stations.

As discussed above, the elevated concentration of dissolved nutrients near the shoreline is not likely a result of mixing of groundwater with ocean water, as there are no consistent indications of lower salinity across the beach. As the area is somewhat unique in terms of the dredged swimming channel in a fossil reef with limited flushing capabilities, it is not unexpected that some water quality constituents do not comply with open ocean criteria. This is particularly true for turbidity, which is consistently elevated above the open coastal standards as a result of resuspension of fine-grained sediment that form the channel floor.

Overall, with the exceptions described above, most of the area within the scope of the present project are close to or below the specific criteria of the State Water Quality Standards, with the caveat that this consideration is for a single sample set. As a result, it does not appear that there are any significant inputs of materials from land beyond the immediate shoreline that are impacting coastal ocean waters offshore of Ala Moana Regional Park.

III. BIOTIC COMMUNITY STRUCTURE

A. Biotic Community Structure Methods

Biotic community structure of the marine environment was semi-quantitatively assessed by investigators swimming throughout the offshore area from the shoreline to the inner margin of the dredged reef off each of the survey transect sites described in the sections above. During these reconnaissance swims, notes were taken on physical structure and marine species presence. Numerous photographs were taken of typical features of all habitats to provide a descriptive representation of the area fronting the project site.

B. Biotic Community Structure Results

The following is a description of the distinct biotopes, or zones, that occur in the marine environment off of Ala Moana Regional Park (a biotope is an area of uniform environmental conditions providing a living place for a specific assemblage of plants and animals). Figure 4 is a satellite photograph of the marine area fronting Ala Moana Regional Park showing the results of biotic surveys in terms of occurrence of various

types of biota. The two groups of organisms that are of major interest are seagrass and reef building coral. As such, the intent of the mapping of bottom types shown in Figure 4 is to illustrate the areas of occurrence of these two assemblages.

1. Benthic Composition and Community Structure

The most shoreward region of the intertidal region zone consists of either coarse white sand or coral rubble (Figure 5). Much of the nearshore rubble is emergent at low tide. The rubble that is perpetually covered by water contains scattered small living colonies primarily consisting of the species *Leptastrea purpurea* and *Pocillopora damicornis* (Figure 6). These small corals (maximum size ~15 centimeter diameter) were growing on loose rubble fragments that would be easily removed from the rubble zone if necessary to avoid burial. Total cover of the rubble zone by living coral was well less than 1%.

Seaward of the shoreline shallow zone, water depth increases in the elongated dredged channel that extends the length of the Park. In many areas, bottom cover consists of a bed of coral rubble fragments (Figure 7, top left). The rubble zone grades into a coarse sand bed at a depth of about 5 feet (Figure 7, top right). The "deep rubble zone" is essentially devoid of coral settlement, or any other biotic epi-fauna.

With increasing distance from shore, the bed of the swim channel grades to a sand plain of various textures. In some areas, bottom composition is composed of coarse sand (Figure 7, bottom left), while the deeper areas consist of a fine-grained mud-silt mixture (Figure 7, bottom right). While there is little epi-fauna on the mud floor, there are numerous burrows and associated mounds of sediment that are likely formed by the action of worms, crabs, and shrimp.

Ubiquitous throughout the swim channel floor are expanses of the Hawaiian seagrass, *Halophila hawaiiana*, which is endemic to the Hawaiian Islands. *Halophila hawaiiana* is a flowering plant with roots that hold sediment. It is locally common, within a specific habitat that is characterized by protected waters with calm sandy areas within a narrow depth range that generally does not exceed 4 meters. In some areas this species has been replaced by invasive algal species, although there is no indication that this is occurring at Ala Moana, as there were no other alga observed in the habitat occupied by the seagrass. Like other seagrasses, *Halophila hawaiiana* meadows support a rich community of associated organisms in sediments and on the leaf blades, providing food and shelter for more mobile organisms such as fish and

crustaceans. *Halophila hawaiiana* is part of the Hawaiian green sea turtle's diet. As seen in Figure 4, seagrass was observed along the length of the swim channel, but not in the shoreline rubble zones.

The other abundant plant within the Ala Moana area was the alien red algae *Gracilaria salicornia* (Figure 8, lower right). This species of *Gracilaria* is one of the most successful invasive algae in Hawaii and is often found covering expanses of calm water reef flat and tidepools attached to limestone and basalt substrates. While there were areas of mats of *G. salicornia* in the Ala Moana channel, it was not widespread, and was restricted to several locations on the outer edge of the channel and along the margin of the shoreline of Magic Island (Figure 4). Other algae that were observed in the swim channel were patches of the brown alga *Padina* sp. (Figure 8, upper right) and the filamentous cyanobacteria *Lyngbya* sp. (Figure 8, bottom left).

Within the entire survey area, reef building coral were considered rare. The exception is the outer channel bordering the western shoreline of Magic Island. This area differs substantially from the inner swim channel in that it is more oceanic in terms of water quality, particularly in terms of less turbidity in the water column, and solid surfaces that serve as settling substrata. As a result, the outer channel habitat is better suited for colonization and growth of reef corals. As the area is also sheltered from the impacts of large waves by the outer reef flat, there is little evidence of breakage of even delicate growth forms.

The most common species found in the outer channel were the most common species typically found on open coastal reefs in Hawaii. These include *Pocillopora meandrina*, *Porites lobata*, *Montipora patula* and *Montipora capitata* (Figure 9). A species that was commonly observed in the outer channel that is not commonly observed on exposed coastal reefs is *Pocillopora damicornis* (Figure 9, upper left). The growth form of this coral consists of finely branching clusters which are not capable of withstanding wave stress. While coral colonies within the outer channel were common, they did not form a complete cover of bottom substrata. Rather they covered approximately 5-10% of the edges and bottom of the outer channel margins.

2. Reef Fish Composition and Community Structure

Limited visibility in the main swim channel was reduced to the point where visual quantitative assessments of fish populations was not possible. During the course of swim surveys, several species of fish were noted. These included the surgeonfish *Acanthurus triostegus* and *A. leucoparius*, damselfish *Dascyllus albisella*, the tetradonts

Canthigastor jactator, Diodon holocanthus and *Ostracion meleagris*, the trumpetfish *Aulostomus chinensis*, triggerfish *Rhinecanthus rectangulus*, and the Moorish idol *Zanclus cornutus*. All of these species are common on Hawaiian reefs and do not constitute rare or unique species assemblages. No large individuals that would be considered "food fish" were observed. No fish were observed in the shallow nearshore rubble zone.

In summary, the marine communities directly off Ala Moana Regional Park are limited, consisting of species that are tolerant of high turbidity and/or soft benthic habitats. The most prevalent biotic component of the area are the meadows of the Hawaiian seagrass that occur throughout the soft sediment, calm water areas of the swim channel. While scattered small corals occur on the loose rubble in the nearshore zone, the most abundant corals occur in the outer channel bordering Magic Island where flushing rates are elevated relative to the inner channel, and water quality is most oceanic in nature.

3. Threatened and Endangered Species

Several species of marine animals that occur in Hawaiian waters have been declared threatened or endangered by Federal jurisdiction. The threatened green sea turtle (*Chelonia mydas*) occurs commonly throughout the Hawaiian Islands and is frequently observed throughout the south shore of Oahu. The endangered hawksbill turtle (*Eretmochelys imbricata*) is known infrequently in Hawaiian waters. Several green sea turtles were observed within the survey area over the course of the present study. Of particular note was the small size of many of the turtles. As the swim channel basin is essentially isolated from the open ocean by shallow reef berms, the area may serve as a protected refuge for turtles from predatory sharks. In addition, the abundance of seagrass and marine algae may provide a preferred feeding ground for green turtles. No hawksbill turtles were observed during the course of underwater surveys.

Populations of the endangered humpback whale (*Megaptera novaeangliae*) winter in the Hawaiian Islands from December to April. While the present survey was conducted in May when whales are absent from Hawaiian waters, the survey area is not conducive to whale habitation owing to shallow depth and lack of access. The Hawaiian monk seal, (*Monachus schauinslandi*) is an endangered earless seal that is endemic to the waters off the Hawaiian Islands. Monk seals commonly haul out of the water onto sandy beaches to rest. No seals were observed during the present survey work at Ala Moana Regional Park.

IV. DISCUSSION and CONCLUSIONS

The purpose of this assessment is to assemble a set of baseline information to make valid evaluations of the potential for influence on the marine environment from the proposed replenishment of beach sands at the shoreline of Ala Moana Regional Park. The information collected in this study provides the basis to understand some of the important processes that are operating in the nearshore ocean, to be able to address any concerns that might be raised in the planning process for the proposed project.

The physical structure of the marine habitats where it is proposed to place offshore sand in the intertidal areas to cover the existing rubble shoreline is composed of a man-made dredged swimming channel that runs parallel to the beach face. As there are no deep openings in the reef flat into which the channel is cut to facilitate exchange of water with the open ocean, the residence time of water in the channel is likely far greater than on an exposed coastline. Results of analyses of water chemistry from samples collected along transects that extend from the shoreline to the outer edge of the channel cut indicate some effects to nutrients in the nearshore zone, likely as a result of low flushing, increased temperature, and in one area, input of fresh water.

While the values of most water quality constituents are near Department of Health water quality standard specific criteria for open coastal waters, values of turbidity are consistently well above the values specified in DOH standards. The elevated values of turbidity are primarily a response to resuspended fine sediment emanating from beach sand that is trapped within the semi-enclosed dredged channel. When offshore sand was placed on the shoreline in Waikiki, nearshore turbidity temporarily increased substantially as fine-grained sediment that was not washed from the donor sand was resuspended in the water column. As it is inevitable that there will be a similar component of fines in material used to nourish the beach at Ala Moana Regional Park, it can be expected that there will be a temporary increase in turbidity over the present levels. Such an increase would be expected to be temporary until fines are winnowed out of the donor sand to the level that exists at present.

Results of biotic surveys reveal that an important component of the benthic community is abundant, patchy meadows of Hawaiian seagrass throughout the deep dredged swim channel. As the specific habitat for this species of seagrass is shallow calm water with soft sand substratum, the floor of the swim channel is an ideal habitat for seagrass. It is apparent that the elevated levels of turbidity owing to resuspended

sediment in the water column of the channel are not an impediment to seagrass occurrence. While placement of offshore sand on the beach will likely result in a temporary increase in resuspended sediment, it is not likely that there will be substantial settlement of new sediment on the floor of the channel sufficient to bury or impact existing assemblages of seagrass. As the new sediment should not be qualitatively different that the existing sand, it is not likely that there will be a change in habitat composition sufficient to alter seagrass abundance. Care should be taken however in the placement of new sand to ensure that it does not cover any existing seagrass beds.

The other component of the benthos that is an important consideration in the environmental effects of sand nourishment is the existence of small corals on rubble in the nearshore zone. As this is the area intended to be transformed from a rubble shoreline to a sand shoreline, with no mitigation in terms of removing rubble prior to sand placement, the new sand would bury these small corals. As the abundance of these corals is very low, and they are all attached to unconsolidated surfaces, a possible mitigation measure would be to move them to either a rubble zone off Ala Moana Park that is not proposed for beach nourishment, or to a location on the outer reef flat. As wave motion on the reef flat adjacent to the channel cut is low, corals transplanted to this area would likely have a high potential for survival. Another alternative would be to donate these corals to the State DAR Coral Nursery on Sand Island.

The marine habitat in the outer channel adjacent to Magic Island is presently populated by a variety of large, healthy corals. These corals are protected from wave impacts by the bordering shallow reef flat and occur in an area where water quality is more similar to open ocean settings than the inner channel. While there may be temporary slight increases in turbidity in this area following beach nourishment, it should not be of a magnitude beyond the natural tolerance of these species. In addition, the more rapid flushing of this area with clean ocean water should prevent any sediment deposition on existing corals.

The swim channel is presently a preferred habitat for green sea turtles, particularly juveniles. Characteristics of the area that are ideal for turtles are protection from predators and abundant food resources in the form of algae and seagrass. The temporary changes to water quality from sand placement should not be of a magnitude to affect turtle behavior, as they seem unaffected by turbid waters. During sand placement operations, observers should be in place to spot any turtles that might

enter the work area. If such actions occur, a mitigation plan should be in effect to stop work until turtles leave the area.

Based on the results of this survey, it can be concluded that with proper management and mitigation practices to limit to the extent possible release of fine-grained material to the water column from donor sand, and removal of corals from the rubble zone, the proposed replacement of rubble on the shoreline should have little or no potential for significant permanent effects to the existing marine environment.

V. REFERENCES CITED

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FIGURE 1. Satellite image of Ala Moana Regional Park showing beach, dredged linear swim channel, and undredged reef flat. Also shown are locations of water chemistry sampling stations along four transects that extend from the shoreline to the edge of the dredge cut.

TABLE 1. Results of water sampling off Ala Moana Regional Park on April 30, 2018. Samples are collected 10 centimeters from the surface (S), and 20 cm from the ocean floor (B). Where water depth was less than 50 cm, a single sample was collected. Also shown are the State of Hawaii, Department of Health Water Quality Standards (DOH WQS) "not to exceed more than 10% of the time" and "not to exceed more than 2% of the time" water quality standards for open coastal waters under "dry" conditions. Tan shaded values exceed DOH 2% "dry" standards; blue shaded values exceed DOH 10% "dry" standards. For transect sampling station locations, see Figure 1.

STATION	DEPTH (m)	DFS (m)	PO_4^{3-} (µg/L)	$NO_3^-+NO_2^-$ (µg/L)	NH_4^+ (µg/L)	Si (µg/L)	TOP (µg/L)	TON (µg/L)	TP (µg/L)	TN (µg/L)	TURB (ntu)	SALINITY (o/oo)	pH (std. units)	Chl-a (µg/l)	TEMP deg. C	Diss. O_2 % sat.
TRANSECT 1	1	0	9.92	6.72	119.70	114.80	51.77	418.46	61.69	544.88	43.10	34.54	8.08	2.24	25.19	97.70
	2	5	2.79	1.68	5.46	104.44	11.78	181.16	14.57	188.30	6.05	34.57	8.09	0.43	24.64	96.90
	3	50S	2.17	2.52	16.52	112.00	9.61	166.88	11.78	185.92	4.88	34.50	8.08	0.26	24.54	91.08
	4	50B	4.34	2.52	33.04	106.96	9.61	179.62	13.95	215.18	6.34	34.57	8.08	0.26	24.54	90.14
	5	120S	1.86	1.96	1.68	92.40	8.99	121.66	10.85	125.30	1.27	34.50	8.04	0.09	24.18	90.42
	6	12B	3.41	1.68	1.68	91.56	8.37	114.52	11.78	117.88	2.41	34.46	8.01	0.14	24.20	74.88
	7	250S	3.10	1.96	1.68	92.12	8.37	107.38	11.47	111.02	1.12	34.46	8.07	0.16	24.64	99.46
	8	250B	4.34	0.56	1.54	95.48	7.75	116.34	12.09	118.44	1.72	34.43	8.02	0.15	23.48	104.26
	9	400S	3.72	BDL	1.54	87.92	7.75	99.54	11.47	101.22	1.02	34.50	8.13	0.09	22.46	98.29
	10	400B	5.89	1.40	1.68	94.36	8.06	122.36	13.95	125.44	3.00	34.53	8.04	0.16	24.26	75.93
TRANSECT 2	11	0	7.44	2.66	8.12	223.44	12.09	166.74	19.53	177.52	13.90	33.84	8.35	0.58	26.53	99.76
	12	15	5.27	2.94	7.42	112.28	8.99	147.14	14.26	157.50	3.31	34.53	8.21	0.20	24.30	101.32
	13	30S	7.44	1.96	7.70	117.88	6.82	115.36	14.26	125.02	5.33	34.53	8.08	0.30	25.80	109.23
	14	30B	5.89	2.10	6.72	127.40	8.37	106.68	14.26	115.50	4.51	34.53	8.09	0.31	25.84	106.43
	15	60S	5.58	5.60	6.58	121.24	6.82	109.20	12.40	121.38	1.98	34.49	8.13	0.12	24.79	95.65
	16	60B	4.96	2.52	1.40	92.12	8.06	101.64	13.02	105.56	3.32	34.43	8.06	0.16	24.32	80.17
	17	120S	5.89	2.02	4.34	99.43	7.22	104.96	13.11	111.32	1.14	34.50	8.11	0.17	25.21	106.34
	18	120B	6.20	5.88	8.12	101.92	7.44	101.92	13.64	115.92	1.48	34.54	8.16	0.16	24.31	94.54
TRANSECT 3	19	0	4.34	4.76	11.48	122.92	13.33	170.38	17.67	186.62	3.91	34.68	8.43	0.41	28.11	125.54
	20	15	5.27	5.32	15.26	144.76	9.30	160.44	14.57	181.02	5.41	34.53	8.15	0.44	26.29	99.76
	21	30S	4.34	BDL	0.98	117.88	8.99	150.92	13.33	152.04	6.34	34.57	8.11	0.61	25.34	94.53
	22	30B	5.27	0.70	11.76	117.04	9.30	137.34	14.57	149.80	2.91	34.50	8.11	0.71	25.34	93.35
	23	50S	4.03	0.84	3.50	125.44	8.37	115.36	12.40	119.70	3.91	34.57	8.13	0.34	25.18	97.48
	24	50B	4.96	1.26	2.66	108.92	8.99	111.72	13.95	115.64	2.64	34.54	8.09	0.52	24.42	82.29
	25	100S	2.48	1.96	5.74	120.40	9.61	117.46	12.09	125.16	3.88	34.47	8.13	0.33	24.92	93.49
	26	100B	4.96	2.94	4.20	123.48	8.37	112.42	13.33	119.56	3.79	34.50	8.09	0.40	24.42	82.90
TRANSECT 4	27	0	4.96	4.48	12.60	149.80	8.99	193.62	13.95	210.70	4.17	34.91	8.53	0.37	29.18	122.22
	28	15	4.65	1.82	8.54	114.24	8.68	139.86	13.33	150.22	3.87	34.61	8.22	0.69	29.13	121.45
	29	25	5.27	0.98	3.64	111.44	9.30	147.28	14.57	151.90	3.37	34.61	8.14	1.04	26.36	118.35
	30	50S	4.96	0.98	BDL	129.08	9.30	128.80	14.26	130.06	7.07	34.43	8.13	0.57	25.47	101.77
	31	50B	8.06	BDL	19.32	160.72	10.23	167.72	18.29	187.04	3.95	34.54	8.09	1.31	25.45	103.23
	32	100S	5.89	1.96	2.24	130.48	17.05	132.58	22.94	136.78	6.45	34.54	8.13	0.88	25.19	101.93
	33	100B	7.44	BDL	16.52	127.12	13.02	189.70	20.46	206.22	5.43	34.50	8.20	1.18	24.70	86.56
DOH WQS	DRY	NTE 10%		10.00	5.00				30.00	180.00	0.50	*	**	0.50	***	****
		NTE 2%		20.00	9.00				45.00	250.00	1.00	*	**	1.00	***	****
Analytical Method			EPA 365.3	EPA 353.2	EPA 350.1	EPA 370.1			SM 4500P B5	SM 4500N C	SM 2130B	SM 2520	EPA 150.1	SM 10200	SM 2550B	SM 4500 OG

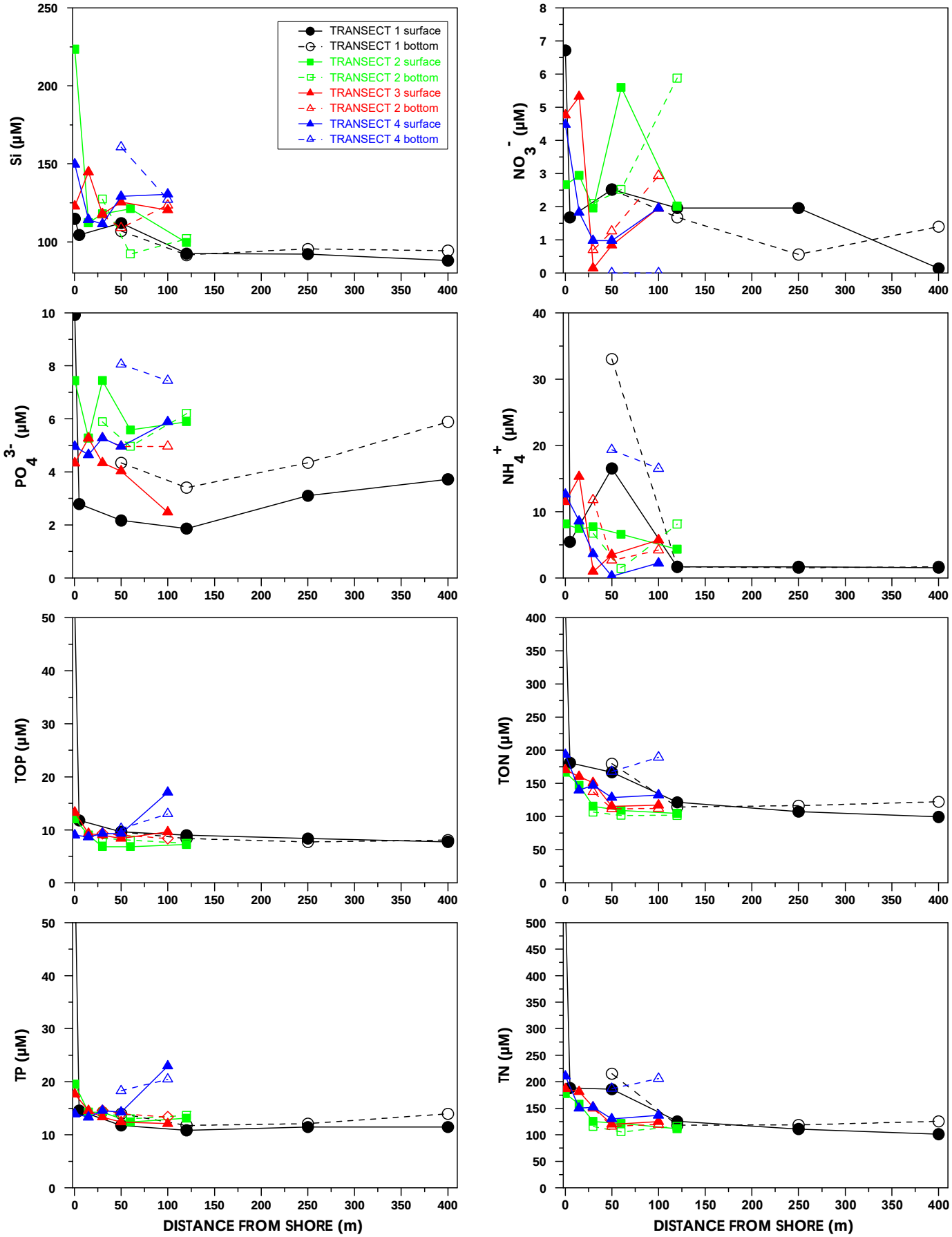

FIGURE 2. Plots of dissolved nutrients in surface and bottom samples collected on April 30, 2018, as a function of distance from the shoreline along four transects off Ala Moana Regional Park, Honolulu, Hawaii. For transect locations, see Figure 1.

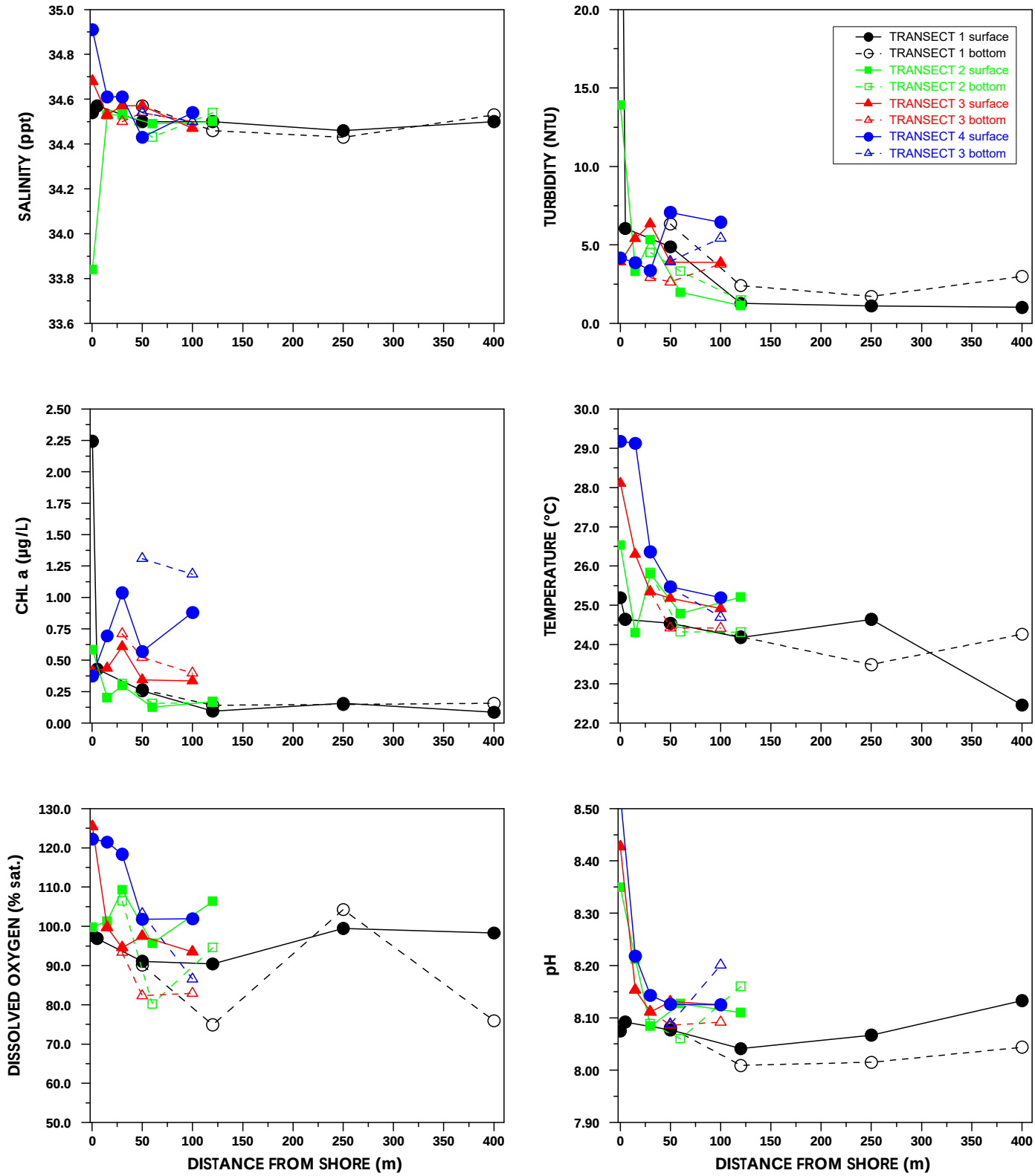

FIGURE 3. Plots of physical properties of water in surface and bottom samples collected on April 30, 2018, as a function of distance from the shoreline along four transects off Ala Moana Regional Park, Honolulu, Hawaii. For transect locations, see Figure 1.

FIGURE 4. Map of Ala Moana Regional Park offshore marine environment showing color coded observations of benthic composition. Where no living bottom cover was observed, benthic type is classified as sand or mud. Seagrass (*Halophila hawaiiana*) was ubiquitous throughout the soft sediment surfaces of the swim channel (Figure 7). Small corals growing on loose rubble occurred in the nearshore rubble zone (Figure 8), while large corals (Figure 9) occurred only in the easternmost area of the swim channel extending along the shoreline of Magic Island.

Figure 5. Views of Ala Moana Regional Park shorelines. Upper two photos show sand shoreline. Bottom photos show exposed rubble/cobbles at shoreline that is planned for sand replenishment.

Figure 6. Reef building corals in shoreline rubble zone include *Leptastrea purpura* (upper left and right), *Porites lobata* (upper right), *Pocillopora damicornis* (lower left), and *Psammocora stellata* (lower right).

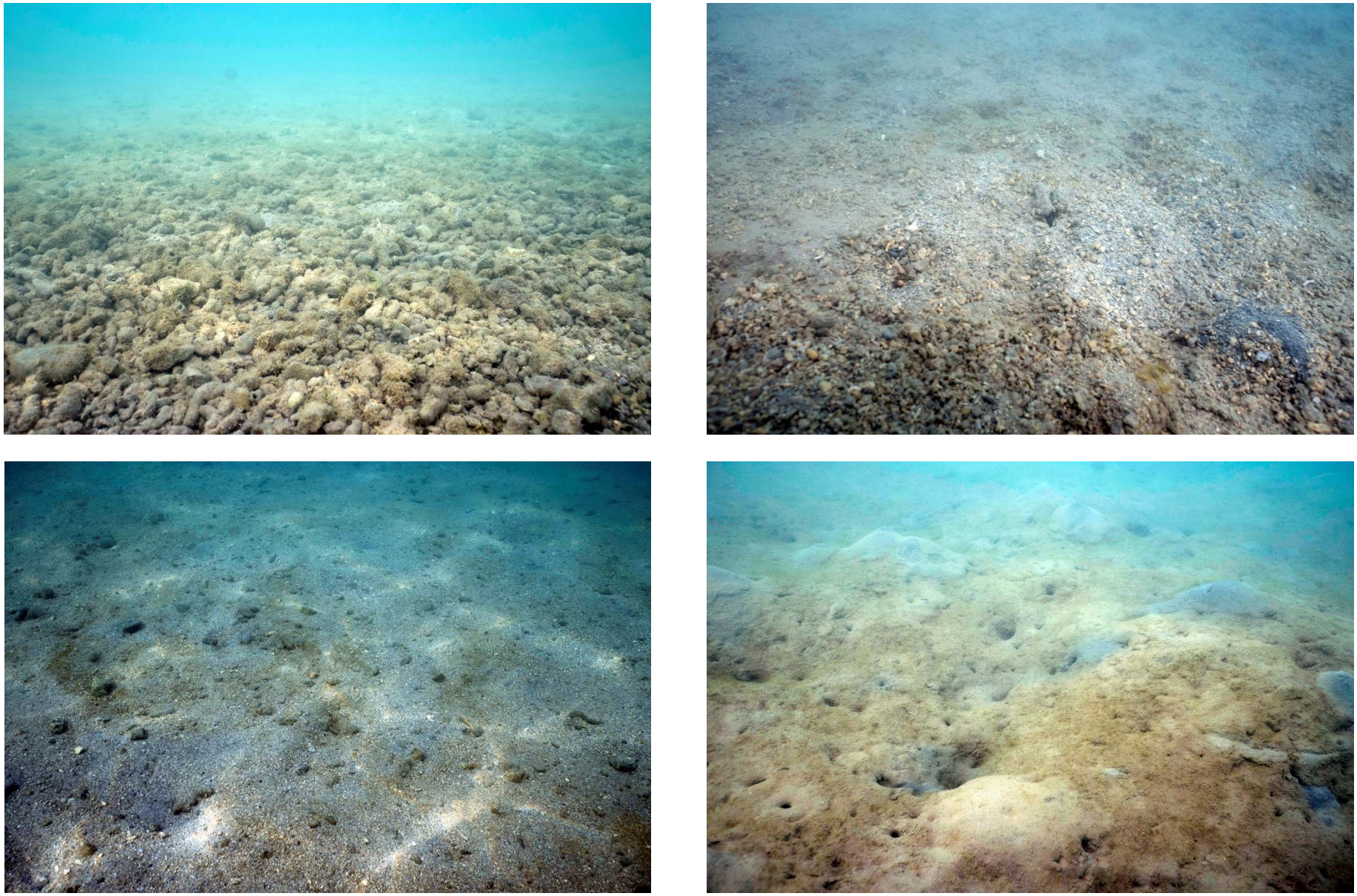

Figure 7. Sediment types in Ala Moana Regional Park marine areas. Top photos show nearshore rubble beds. Bottom photos show floor of swimming channel composed of various grain sizes of silty sand. Numerous burrow holes, likely from worms, shrimp and crabs, are visible in both bottom photos.

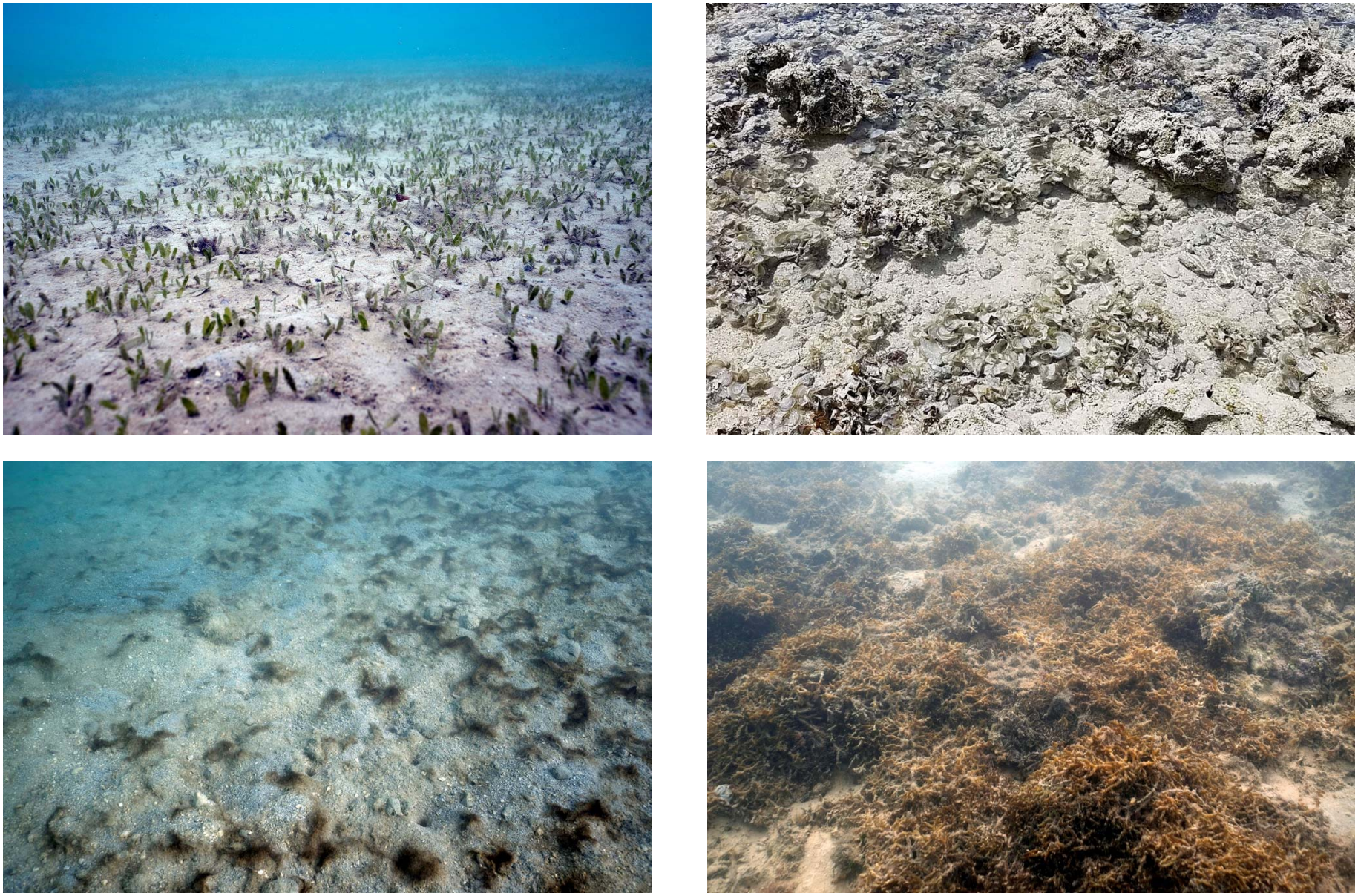

Figure 8. Upper left photo shows meadow of seagrass *Halophila hawaiiana* covering patch of sand flat in swimming channel. Algae found in swimming channel include *Padina* sp. (upper right), *Lyngbya* sp. (lower left), and *Gracilaria saliconia* (lower right).

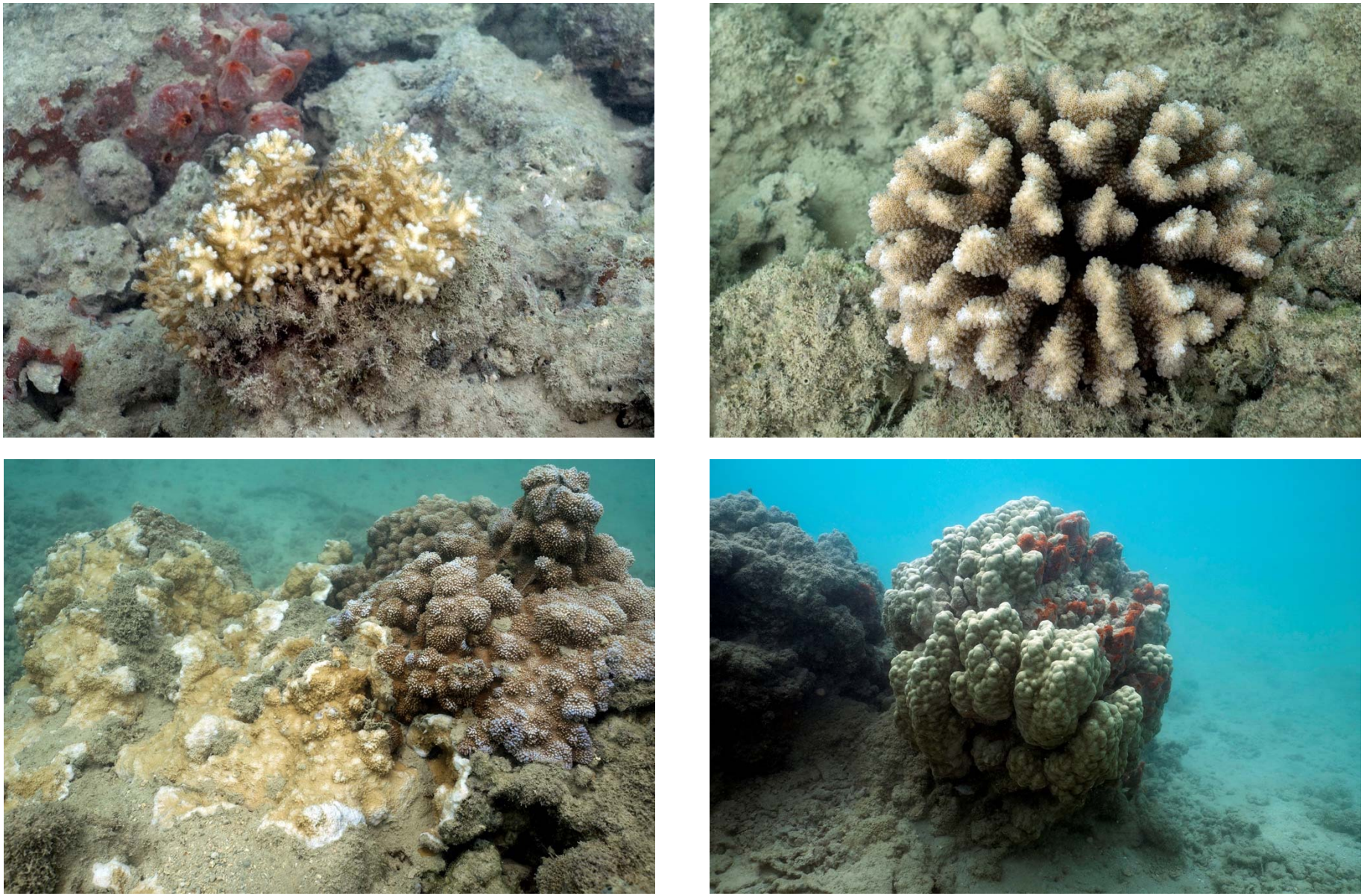

Figure 9. Corals occurring on the channel walls off Magic Island included *Pocillopora damicornis* (top left), *Pocillopora meandrina* (top right), *Montipora patula* and *M. capitata* (lower left), and *Porites lobata* (lower right).

APPENDIX G

Coastal Assessment and Design Report Ala Moana Regional Park Beach Nourishment Project
Honolulu, O‘ahu, Hawai‘i

Coastal Assessment and Design Report
Ala Moana Regional Park
Beach Nourishment Project

Honolulu, Oahu, Hawaii

June 2018

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1. INTRODUCTION

1.1 Project Location and General Description

Ala Moana Regional Park is located on the south shore of Oahu, Hawaii, between Kewalo Basin and the Ala Wai Small Boat Harbor. The 119-acre park, which is owned and administered by the City and County of Honolulu, was dedicated in 1934. The park includes a large expanse of green area and a variety of amenities, including nearly 4,000 lineal feet of beach between Kewalo Basin and Magic Island.

The beach area and adjacent swim channel were constructed over several decades. The swim channel was originally dredged to provide passage for boats between the Kewalo Basin and Ala Wai boat harbors. The beach was constructed in the mid-1950s. In the time following initial construction of the beach, sand has been eroded and replenished, though much of the evidence of nourishment is anecdotal. The most obvious sand loss has occurred along the shoreline across from the tennis courts extending 1,400 feet to the east, resulting in narrowing of the sand beach and exposure of rocky material in the shallow nearshore waters. This shoreline shape was first seen in aerial images in the early 1960s and that same general shape exists today. At high tide, there is no dry beach in this area.

1.2 Project Background

In 2016, the City addressed the heavily-eroded and rocky shoreline area by commissioning a project to relocate rocks from the beach face and to move sand from the wider areas. The project was intended to produce a noticeable impact on the shoreline without the need for a full suite of permits. DLNR allowed rock to be removed from the beach face as long as the rocks did not leave the beach system. A volunteer effort in July of 2016 was led by City work crews, where an estimated 300 cubic yards of rock was relocated from the beach face to the back of the beach where it was buried along the wall. Sand was moved in October of 2016 from wider parts of the beach to the eroded area. The sand was placed inshore of the high tide line, thereby limiting the extensive permitting process required for placing sand in the water. This project, however, could only move approximately 1,500 cubic yards of sand into the eroded area due to space constraints.

Ala Moana Beach does not have a natural source of sand, and any sand that moves toward shore over the reef flat would be blocked from reaching the beach by the deeper swimming channel. The City wishes to artificially nourish the beach with sand to address the erosion problem and the exposed rocks in the nearshore waters, thereby improving the user's experience. The beach nourishment project is part of a master plan to produce improvements to the park, and an Environmental Impact Statement (EIS) has been commissioned. The work presented in this report is in support of that EIS. The objectives of this study are:

1. Investigate potential sand sources
2. Develop sand recovery, transport, and placement methodology
3. Design the beach nourishment plan

2. PROJECT SITE DESCRIPTION

2.1 Regional Setting

Ala Moana Regional Park is located on two parcels covering approximately 120 acres along Oahu's south shore. The site is bordered on the west by Kewalo Basin, on the north by Ala Moana Boulevard, and on the east by the Ala Wai Canal and Ala Wai Boat Harbor. The park layout and stationing for the location of features are shown in Figure 2-1 and Figure 2-2.

The park was constructed by filling low-lying wetlands. A channel was dredged through the nearshore reef to connect Kewalo Basin with the Ala Wai Boat Harbor. Further development along the shoreline included additional dredging of the channel, further construction of the Kewalo Basin area, and construction of Magic Island, resulting in an essentially isolated alongshore channel. Sand fill on the inshore side of the channel produced a sandy beach.

Park Engineering performed a topographic survey of the park during October of 2015. Coastal engineers from Sea Engineering, Inc., performed a topographic survey of the beach and an assessment of the shoreline on December 4, 2017, and a bathymetric survey of the swim channel on December 13, 2017. Those surveys were combined into a single data set and were integrated into the comprehensive topographic survey performed by Park Engineering and the results are presented in Section 3.1.

The existing beach shoreline is generally oriented east-west through most of the park, before turning toward the south (seaward) near Magic Island. A low wall separates the beach from the backshore through the western and central regions of the beach. Higher walls and stairs are found in the central region, then the beach widens, and the beach is backed by vegetation along Magic Island. A driveway and sidewalks are found inshore of much of the beach. McCoy Pavilion, tennis and croquet courts, concessions, and large grassed areas are located between the park driveway and Ala Moana Boulevard. Five ocean safety lifeguard towers (1B through 1E) are located along the beach.

Presently, the nearshore channel is typically about 300 feet across and is frequented by swimmers and paddleboarders, and surfers cross the channel to get to the surf breaks, which are located about 1,000 feet offshore the channel.

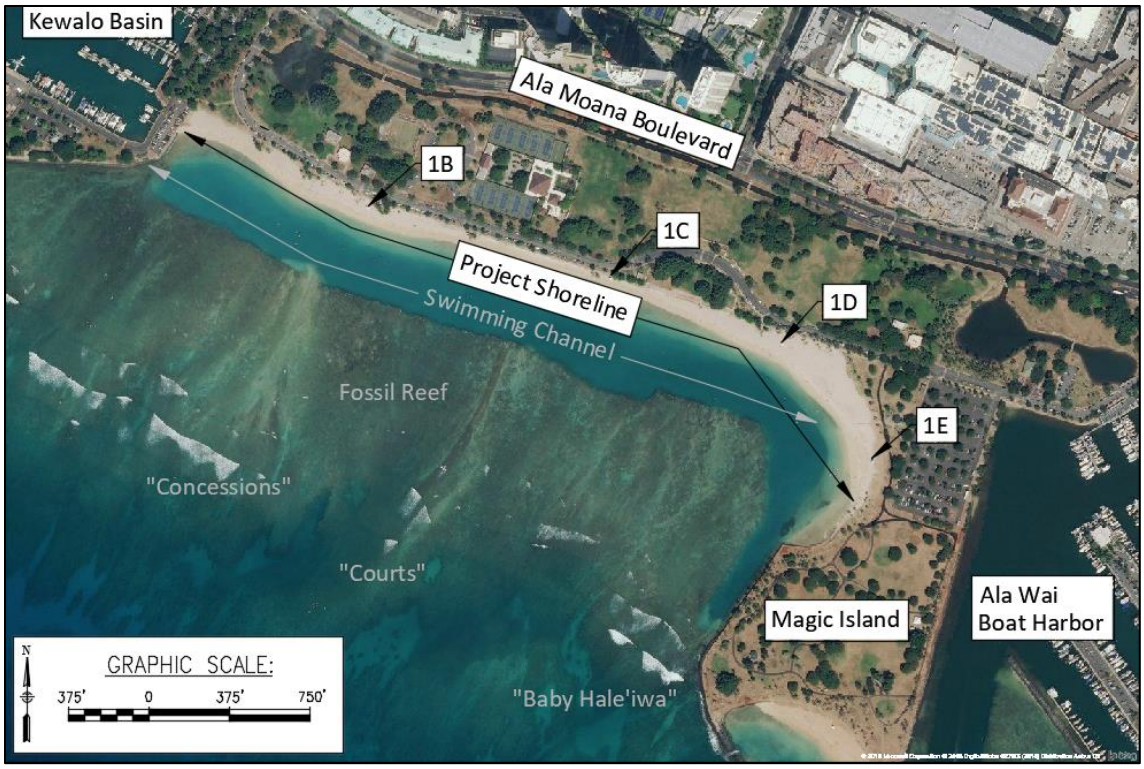

Figure 2-1 Overview of project site

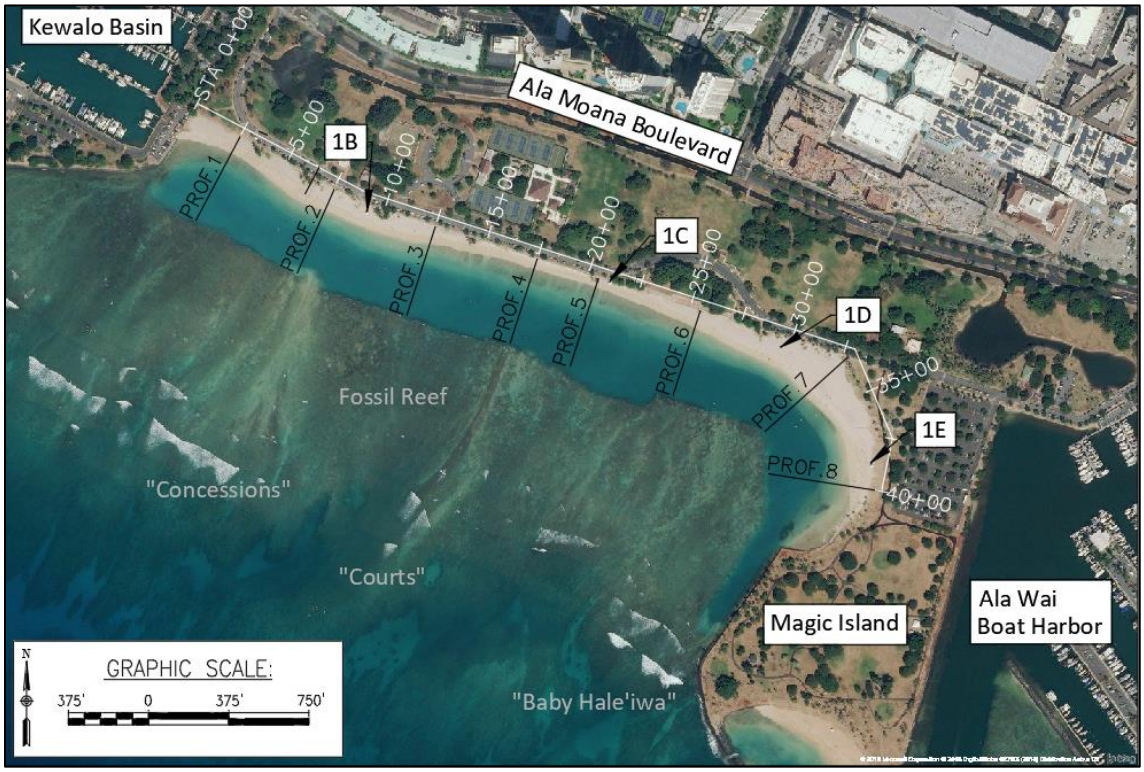

Figure 2-2 Stationing along project shoreline in white and profile locations (Profile 1 through Profile 8) in black

2.2 Shoreline Description

The beach shares its western (Ewa) boundary with Kewalo Basin at Sta. 0+00 (see Figure 2-2 for stationing). Beach volleyball is common in this area and two new sand volleyball courts were recently constructed between the low wall and the driveway. A shower facility is located at Sta. 3+75. The average dry beach width in this area is approximately 50 feet, measured from the backshore seawall to the berm/foreshore slope grade change. The nearshore waters contain rock rubble, with no appreciable sand, between Sta. 0+00 and about Sta. 3+60. The beach berm elevation varies between +3.5 and +5.0 feet above MSL along this portion of beach. The top of wall elevation varies between +5.5 to +6.2 feet above MSL. The foreshore beach slope varies between 1V:11.2H near the Ewa end and 1V:6.4H near Sta. 6+80. The swimming channel in this region is about 270 feet wide. Figure 2-3 and Figure 2-4 show the beach and typical cross-shore profile in this area, respectively.

The shoreline continues east towards lifeguard tower 1B. The dry beach widens to approximately 88 feet near Sta. 6+45 and the sand extends seaward to the swimming channel. Figure 2-5 shows the typical view along this wider portion of beach looking west. The beach berm elevation varies between +3.8 and +5.0 feet above MSL along this portion of beach. The top of wall elevation varies between +5.9 and +6.5 feet above MSL. The foreshore beach slope varies between 1V:6.4H at about Sta. 6+80 and 1V:7.2H near Sta. 10+00. The swimming channel in this region is about 260 feet wide. Figure 2-5 and Figure 2-6 show the beach and typical cross-shore profile in this area, respectively. An ADA-compliant access mat and shower facility are located at Sta. 6+75 and an additional shower facility is located at Sta. 10+50.

East of lifeguard tower 1B, the beach begins to narrow, and the nearshore rock rubble is exposed again starting at about Sta. 12+80 (Figure 2-7), increasing in area as the beach continues to narrow. The dry beach width narrows from 63 feet at Sta. 10+00 to 14 feet at Sta. 17+50. The seawall elevation varies between +5.6 and +6.5 feet. The beach berm elevation varies between +3.8 and +5.4 feet above MSL and the foreshore beach slope steepens from 1V:10.3H at Sta. 12+50 to 1V:6.6H at Sta. 17+50. The swimming channel in this area is approximately 300 feet wide. A shower facility is located at Sta. 14+50 across from the tennis courts. Figure 2-8 and Figure 2-10 show the typical cross-shore profiles at Sta. 12+50 and Sta. 17+50, respectively while Figure 2-9 shows Lifeguard Tower 1C in its new location.

The shoreline continues east to its narrowest section at Sta. 20+50 where the dry beach width is only about 8 feet from the backshore wall to the berm and foreshore slope grade change (Figure 2-11). The nearshore rock rubble is exposed to about 85 feet seaward of the beach toe (Figure 2-12). Continuing east, the dry beach width begins to widen from 8 feet to about 50 feet at Sta. 25+50 (Figure 2-13). The backshore seawall continues, varying between +5.3 to +5.9 feet with a heightened portion rising to about +9.5 feet between Sta. 23+00 to Sta. 26+70 (Figure 2-14). Between this higher section of seawall is a wide stairway which goes from the beach berm elevation up to about +8.5 feet.

The 2016 sand pushing project was undertaken along this stretch of shoreline, from about Sta. 13+00 to Sta. 24+00. This is the narrowest stretch of beach, and at high tides, there can be no dry beach. Lifeguard Tower 1C was relocated approximately 250 feet in the Ewa direction where the beach is slightly wider. Due to the narrow beach and extensive rocky area, this portion of beach is the least utilized within the park.

The beach curves south into Magic Island starting at about Sta. 30+00 (Figure 2-15). The backshore becomes a grassy area while the wall continues east along Ala Moana Park Drive. The beach face transitions to a much flatter slope (approximately 1V:25H) and the beach width gradually decreases from its widest section of 195 feet, tapering to 0 feet at the seawall along Magic Island where the beach terminates (Figure 2-16 and Figure 2-17). This stretch of beach has been observed to be very popular with users, due to the width of beach, extension of sand into the water, and proximity to the comfort station, showers, and parking. Due to the low elevation and flat profile, this area is also prone to extensive inland flooding during high water levels.

Figure 2-3 Shoreline near Sta. 2+50 looking east

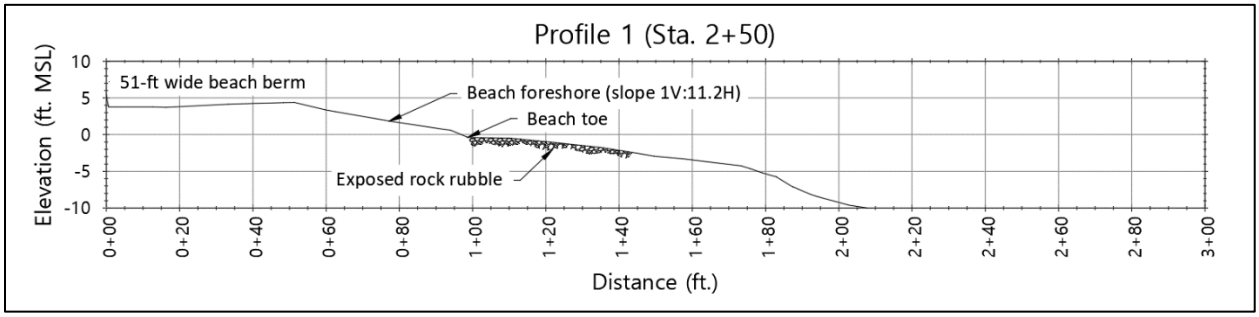

Figure 2-4 Profile 1 at Sta. 2+50

Figure 2-5 Shoreline near Sta. 7+50 looking west

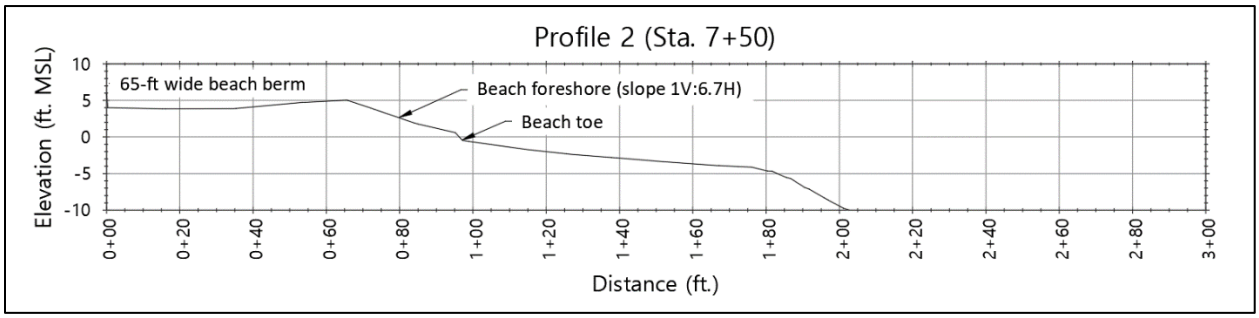

Figure 2-6 Profile 2 at Sta. 7+50

Figure 2-7 Shoreline narrowing with rock outcropping shown near Sta. 12+50 looking east

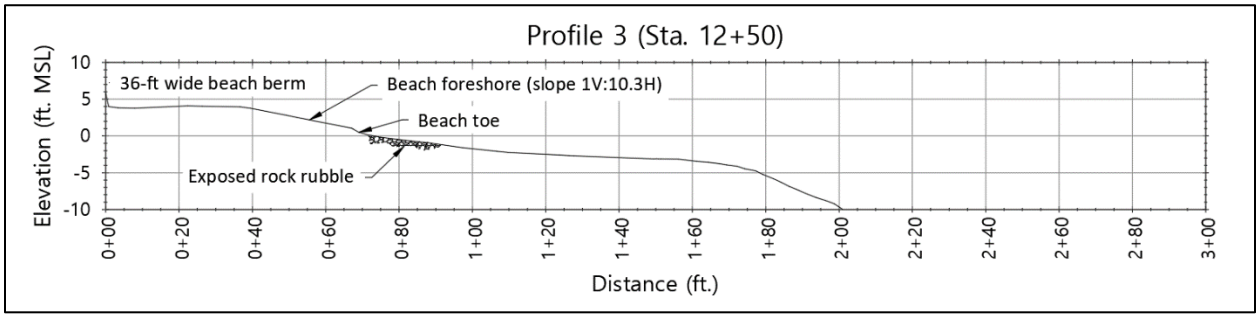

Figure 2-8 Profile 3 at Sta. 12+50

Figure 2-9 Lifeguard tower 1C being affected by beach narrowing

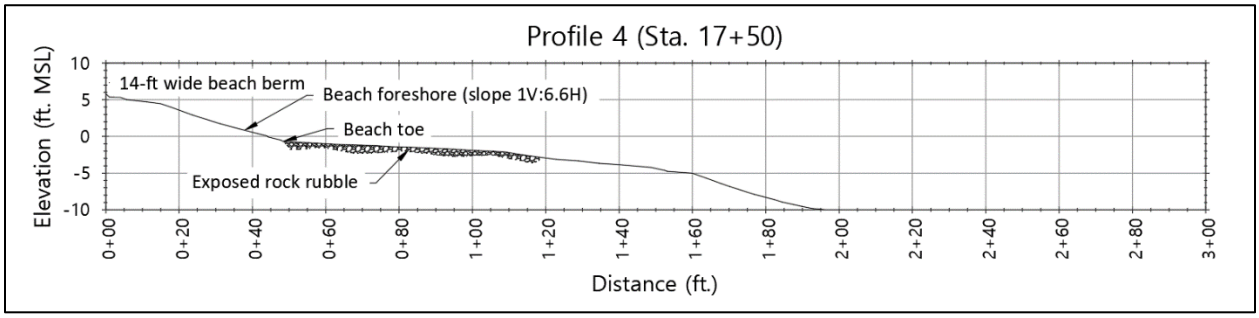

Figure 2-10 Profile 4 at Sta. 17+50

Figure 2-11 Narrowest section of beach at Sta. 20+50

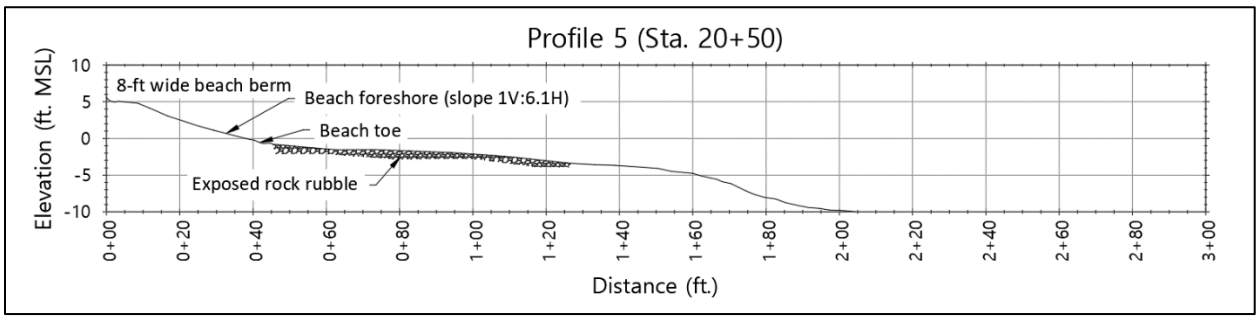

Figure 2-12 Profile 5 at Sta. 20+50

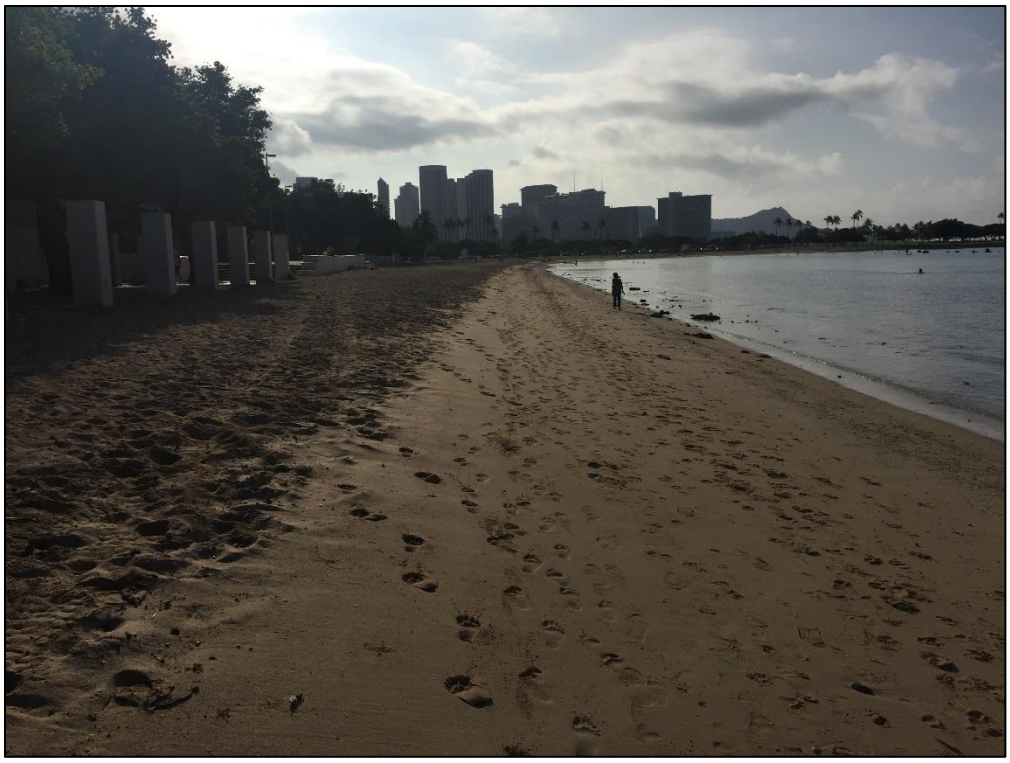

Figure 2-13 Beach beginning to widen near Sta. 25+50 looking east

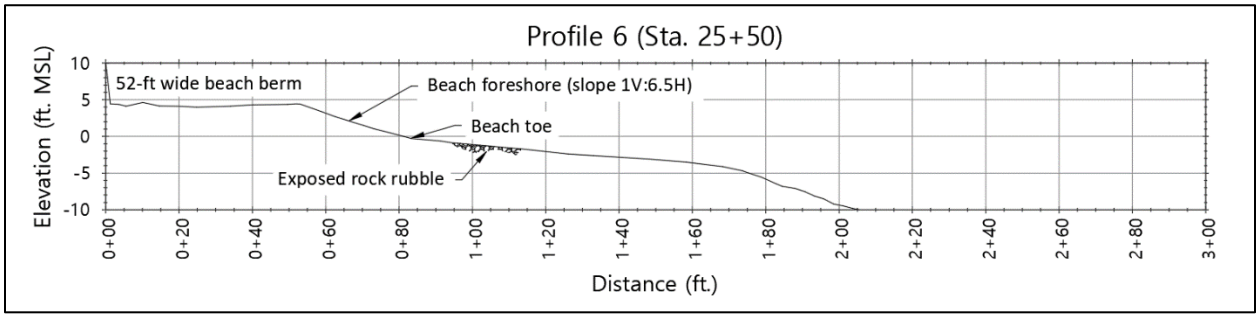

Figure 2-14 Profile 6 at Sta. 25+50

Figure 2-15 View of beach curving south into Magic Island near Sta. 33+00

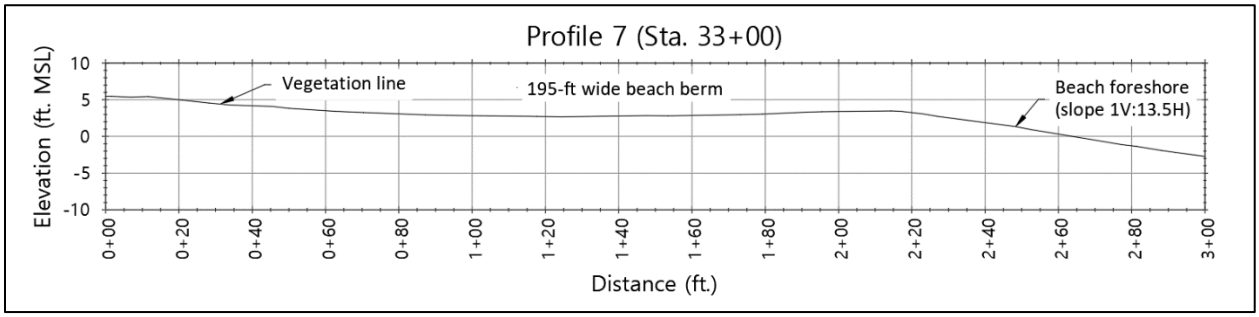

Figure 2-16 Profile 7 at Sta. 33+00

Figure 2-17 East extent of shoreline at Magic Island near Sta. 40+00

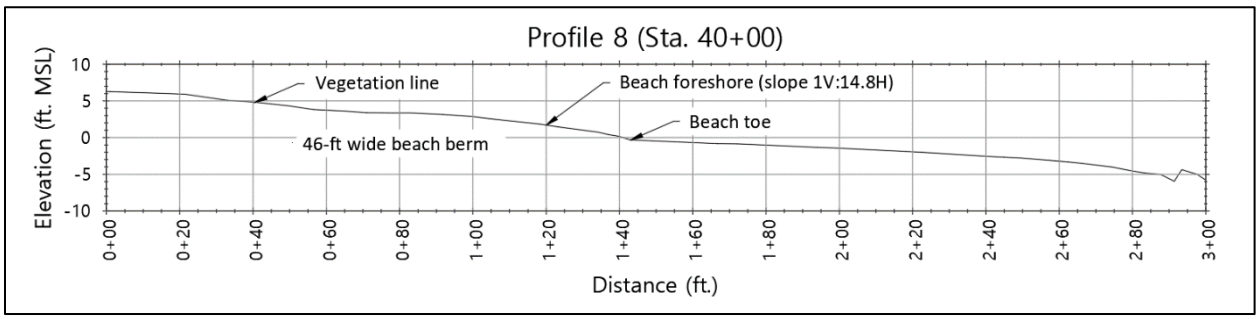

Figure 2-18 Profile 8 at Sta. 40+00

2.3 Elevated Water Levels

In 2017 Hawaii experienced longer than expected elevated water levels, leading to significant coastal inundation, especially at urban low-elevation urban areas such as Waikiki, Ala Wai Boulevard, and Mapunapuna. While "King Tides" received negative notoriety as being the cause of the inundation, they contributed only a small fraction of the water level rise. King Tides refer to the higher tide levels that result of the alignment of the earth, sun, and moon during the winter and summer months. During these times, high tide can reach an elevation of as much as +2.7 ft mllw. In spring and fall, the highest high tides sometime reach only about +2.0 ft mllw.

The ocean surface does not have a consistent elevation. Sea level anomalies exist as a result of such processes as El Nino, global warming, geostrophic currents due to the rotation of the earth, and mesoscale eddies that propagate across the ocean. On June 23, 2017, the highest water level of the year was measured at +3.2 ft mllw, which was 0.6 ft above the King Tide. The additional elevation was due to a mesoscale eddy around the Hawaiian Islands. The duration of these eddies cannot always be predicted, and the associated higher water levels lasted for much of 2017, resulting in an alarming amount of coastal erosion.

The effects of these higher water levels were seen at Ala Moana Beach as inundation of the beach area. Figure 2-19 through Figure 2-22 show the amount of flooding during the May 2017 high tides.

Figure 2-19 Inundation of beach area near Magic Island (May 26, 2017)

Figure 2-20 Inundation of beach area near Tower 1C (May 26, 2017)

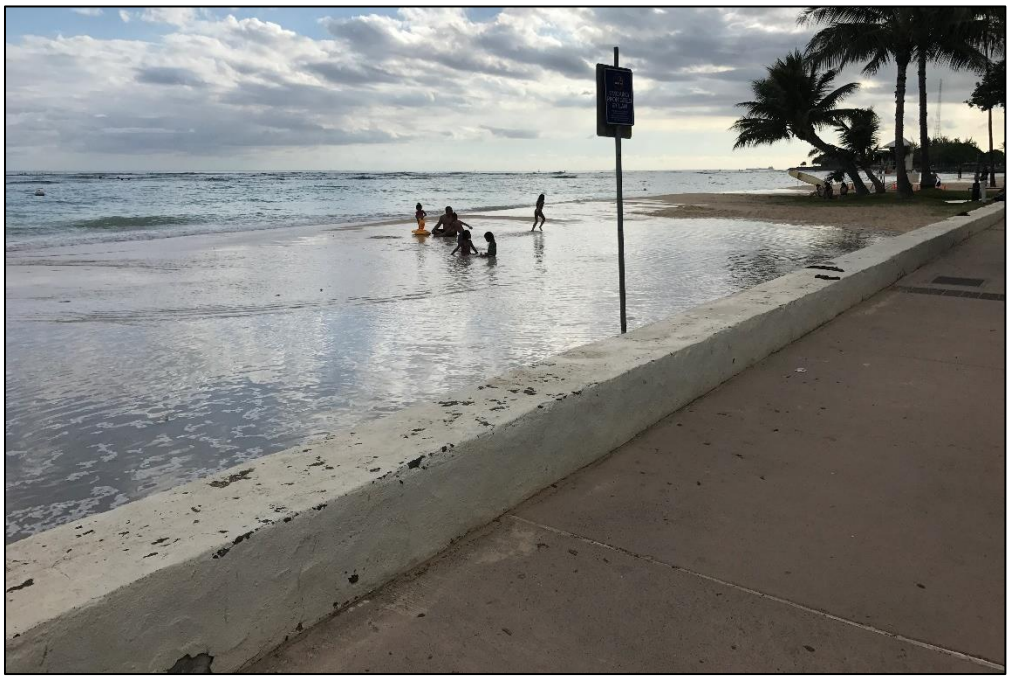

Figure 2-21 Inundation of beach area east of Tower 1B (May 26, 2017)

Figure 2-22 Inundation of beach area and volleyball court (May 26, 2017)

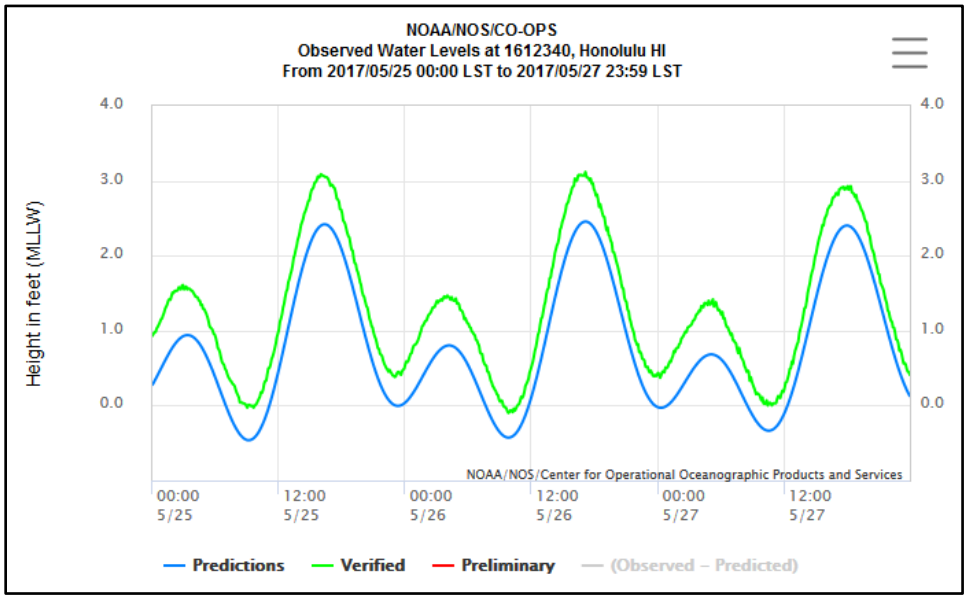

Figure 2-23 Predicted and measured tides at Honolulu Harbor (May 25-27, 2017)

2.4 Site Investigations

Site investigations of the park were undertaken in December of 2017 to characterize the topography and swimming channel which would drive the design. A topographic survey of the beach was performed at 50-foot spacing for the entire length of sand beach on December 4 and 6,

2017. This topographic survey serves as the base map for the beach nourishment design. The survey was integrated into the park-wide survey performed by ParEn in 2016.

A bathymetric survey was performed on December 13, 2017, using a small motor boat and a single-beam echosounder. The configuration has the capability of operating in less than one foot of water. The bathymetric survey was performed along transects across the swimming channel. Transect spacing was approximately 100 feet. Overlap on the makai side overlapped with the topographic survey, and the boat surveyed as close to the reef as possible.

Topographic and bathymetric survey lines are shown on Figure 2-24.

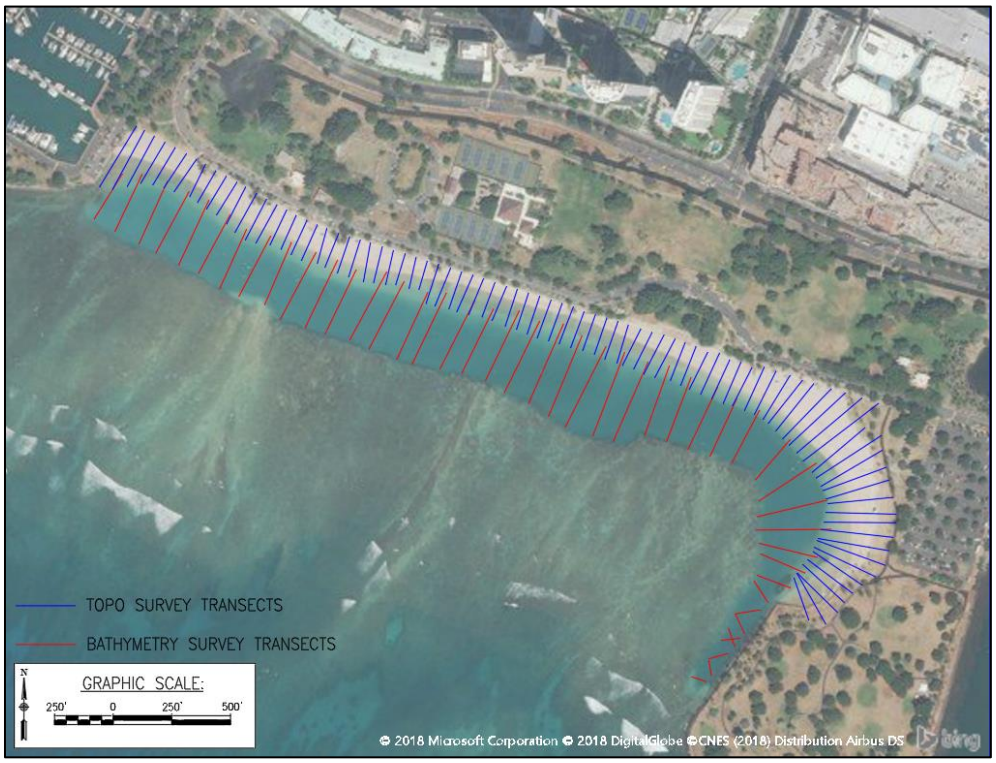

Figure 2-24 Topographic and bathymetric survey lines (December 2017)

The topographic survey showed that the backshore elevation of the beach was quite low, varying between about 3 and 5 feet above mean sea level (msl). This low elevation allows inundation at higher tides, even when waves at the beach are small. The rocky reef flat between the beach and the swimming channel was typically about 1 to 3 feet below msl. Depths within the swimming channel were consistently found to exceed 10 feet, reaching as much as 23 feet deep around Profile 5 and Profile 6 in Figure 2-25.

The field team returned to the park on January 21, 2018, to investigate the bottom substrate and attempt to identify sand resources within the swimming channel. Divers swam along the 8 transect shown on Figure 2-25 and performed jet probing at three locations on each transect, approximately 25% (nearshore side), 50% (mid swimming channel), and 75% (offshore side)

across the swimming channel. The divers also observed the reef cut on the offshore side of the swim channel for sand deposits. Sand samples were obtained on the beach and at the jet probe locations.

Figure 2-25 Jet probe and sand sampling locations, January 21, 2017

The results of the Ala Moana beach sand grain size analyses are shown in Table 2-1. The samples show median grain size D_{50} in the range of 0.37 to 0.47, with the exception of AM-8, which contained significantly coarser material. Samples AM-1 through AM-7 are considered moderately sorted to moderately well sorted. Sample AM-8 is poorly sorted and contains the highest fine fraction, likely due to the limited wave action in that location.

Table 2-1 Ala Moana sand sample summary

Location	D_{50} (mm)	Sorting σ	% fines
AM-1	0.39	0.6	0.6
AM-2	0.47	0.6	0.3
AM-3	0.43	0.7	0.8
AM-4	0.37	0.7	0.6
AM-5	0.37	0.8	0.9
AM-6	0.42	1.0	0.5
AM-7	0.44	0.7	0.7
AM-8	0.78	1.3	1.5

The divers found great variability in the sediment throughout the swimming channel. Along the swimming channel floor, the sand appeared to be highly-oxidized and the grain size and consistency resulted in the sediment best being described as "muddy". The margins of the swimming channel contained coarser sand, as sand eroded from the beach comprised the inner portion and sand from the reef flat comprised the offshore portion. This sand was observed to generally be significantly coarser than the beach sand and regularly was noted to have cobbles or mud mixed with the sand. Photographs of sand in the central area of the park beach are shown in Figure 2-26. The sand at locations 25% and 75% is noticeably coarser than the beach sand with the appearance of being poorly sorted. The sediment from 50% resembled mud when it was wet. The photograph of the 50% sample shows large chunks of consolidated material that were produced during drying. Grain size analyses were performed on the beach samples only.

The quantity of sand available for use on the beach was considered to be too small and too spread out to be recoverable. The sand within the park waters was therefore eliminated as a source of project beach sand.

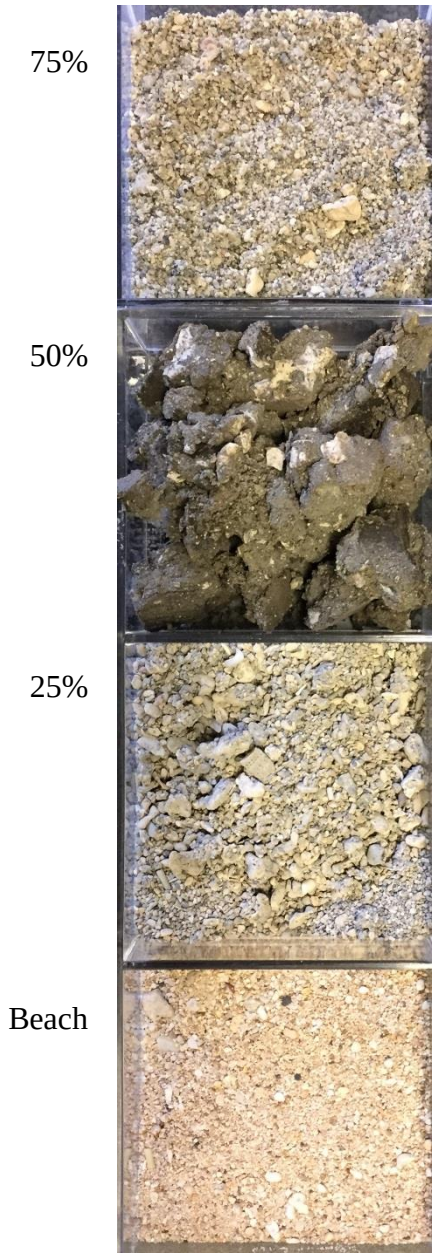

Figure 2-26 Example of variability is sand from the beach to the reef.

2.5 Shoreline History

Prior to the development of Ala Moana Regional Park, the shoreline was characterized by a very narrow beach which fronted coastal wetlands (see Figure 2-27). Shoreline alteration began in the 1920s, and a shore-parallel boat channel was dredged to connect the Ala Wai canal and boat harbor with Kewalo Basin and its channel to deep water (see Figure 2-28). In 1951, the Ala Wai Harbor entrance channel was dredged, which eliminated the need for the boat channel. The present Ala Moana shoreline came into being in 1955 when a new shore-parallel channel was dredged further offshore, and the dredged material was used to fill in the old boat channel and create a bench on which sand could be placed to create a beach. The dredging plans (Application

by the Board of Harbor Commissioners, March 1954) indicate that the new dredged channel depth was to be 20 feet. Approximately 55,000 cy of sand was imported from Yokohama Beach to cover the dredged fill and create a sand beach. The west end of the beach butted up against the Kewalo Basin peninsula, and the east end abutted a large jetty adjacent to the Ala Wai channel (see Figure 2-29). In 1964 Magic Island was constructed and became the eastern terminus of the beach. Additional dredging was conducted along a portion of the west side of Magic Island to provide additional swimming area; however, the dredging did not extend all the way through the shallow fringing reef flat to connect to deep water (see Figure 2-30). By the early 1970s the sand along Ala Moana Beach was almost gone and the dredged coral fill was exposed. In 1976 the beach was nourished with an additional 30,000 cy of sand obtained from an inland fossil dune source in Mokuleia (Campbell and Moberly, 1978). To our knowledge no additional nourishment has been accomplished since 1976. Figure 2-31 and Figure 2-32 show the aerial images from 1982 and 2005, respectively.

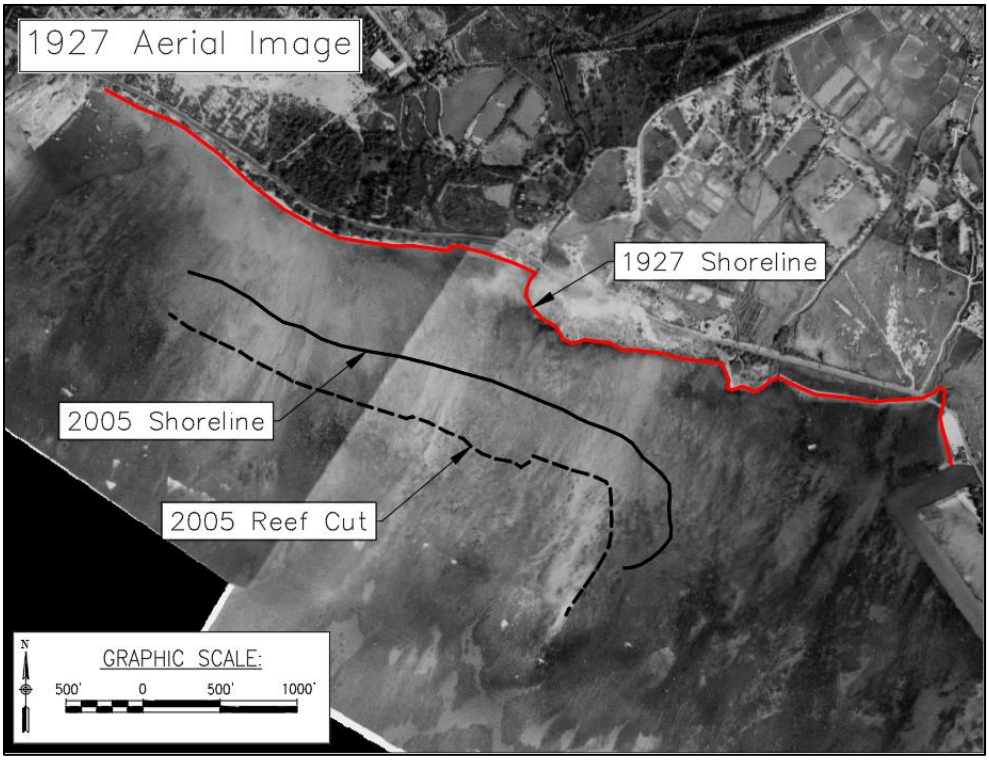

Figure 2-27 1927 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

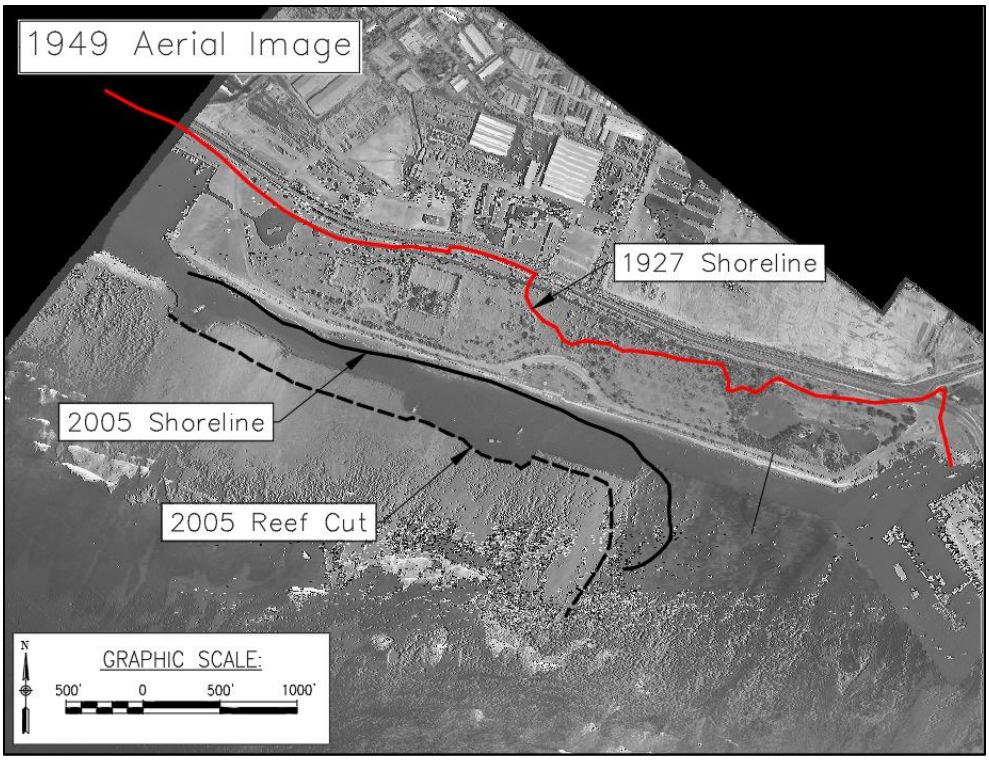

Figure 2-28 1949 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

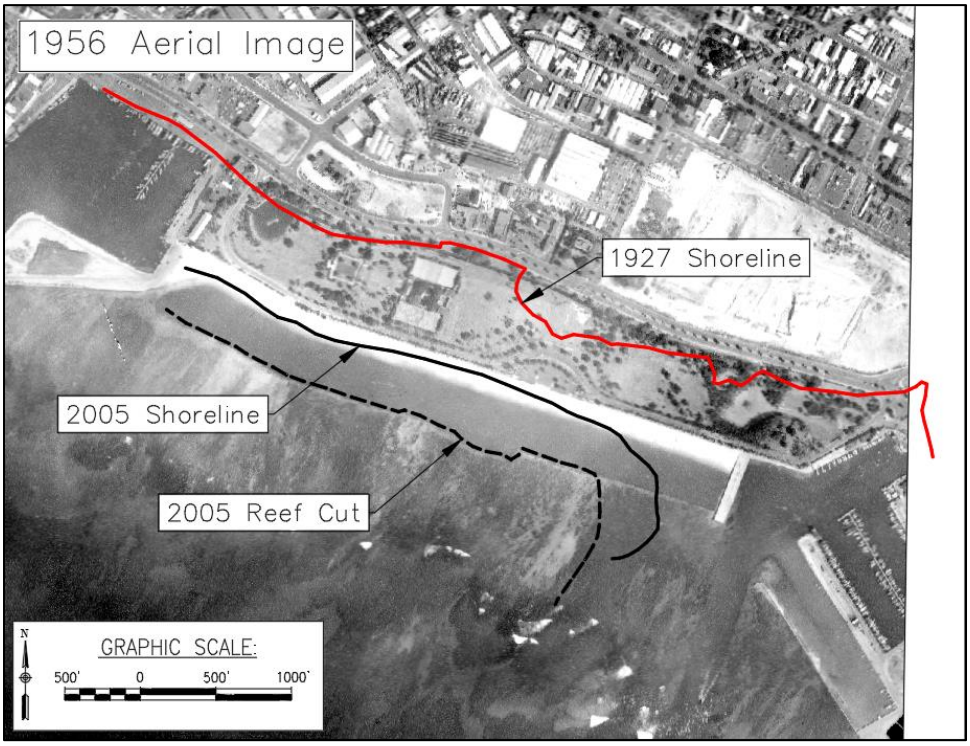

Figure 2-29 1956 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

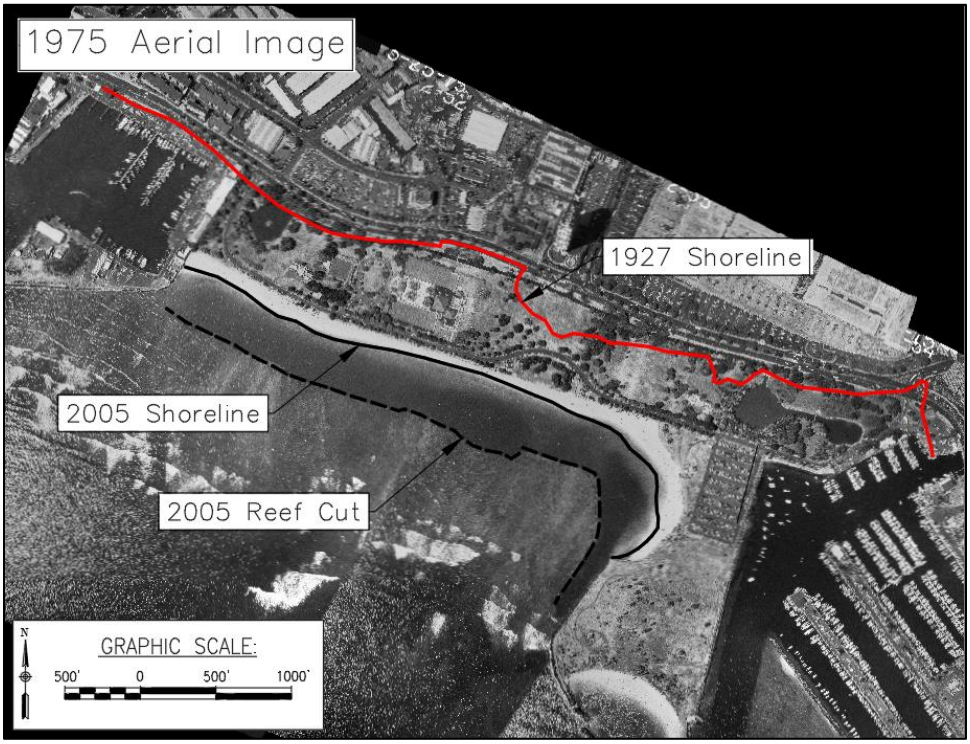

Figure 2-30 1975 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

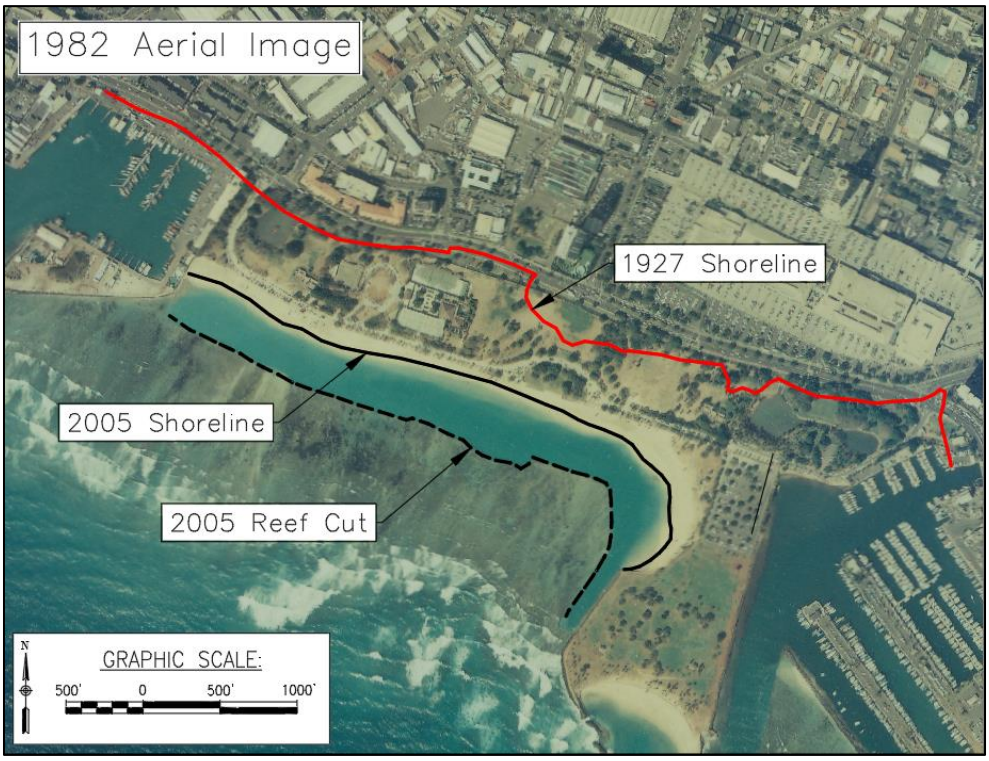

Figure 2-31 1982 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

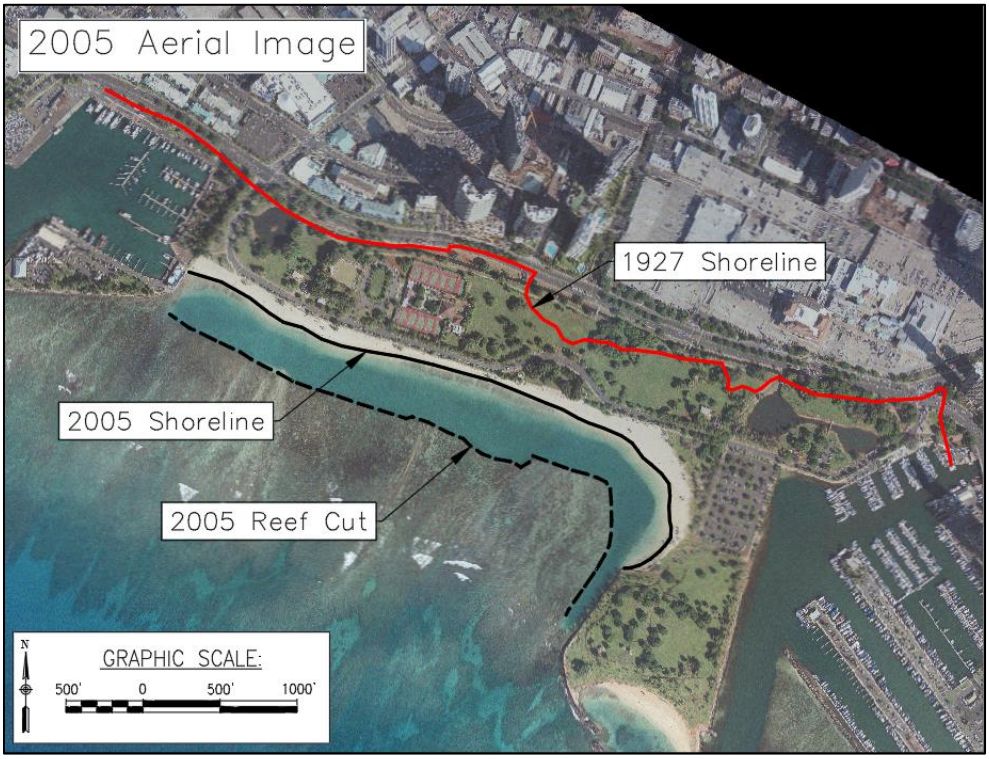

Figure 2-32 2005 Aerial image with the overlay of the 1927 shoreline, 2005 shoreline, and 2005 reef cut

2.6 Shoreline Trends

The erosion history at Ala Moana beach has been analyzed with aerial photographs by the University of Hawaii Coastal Geology Group. The CGG compared the low water mark digitized from aerial photographs between 1927 and 2005. In the project vicinity, photographs from 1927, 1949, 1952, 1957, 1968, 1970, 1974, 1975, 1982, and 2005 were available. The analyses for the project shoreline are presented as transects 18 through 86 in Figure 2-33. The study indicates that the project shoreline has experienced erosion at the middle and end portions of the beach with the most severe erosion occurring at the Magic Island end of the beach.

Beach nourishment projects were undertaken during this period and were not factored into the CGG analyses. This variability in the historical shoreline positions can therefore result in misleading conclusions about the beach and erosion rates. To better show the more natural shoreline trend, a shoreline change analysis was performed using the shoreline positions from 1965, 1968, 1970, and 1975 (shorelines determined by UH CGG). These years were chosen as they represent the shoreline in its current configuration since the construction of Magic Island. Additionally, high resolution aerial imagery from 1963 and 1965 were obtained and used to infer the shoreline for those years. These additional shorelines were added to the dataset provided by CGG. Transect 54 from the CCG study was chosen to measure relative shoreline change since it is located where the most severe beach narrowing has occurred. The shoreline change and change rates for each of the years discussed are presented in Table 2-2. The average shoreline

change rate was determined using periods of only shoreline retreat (erosion) in an attempt to remove periods where beach nourishment or sand pushing activities may have occurred. The average shoreline erosion rate was found to be 2.4 ft/yr.

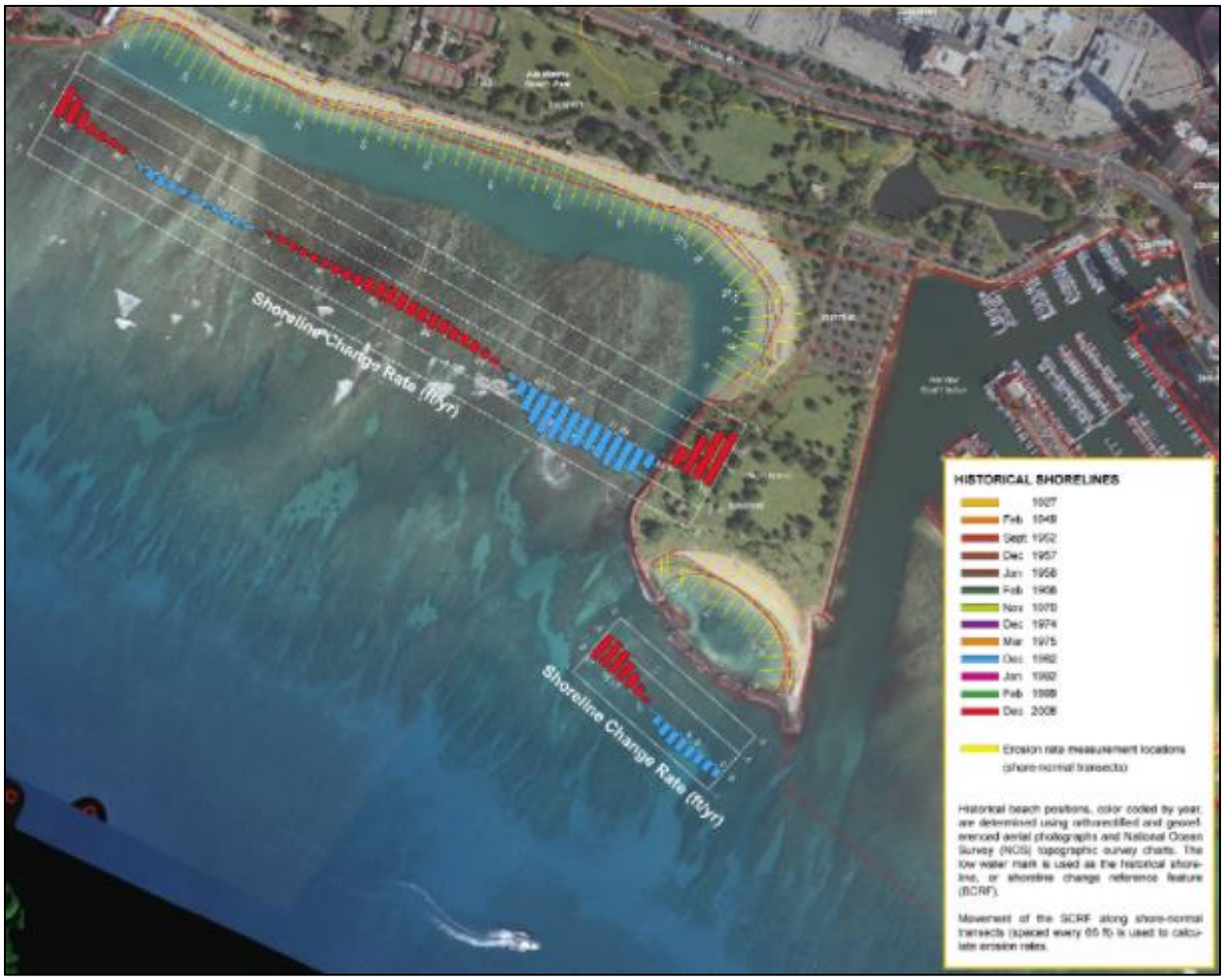

Figure 2-33 Historical shoreline change analysis (UH Coastal Geology Group). Yellow lines indicate transect locations spaced 66 ft apart. Red bar graph indicates annual erosion rate and the blue bars indicate annual accretion rate calculated for each transect location. White lines through bar graph represent 1 ft/yr erosion rate increments.

Table 2-2 Historical shoreline change rates for shoreline positions determined by CGG and SEI at Transect 54. The average is shown for the periods of beach erosion (i.e,, 1965-1975). Negative values indicate shoreline retreat.

Start Year	End Year	Duration (yrs)	Change (ft)	Rate (ft/yr)
1963	1965	2	1.2	0.6
1965	1968	3	-3.3	**-1.1**
1968	1970	2	-7.2	**-3.6**
1970	1975	5	-12.0	**-2.4**
1975	1982	7	8.2	1.2
1982	2005	23	21.2	0.9
			Average:	**-2.4**

More recent trends of shoreline change were analyzed using Google Earth aerial imagery between 2004 to 2014. The central portion of the beach, which has experienced beach narrowing, was analyzed using Google Earth aerial images from 2004, 2006, 2008, 2009, 2011, 2013, and 2014. Shoreline positions were inferred from the aerial imagery and change rates were determined at Transect 54 (see Figure 2-34). An erosion rate of 2.9 ft/yr (see Table 2-3) was found using this method which closely matches the average erosion rate from the CCG shorelines previously discussed. This value will be used later to estimate the shoreline response and renourishment interval.

The CGG reported erosion rates were less than 1 ft/yr, possibly because beach nourishment was not factored into their analyses.

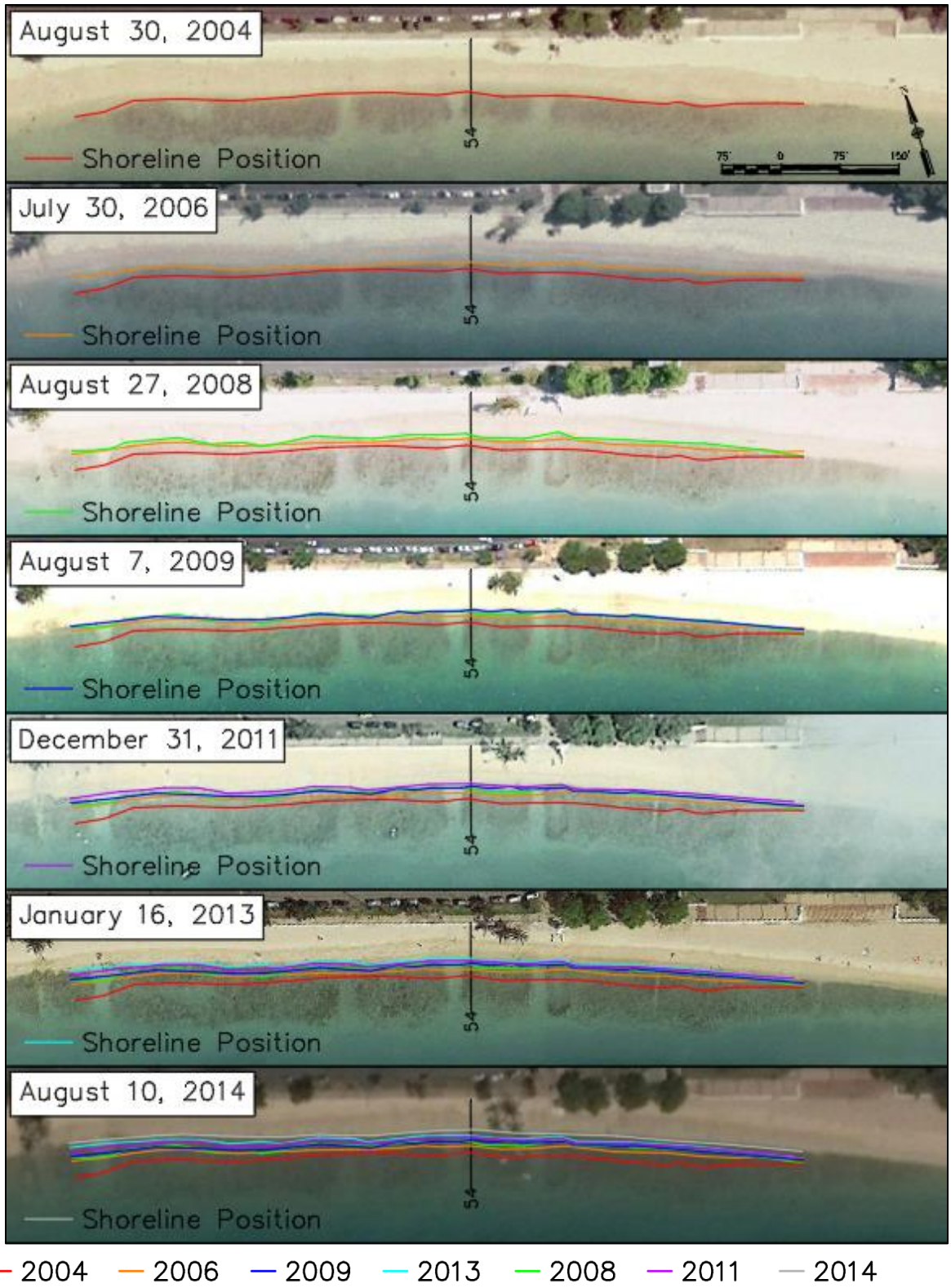

Figure 2-34 Historical shoreline analysis using Google Earth aerial imagery between 2004 to 2014 at transect 54

Table 2-3 Historical shoreline change analysis results from Google Earth imagery at transect 54. Negative values indicate shoreward movement of the shoreline.

Start Date (mm/dd/yyyy)	End Date (mm/dd/yyyy)	Duration (yrs)	Change (ft)	Rate (ft/yr)
8/30/2004	7/30/2006	1.92	-8.7	-4.5
7/30/2006	9/27/2008	2.16	-5.1	-2.4
9/27/2008	8/7/2009	0.86	-2.1	-2.5
8/7/2009	12/31/2011	2.40	-5.0	-2.1
12/31/2011	1/16/2013	1.05	-2.4	-2.3
1/16/2013	8/10/2014	1.56	-5.3	-3.4
			Average:	**-2.9**

3. OCEANOGRAPAHIC SETTING

3.1 Bathymetry and Nearshore Bottom Conditions

Ala Moana Regional Park is located on the south shore of Oahu, Hawaii, between Kewalo Basin and the Ala Wai Small Boat Harbor. Ala Moana Beach is a man-made shoreline consisting of dredged coral rubble fill underlying the sandy beach. The shoreline is fronted by a 300-foot wide swimming channel with depths up to 23 feet. Seaward of the swimming channel is a broad shallow fossil limestone reef which extends approximately 0.5 miles offshore to the local surf breaks. The reef flat is generally 5 feet or less out to the surf zone and then begins to deepen from the 10-foot contour down to deep water. Detailed nearshore bathymetry information is available via the U.S. Army Corps of Engineers (USACE) Scanning Hydrographic Operational Airborne Lidar Survey (SHOALS) dataset.

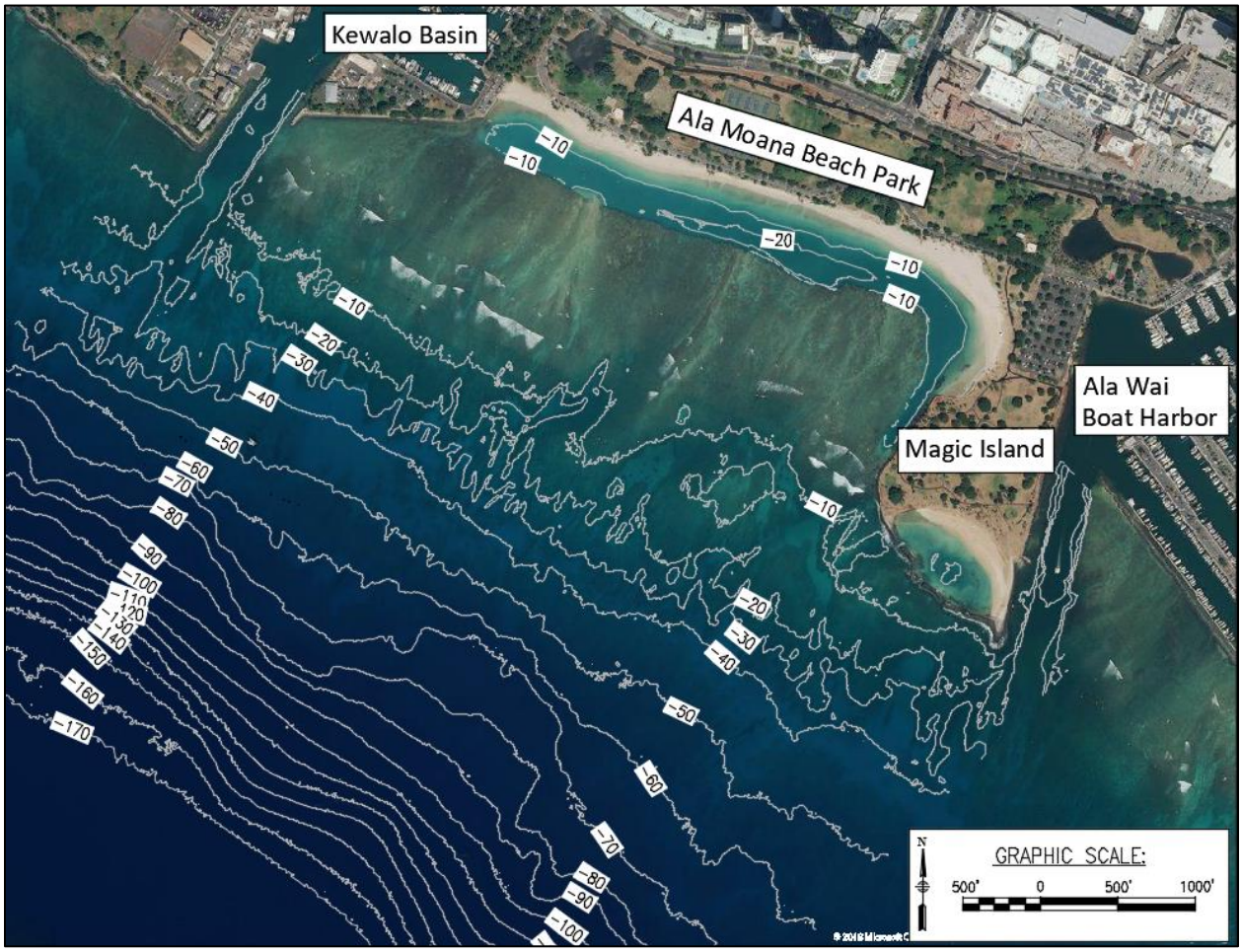

Figure 3-1 Project area bathymetry (contours in feet MSL)

3.2 Wind

The prevailing wind throughout the year is the northeasterly trade wind. Its average frequency varies from more than 90% during the summer season to only 50% in January, with an overall annual frequency of 70%. Westerly, or Kona, winds occur primarily during the winter months, generated by low pressure or cold fronts that typically move from west to east past the islands.

Figure 3-2 shows a wind rose diagram applicable to the site based on wind data recorded at Honolulu International Airport between 1949 and 1995.

Tradewinds are produced by the outflow of air from the Pacific Anticyclone high pressure system, also known as the Pacific High. The center of this system is located well north and east of the Hawaiian chain and moves to the north and south seasonally. In the summer months, the center moves to the north, causing the tradewinds to be at their strongest from May through September. In the winter, the center moves to the south, resulting in decreasing tradewind frequency from October through April. During these months, the tradewinds continue to blow; however, their average monthly frequency decreases to 50%.

During the winter months, wind patterns of a more transient nature increase in prevalence. Winds from extra-tropical storms can be very strong from almost any direction, depending on the strength and position of the storm. The low-pressure systems associated with these storms typically track west to east across the North Pacific north of the Hawaiian Islands. At Honolulu Airport, wind speeds resulting from these storms have on several occasions exceeded 60 mph. Kona winds are generally from a southerly to southwesterly direction, usually associated with slow moving low-pressure systems known as Kona lows situated to the west of the island chain. These storms are often accompanied by heavy rains.

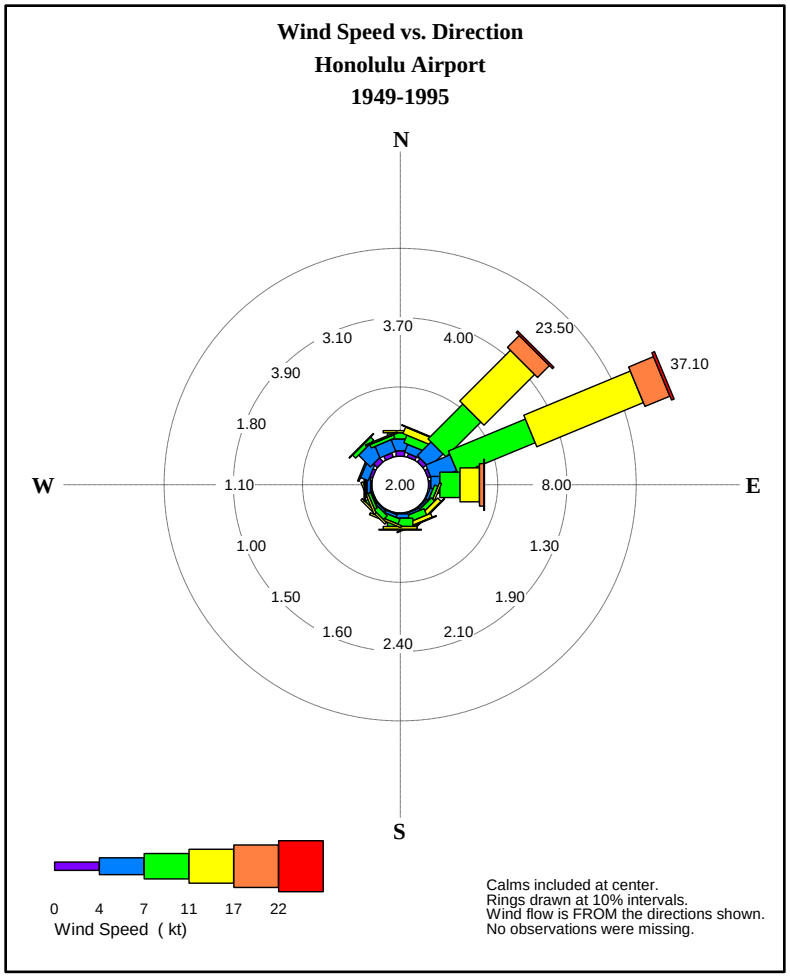

Figure 3-2 Wind Rose Honolulu Airport 1949-1995

3.3 Water Levels

3.3.1 Tides

Hawaii tides are semi-diurnal with pronounced diurnal inequalities (i.e., two high and low tides each 24-hour period with different elevations). A modulation of the tidal range results from the relative position of the moon and the sun: when the moon is new or full, the moon and the sun act together to produce larger "spring" tides; when the moon is in its first or last quarter, smaller "neap" tides occur (Rapaport, 2013). The cycle of spring to neap tides and back is half the 27-day period of the moon's revolution around the earth and is known as the fortnightly cycle. The combination of diurnal, semi-diurnal and fortnightly cycles dominates variations in sea level throughout the islands.

The geometry of the oceans - the basin shape, local coastline, bays, and even harbor geometry - has a major effect on the local behavior of the tides. On scales of oceanic basins, tides exist as very long waves propagating in patterns determined by their period and the geometry of the basin. Lines along which high tide occurs at the same time (called phase lines), converge to several points where the tidal range is zero. There are four of these points, called "amphidromes" in the Pacific: one on the North Pacific near the dateline, one near the equator in

the eastern North Pacific, one in the central South Pacific near Tahiti, and one east of New Zealand. Phase lines rotate counter-clockwise around the amphidromes in the North Pacific and clockwise around the ones in the South Pacific. For example, at the Hawaiian Islands, the offshore diurnal tide reaches the Hawai'i island first, then sweeps across Maui, Oahu and finally Kauai. Tidal currents result from tidal variations of sea level, and near the shore are often stronger than the large-scale circulation (Rapaport, 2013).

Tidal predictions and historical extreme water levels are given by the Center for Operational Oceanographic Products and Services, NOS, NOAA, website. A tide station is located at Honolulu Harbor, Station 1612340, and the water level data based on the 1983-2001 tidal epoch is shown in Table 3-1.

Table 3-1 Water level data for Honolulu Harbor, Station 1612340 (NOAA)

Datum	Elevation (feet, MLLW)	Elevation (feet, MSL)
Mean Higher High Water	+1.9	+1.1
Mean High Water	+1.4	+0.6
Mean Sea Level	+0.8	0.0
Mean Low Water	+0.2	-0.7
Mean Lower Low Water	0.0	-0.8

Hawaii is also subject to periodic extreme tide levels due to large scale oceanic eddies that propagate through the islands. Eddies are circulations of about 50 to 200 km across that are often variable over a period of weeks to months depending on the latitude. These eddies produce tide levels up to 0.5 to 1.0 feet higher than normal for periods of up to several weeks in the Hawaiian Islands.

3.3.2 Sea Level Rise

The present rate of global mean sea-level change (SLC) is +3.4 ± 0.4 mm/year (Sweet, 2017), where a positive number represents a rising sea level. SLC appears to be accelerating compared to the mean of the 20th Century. Factors contributing to the measured rise in sea level include decreasing global ice volume and warming of the ocean. Sea level, however, is highly variable. The historical sea level trend for Honolulu Harbor, Station 1612340, is shown in Figure 3-3 (NOAA, 2017). The mean historical rate of sea level change (RSLC) is +1.48 ± 0.21 mm/yr based on monthly data for the period 1905 to 2017. The tide gauge data also shows interannual anomalies exceeding 0.5 feet (15 cm) in Honolulu Harbor.

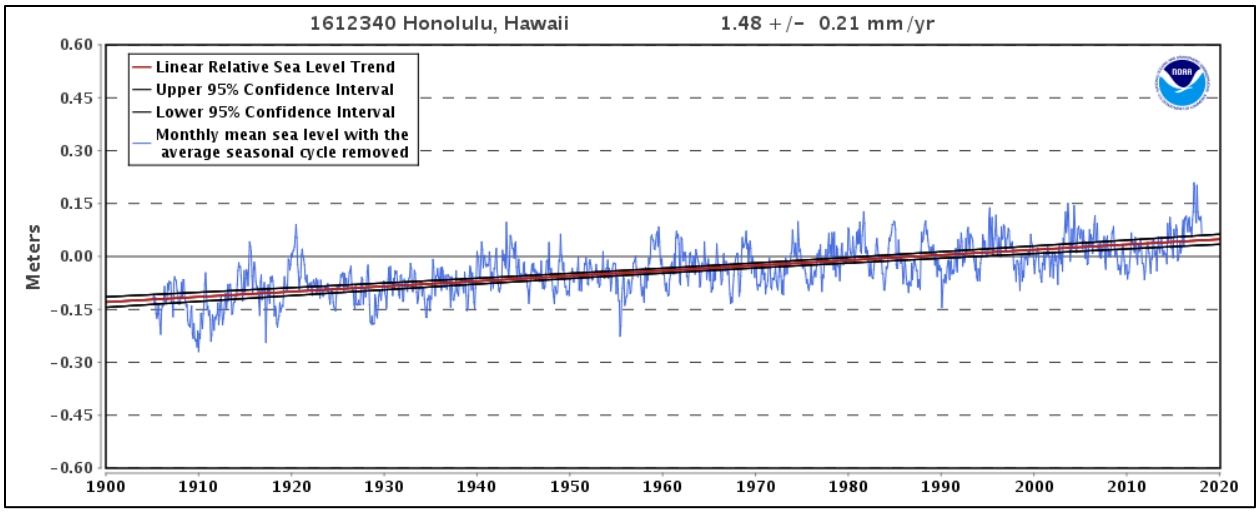

Figure 3-3 Mean sea level trend, Honolulu Harbor, Station 1612340, 1905 to present (NOAA, 2017)

The National Oceanic and Atmospheric Administration (NOAA) recently revised their sea level change projections through 2100 taking into account up-to-date scientific research and measurements NOAA is projecting that global sea level rise as shown by their "Extreme" scenario could be as high as about 8 feet by 2100. NOAA's recent report also identifies specific regions that are susceptible to a higher than average rise in sea level. Hawaii has thus far experienced a rate of sea level rise that is less than the global average; however, this is expected to change. Hawaii is in the "far field" of the effects of melting land ice. This means that those effects have been significantly less in Hawaii compared to areas closer to the ice melt. Over the next few decades, this effect is predicted to spread to Hawaii, which will then experience sea level rise greater than the global average.

Figure 3-4 presents mean sea level rise scenarios for Hawaii based on the revised NOAA projections, taking into account the far-field effects. While the projections are based on the most current scientific models and measurements, discretion is necessary in selecting the appropriate scenario. Selecting the appropriate sea level change projection is a function of many parameters, including topography, coastal setting, criticality of infrastructure, potential for resilience, budget, and function.

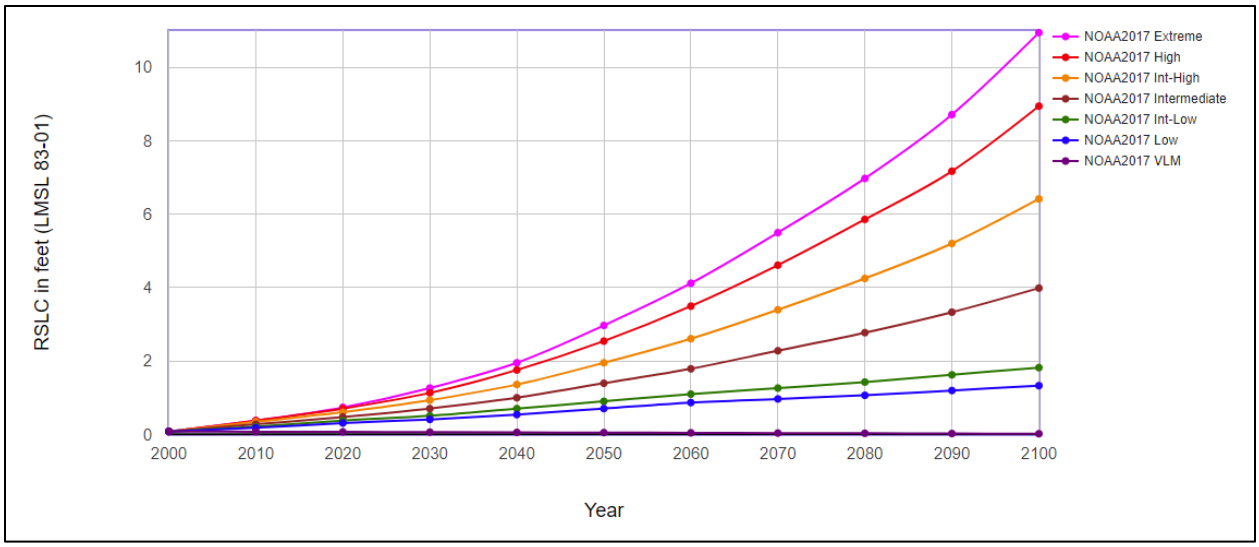

Figure 3-4 Hawaii sea level rise projections (adapted from NOAA, 2017)

Table 3-2 Hawaii Local Mean Sea Level rise scenarios (feet)

Scenario	2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
Extreme	0.38	0.74	1.26	1.95	2.97	4.12	5.50	6.97	8.71	10.94
High	0.38	0.71	1.13	1.76	2.54	3.50	4.61	5.86	7.17	8.94
Intermediate-High	0.35	0.61	0.94	1.36	1.95	2.61	3.40	4.25	5.20	6.42
Intermediate	**0.28**	**0.48**	**0.71**	**1.00**	**1.40**	**1.79**	**2.28**	**2.77**	**3.33**	**3.99**
Intermediate-Low	0.21	0.38	0.51	0.71	0.90	1.10	1.26	1.43	1.63	1.82
Low	0.18	0.31	0.41	0.54	0.71	0.87	0.97	1.07	1.20	1.33

An important conclusion of the regional climate assessment is that NOAA's revised *Intermediate* rate is recommended for planning and design purposes in Hawaii. The *Intermediate* rate projects that sea level in Hawaii will rise 2.3 feet by 2070 (Table 3-2). Given the recent upwardly revised projections and the potential for future revisions, consideration may also be given to the *Intermediate-High* rate for planning and design purposes, which projects that sea level in Hawaii will rise 3.4 feet by 2070.

Sea level rise has the potential to impact beaches and shorelines in Hawaii. Impacts may include beach narrowing and beach loss, loss of land due to erosion, and infrastructure damage due to inundation and flooding. The impacts from anomalous sea level events (e.g., king tides, mesoscale eddies, storm surge) are also likely to increase. A 2015 study found that, due to increasing sea level rise, average shoreline recession (erosion) in Hawaii is expected to be nearly twice the historical extrapolation by 2050, and nearly 2.5 times the historical extrapolation by 2100 (Anderson et al., 2015).

The State of Hawaii recently published the *Sea Level Rise Vulnerability and Adaptation Report for Hawaii*, which discusses the anticipated impacts of projected future sea level rise on coastal hazards, and the potential physical, economic, social, environmental, and cultural impacts of sea level rise in Hawaii (Hawaii Climate Change Mitigation and Adaptation Commission, 2017).

The University of Hawaii conducted numerical modeling to estimate the potential impacts that a 3.2-foot rise in sea level would have on coastal hazards including passive flooding, annual high wave flooding, and coastal erosion. These three coastal hazards are combined to form the "Sea Level Rise Exposure Area" shown in blue in Figure 3-5, encompassing a large portion of the park.

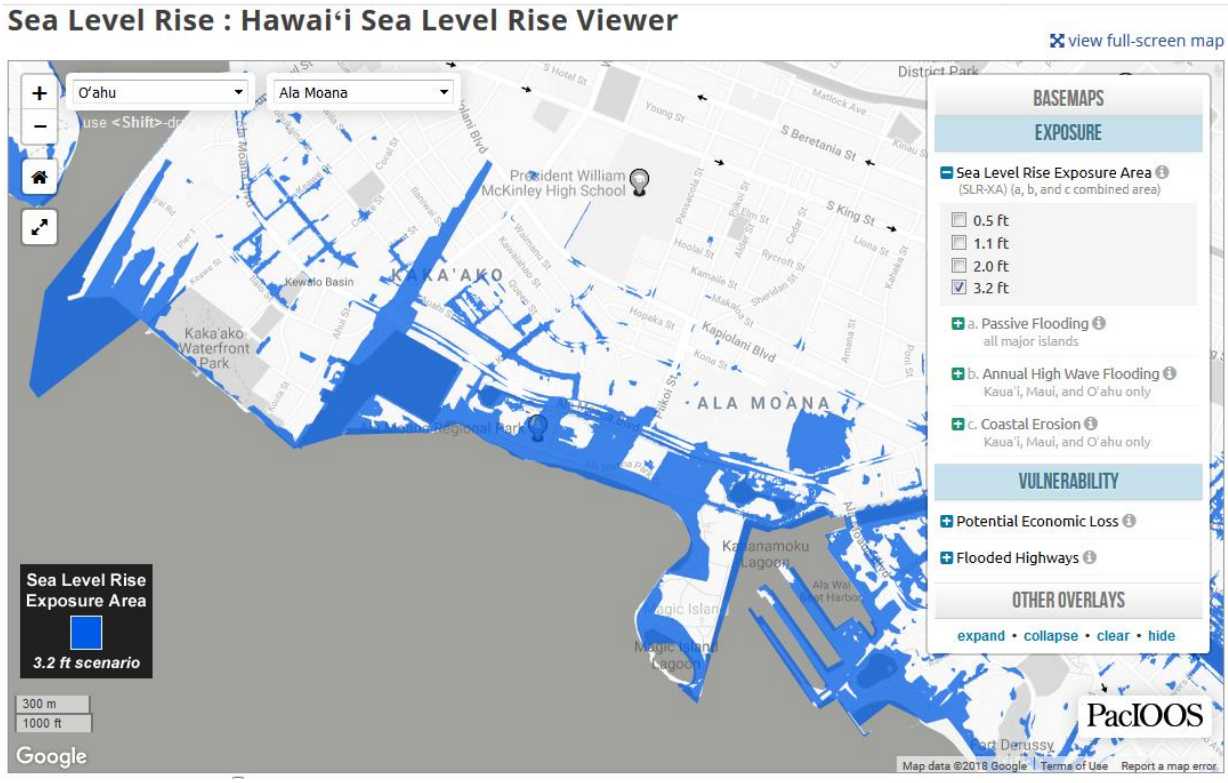

Figure 3-5 ***Sea Level Rise Exposure Area*** **(Ala Moana)**

3.4 Waves

3.4.1 General Wave Climate

The wave climate in Hawaii is dominated by long period swell generated by distant storm systems, by relatively low amplitude, short period waves generated by more local winds, and the occasional bursts of energy associated with intense local storms. Typically, Hawaii receives five general surface gravity wave types: 1) northeast tradewind waves, 2) southeast tradewind waves 3) southern swell, 4) North Pacific swell, and 5) Kona wind waves. The dominant swell regimes for Hawaii are shown in Figure 3-6.

Tradewind waves occur throughout the year and are the most persistent April through September when they usually dominate the local wave climate. They result from the strong and steady tradewinds blowing from the northeast quadrant over long fetches of open ocean. Tradewind deepwater waves are typically between 3 to 8 feet high with periods of 5 to 10 seconds, depending upon the strength of the tradewinds and how far the fetch extends east of the

Hawaiian Islands. The direction of approach, like the tradewinds themselves, varies between north-northeast and east-southeast and is centered on the east-northeast direction. The project site is well sheltered from the direct approach of tradewind waves by the island itself, and only a portion of the tradewind wave energy refracting and diffracting around the southeast end of the island reaches Ala Moana.

During the winter months in the northern hemisphere, strong storms are frequent in the North Pacific in the mid latitudes and near the Aleutian Islands. These storms generate large North Pacific swells that range in direction from west-northwest to northeast and arrive at the northern Hawaiian shores with little attenuation of wave energy. These are the waves that have made surfing beaches on the north shores of Oahu and Maui famous. Deepwater wave heights often reach 15 feet and in extreme cases can reach 30 feet. Periods vary between 12 and 20 seconds, depending on the location of the storm. The project site is sheltered by the island itself from swell approach from the north and northwest.

Southern swell is generated by storms in the southern hemisphere and is most prevalent during the summer months of April through September. Traveling distances of up to 5,000 miles, these waves arrive with relatively low deepwater wave heights of 1 to 4 feet and periods of 14 to 20 seconds. Depending on the positions and tracks of the southern hemisphere storms, southern swells approach between the southeasterly and southwesterly directions. The project site is directly exposed to swell from the southerly direction and these waves represent the greatest source of wave energy reaching the project site.

Kona storm waves also directly approach the project site; however, these waves are fairly infrequent, occurring only about 10 percent of the time during a typical year. Kona waves typically range in period from 6 to 10 seconds with heights of 5 to 10 feet, and approach from the southwest. Deepwater wave heights during the severe Kona storm of January 1980 were about 17 feet. These waves have a significant impact on the south and west shores of Oahu.

Severe tropical storms and hurricanes obviously have the potential to generate extremely large waves, which in turn could potentially result in large waves at the project site. Recent hurricanes impacting the Hawaiian Islands include Hurricane Iwa in 1982 and Hurricane Iniki in 1992. Iniki directly hit the island of Kauai and resulted in large waves along the southern shores of all the Hawaiian Islands. Damage from these hurricanes was extensive. Although not a frequent or even likely event, they should be considered in the project design, particularly with regard to shoreline structures, both in the water and on land near the shore.

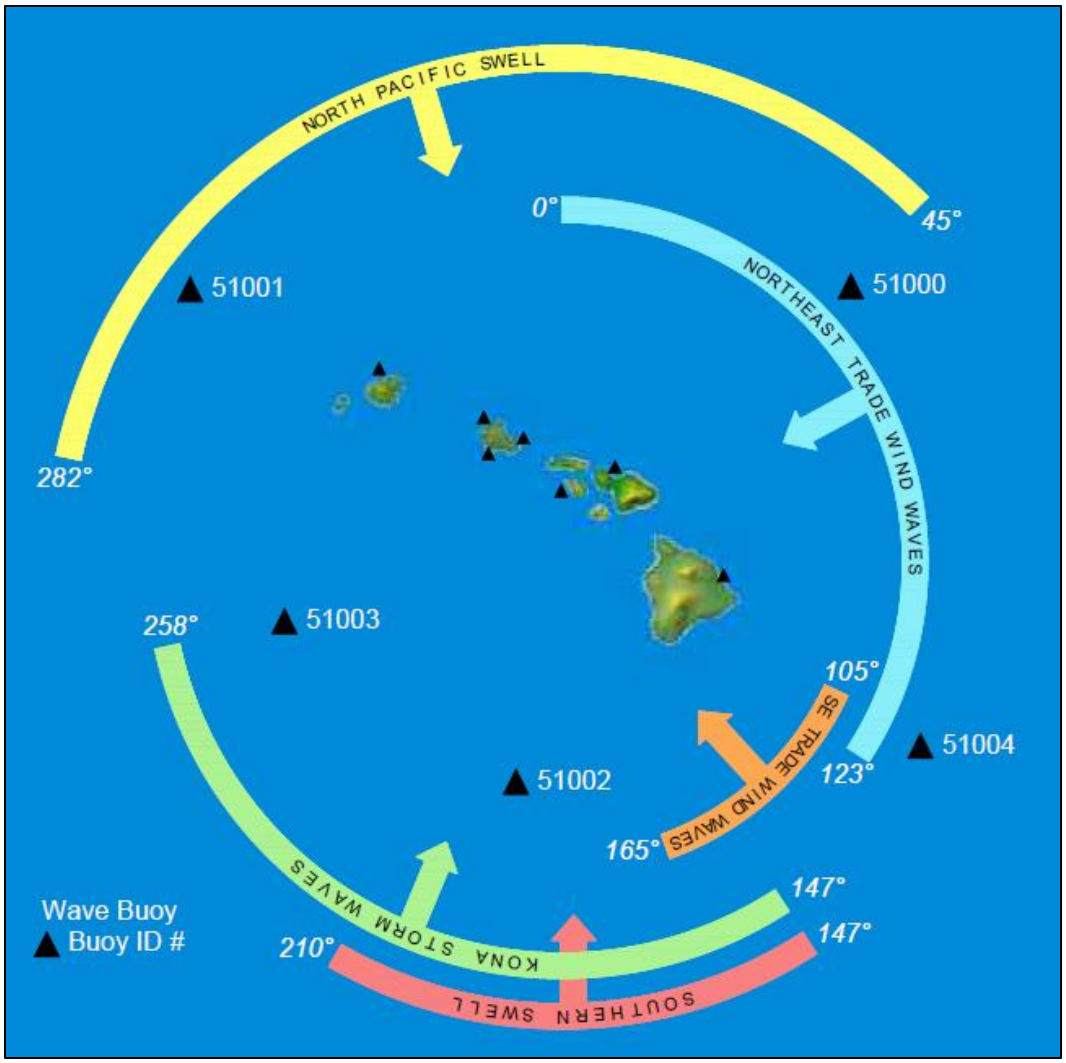

Figure 3-6 Hawaii dominant swell regimes

3.4.2 Prevailing Deepwater Waves

Wave data available from the National Oceanographic and Atmospheric Administration (NOAA) was compiled and analyzed to identify the primary components of the wave climate affecting the project site. These data provide a 31-year wave record and were statistically analyzed to determine the frequency of occurrence of different wave heights, periods, and directions along the coast.

Wave hindcasting is a tool used to calculate past wave events based on weather models and historical data (Hubertz, 1992). With the proper inputs, wave hindcast models can calculate historical wave climates anywhere in the world. Hindcast model outputs are often recorded for a single location, known as a "virtual buoy".

WaveWatch III (WWIII) is a numerical wave model used to forecast and hindcast waves. Hindcast data for a 31-year period (1979-2010) are available around the Hawaiian Islands from

NOAA/NCEP. For this study, hindcast data were obtained from virtual buoy Station 82551, located approximately 28 miles south-southwest of the project site (Figure 3-7).

Figure 3-7 Project site and virtual buoy locations

It is rare for the sea state to consist of a singular wave condition. Wave events are described by wave height, peak period, and peak direction. The wave parameters from the hindcast model are calculated from a modeled wave spectrum. The spectrum shows the distribution of wave energy relative to wave frequency (wave frequency is the inverse of wave period) and wave direction. This methodology allows multiple wave conditions to be accounted for at the same time for a more accurate description of the sea state. Figure 3-8 is a wave height rose diagram that shows the percent occurrence of wave height and direction for waves as measured at Station 82551. Table 3-3 is the corresponding histogram. Figure 3-9 is a wave period rose diagram that shows the percent occurrence of wave period and direction for waves as measured at Station 82551. Table 3-4 is the corresponding histogram. A directional filter was applied within the analysis to only include waves approaching from the south direction between east (90°) and west (270°). The prevailing deepwater wave condition for the project site has a significant wave height of 2.0 feet, a peak period of 15 seconds, and a direction of SSW.

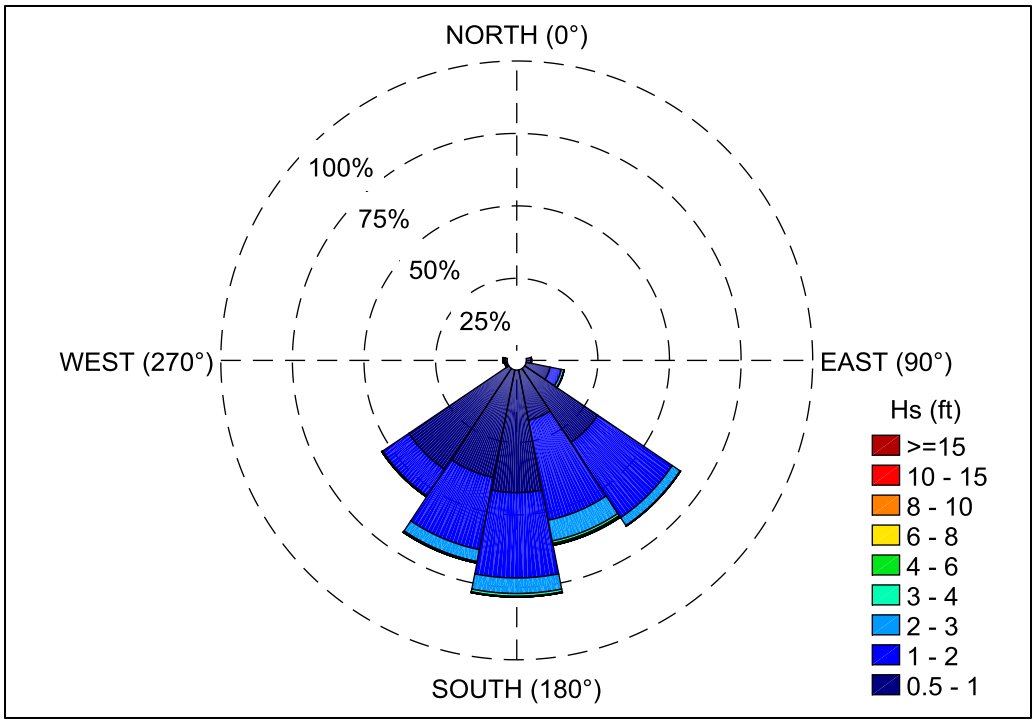

Figure 3-8 Station 82551 virtual buoy wave height rose from Jan 1979 - Jan 2010

Table 3-3 Station 82551 wave height and direction histogram from Jan 1979 - Jan 2010

Hs (ft) \ Dir (deg)	90	112.5	135	157.5	180	202.5	225	247.5	270	Total
0.5-1.0	1.7	8.5	30.7	17.6	42.3	37.9	41.9	0.4	0.6	181.6
1-2	0.1	4.0	31.3	35.3	29.5	25.4	11.0	0.2	0.3	137.0
2-3	0.1	1.0	3.3	7.3	5.4	4.2	0.3	0.1	0.2	21.7
3-4	0.0	0.1	0.2	0.9	0.9	0.4	0.1	0.1	0.1	2.8
4-6	0.0	0.0	0.0	0.5	0.2	0.1	0.0	0.1	0.1	1.1
6-8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3
8-10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
10-12				0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-14				0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-16					0.0	0.0	0.0	0.0	0.0	0.0
16-20					0.0	0.0	0.0	0.0	0.0	0.0
20+					0.0	0.0	0.0			0.0
Total	1.9	13.5	65.5	61.8	78.4	68.0	53.3	0.9	1.5	
	90	112.5	135	157.5	180	202.5	225	247.5	270	Overall
Mean	0.78	1.01	1.13	1.42	1.13	1.09	0.83	2.57	2.04	1.13
Standard Deviation	0.66	0.58	0.48	0.71	0.63	0.56	0.40	2.93	2.15	0.64
Minimum	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Maximum	7.74	8.07	8.10	13.35	20.18	23.75	20.34	19.91	17.06	23.75

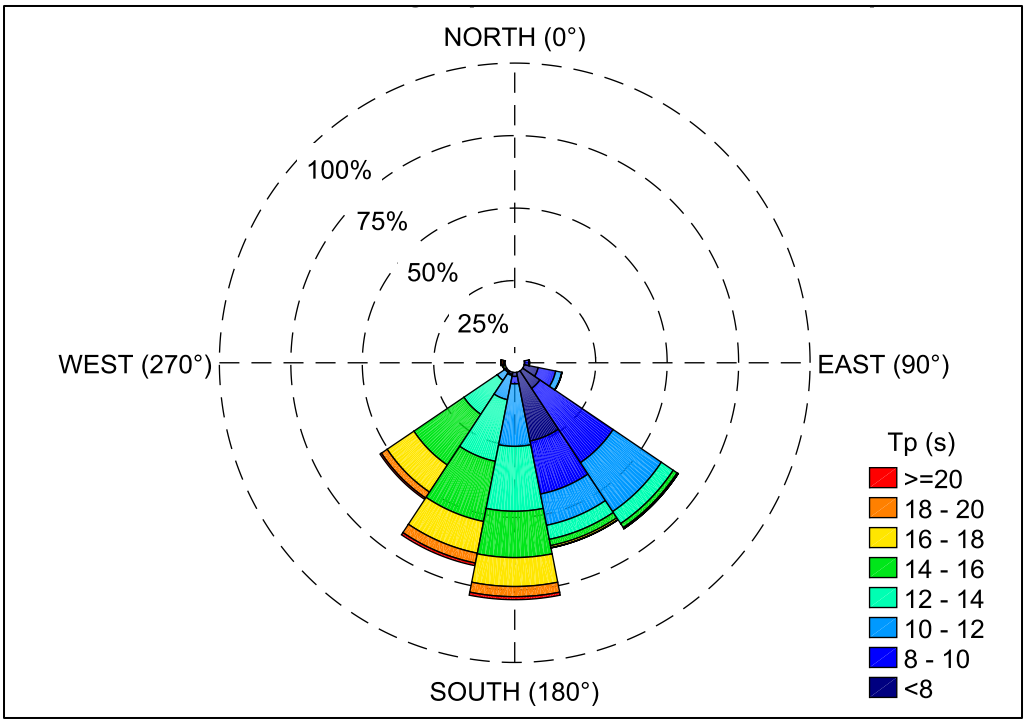

Figure 3-9 Station 82551 virtual buoy wave period and direction rose from Jan 1979 - Jan 2010

Table 3-4 Station 82551 wave period and direction histogram from Jan 1979 - Jan 2010

Tp (s) \Dir (deg)	90	112.5	135	157.5	180	202.5	225	247.5	270	Total
4-6	0.1	4.7	2.1	6.8	0.7	0.3	0.3	0.3	0.2	15.5
6-8	0.1	0.3	5.2	17.4	0.7	0.4	0.3	0.3	0.2	24.8
8-10	1.4	6.3	30.8	18.6	2.6	0.4	0.1	0.2	0.3	60.8
10-12	0.2	2.2	20.3	11.0	21.6	8.5	3.3	0.1	0.4	67.5
12-14	0.0	0.1	5.0	4.9	22.4	21.7	14.0	0.0	0.2	68.4
14-16	0.0	0.0	1.6	2.2	16.0	21.2	21.1	0.0	0.1	62.1
16-18			0.4	0.7	10.0	11.1	11.2	0.0	0.0	33.5
18-20			0.0	0.1	3.5	3.5	2.4		0.0	9.5
20+			0.0	0.0	1.0	0.9	0.6		0.0	2.6
Total	1.9	13.5	65.5	61.8	78.4	68.0	53.3	0.9	1.5	
	90	112.5	135	157.5	180	202.5	225	247.5	270	Overall
Mean	9.16	7.91	9.84	8.97	13.52	14.36	14.79	7.32	9.69	12.09
Standard Deviation	1.35	2.44	1.91	2.61	2.71	2.36	2.16	2.17	3.04	3.44
Minimum	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01
Maximum	15.30	15.14	20.59	22.05	24.46	23.65	23.33	16.59	22.03	24.46

3.4.3 Offshore Wave Transformation

As deepwater waves propagate toward shore, they begin to encounter and be transformed by the ocean bottom. In shallow water, the wave speed becomes related to the water depth. As waves slow down with decreasing depth, the process of *wave shoaling* steepens the wave and increases the wave height. *Wave breaking* occurs when the wave profile shape becomes too steep to be maintained. This typically occurs when the ratio of wave height to water depth is about 0.8, and is a mechanism for dissipating the wave energy. Wave energy is also dissipated due to bottom

friction. The phenomenon of *wave refraction* is caused by differential wave speed along a wave crest as the wave passes over varying bottom contours, and can cause wave crests to converge or diverge and may locally increase or decrease wave heights. Not strictly a shallow water phenomenon, w*ave diffraction* is the lateral transmission of wave energy along the wave crest, and would cause the spreading of waves in a shadow zone, such as occurs behind a breakwater or other barrier.

Simulating Waves Nearshore (SWAN) is a third-generation wave model developed by Delft University of Technology that computes random, short-crested wind-generated waves in coastal regions and inland waters (Booij, *et al*, 1999). The SWAN model can be applied as a steady state or non-steady state model, and is fully spectral (over the total range of wave frequencies). Wave propagation is based on linear wave theory, including the effect of wave generated currents. SWAN provides many output quantities, including two-dimensional spectra, significant wave height and mean wave period, and average wave direction and directional spreading. For this project, the SWAN model was used to transform waves from deep water to the project site. SWAN model results were used to determine wave conditions at the shore as well as provide wave parameter input for a nearshore numerical wave model, BOUSS-2D.

A nested 5-grid setup in the SWAN wave model was used to propagate the deepwater prevailing waves to the project area. The wave conditions are applied along all boundaries of the largest grid, which has a resolution of 1,640 feet and nests intermediate grids with resolutions of 656, 328, and 164 feet and then a nearshore grid with a resolution of 33 feet. Figure 3-10 shows the SWAN grid nesting scheme in relation to the project site.

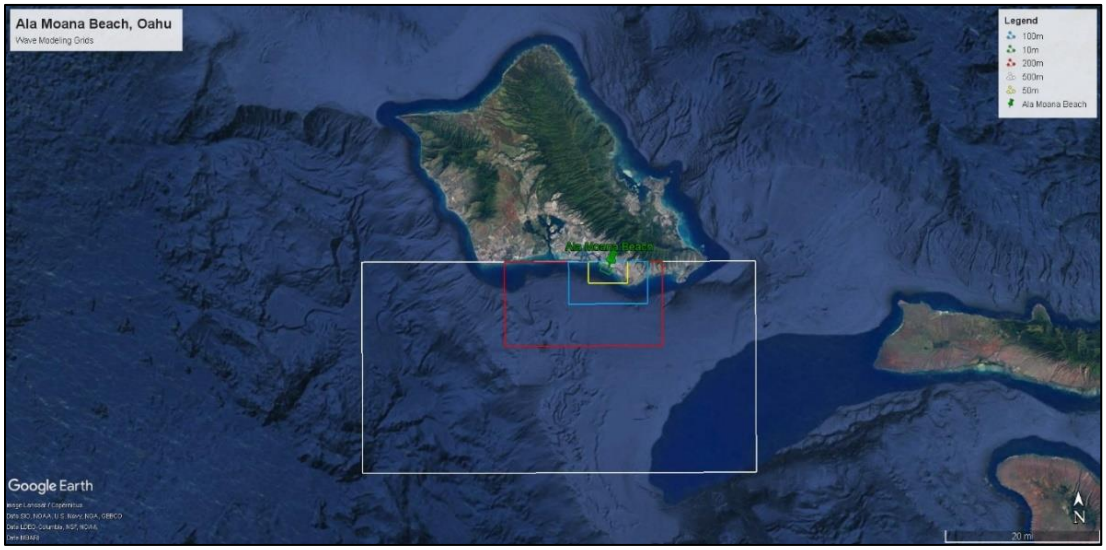

Figure 3-10 Nested grid scheme used in the SWAN model

Figure 3-11 shows the nearshore transformation of the prevailing SSW swell (2.0 ft significant wave height, 15 second period, and SSW direction) from deepwater to Ala Moana Beach Park.

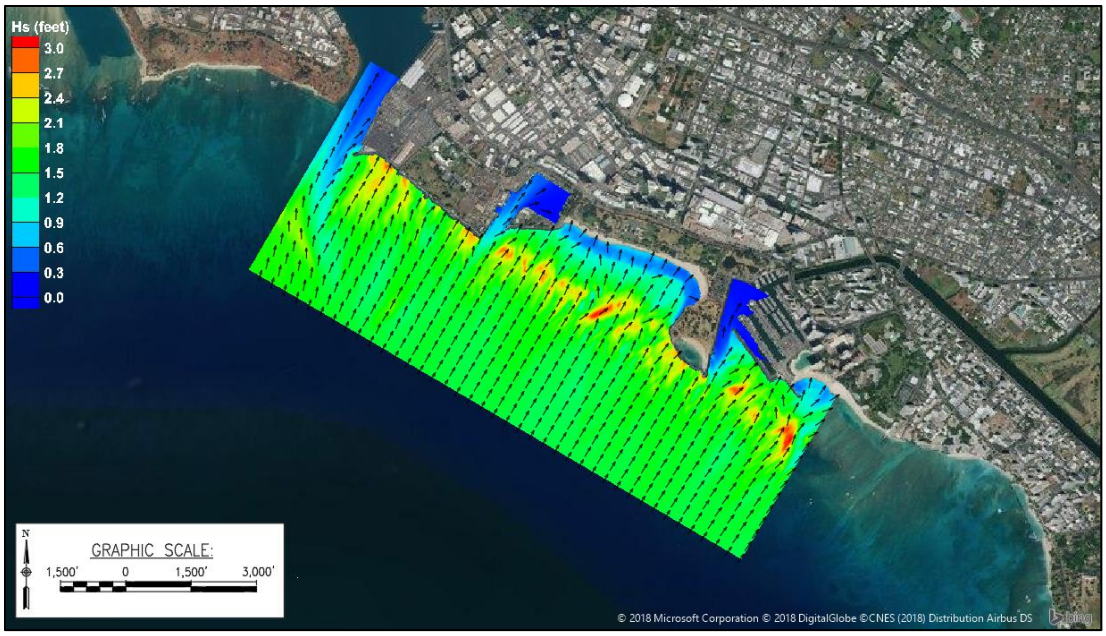

Figure 3-11 Nearshore SWAN results for the prevailing SSW swell

3.4.4 Nearshore Wave Pattern

As waves move into shallow water, bathymetry has greater influence on wave behavior. Waves interact with the bottom dissipating more energy through depth induced breaking and bottom friction. The prevailing wave condition described above was modeled using the BOUSS-2D numerical wave model to investigate the wave crest transformation as the wave approaches shore.

BOUSS-2D (Nwogu and Demirbilek, 2001) simulates the propagation and transformation of waves in coastal regions and harbors based on a time-domain solution of Boussinesq-type equations. The governing equations are valid from deep to shallow water and can simulate most of the phenomena of interest in the nearshore zone and in harbor basins including shoaling and refraction over variable bathymetry, reflection and diffraction near structures, energy dissipation due to wave breaking and bottom friction, and breaking-induced longshore and cross-shore ("rip") currents.

BOUSS-2D is a phase resolving model, meaning that wave crests and troughs are modeled and propagated in time and space. The result is an accurate representation of wave heights and wave patterns across the domain. BOUSS-2D is particularly useful in complex shallow water bathymetry and was used to determine wave patterns at the project site. The prevailing SSW swell was run at mean sea level to simulate a typical water level at the project site.

A snapshot image from the BOUSS-2D model showing the nearshore wave patterns for the prevailing SSW swell is shown in Figure 3-12 . As the incident waves encounter the "Courts" surf site, the wave crest very quickly changes shape as the wave slows over the surf shoal and speeds up around the shoal, producing two curved wave patterns (see Figure 3-12). These waves propagate over the reef and to shore independently of each other, retaining curved crests as they

reach the beach. The wave reaches the beach with a curved front, pushing sand along the beach in either direction. While the wave heights are not very large, the nearly constant wave action on the shoreline produces slow and steady sand transport away from the central area, resulting in the eroded shoreline shape that has been seen as far in the past as 1960.

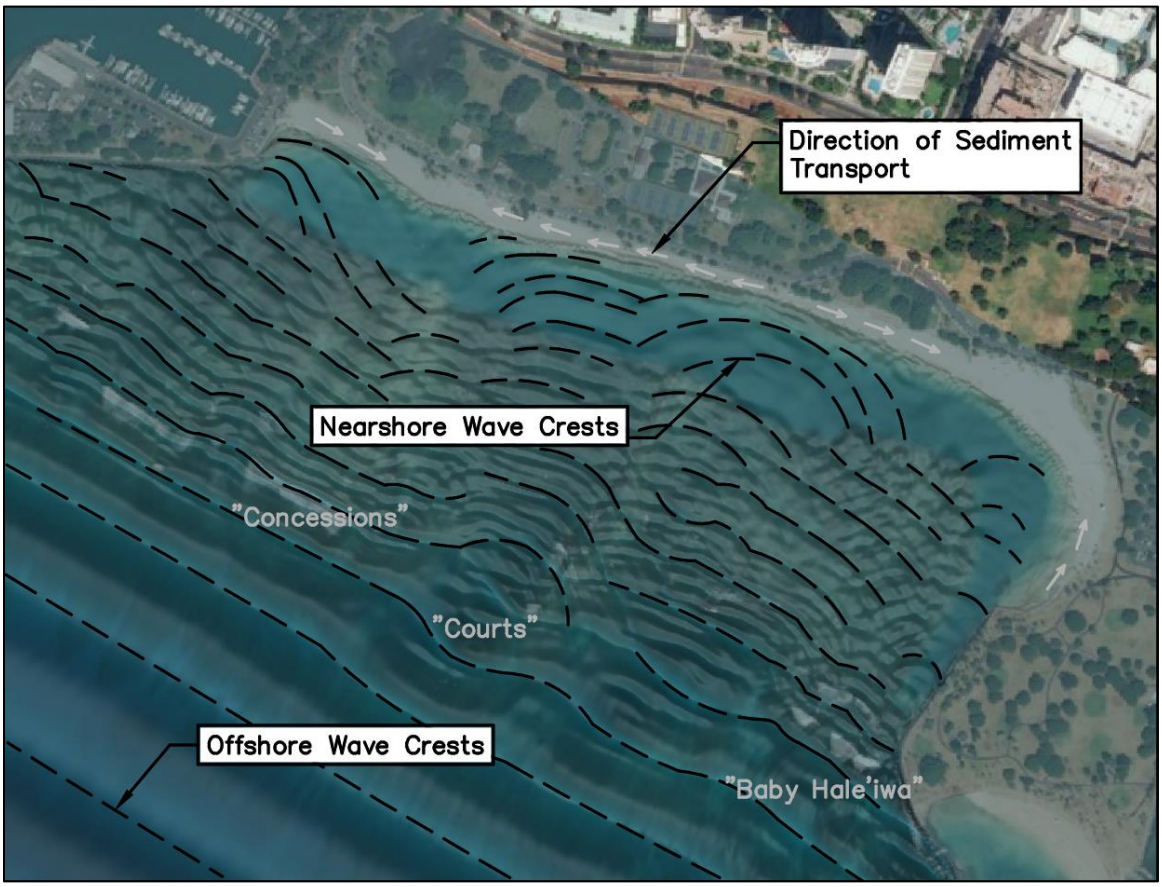

Figure 3-12 BOUSS-2D results for the prevailing SSW swell

4. COASTAL HAZARDS

4.1 Hurricanes

The Hawaiian Islands are annually exposed to severe tropical cyclonic storms (hurricanes). Hurricanes are caused by intense low-pressure vortices that are usually spawned in the eastern tropical Pacific Ocean and travel westward. While they typically pass south of the Hawaiian Islands, their paths are unpredictable, and they will occasionally pass near or over the islands. In recent decades, Hurricane Iwa (1982) and Hurricane Iniki (1992) directly hit the island of Kauai and resulted in large waves along southern shores of Oahu. Damage from these hurricanes was extensive, not only on Kauai, which was subject to both high winds and waves, but also along coastal areas of other islands exposed to the large waves.

4.2 Kona Storms

Kona storms occur when the winter low pressure systems that travel across the North Pacific Ocean dip south and approach the islands. Strong southerly and southwesterly winds generated by these storms result in large waves on exposed shorelines, and often heavy rains. The project site is susceptible to damage from Kona storms, which occur during winter months, generally between October and April. Kona storms typically generate waves with significant heights of 9 to 16 feet and periods of 8 to 11 seconds. Occasional strong Kona storms have caused extensive damage to south- and west-facing shorelines on Oahu. Deepwater wave heights during a severe Kona storm in January 1980 were about 17 feet with a period of 9 seconds.

4.3 Still Water Level Rise

Storms and large waves produce storm surge and wave setup that results in elevated water levels at the shoreline. During prevailing, annual conditions this water level rise can be on the order of a foot above the tide level. However, during extreme events, the still water level rise can be significantly greater.

4.4 Tsunami

Tsunami are waves that result from large-scale displacements of the seafloor. They are most commonly caused by large magnitude earthquakes (typically magnitude 7.0 or greater). If the earthquake involves a large segment of land that displaces a large volume of water, the water will travel outwards in a series of waves, each of which extends from the ocean surface to the seafloor where the earthquake originated. Tsunami waves typically have small wave heights in deep water but can have wavelengths of hundreds of miles and travel at speeds up to 500 miles per hour. A tsunami can travel from one side of the Pacific to the other in less than a day. The speed decreases rapidly as the water shoals. The waves increase greatly in height as they shoal and can push further inland. The water then recedes, also at considerable speed, and the recession often causes as much damage as the original wave front itself.

Most tsunamis in Hawaii originate from the tectonically active areas located around the Pacific Rim (e.g., Alaska, Japan, and Chile). Waves created by earthquakes in these areas take hours to reach Hawaii, and the network of sensors that is part of the Pacific Tsunami Warning System are able to provide Hawaii with several hours advance warning prior to arrive of tsunami waves

generated from these locations. Less commonly, tsunamis originate from seismic activity in the Hawaiian Islands, and there is less advance warning for these locally-generated events.

5. BEACH FILL DESIGN

In general, the objectives of this beach nourishment project are:

- Produce a wider beach to increase useable beach area
- Increase elevation of the dry beach to provide more useable area during high tides
- Reduce inundation/flooding of the backshore

Design of the beach nourishment options presented in this chapter were based on beach profiles and topographic surveys conducted previously by SEI. The shoreline is divided into 3 areas; the Ewa area, central area, and Diamond Head (DH) area, and each area has its own rationale for beach fill. Specific areas identified as needing nourishment included:

- The central eroded area across from the tennis courts, where the beach is the most narrow
- The wide beach flat between lifeguard towers 1D and 1E, where the elevation is low and susceptible to inundation
- The Ewa end of the beach where backshore elevations are low and the area is susceptible to flooding

There is no specific engineering design code for beach nourishment projects. Beach fill can be as little or as much as the owner desires, with limitations being sand availability, cost, and adverse impacts. The options presented below have generally been refined to show what is believed to be the upper limit of each design, typically constrained by space (e.g., swim channel) or infrastructure (e.g., landscaping wall).

The beach fill is assumed to take an initial foreshore slope of 1V:6H, which is typical of the existing condition in the Ewa and central areas.

5.1.1 Option 1

Option 1 beach nourishment consists of widening the beach in the central area to 60 feet measured from the beach crest to the backshore seawall. In effect, this will renourish the eroded sand to straighten the shoreline through the central area. The dry beach width in the central area (Profile 3 to Profile 6) would be increased by up to 45 feet and the MSL shoreline position would move seaward by up to 52 feet. Sand on the dry beach would be placed to elevation +6 ft msl, which is the approximate height of the landscaping wall at the back of the beach.

The Ewa and Diamond Head areas will be nourished with sand inshore of the MSL line only. The sand would be placed to approximate elevation +6 ft msl and tapered into the existing beach face.

After Option 1 nourishment, the entire length of shoreline would have a beach foreshore slope of 1V:6H, which closely matches the typical foreshore slope of the existing beach. The beach berm elevation along the entire beach would be increased to about +6 feet MSL which is the approximate elevation of the backshore seawall crest.

Figure 5-1 shows the footprint (in dashed lines) of the Option 1 beach nourishment plan with the blue and green lines indicating the existing and proposed shorelines, respectively. Figure 5-2

and Figure 5-3 show the design profiles along the shoreline. There is no change to the shoreline position in the Ewa and Diamond Head areas.

Table 5-1 provides the details of the proposed Option 1 beach nourishment effort at each of the 8 profiles along the beach. Table 5-2 provides the details of the proposed footprint and fill volume for each area. The majority of the fill volume would be placed in the central and Diamond Head areas. The total fill volume for this option would be 37,600 cubic yards of sand.

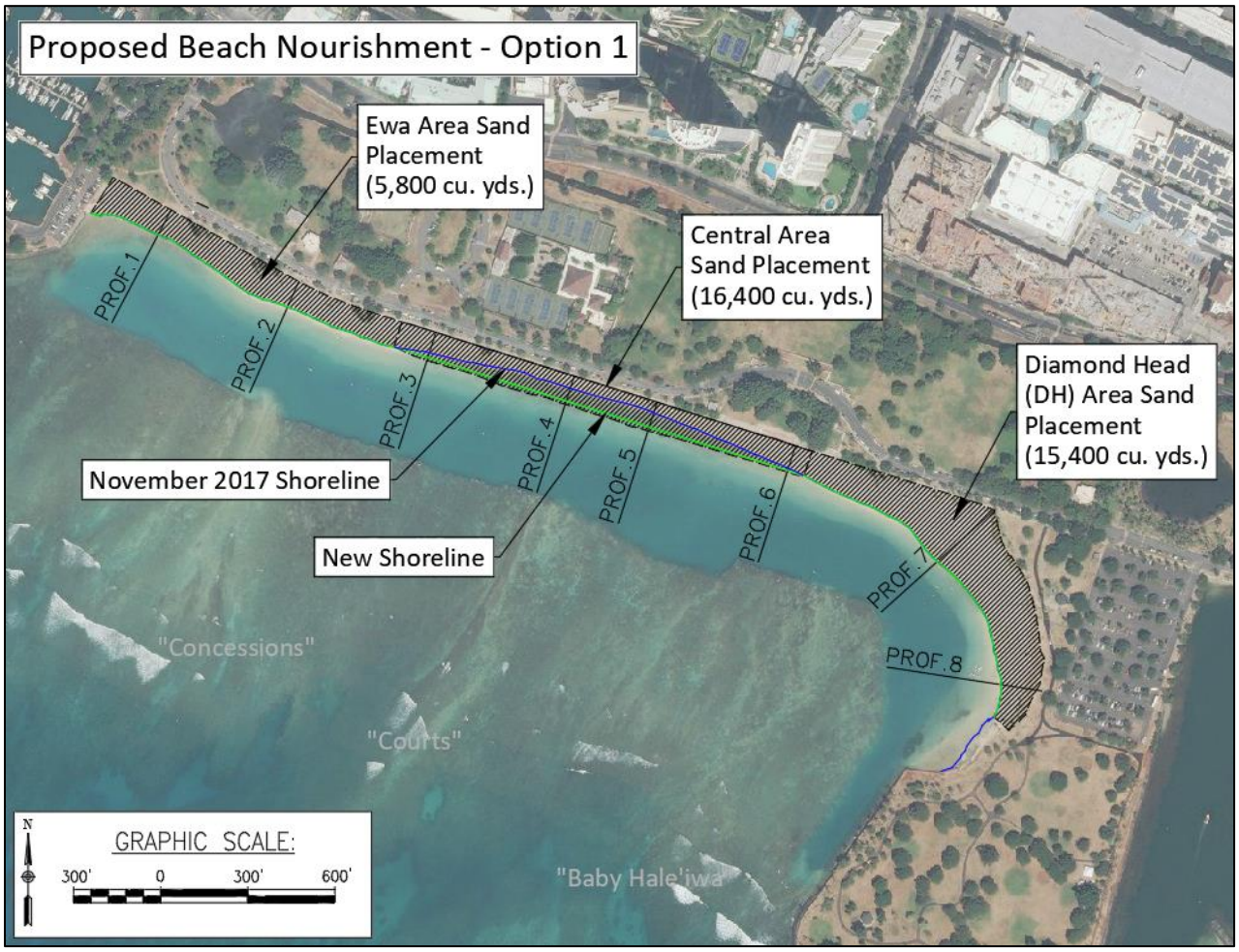

Figure 5-1 Option 1 sand placement layout

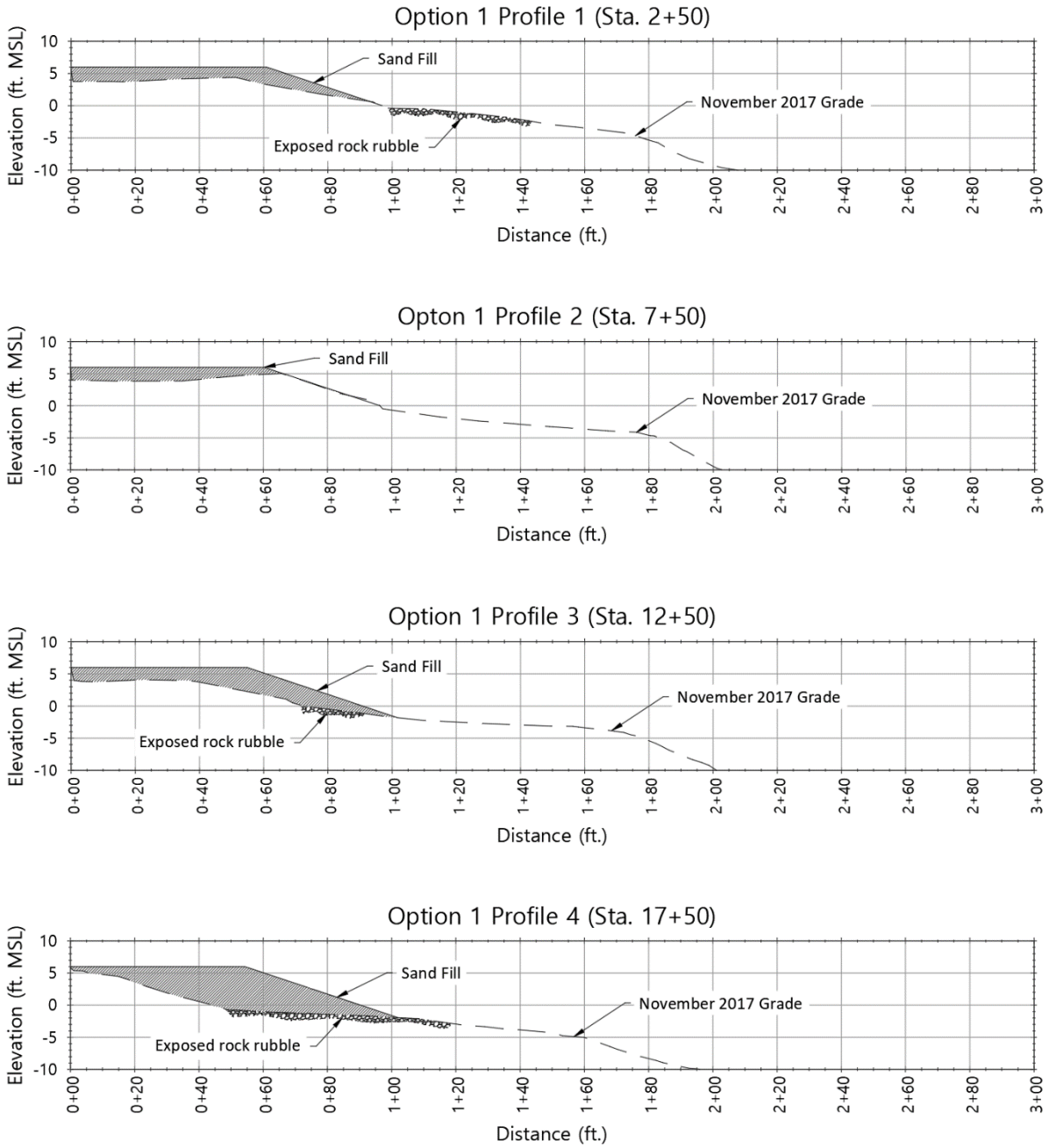

Figure 5-2 Option 1 beach nourishment profiles 1, 2, 3, and 4 (wall at Sta. 0+00)

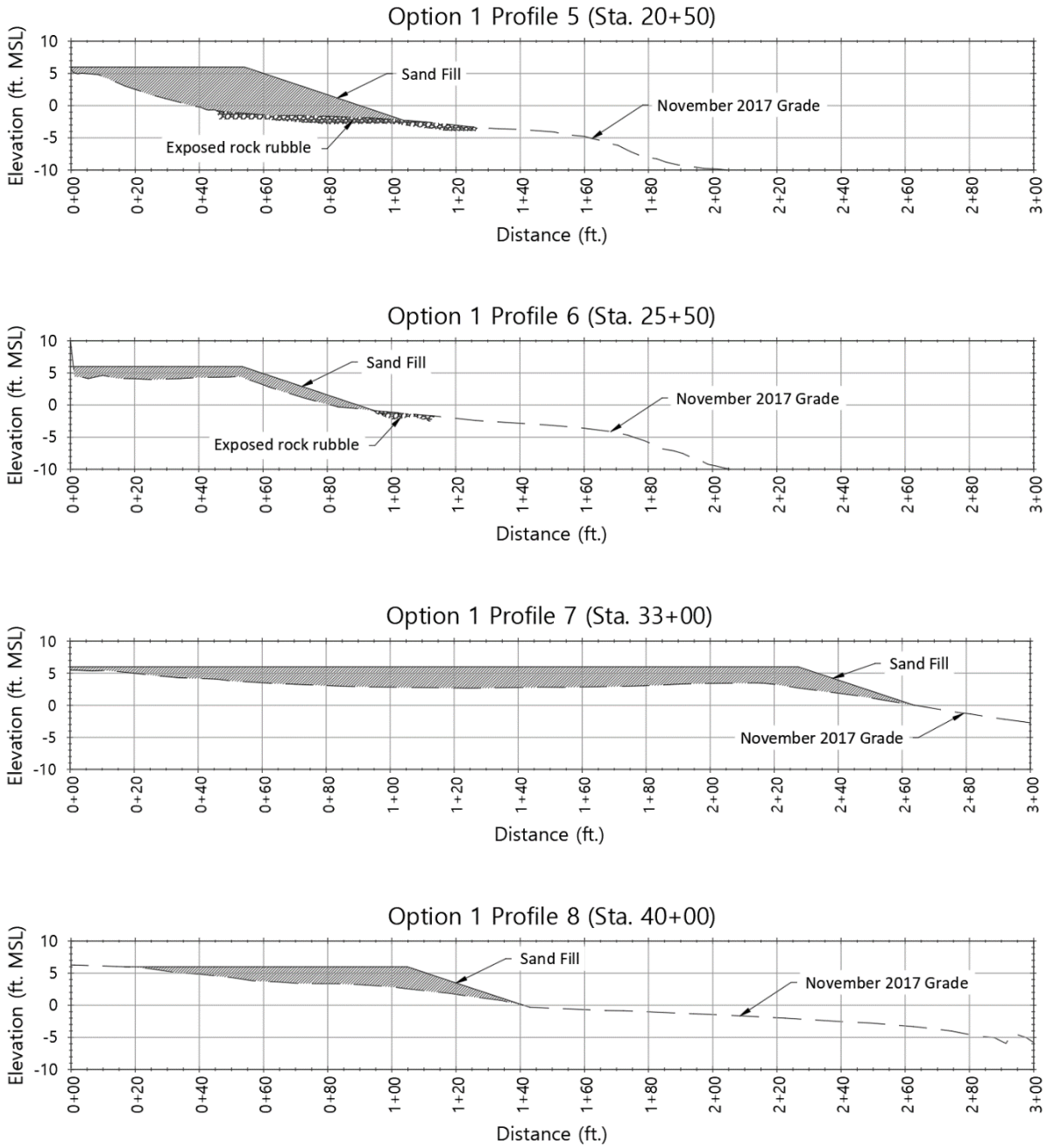

Figure 5-3 Option 1 beach nourishment profiles 5, 6, 7, and 8 (wall at Sta. 0+00 for profiles 5 and 6)

Table 5-1 Option 1 Beach Nourishment Profile Data

Profile	Dry Beach Increase (ft)	MSL Line Movement Seaward (ft)	Slope
1	9	0	1V:6H
2	0	0	1V:6H
3	18	17	1V:6H
4	39	46	1V:6H
5	45	52	1V:6H
6	0	8	1V:6H
7	11	0	1V:6H
8	5	0	1V:6H

Table 5-2 Option 1 Beach Nourishment Footprint and Volume Data

Area	Footprint	Footprint seaward of MHHW	Fill Volume
	sq. ft. (acres)	sq. ft. (acres)	cu. yds.
Ewa Area	114,500 (2.63)	7,500 (0.17)	5,800
Central Area	148,500 (3.41)	76,500 (1.76)	16,400
DH Area	202,400 (4.65)	11,900 (0.27)	15,400
Total:	**465,400 (10.67)**	**95,900 (2.20)**	**37,600**

5.1.2 Option 2

Option 2 beach nourishment consists of widening the beach in the central area to match the 1957 shoreline position. A review of historic images suggests that the 1957 beach may have had been nourished soon before the photograph. The 1957 shoreline therefore represents the widest that the beach has been. The dry beach width in the central area (Profile 3 to Profile 6) would be increased by up to 78 feet and the MSL shoreline position would be moved seaward by up to 85 feet. Sand on the dry beach would be placed to elevation +6 ft msl, which is the approximate height of the landscaping wall at the back of the beach.

The Ewa and Diamond Head areas will be nourished with sand inshore of the MSL line similar to Option 1. The sand would be placed to approximate elevation +6 ft msl and tapered into the existing beach face.

After Option 2 nourishment, the entire length of shoreline would have a beach foreshore slope of 1V:6H, which closely matches the typical foreshore slope of the existing beach. The beach berm

elevation along the entire beach would be increased to about +6 feet MSL which is the approximate elevation of the backshore seawall crest.

Figure 5-4 shows the footprint (in dashed lines) of the Option 2 beach nourishment plan with the blue and green lines indicating the existing and proposed shorelines, respectively. Figure 5-5 and Figure 5-6 show the design profiles along the shoreline. There would be no change to the shoreline positions in the Ewa and Diamond Head areas.

Table 5-3 provides the details of the proposed Option 2 beach nourishment effort at each of the 8 profiles along the beach. Table 5-4 provides the details of the proposed footprint and fill volume for each area. The majority of the fill volume would be placed in the central and Diamond Head areas. The total fill volume for option would be 50,600 cubic yards of sand.

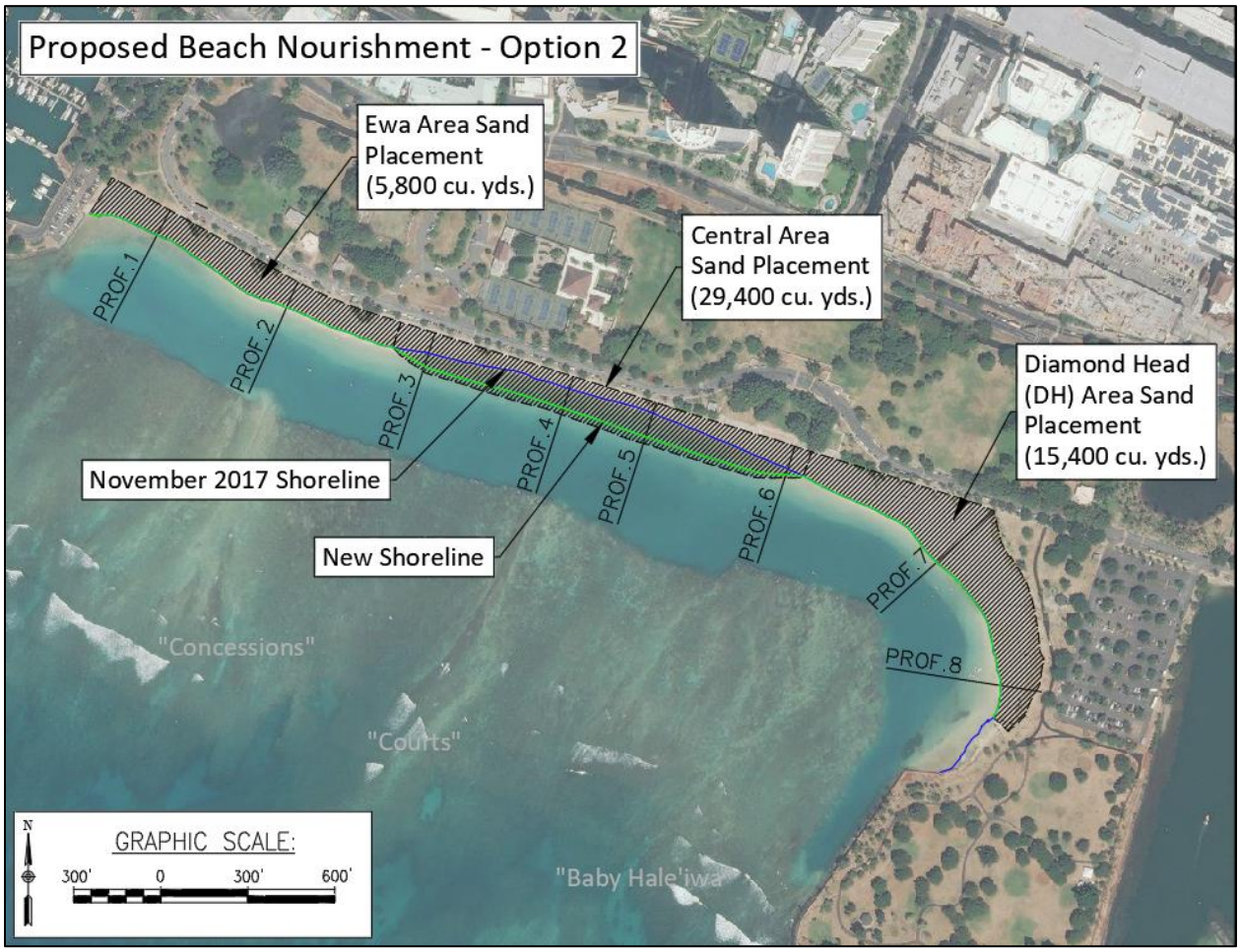

Figure 5-4 Option 2 sand placement layout

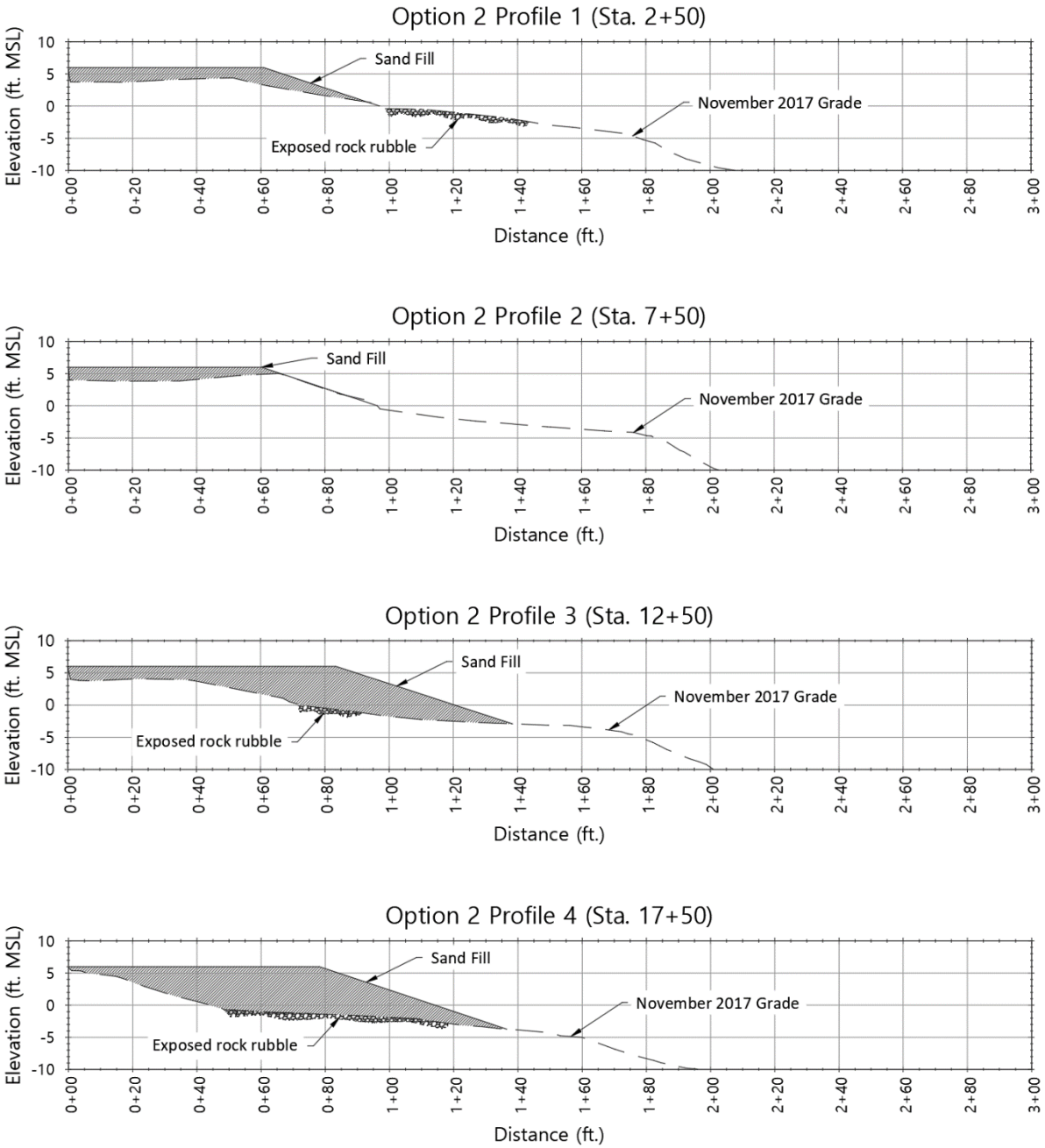

Figure 5-5 Option 2 beach nourishment profiles 1, 2, 3, and 4 (wall at Sta. 0+00)

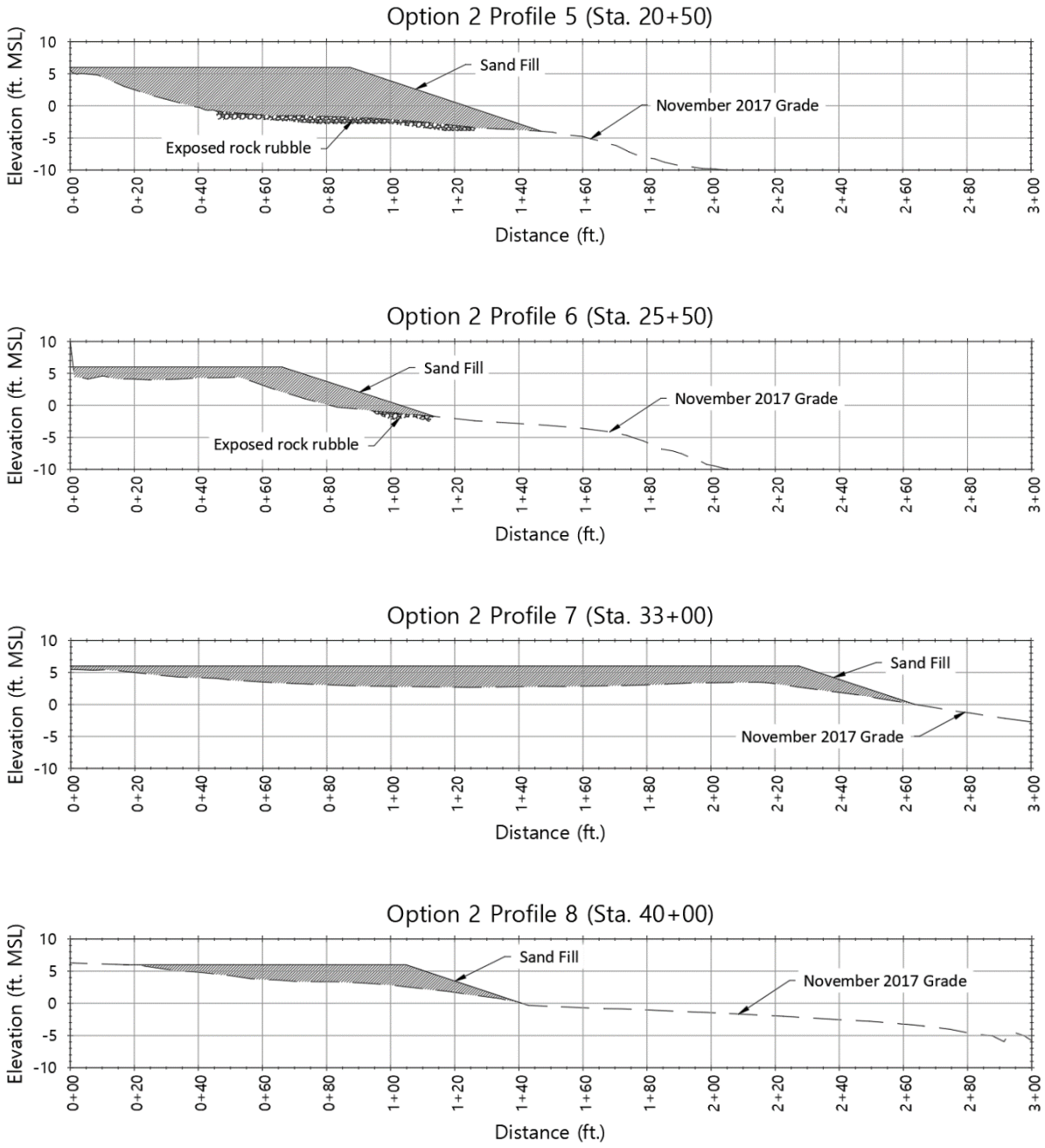

Figure 5-6 Option 2 beach nourishment profiles 5, 6, 7, and 8 (wall at Sta. 0+00 for profiles 5 and 6)

Table 5-3 Option 2 Beach Nourishment Profile Data

Profile	Dry Beach Increase (ft)	MSL Line Movement Seaward (ft)	Slope
1	9	0	1V:6H
2	0	0	1V:6H
3	46	47	1V:6H
4	63	70	1V:6H
5	78	85	1V:6H
6	13	21	1V:6H
7	11	0	1V:6H
8	5	0	1V:6H

Table 5-4 Option 2 Beach Nourishment Footprint and Volume Data

Area	Footprint	Footprint seaward of MHHW	Fill Volume
	sq. ft. (acres)	sq. ft. (acres)	cu. yds.
Ewa Area	114,500 (2.63)	7,500 (0.17)	5,800
Central Area	204,500 (4.69)	132,500 (3.04)	29,400
DH Area	202,400 (4.65)	11,900 (0.27)	15,400
Total:	**521,400 (11.97)**	**151,900 (3.49)**	**50,600**

5.1.3 Option 3

Option 3 beach nourishment would require the greatest volume of sand of the three options. This option would widen the beach in both the Ewa and Central areas to the 1957 shoreline position, as well as along the Magic Island. The 1957 shoreline was seen in aerial images to be widest the beach had been historically. The majority of the fill volume would be placed in the central and Diamond Head areas. The dry beach width in the central area (Profiles 3 to Profile 6) would be increased by up to 78 feet and the MSL shoreline position would be moved seaward by up to 85 feet. Sand on the dry beach would be placed to elevation +6 ft msl, which is the approximate height of the landscaping wall at the back of the beach.

The Diamond Head area will be nourished with sand inshore of the msl contour and the beach would be extended to the Magic Island seawall. After Option 3 nourishment, the entire length of shoreline would have a beach foreshore slope of 1V:6H, which closely matches the typical foreshore slope of the existing beach. The beach berm elevation along the entire beach would be increased to +6 feet above MSL which would closely match the backshore seawall crest elevation.

Figure 5-7 shows the footprint (in dashed lines) of the Option 3 beach nourishment plan with the blue and green lines indicating the existing and proposed shorelines, respectively. Figure 5-8 and Figure 5-9 show the design profiles along the shoreline. This option requires the most sand and in all three areas, the shoreline position would be shifted seaward, resulting in the widest beach of the three options.

Table 5-5 provides the details of the proposed Option 3 beach nourishment effort at each of the 8 profiles along the beach. Table 5-6 provides the details of the proposed footprint and fill volume for each area. The total fill volume for option would be 65,700 cubic yards of sand.

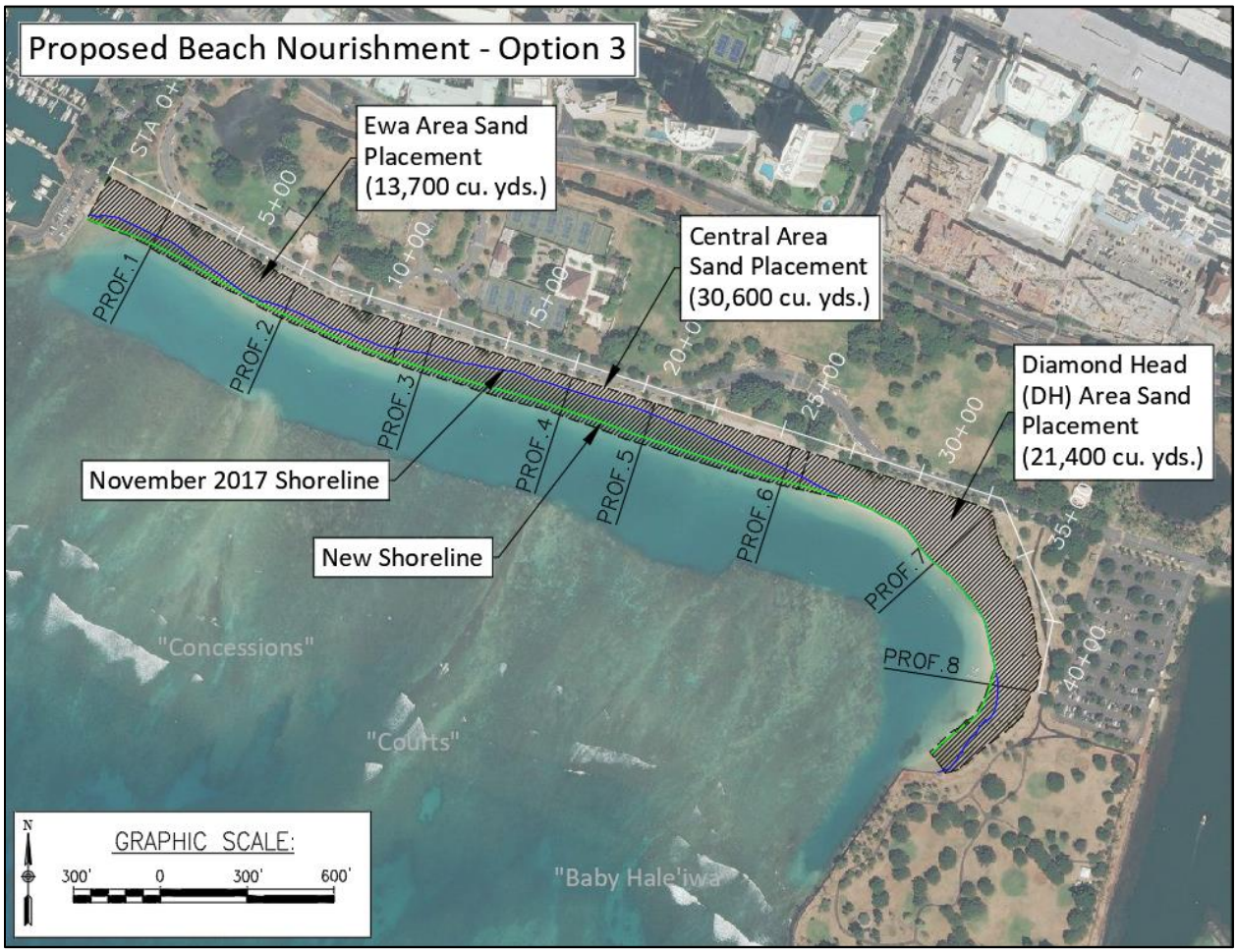

Figure 5-7 Option 3 sand placement layout

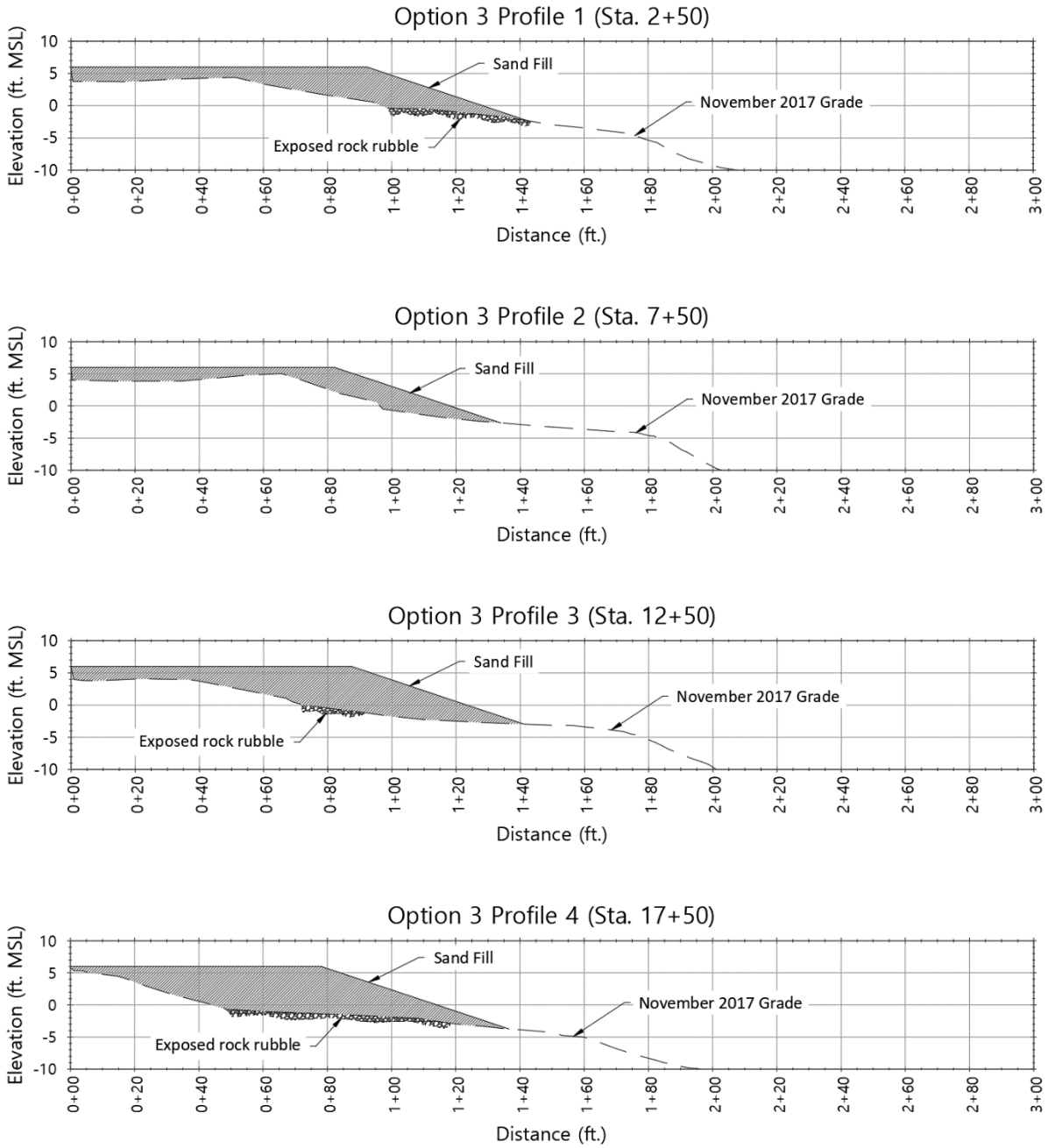

Figure 5-8 Option 3 beach nourishment profiles 1, 2, 3, and 4 (wall at Sta. 0+00)

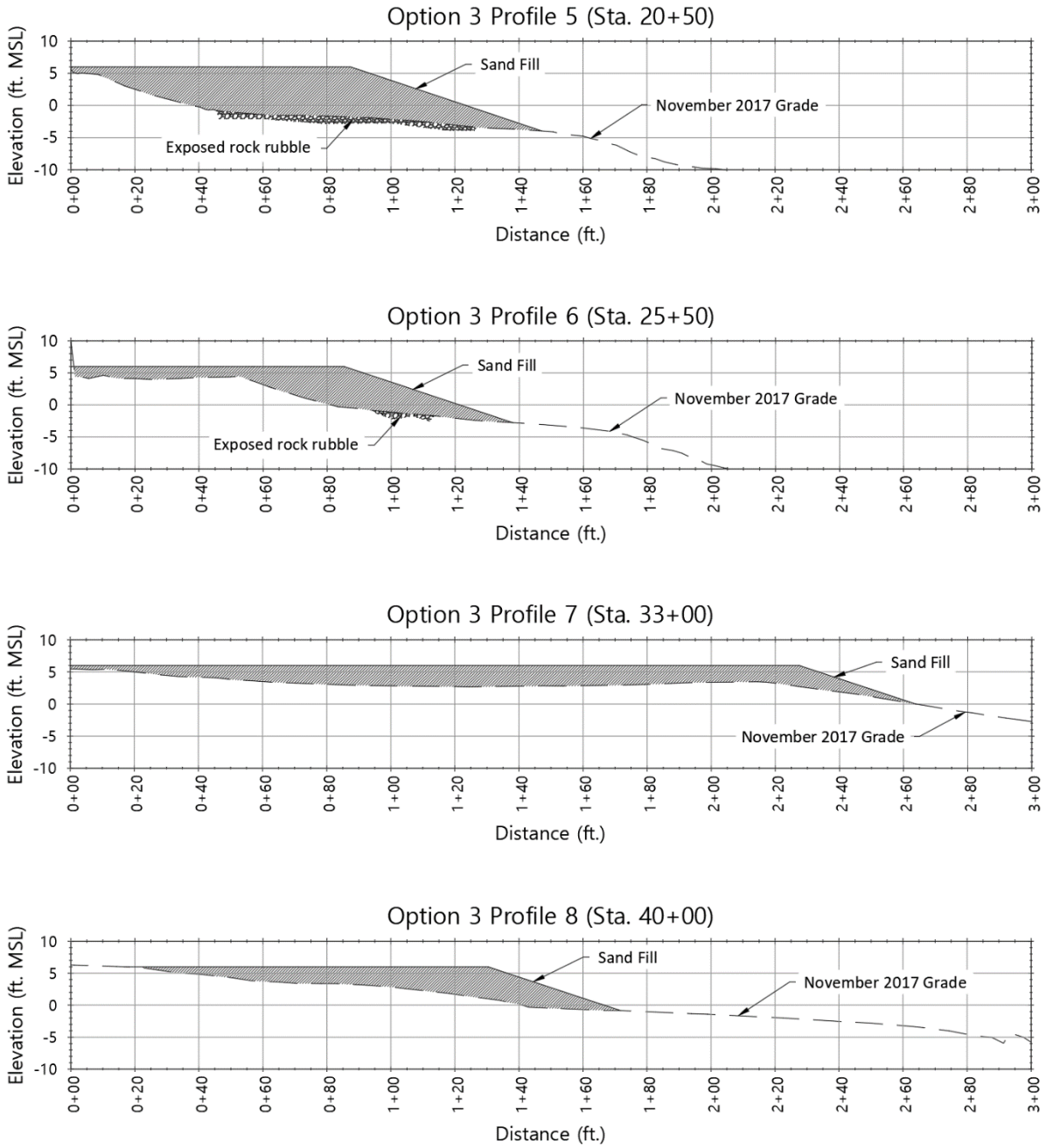

Figure 5-9 Option 3 beach nourishment profiles 5, 6, 7, and 8 (wall at Sta. 0+00 for profiles 5 and 6)

Table 5-5 Option 3 Beach Nourishment Profile Data

Profile	Dry Beach Increase (ft)	MSL Line Movement Seaward (ft)	Slope
1	41	31	1V:6H
2	16	21	1V:6H
3	50	50	1V:6H
4	63	70	1V:6H
5	78	85	1V:6H
6	32	40	1V:6H
7	11	0	1V:6H
8	30	25	1V:6H

Table 5-6 Option 3 Beach Nourishment Footprint and Volume Data

Area	Footprint	Footprint seaward of MHHW	Fill Volume
	sq. ft. (acres)	sq. ft. (acres)	cu. yds.
Ewa Area	159,600 (3.66)	51,400 (1.18)	13,700
Central Area	208,500 (4.79)	137,700 (3.16)	30,600
DH Area	238,000 (5.46)	40,000 (0.92)	21,400
Total:	**606,100 (13.91)**	**229,100 (5.26)**	**65,700**

5.1.4 Berm Enhancement in DH Area

In addition to the previously discussed options, more sand volume may be added in the DH area above the beach berm level presented in each option. This will provide additional sand volume for future sand pushing towards the central area of the beach where the erosion is expected to keep occurring. Figure 5-10 shows the proposed footprint (approx. 77,000 square feet) for the berm enhancement in the DH area. The elevation of the beach in this region would be raised above the nourished beach crest (+6' MSL) to provide additional sand volume. Approximately 2,500 cu. yds. of additional sand would be provided for every 1-foot elevation increase above +6 feet MSL. Figure 5-11 shows Profile 7 with the berm enhancement for additional berm heights of 1, 2 and 3 feet.

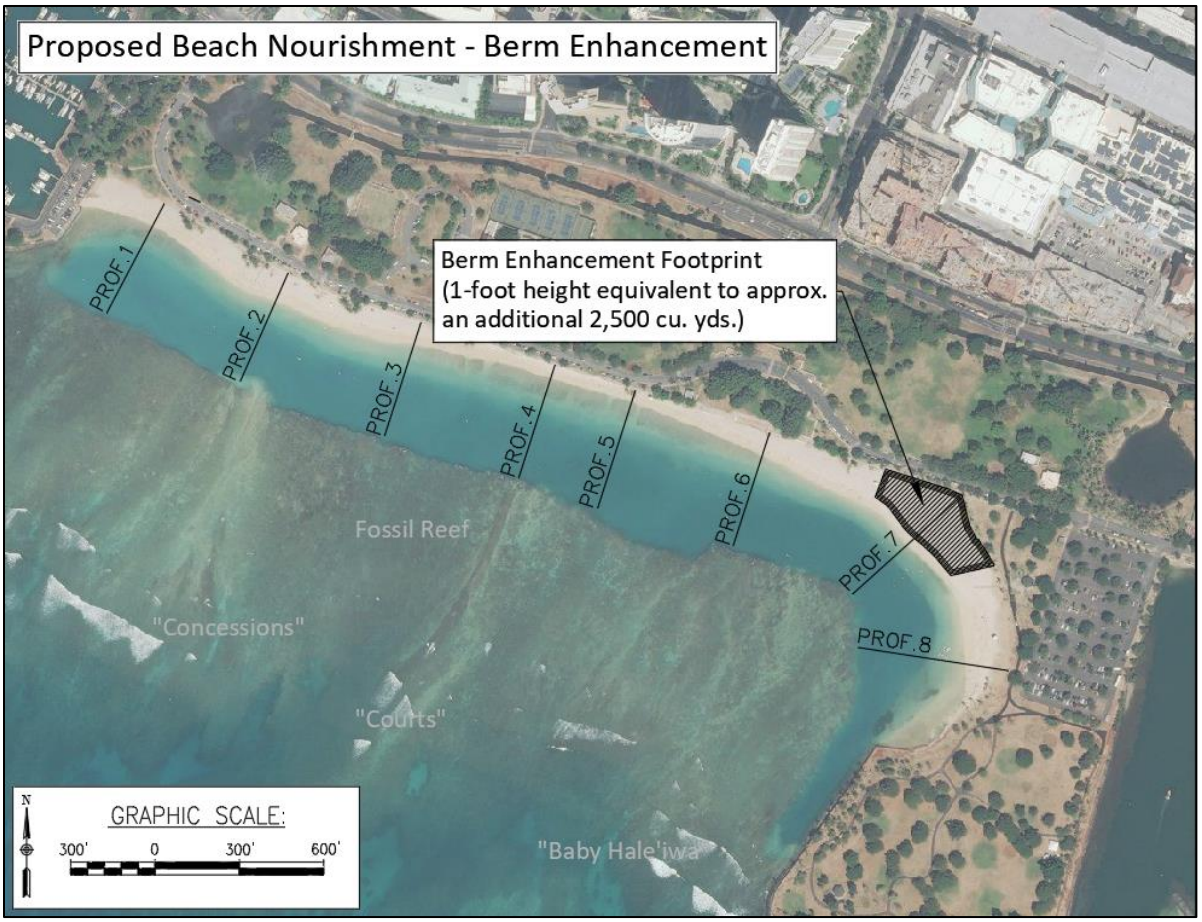

Figure 5-10 Berm enhancement footprint

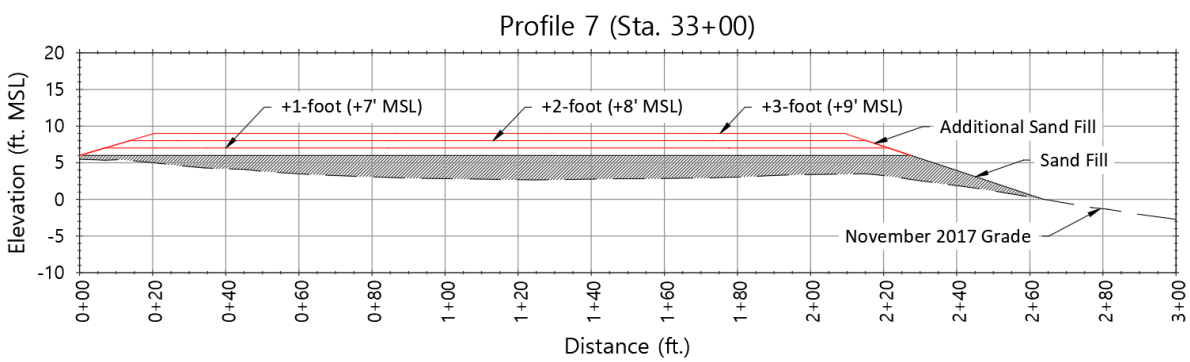

Figure 5-11 Berm enhancement profile 7

5.2 Renourishment Interval

Although the beach is generally protected by the reef from wave energy, the nearly constant small waves lapping up onto the beach can cause a slow and steady transport of sand as shown by the wave modeling presented in Section 3.4.4. Given the project site's exposure to wave

action and its history of erosion, beach nourishment without stabilizing structures will not be a permanent improvement. The erosion rate of the central portion of the beach was presented in Section 2.6 to be about 2.4 feet per year since 2004.

If the historical erosion rate of 2.4 feet per year remains constant into the future, it can reasonably be expected that the beach at this location would return to its pre-nourishment condition after about 20 years for the Option 1 nourishment and after about 35 years for the Option 2 and Option 3 nourishments. With increasing sea level, however, greater wave energy will reach the beach and possibly increase erosion rates. Recent State sea level rise studies forecast as much as 3.2 feet of sea level rise by the year 2100. Additionally, storm impacts from hurricanes or Kona storms could result in a rapid and irreversible loss of sand.

Regular maintenance of the beach is recommended to keep the usability of the beach at a high level. It is recommended that following the initial sand placement, re-nourishment be conducted at regular intervals in order to maintain an improved beach width. The additional sand added to the Diamond Head beach area can be used to add volume to the sand in a similar manner as was used in the 2016 sand pushing. This could be executed rather efficiently and on an as-needed basis while the supply lasts.

6. SAND SOURCE INVESTIGATIONS

6.1 Introduction

A key component to the success of beach maintenance is the availability of suitable sand for beach nourishment. The potential sources of sand must be carefully evaluated in terms of quality, quantity, cost, and general feasibility. The majority of Hawaii beaches are composed of calcareous (calcium carbonate) sand, made of skeletal fragments of marine organisms such as corals, coralline algae, mollusks, echinoids, and forams. The density of calcium carbonate is more than 2.7 g/cm^3; however, microscopic pores and hollow grains make the effective density somewhat lower. The composition of sand is determined by the relative abundance of each species and therefore varies with location.

In the past, sand for beach nourishment was typically obtained from other beaches on Oahu or from on-land deposits that were commercially available. Mokuleia Inland Beach Sand, mined by Hawaiian Cement, was a high-quality relic beach sand deposit found several hundred meters inland of the beach. Published median grain size D_{50} is 0.60 mm and the sand is considered to be moderately sorted. This sand has been used for nourishment projects at the Hilton Hawaiian Village, Kuhio Beach, and Makaha Surfside. Unfortunately, however, Hawaiian Cement has reported that this sand is no longer available.

Maui Dune Sand is currently mined by Hawaiian Cement and Ameron. It is a fine to medium sand on the Wentworth scale with a D_{50} of 0.25 mm. It contains a relatively high percentage of fines, contains upland sediment (dirt), and has a medium to dark brown color. It has not been used for beach nourishment projects on Oahu, and Maui County in 2017 placed a complete moratorium on the use of this sand.

Offshore deposits present an alternative source of sand. These deposits can be dredged and transported to shore. Offshore sand deposits can present a suitable cost-effective source of sand for beach fill and nourishment, particularly when considering the limited availability of suitable, natural sand from onshore sources. Offshore sand deposits occurring within the same littoral cell can have grain size characteristics and composition that are very similar to the adjacent beach sand.

6.2 Sand Characteristics and Quality

The State Department of Land and Natural Resources (DLNR) beach nourishment guidelines specify that fill sand used to nourish a beach must meet several specific requirements:

- The sand shall contain no more than six percent fine material (sand grain size smaller than 0.074 mm)
- The sand shall contain no more than ten percent coarse material (sand grain size greater than 4.76 mm)
- The grain size distribution will fall within 20% of the existing beach grain size distribution
- The overfill ratio of the fill sand to existing sand shall not exceed 1.5
- The sand will be free of contaminants such as silt, clay, sludge, organic matter, turbidity, grease, pollutants, and others
- The sand will be primarily composed of naturally occurring carbonate beach or dune sand

The majority of the current fill sand requirements are related to grain size. In order to ascertain the grain size characteristics, a sieve analysis is performed, which is done by mechanically shaking a sand sample through a series of sieves of decreasing screen size. The material captured on each sieve is weighed, and this establishes the grain size distribution curves. The median diameter (grain diameter that is finer than 50% of the sample), or D_{50}, is often used by engineers to quantify the grain size of a sample. Similarly, D_{16} and D_{84} are obtained, and they are used to quantify the range of grain sizes present in a sample known as sorting, σ, defined by:

$$\sigma = \frac{\phi_{84} - \phi_{16}}{4} - \frac{\phi_{95} - \phi_{5}}{6.6}$$

where $\phi = -\log_2(D)$ where D is given in millimeters. Descriptive sorting values are presented in Table 6-1.

Table 6-1 Sorting value descriptions

Sorting Range (ϕ units)	Description
0.00 – 0.35	very well sorted
0.35 – 0.50	well sorted
0.50 – 0.71	moderately well sorted
0.71 – 1.00	moderately sorted
1.00 – 2.00	poorly sorted
2.00 – 4.00	very poorly sorted
4.00 – ∞	extremely poorly sorted

Color and abrasion resistance are also important characteristics of fill sand. While natural calcareous beaches range in color from light brown to white, sand in offshore deposits usually turns a gray color as a result of anaerobic conditions typically produced by a lack of wave action and associated mixing. Even though an offshore sand source may be suitable in terms of grain size characteristics, a gray color can be undesirable.

6.3 Methodology

Sea Engineering conducts seafloor investigations from their boats *Huki Pau* and *Huki Pono*. The *Huki Pau* is a 74-foot twin-screw workboat set up to support diving and marine construction operations. The vessel has a large open well-deck, knuckleboom crane, and built-in diving stations. The four-point mooring system allows for stable placement of the boat for vibracore operations.

The *Huki Pono* is a 43-foot twin screw workboat set up to support diving and marine survey operations in the Hawaiian islands. The vessel has three steering stations and a large, air-conditioned deckhouse ideal for use as a support center for survey or ROV operations.

Figure 6-1 ***Huki Pau***

Figure 6-2 ***Huki Pono***

Sea Engineering's offshore sand investigations typically employ the following: sub-bottom profiling, side scan sonar surveys, towed camera surveys, diver reconnaissance and sampling, jet probing, and vibracoring.

Geophysical sub-bottom profiling systems are essentially echo-sounders that use lower acoustic frequencies to penetrate into the substrate. Where common echo-sounders may use an acoustic frequency in the vicinity of 200 kHz, sub-bottom system frequencies are typically between 0.5 kHz and 20 kHz. The term sub-bottom refers to a generally hard layer of sediment or rock that underlies recent soft sediment deposition. The lower the acoustic frequency, the deeper into the bottom the system can penetrate.

Sea Engineering uses an EdgeTech 0512i "chirp" sub-bottom profiler with an EdgeTech 3200XS processing system. The chirp processors use signal processing to shape the acoustic wavelets used to image the substrate, providing significantly greater image resolution than traditional impulsive systems such as boomers and sparkers. Different wavelets are available with the system for use in different terrains. After on-site system deployment, trial survey lines are typically conducted using various pulse configurations. The optimal pulse for the substrate in Waikiki was found to be a 20 ms pulse with a frequency range of 0.5 kHz to 7 kHz. This relatively low frequency range is necessary for penetration into the coralline limestone sands and gravels found in Hawaii. The EdgeTech 0512i system is in fact a specialty system for use in coarse sand environments.

The sub-bottom data is reviewed with EdgeTech software, sub-bottom horizons are digitized for processing, and sand thicknesses are measured at discrete locations along the tracklines. Text files containing position and either bottom or sub-bottom elevations can be outputted for analysis and presentation. Surfaces representing the bottom and sub-bottom can be created and the difference is the volume of sand in the deposit.

Side-scan sonar transmits acoustic signals with wide vertical beam widths out to either side of the sonar towfish. A receiver then records the signals that are reflected back from the seafloor to the towfish. Hard bottom areas and features produce more intense reflections than sediments. The result is a plan view acoustic image of seafloor characteristics, allowing mapping of bottom type across a swath of seafloor.

Jet probing is conducted to determine the thickness of sediments overlying consolidated or hard bottom substrate, and is therefore an important means of testing and verifying sub-bottom profiling accomplished by remote sensing equipment. A jet probe consists of a length of pipe connected to a water pump by flexible hose. A diver jets the pipe and hose vertically into the sediment deposit until "refusal" is encountered. The refusal can be described as hard, crunchy, or soft; hard indicates a solid bottom, crunchy indicates a gravel layer, and soft indicates that the hole is collapsing and seizing the pipe or that there is insufficient hose to penetrate further.

Vibracoring is a method of pushing a thin-walled tube into the sand deposit and extracting a core of sediment up to about 8 ft long. The sand characteristics over the full core can be analyzed and the results interpolated and extrapolated to better characterize the deposit as a whole. Based on the findings, certain areas within the deposit can then be targeted or avoided, as necessary.

Figure 6-3 Vibracore on the deck of the Huki Pau

6.4 Waikiki / Ala Moana Offshore Sand Deposits

Offshore sand investigations around Oahu have been performed for several decades, including specific studies pertaining to the characterization and quantification of sand deposits along the south shore of Oahu. These studies have identified sand sources of varying quantities, including small patches or thin deposits. The following discussion presents findings from the previous studies as well as results of the investigations conducted for the present Ala Moana beach nourishment project. The discussion is limited to those deposits that may have sufficient capacity for this project. Original site names are kept consistent with names from the original projects where possible.

6.4.1 Kuhio Beach / Waikiki Sand Sources

The University of Hawaii Coastal Geology Group (CGG) performed extensive jet probing of sand deposits offshore of Waikiki Beach in 2005. The 406 probe locations are shown in Figure 6-4 indicated by white markers. Sand thicknesses were measured to the depth where the probe encountered hard refusal or rubble. Sand thicknesses as great as 9 feet, though unusual, were measured. The probe data was used to produce estimates of sand volume for three sand deposits

shown by the white lines in the figure. Based on the jet probe data, the CGG estimated these three sand deposits to contain 86,000 cubic yards of sand.

DLNR sponsored nourishment of Kuhio Beach Park during the winter of 2006-2007, utilizing these sand deposit findings of the CGG. Approximately 10,000 cu. yd. of sand was pumped to the beach from the site identified immediately offshore of the Canoes surf break. The project was completed in January of 2007 after a work period of one month. The sand reportedly was well-sorted with medium grain size of 0.35 mm to 0.40 mm. The sand exhibited a light grey color which became lighter upon exposure to sunlight and mixing with existing beach sand.

A field program was conducted by Sea Engineering in August and September of 2009 to verify the findings of the CGG data and estimate the amount of sand that is presently available in offshore deposits. Using aerial photography and a side-scan survey performed by the CGG as guides, geophysical investigations were performed on the offshore deposits using sub-bottom profiling and jet probes. The surveys were performed within practical limits for sand recovery, including water depth and proximity to shore.

For this survey, an EdgeTech 0512i "chirp" sub-bottom profiler was used with an EdgeTech 3200XS processing system. Sub-bottom tracklines from the August 2009 sub-bottom survey are shown as the white and red lines in Figure 6-5. More than 10 miles of sub-bottom tracklines were surveyed. The sub-bottom data was reviewed with EdgeTech software, sub-bottom horizons were digitized for processing, and sand thicknesses were measured at discrete locations along the tracklines. The red lines shown in the figure are portions of four tracklines where sand was identified. These are not the only locations where sand was found; rather, these are examples shown to illustrate findings of the sub-bottom profiling. The sand thicknesses along the four red tracks, referred to as W-1 through W-4, are shown in Figure 6-6. For ease of visual comparison, the figures have the same vertical scale. In August and September of 2009, Sea Engineering revisited the sites, jet probing in 46 locations to verify the sand thicknesses identified by the sub-bottom profiling. Those investigations, shown as red markers in Figure 6-5, found sand thicknesses as great as 7 ft. Sand thicknesses measured using jet probing along tracklines W-3 and W-4 were compared with the results of the sub-bottom profiling. Table 6-2 shows a comparison of the findings; the jet probe data is also shown in Figure 6-6 where the jet probes were coincident with the sub-bottom tracklines.

Figure 6-6 shows lines W-2, W-3, and W-4 to have consistent deposits of sand greater than three feet thick and more than 300 feet wide. Portions of profiles W-1 and W-3 show great variability along the line, indicating that there is an irregular limestone layer beneath the sand. The jet probes show good correlation with the results of the sub-bottom profiling.

Based on the geophysical investigations, "Site A" (immediately offshore of the Canoes and Queens surf sites) was estimated to contain 46,000 cu. yd. of sand. An 18-inch thick sand sample from this site, *WAIK-6*, had a median diameter of 0.31 mm and was classified as moderately well sorted. Approximately 24,000 cu. yd. of sand was dredged from "Site A" and the beach widening was performed from January to May 2012.

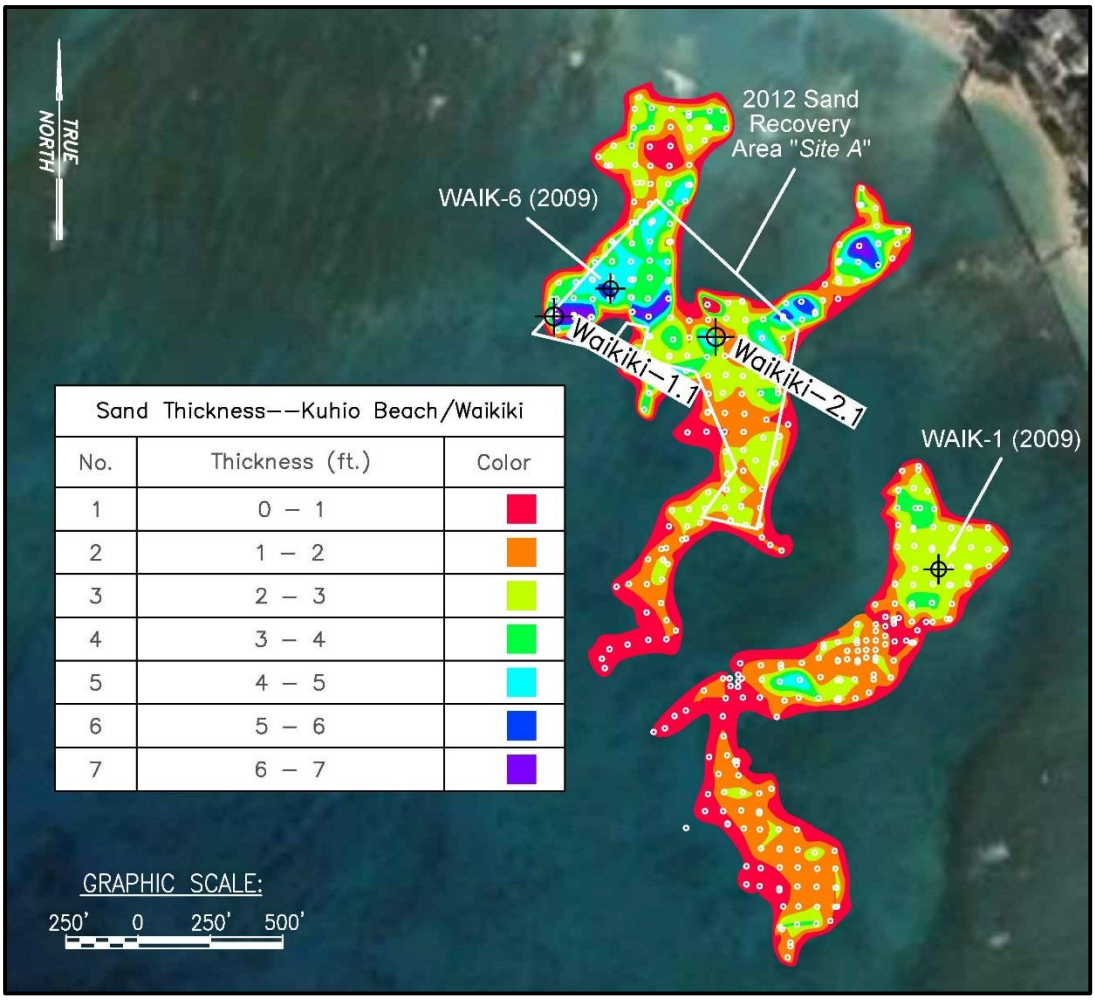

Figure 6-4 Kuhio Beach / Waikiki sand deposit thicknesses.
Univ. of Hawaii Coastal Geology Group jet probe locations (white circles)
Sea Engineering core locations (black cross / circle)

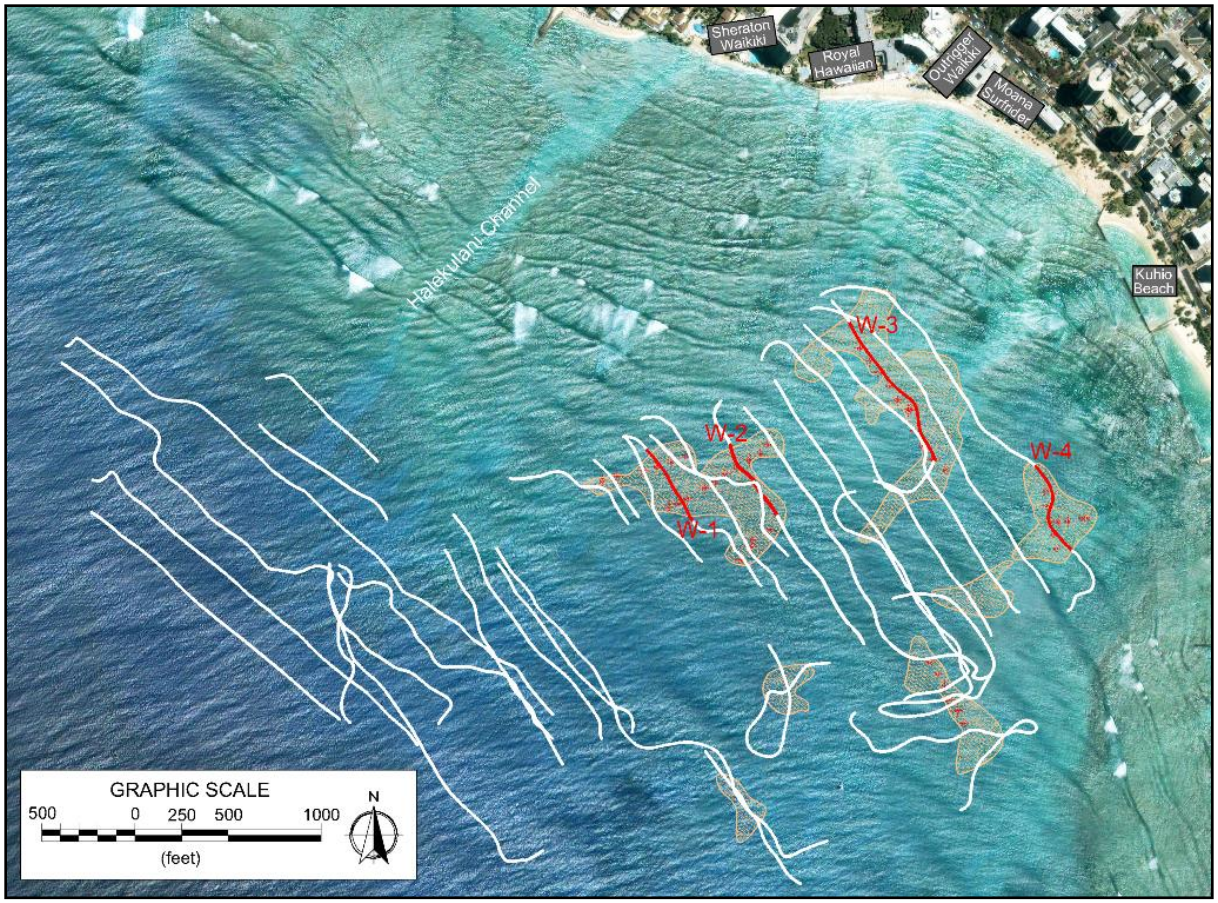

Figure 6-5 Sub-bottom tracklines (white and red lines), jet probe locations (red points), and visible sand deposits (tan outline and fill). Sea Engineering, 2009.

Table 6-2 Comparison of sand thicknesses (feet), Sea Engineering, 2009.

Trackline W-3		Trackline W-4	
Sub-bottom	Jet probe	Sub-bottom	Jet probe
5.2	6.5	4.6	5.5
5.9	7.5	3.6	4.0
6.2	7.0	3.0	4.0
2.0	3.0	4.3	5.0
2.3	2.0	3.9	4.0
2.6	2.0		

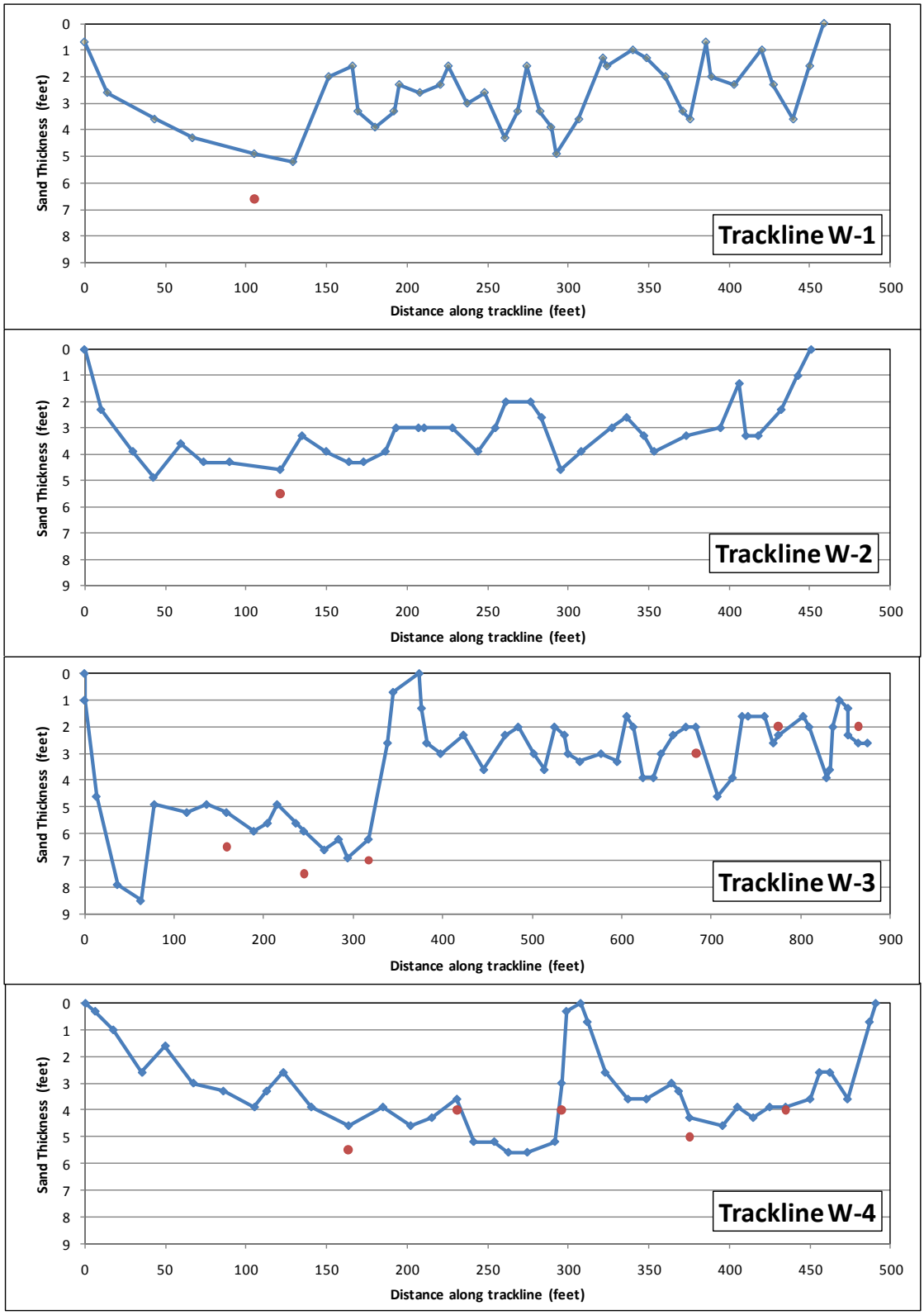

Figure 6-6 Sand thicknesses measured by sub-bottom profiler (blue) and jet probes (red).

(Note: tracklines begin in the northwest and progress toward the southeast).
Sea Engineering 2009.

6.4.2 2017 sand investigations (Kuhio Beach Park / Waikiki Maintenance)

Sea Engineering obtained two vibracore samples from Site A of the 2012 Waikiki Maintenance Project. The locations of those samples are shown on Figure 6-4. Vibracore "Waikiki 1.1" was obtained along the western edge of Site A in the location of the 2008 sand recovery, while Waikiki 2.1 was obtained from a more central location within the site. Grain size analysis shows the two samples to be quite similar, and generally consistent with the 18-in push-core sand sample "WAIK-6" obtained in 2009 as part of the 2012 maintenance project. The sand samples shown in the table have median diameter D_{50} of 0.29 to 0.33 mm and are considered to be moderately to moderately well sorted. The percentage of fine material was 0.6% or less. Grain size distributions for Waikiki 1.1 and Waikiki 2.1 are presented in Table 6-3 and Figure 6-7, along with grain size distribution for a composite of Ala Moana beach sand.

Table 6-3 "*Waikiki Maintenance*"offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% Fines	Core length (inches)	Water depth (feet)	Source	Year
WAIK-4 (top)	0.26	0.7	0.0	18	~10	SEI	2009
WAIK-4 (bottom)	0.34	1.2	0.4	18	~10	SEI	2009
WAIK-6 (top)	0.29	0.6	0.0	18	~10	SEI	2009
WAIK-6 (bottom)	0.33	0.5	0.0	18	~10	SEI	2009
Waikiki 1.1	0.33	0.7	0.4	85	9	SEI	2017
Waikiki 2.1	0.33	0.8	0.6	85	13	SEI	2017

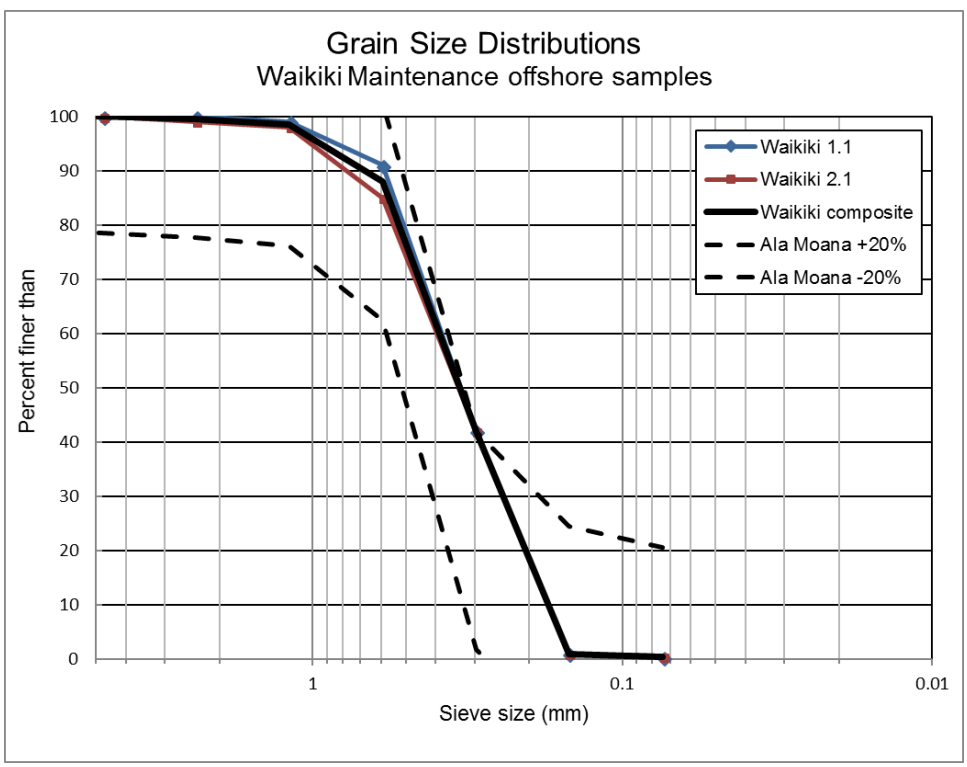

Figure 6-7 Grain size distribution for "*Waikiki Maintenance*" offshore sand deposit

6.4.3 Halekulani Channel

6.4.3.1 Historical sand data (Halekulani Channel)

The shoreward terminus of the Halekulani Channel is located at the Halekulani Hotel adjacent to the Sheraton Waikiki. The sand channel extends approximately 4,000 feet offshore where it widens into a broad sand field in approximately 120 feet of water. Noda (1991) estimated that approximately 500,000 cu. yd. of sand is contained between the 40-foot and 100-foot depth contours and 80,000 cu. yd. contained shoreward of the 40-foot depth contour. During the Noda study, median grain size, D_{50}, in this deposit was found to vary from 0.20 mm to 0.39 mm with the coarser samples found in depths of less than 10 feet. The average sorting parameter, σ, was 1.1, indicating a moderate to poorly sorted sand. The samples exhibited a gray color.

The University of Hawaii Marine Minerals Technology Center (MMTC, 1995) produced a report on the sand deposits in and around the Halekulani Channel. They reported sand deposits as much as 40 feet thick over a 75 acre area between the 70 and 100-foot depth contours.

More recently, the U.S. Geological Survey (Hampton et al., 2003) investigated the resource potential of deposits around Oahu, particularly as a source of sand for beach replenishment. The Halekulani Channel was included in this study. Numerous vibracore samples up to 6 meters long were obtained between 2,500 and 5,000 ft offshore, in water depths from 10 to 120 ft. The Halekulani Channel is divided into two sections. The inshore section is about 900 ft long and up to about 160 ft wide. Water depths in this area range from 10 to 40 ft, and the sand deposit is flanked by shallow reef. The USGS obtained four vibracores in this area, and median diameters of the bulk samples ranged from 0.28 mm to 0.38 mm. The USGS also obtained several samples in a broader offshore part of the channel; samples in this area were obtained in water depths between 52 and 72 ft. Median diameters of the bulk samples ranged from 0.23 mm to 0.53 mm.

In February of 2011, Sea Engineering performed sub-bottom profiling along several tracklines across the Halekulani Sand Channel. The data showed thicknesses of as much as 40 feet in water depths of 75 to 100 feet. Although only a small portion (<6 acres) of the sand deposit was investigated, the estimated sand volume was calculated to be nearly 200,000 cy. The sand thickness measurements by Sea Engineering are less than those of MMTC; however, the trend is consistent.

In October of 2011, divers from Sea Engineering, Inc., obtained two sand cores in water depths of 52 and 67 feet. Each core penetrated about 18 in into the sand. Median grain size from the 52-ft depth sample measured to be 0.20 mm and the sand was well to moderately well sorted, while also containing 1.2% fine material (<0.075 mm). The sample from the 67-ft depth had a median diameter of 0.30 mm, was classified as moderately sorted, and contained 1.6% fine material. The sand samples were gray colored, which is typical of offshore sand deposits.

6.4.3.2 2017 sand investigations (Halekulani Channel)

Sea Engineering returned to the Halekulani Channel in March of 2017. Guided by the sub-bottom profiling performed previously by MMTC and SEI, two vibracore samples were obtained. Sand thicknesses from the MMTC and SEI investigations, along with the vibracore

locations, are shown as Figure 6-8. Vibracore "Halekulani 1.1" was obtained in a water depth of 55 ft. The sample was measured to have a median diameter (D_{50}) of 0.23 mm with a sorting parameter of 0.8, which falls in the moderately sorted category. The grain size data is consistent with the 2011 SEI findings. The sample had 1.8% material classified as "fine" (i.e., passing through the #200 sieve. "Halekulani 2.2" was obtained in a water depth of 86 feet and had a D_{50} of 0.25 mm with sorting parameter of 1.6 (poorly sorted) with 5.5% fine material.

Four additional vibracores were obtained in May of 2018 ("HK 3.1" through "HK 3.4"). The characteristics of Halekulani Channel offshore sand deposits are summarized in Table 6-4 and Figure 6-10.

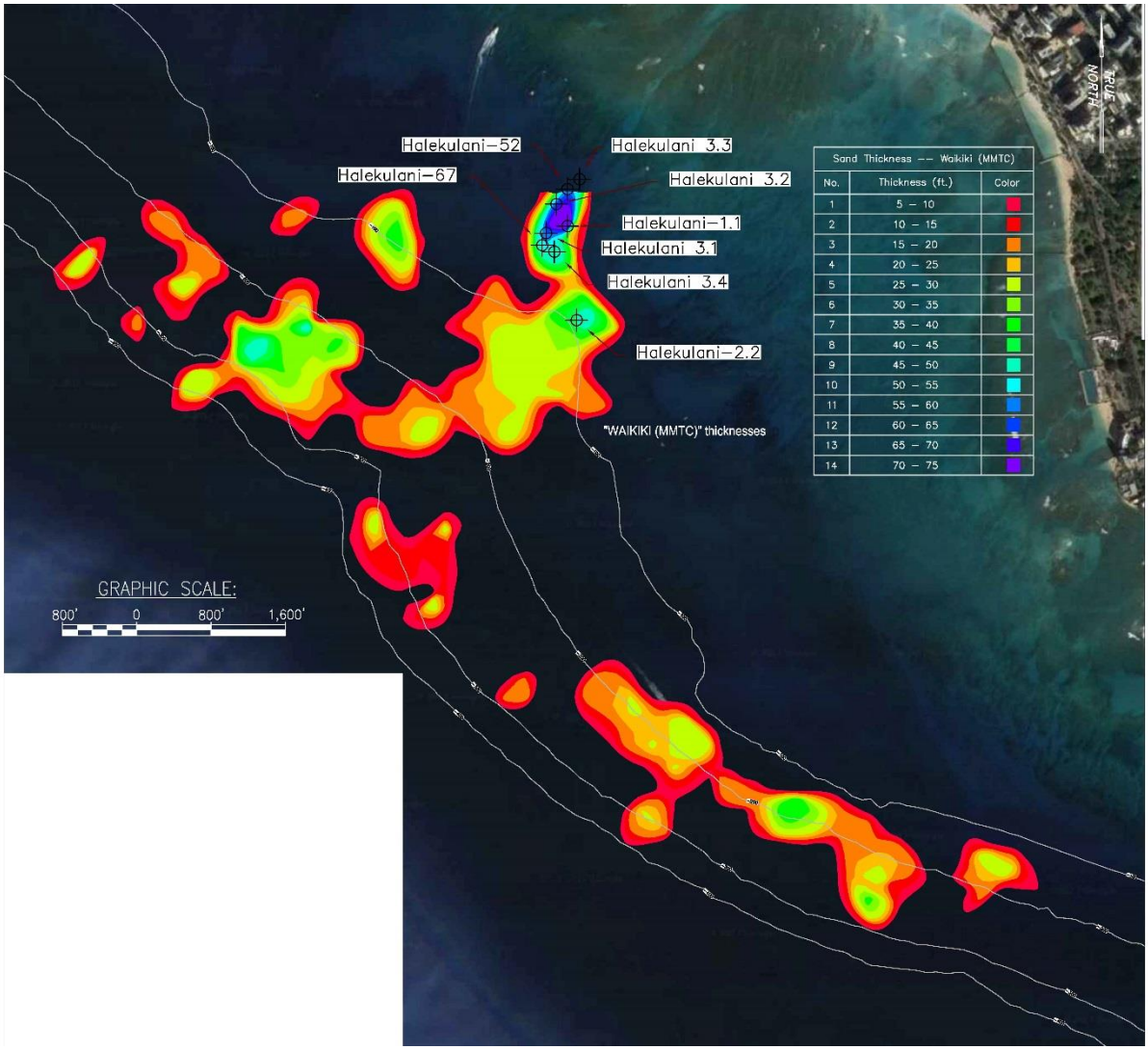

Figure 6-8 "*Halekulani*" sand deposit and core locations (black "+")

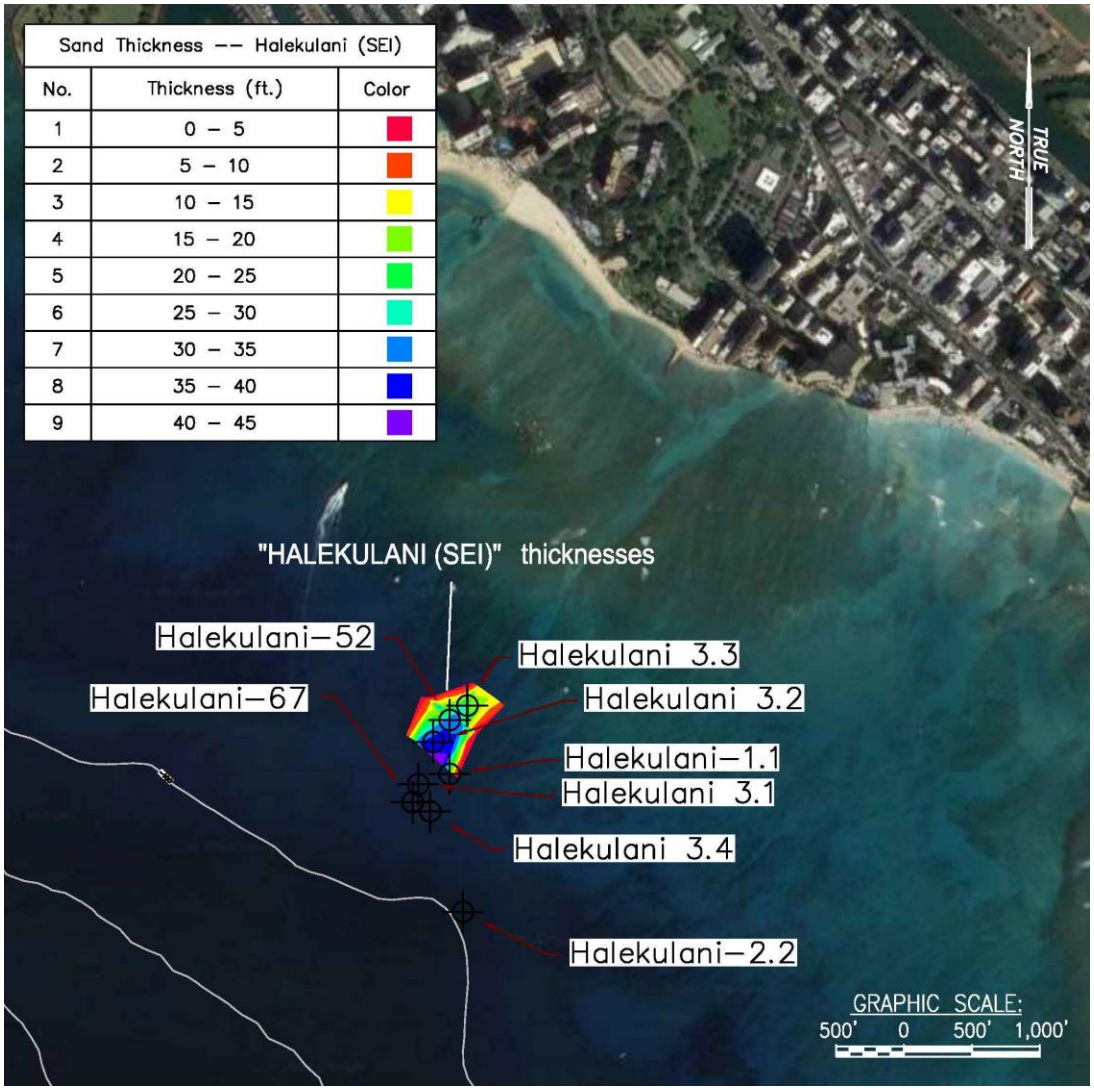

Figure 6-9 "*Halekulani*" sand deposit and core locations (black "+")

Table 6-4 *Halekulani* offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% Fines	Core length (inches)	Water depth (feet)	Source	Year
Halekulani 1	0.28–0.38	0.9–1.9	---	n/a	10-40	USGS	2003
Halekulani 2	0.23–0.53	0.9–1.2	---	n/a	52-72	USGS	2003
Halekulani-52	0.20	0.5	1.2	18	52	SEI	2011
Halekulani-67	0.30	0.9	1.6	18	67	SEI	2011
Halekulani 1.1	0.23	0.8	1.8	68	55	SEI	2017
Halekulani 2.2	0.25	1.6	5.5	84	86	SEI	2017
HK 3.1	0.29	0.89	2.3	26	---	SEI	2018
HK 3.2	0.37	0.91	2.8	42	---	SEI	2018
HK 3.3	0.20	0.81	3.9	25	---	SEI	2018
HK 3.4	0.27	0.90	3.3	39	---	SEI	2018

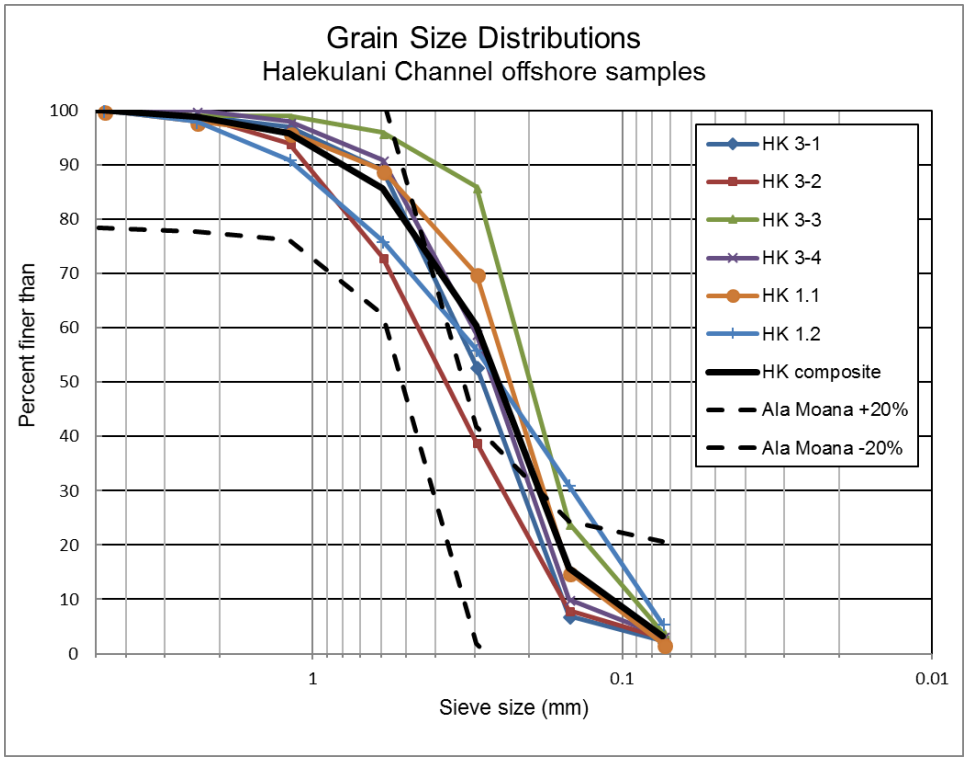

Figure 6-10 Grain size distribution for "*Halekulani*" offshore sand deposit

6.4.4 Hilton

6.4.4.1 Historical sand data (Hilton)

Sea Engineering (SEI) was contracted in 2004 to investigate possible inland and offshore sand sources for a project to improve the Hilton Hawaiian Village lagoon. In search of offshore sand, a survey was conducted offshore of the Hilton Hawaiian Village to identify and map possible marine sand sources for the lagoon restoration project.

The survey was conducted with differential GPS and divers swimming transects and probing sand thicknesses. Sand probes were accomplished using a combination of water jet, air jet, and manual probes. Sand samples were collected using a push corer and hand trowels. Representative samples were submitted for laboratory grain size analyses.

The primary deposit investigated was approximately 850 ft by 620 ft in dimension, located in water depths of 40 to 55 feet to the southwest of the Hilton Hawaiian Village beach. The maximum sand thickness probed was 5 feet, and the average sand thicknesses in the center of the deposit were about 4 feet. The total estimated volume of sand in the deposit was determined to be approximately 40,500 cubic yards. The size characteristics of a representative sample showed the sand to be very similar to the beach sand. The median grain size, D_{50}, was 0.55 mm and the sorting was considered moderate. The deposit was characterized by a gray color with visible shell fragments, giving the appearance of coarser, poorly sorted sand.

The offshore sand was not used for the lagoon improvement project.

6.4.4.2 2017 sand investigations (Hilton)

SEI returned in 2017 to further investigate the "*Hilton*" sand deposit. During initial reconnaissance, vibracoring directed at the center of the deposit was noted to penetrate more than 6 feet into the sand deposit; 2004 jet probing had only estimated the thickness to be about 4 feet. Initial analyses of these cores, *Hilton 1.1* and *Hilton 1.2*, were favorable, so SEI followed with a dive team that systematically jet probed a total of 34 locations in the deposit along defined transects to better characterize the size of the deposit. The sampling locations and measured thicknesses are shown on Figure 6-11. The results of the jet probing showed an estimated sand volume of 45,400 cy of sand.

Five additional vibracore samples were obtained from the "*Hilton*" sand deposit following the jet probing. The vibracore locations are shown on Figure 6-11 and the grain size analysis data from those vibracores is presented in Table 6-5 and Figure 6-12.

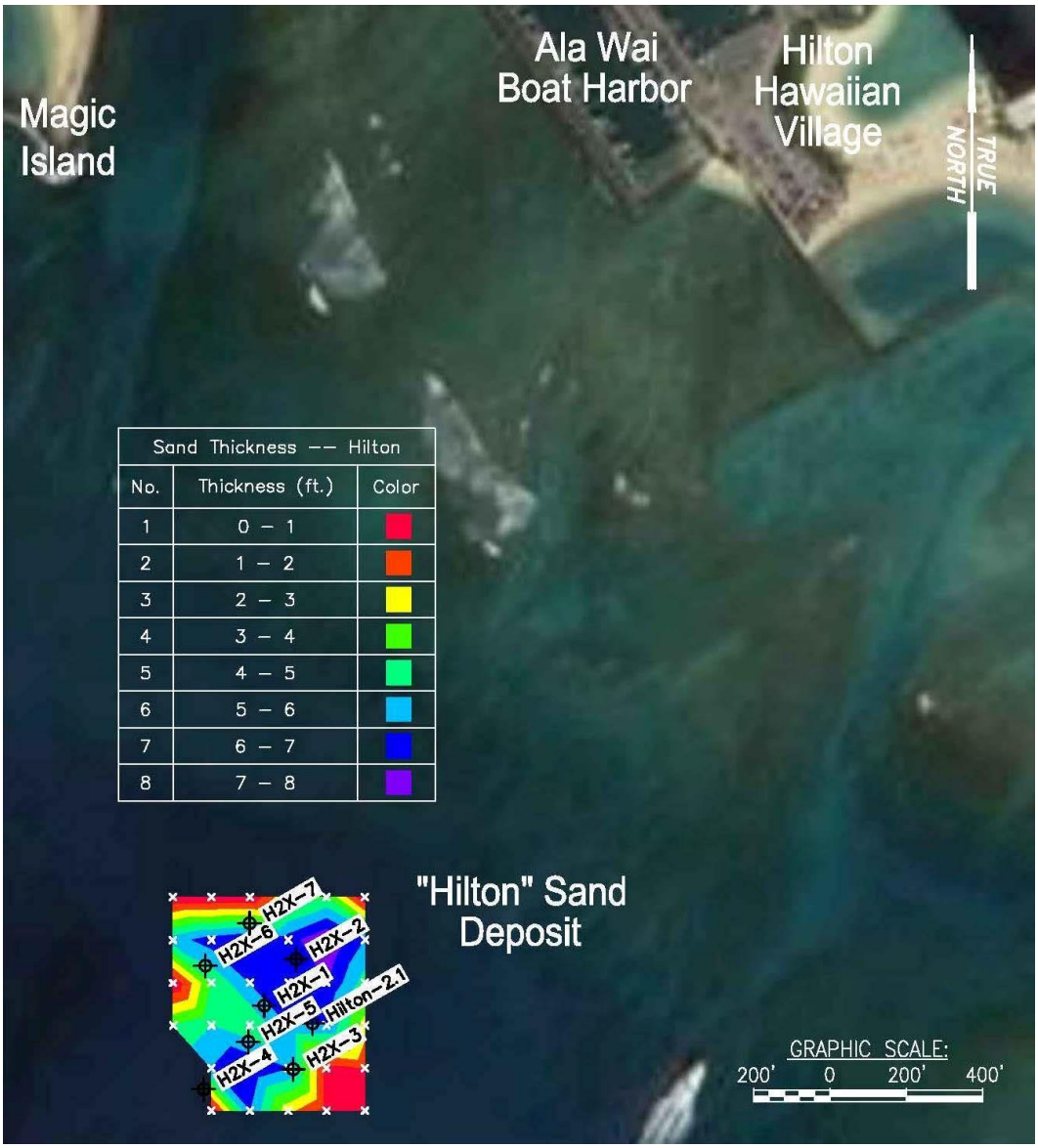

Figure 6-11 "*Hilton*" sand deposit thickness.
Jet probes (white "x") and vibracore locations (black "+")

Table 6-5 "*Hilton*" offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% fines	Core length (inches)	Water depth (feet)	Source	Year
Hilton 1.1	0.47	0.7	0.7	85	47	SEI	2017
Hilton 1.2	0.48	0.6	0.6	85	47	SEI	2017
H-2X.1	0.54	0.8	1.4	67	50	SEI	2017
H-2X.2	0.66	0.7	0.7	79	48	SEI	2017
H-2X.5	0.50	0.7	0.7	80	51	SEI	2017
H-2X.6	0.77	1.1	1.4	79	53	SEI	2017
H-2X.7	0.83	1.7	0.4	86	50	SEI	2017

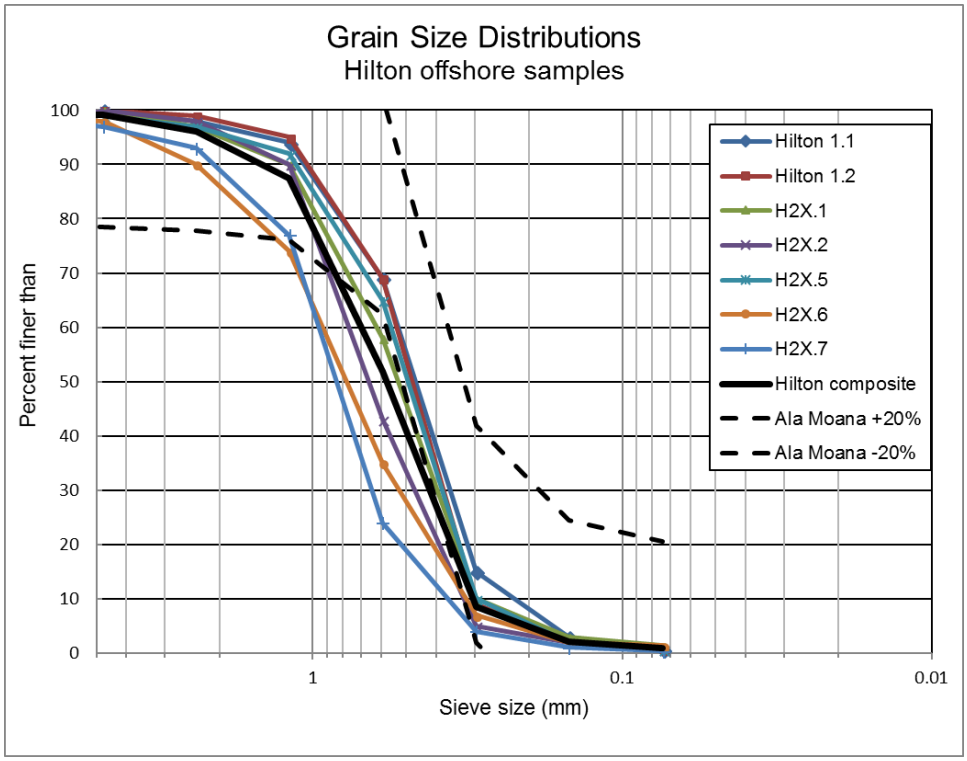

Figure 6-12 Grain size distribution for "*Hilton*" offshore sand deposit

6.4.5 Diamond Head

6.4.5.1 Historical sand data

A field program was conducted in December 2010, February 2011, and March 2011 to investigate offshore sand deposits in the vicinity of Diamond Head. Using aerial photography and a University of Hawaii Coastal Geology Group (CGG) side-scan survey as guides, geophysical investigations were performed on specific offshore deposits using side-scan sonar and sub-bottom profiling. The surveys were performed within practical limits for sand recovery, including water depth and space for operations.

On December 17, 2010, Sea Engineering personnel conducted a survey utilizing a C-MAX CM2 side-scan sonar (SSS) system. The planned side-scan sonar coverage area was determined based on bathymetry, aerial photographs, and proximity to the project site. The University of Hawaii Coastal Geology Group previously performed a side-scan sonar survey offshore of Waikiki between Diamond Head and the Ala Wai boat harbor in water depths as shallow as 12 feet and as deep as 300 feet. The December 2010 SEI survey covered an area inshore of the CGG survey where potential sand deposits were identified using aerial photographs. The sonar results combined with an aerial view of the targeted offshore deposits are shown in Figure 6-13 and the full coverage is shown in Figure 6-14.

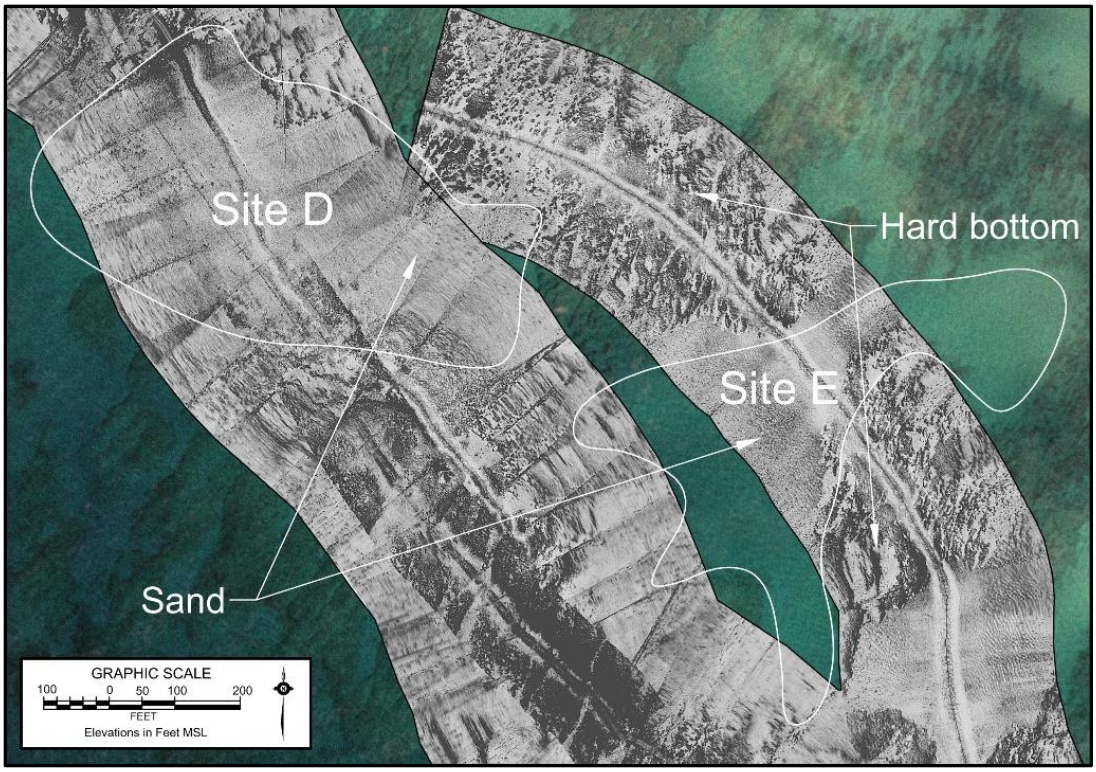

Figure 6-13 Side scan sonar mosaic for offshore sand deposits "D" and "E"

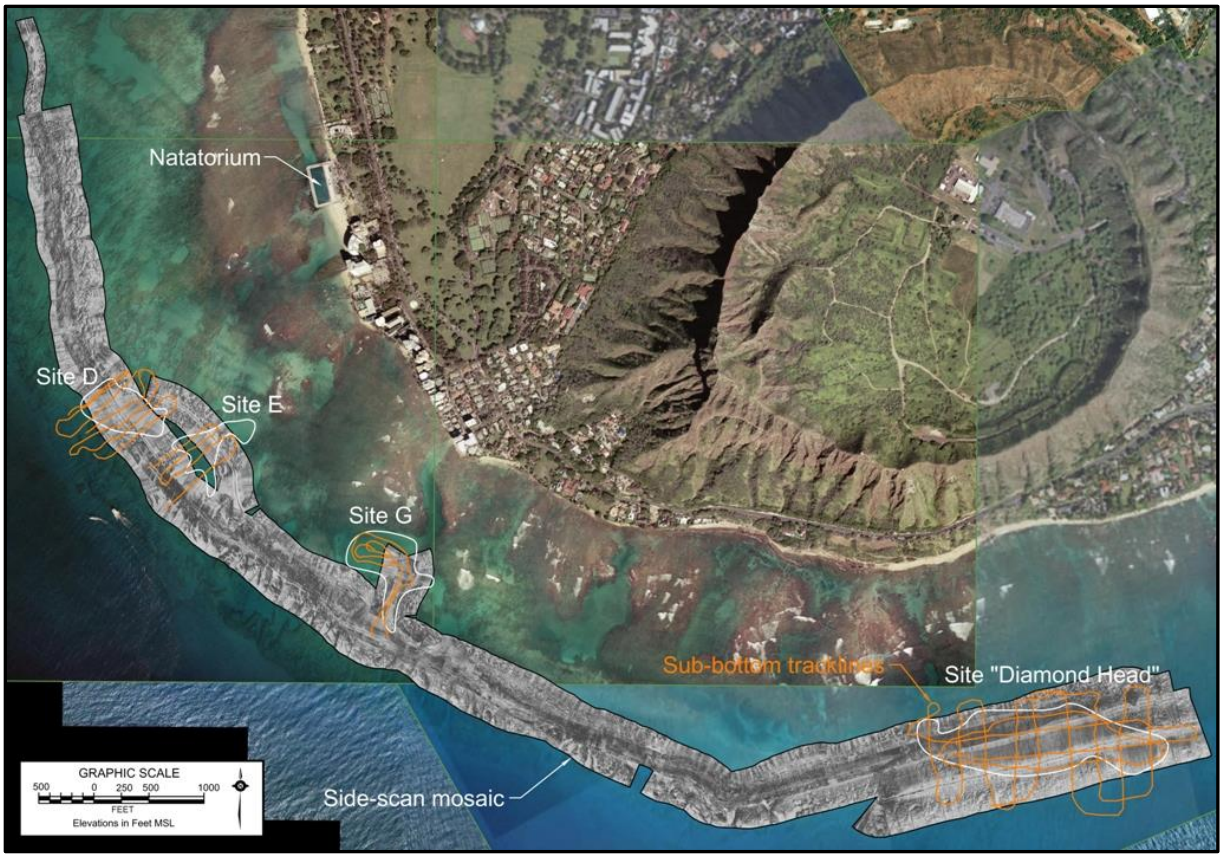

Figure 6-14 Side-scan sonar mosaic and sub-bottom profiler tracklines

On February 24, 2011, SEI conducted a sub-bottom survey utilizing an EdgeTech 0512i Subbottom Profiler. Tracklines from that sub-bottom survey are shown in Figure 6-14. The sub-bottom data was reviewed with EdgeTech software, sub-bottom horizons were digitized for processing, and sand thicknesses were measured at discrete locations along the survey tracklines. This geo-referenced data was imported into AutoCAD and surfaces of the bottom and sub-bottom were produced. These two surfaces were compared to produce an estimate the volume of sand in each deposit.

Several passes from west of the Waikiki Aquarium to offshore of Diamond Head Beach Park were performed with the side-scan sonar system. The tracklines were chosen to supplement the CGG survey, and to specifically investigate the sand deposits identified from aerial imagery. The survey data was combined into a single mosaic that covered 2.7 miles parallel to shore with average cross-shore coverage of 670 feet. The subsequent sub-bottom profiling targeted the sand deposits identified from aerial imagery and the side-scan sonar mosaic, covering 2.7 miles offshore of the Natatorium and 4.1 miles offshore of Diamond Head Beach Park.

Sand deposits identified in the side-scan and sub-bottom surveys are shown in Figure 6-14, labeled as sites “D”, “E”, “G”, and “Diamond Head”. These potential deposits were outlined and the areas were calculated, and following the sub-bottom survey, estimates of the sand volumes were calculated. These values are shown in Table 6-6.

Table 6-6 Offshore sand deposit characteristics

Location	Water depth (ft)	D_{50} (mm)	Area (sq. ft.)	Volume (cu. yd.)
Site D	20-38	0.20	252,100	4,100
Site E	12-28	0.23	174,400	5,000
Site G	10-22	0.39	319,700	13,200
Diamond Head	20-30	---	1,019,800	110,300

Sites D and E was initially viewed as a favorable sand sources based on the large surface area; however, the sub-bottom profiling showed that much of the deposits were merely thin veneers of sand. Site G was found to contain a significant amount of sand—slightly more than 13,000 cu. yd. The deposit is situated in a gap in the reef that measures 600 ft long by 380 ft wide. Access to the site would be through a 100-ft wide gap in the reef on the offshore side of the deposit. The shallow water (typically between seven and 11 ft deep over the sand deposit), the nearby reef, and limited access could make recovery a challenge.

Table 6-6 also shows the findings of the surveys for a sand deposit identified off Diamond Head Beach Park (see Figure 6-14). The estimated volume of sand in that deposit based on geophysical investigations is more than 110,000 cu. yd. This sand deposit is further detailed in Section 6.4.5.2.

6.4.5.2 Diamond Head (2018)

SEI performed jet probing and sand sampling on February 23, 2018, to further quantify the Diamond Head sand deposit identified in 2011. Jet probes penetrated between 3 and 6 feet within the sand deposit, encountering hard refusal at each location. The probe depths generally confirmed the sub-bottom results.

The sand was found to be light brown at the sand surface, becoming mixed brown and gray below. Push cores are typically limited to about 24 inches in sand, and samples at Diamond Head were no different. The sand samples had median grain size in the range of 0.40 to 0.45 mm, the samples were well sorted, and they had less than 1.0% fine material. Grain size distributions are presented in Table 6-7 and Figure 6-16.

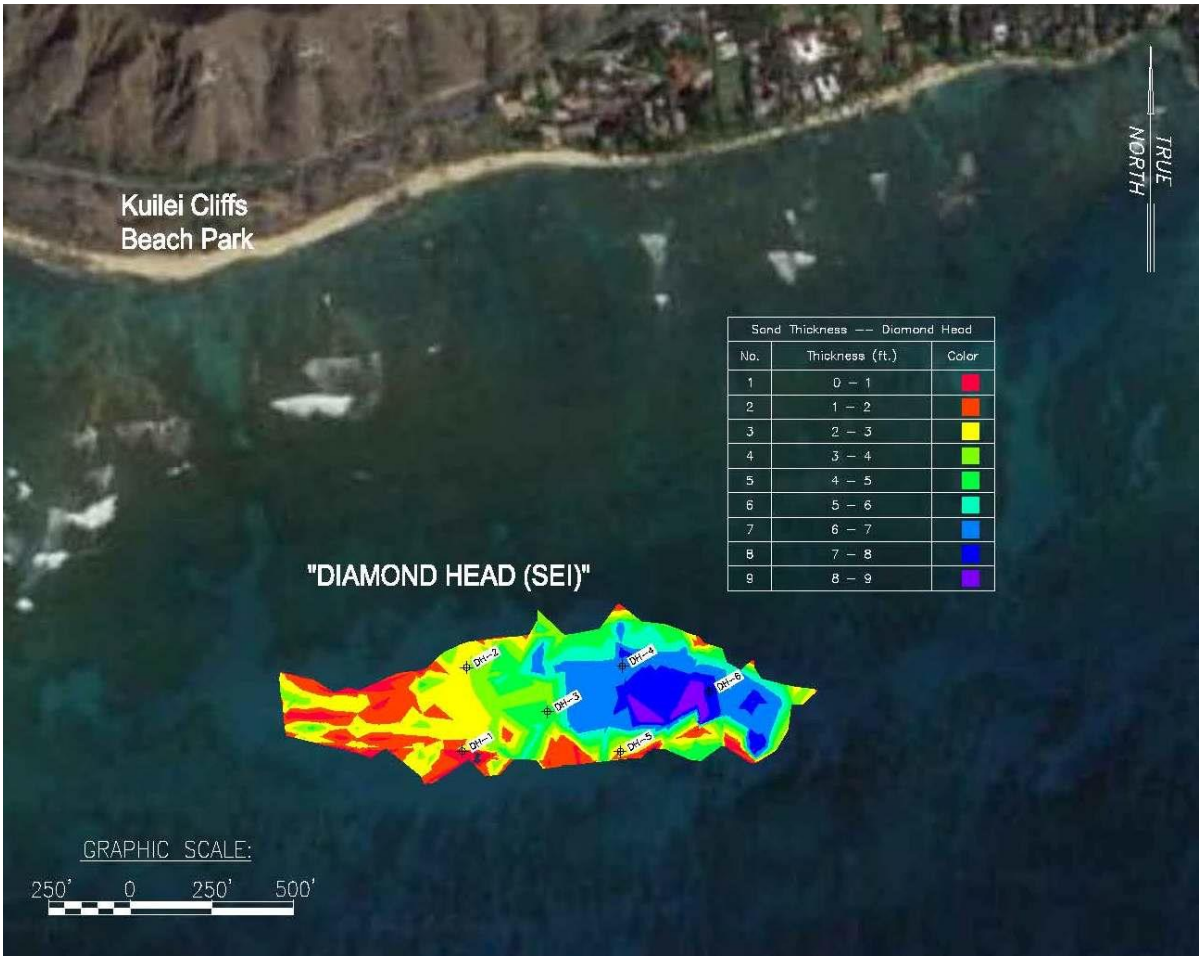

Figure 6-15 "*Diamond Head*" sand deposit thickness and core locations (black "+")

Table 6-7 "*Diamond Head*" offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% fines	Jet probe (feet)	Water depth (feet)	Source	Year
DH-1	0.45	0.5	0.8	4	25	SEI	2018
DH-2	0.40	0.6	1.0	6	30	SEI	2018
DH-3	0.43	0.5	1.0	6	30	SEI	2018
DH-4	0.45	0.5	1.0	6	30	SEI	2018
DH-5	n/a	n/a	n/a	6	35	SEI	2018
DH-6	n/a	n/a	n/a	3	35	SEI	2018

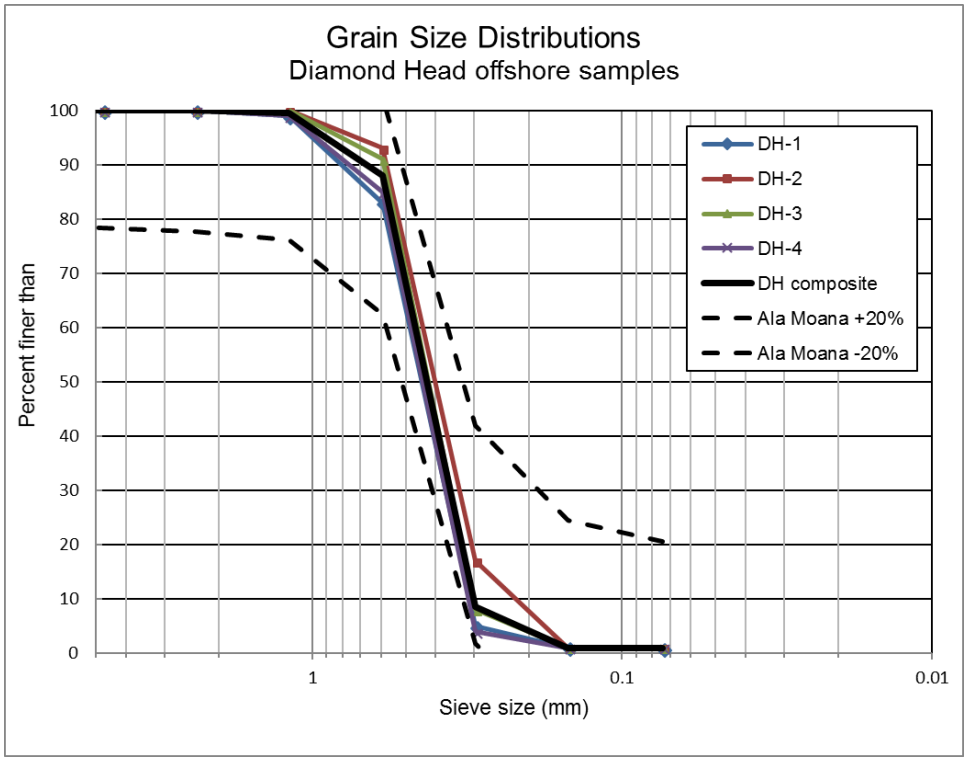

Figure 6-16 Grain size distribution for "Diamond Head" offshore sand deposit

6.4.6 Reef Runway

6.4.6.1 Historical sand data

Offshore sand resources at the Reef Runway have been investigated for the past three decades by a variety of organizations. The University of Hawaii Marine Minerals Technology Center (MMTC) produced a report on the sand deposits off the Diamond Head half of the Reef Runway. They reported sand deposits as much as 25 feet thick, though much of the sampling was performed in 100 to 300 feet of water.

Sea Engineering (1994) performed geophysical testing on a 100-acre site off the west end of the Reef Runway near the Pearl Harbor entrance channel. The testing was funded by CEROS for the development of a sub-bottom imaging instrument. Penetration of more than 150 feet into the sand deposit was achieved, along with 12 inches of vertical resolution of geological features. Nine sand samples were obtained along a north-south transect through the middle of the survey area. Two samples toward the north boundary of the study site showed median grain sizes of 0.44 mm and 0.55 mm, while the other samples were in the range of 0.15 mm to 0.31 mm. All samples were moderately to poorly sorted.

Sea Engineering (2001) performed single-beam and multi-beam bathymetric surveys and sub-bottom profiling offshore of the Reef Runway in support of the recovery of the *Ehime Maru*. The survey area covered about 500 acres in front of the Ewa half of the runway. The sub-bottom profiling showed that sand thickness within much of the survey area was up to about 20 feet

thick, while two area that overlapped the CEROS survey area were found to exceed 30 feet in thickness.

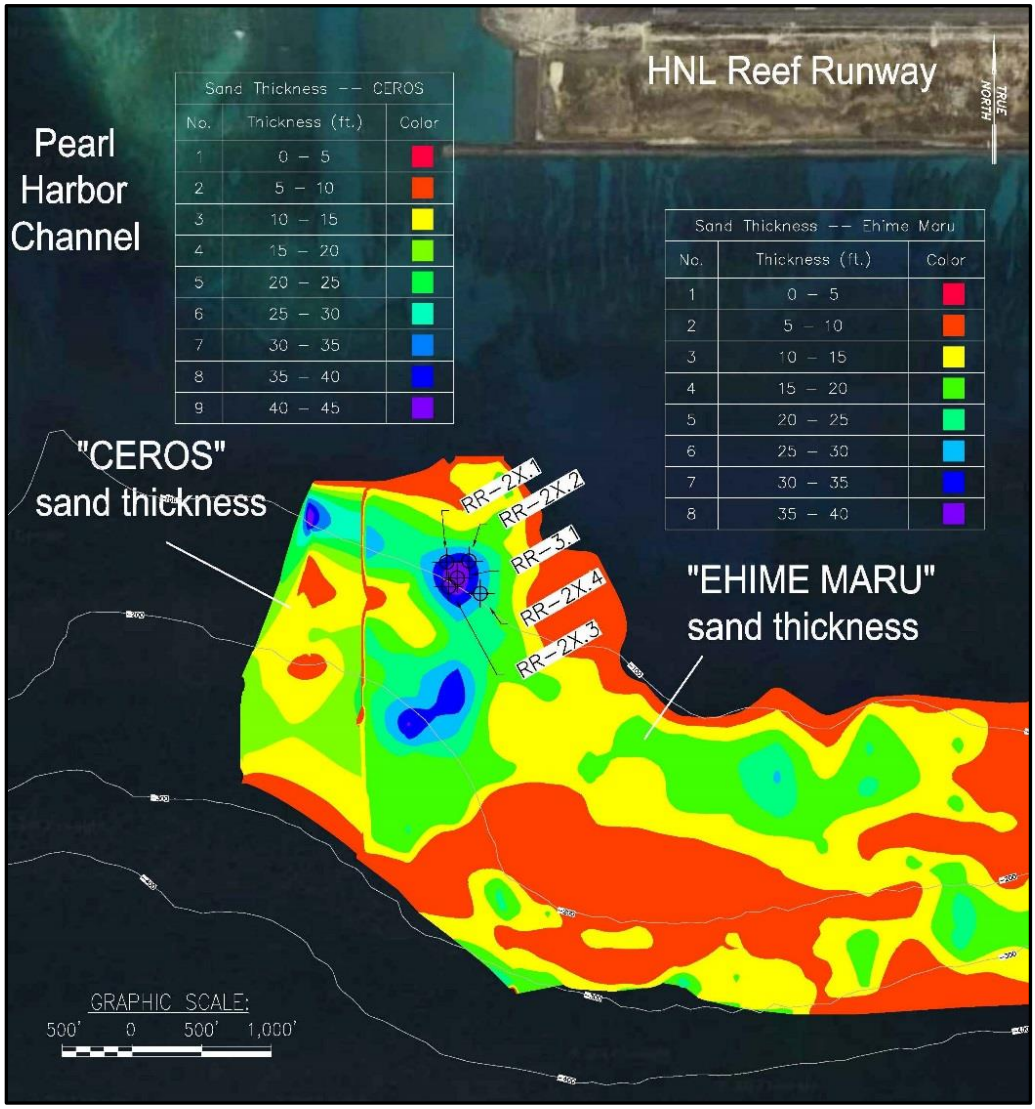

Figure 6-17 Reef Runway sand deposits and vibracore locations

6.4.6.2 Reef Runway—Outer (2017 / 2018)

Sea Engineering conducted investigations on the Reef Runway sand deposits in March and May of 2017. Initial investigations found patch reef within the larger survey area, so divers and underwater video cameras were deployed to ground-truth the sub-bottom data and direct the vibracore toward larger patches of sand.

The subsequent Vibracore deployments targeted a patch of sand identified from the sub-bottom profiling as being as much as 40 feet thick. Five vibracore samples were obtained at locations shown on Figure 6-17, and the grain statistics are presented in Table 6-8 and Figure 6-18

Table 6-8 "*Reef Runway—Outer*" offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% fines	Core length (inches)	Water depth (feet)	Source	Year
RR-2X.1	0.21	0.9	2.7	50	87	SEI	2017
RR-2X.2	0.21	0.9	3.7	38	83	SEI	2017
RR-2X.3	0.15	0.9	5.6	65	105	SEI	2017
RR-2X.4	0.18	0.9	3.9	87	94	SEI	2017
RR 3.1	0.17	1.0	3.9	96	93	SEI	2017

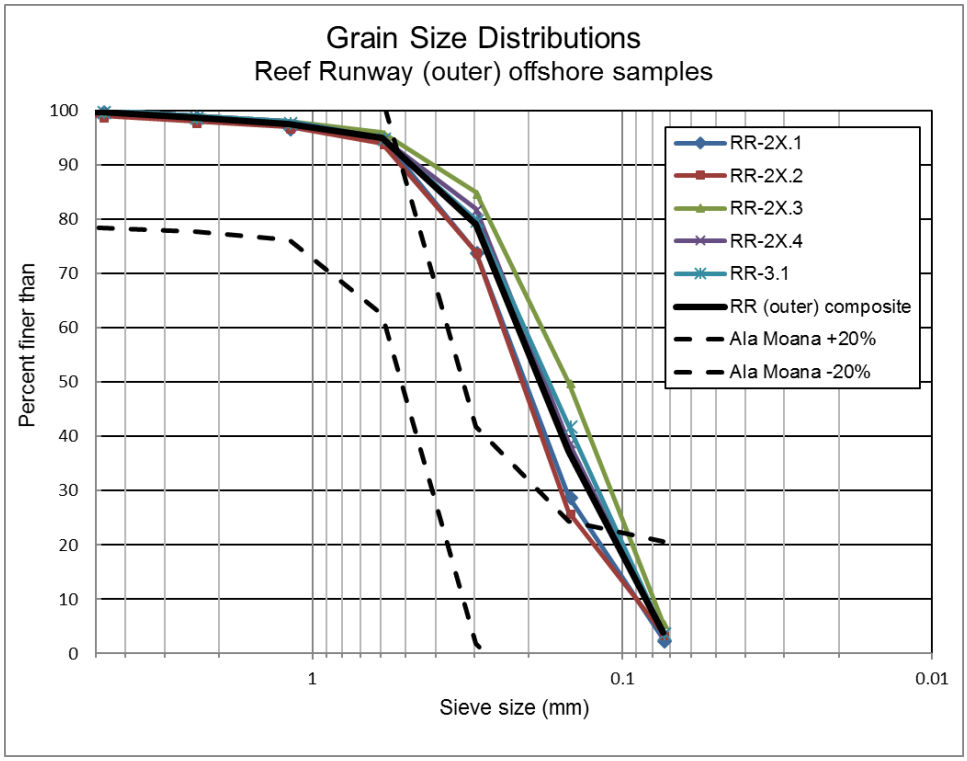

Figure 6-18 Grain size distribution for "*Reef Runway—Outer*" offshore sand deposit

6.4.6.3 Reef Runway—Inner (2018)

Further investigation in the vicinity of the Reef Runway found a sand deposit located just inshore of the areas investigated in 2017 (Figure 6-19). A patch of sand 2,000 feet across was investigated with a jet probe for thickness, and later with a vibracore to determine the grain size through the deposit. Jet probes penetrated 2 to 4 ft into the sand. The grain size, jet probe, and vibracore information are presented in Table 6-9 and Figure 6-20. The deposit contains an estimated 200,000 cy of sand.

The median grain size for the samples was in the range of 0.24 to 0.41 mm. The fine material in the samples ranged from 2.1% to 6.6%, which is within DLNR's range of acceptability, but notably higher than the beach sand, which was less than 1% for all samples except AM-8.

Figure 6-19 "*Reef Runway—Inner*" location map

Table 6-9 "*Reef Runway—Inner*" offshore sand source summary

Location	D_{50} (mm)	Sorting σ	% fines	Core length (inches)	Water depth (feet)	Source	Year
RR 1-1	0.27	0.8	2.1	n/a		SEI	2018
RR 1-2	0.34	0.8	2.2	n/a		SEI	2018
RR-1-3	0.33	0.9	2.7	30		SEI	2018
RR 2-1	0.36	0.7	2.9	19		SEI	2018
RR 2-2	0.41	0.9	5.1	21		SEI	2018
RR 2-3	0.34	1.1	6.6	15		SEI	2018
RR 2-4	0.24	0.8	3.8	21		SEI	2018

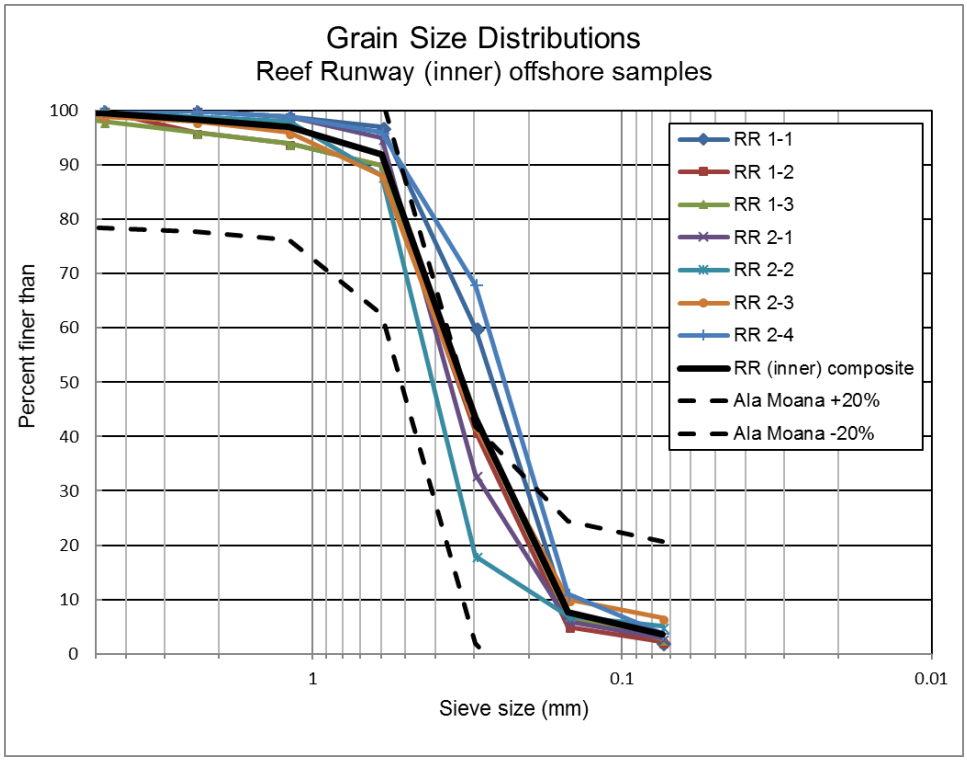

Figure 6-20 Grain size distribution for "*Reef Runway—Inner*" offshore sand deposit

6.4.7 Pacific Aggregate Inland Sand (2018)

Pacific Aggregate has a quarry and processing operation in Waianae that specializes in the production of coral base aggregate. The property covers 200 acres and the quarry that produces a wide variety of coral aggregates, primarily for the concrete industry.

During operations they found remnants of an inland beach from a higher sea level stand, now buried under roughly 30 feet of overburden. The deposit is referred to as "Natural" or "Inland" sand. This layer is up to about 10 feet thick and the spatial extent is not presently known. A boring elsewhere on their property showed sand, but no more detail is known at this point.

The quarry mines the "Natural" sand and stockpiles it separately from the crushed limestone sand. The quarry also produces a "Blended" sample, which is composed of sediment that they scoop up off the ground at the base of the "Natural" excavation. This is not actually a controlled blend, but rather a combination of the "Natural" sand and any surrounding material that crumbled through the excavation process. The owner reported that the "Blended" sample might be ~50% "Natural", though identifying the relative percentages may be difficult.

Sand samples of the "Natural" sand had an observably high quantity of fine material, and in general, the sand was poorly sorted. At our request, the quarry performed additional processing, which involved reducing the speed of the rinsing augers and increasing the water flow. This reduced the percentage of material passing through the #200 sieve to 0.5%. The grain size distributions are presented in

Table 6-10 "Pacific Aggregate" sand source summary

Sample ID	D_{50} (mm)	Sorting (σ)	% fines	Source	Year
"Natural Washed"	0.61	1.0	0.5	SEI	2018
"Blended Washed"	0.70	1.2	1.1	SEI	2018

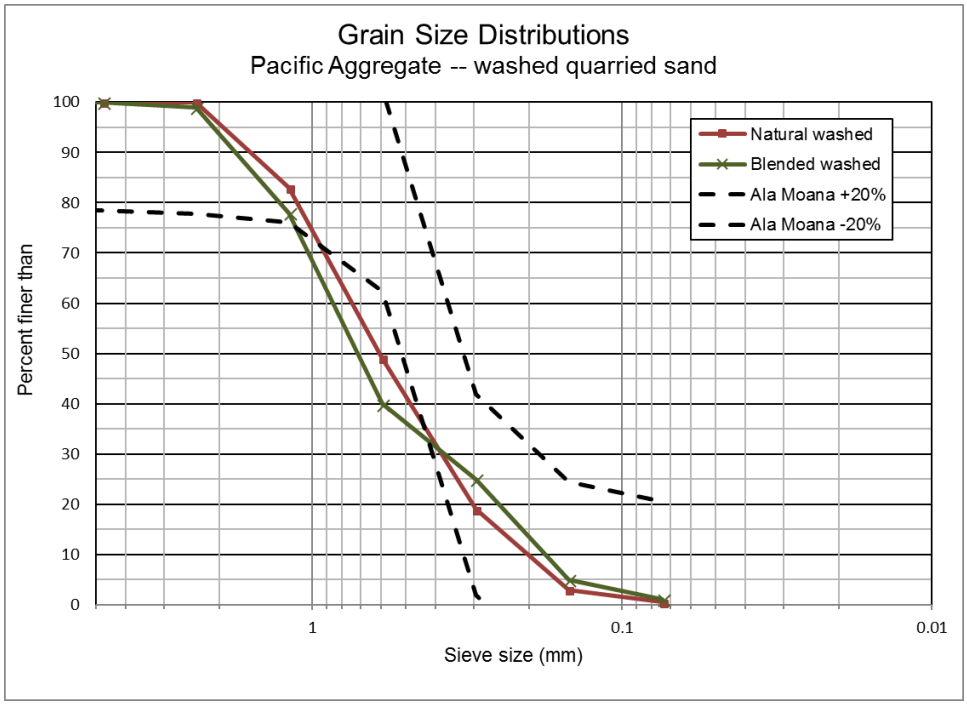

Figure 6-21 Grain size distribution for Pacific Aggregate washed quarry sand

6.5 Summary

6.5.1 Matching sand samples

The results of extensive sampling from six offshore sites and one inland quarry site have been presented in this section. The sites were located with a combination of side-scan sonar, sub-bottom profiling, drop camera video, and aerial photograph analysis. The potential sand sites were investigated with diver jet probing, push core and grab sampling, and vibracore sampling. The samples were analyzed by geologists and grain size analyses were performed by a professional laboratory. The sample grain size distributions from each site were compiled into a single composite, and the composites are shown on Figure 6-22. Also on that figure are the Ala Moana beach composite and +/–20% bounds for the beach sand. The figure shows that four of the offshore deposits contain suitable sand for Ala Moana beach. These samples are shown again on Figure 6-23. The "Reef Runway—Inner", "Waikiki Maintenance", and "Diamond

Head" composite sand samples fall within the guidelines set forth by DLNR (Section 6.2). A Photographs of the beach and matching sand are shown in Figure 6-24.

While the "Hilton" sand falls on the course side compared with Ala Moana beach sand, coarser sand is expected to be more stable and therefore should be included for consideration for this project. It was reported that some of the Ala Moana beach sand was obtained from Yokohama beach; Smith and Cheung (2002) reported the median grain size for Yokohama beach sand to be 0.49 mm and coarse sand was observed in the Diamond Head area below the surface sand.

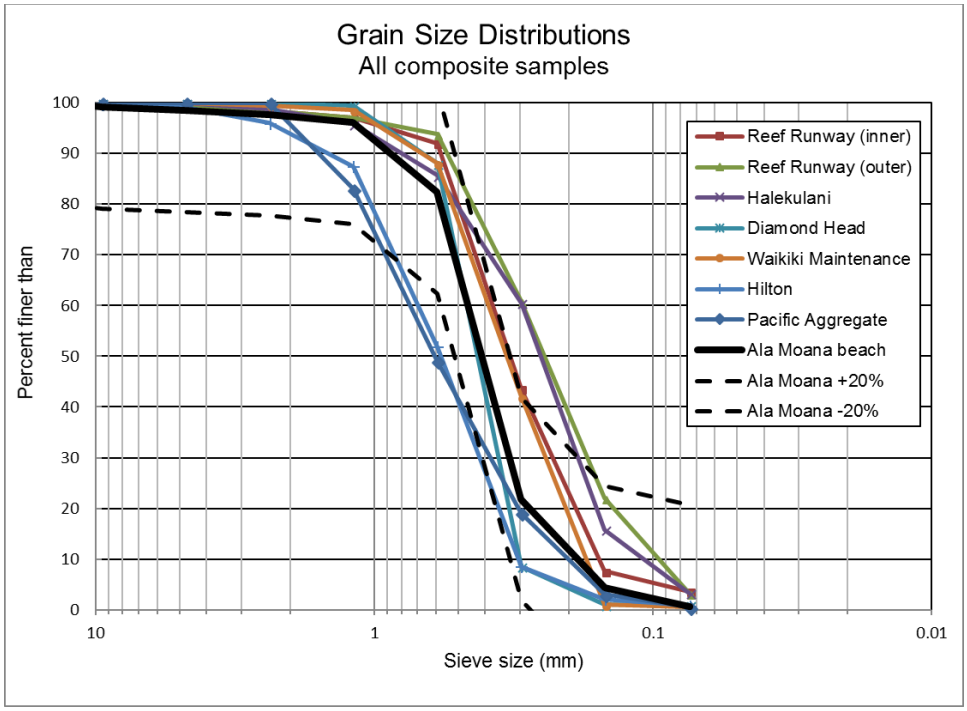

Figure 6-22 Composite sand sample distributions with Ala Moana composite and +/- 20% bounds

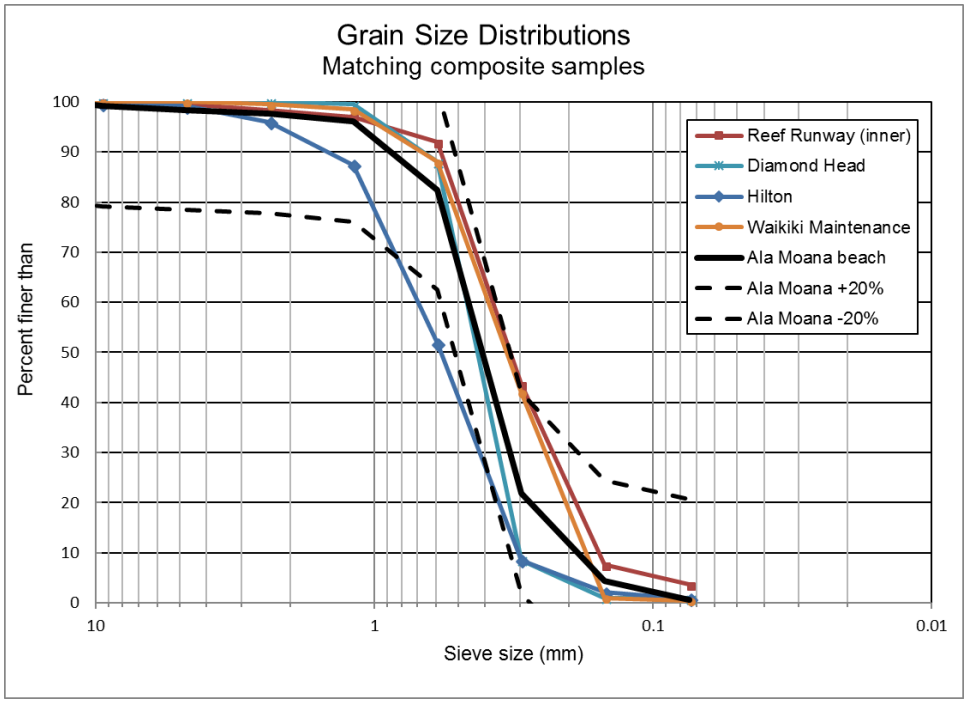

Figure 6-23 Composite Ala Moana beach sand and +/-20% bounds, along with the composite offshore sand samples that match DLNR guidelines

Beach		
Reef Runway (Inner)		Diamond Head
Hilton		Waikiki Maintenance

Figure 6-24 Ala Moana beach sand and matching offshore sand

6.6 Overfill Factor

A beach undergoes an adjustment period following nourishment. The beach equilibrium profile is achieved as sand moves cross shore and alongshore and there may be an accompanying decrease in beach volume. This loss of sand is compensated for through an overfill ratio, which describes the compatibility of the native beach and borrow sands and is dependent on the size distributions of the native and nourishment (borrow) sand.

The overfill ratio is determined based on the sand size characteristics of the two sands and represents the volume of fill necessary to yield the desired beach volumes calculated previously. Bodge (2004) compared overfill ratio methods and developed an expression that is believed to produce more accurate results than the previous methods.

The mean grain size, M, and sorting, σ, for the native and borrow sands are calculated as presented in the Coastal Engineering Manual (2006) as

$$M = \frac{(\phi_{16} + \phi_{50} + \phi_{84})}{3}$$

$$\sigma = \frac{(\phi_{84} - \phi_{16})}{4} + \frac{(\phi_{95} - \phi_{5})}{6}$$

where $\phi = -\log_2(D)$ where D is given in millimeters.

The dimensionless grain size difference is calculated as

$$M_b' - M_n' = \frac{M_b - M_n}{\sigma_b}$$

where subscripts *n* and *b* refer to the native (i.e., beach) and borrow (i.e., offshore) sand, and the overfill ratio is read from Figure 6-25.

"Reef Runway – Inner", "Diamond Head", "Hilton", and "Waikiki Maintenance" were identified as having grain size distributions compatible with Ala Moana beach. The composite grain size distributions for these offshore sand sites and the beach sand were shown previously in their respective sections. The mean diameter M_b and sorting σ_b of the offshore and beach samples are presented in Table 6-11. The mean and sorting produce a difference that can be used to determine the overfill ratio. These values produce a dimensionless grain size difference of -0.02, which is used along with Figure 6-25 to yield an overfill ratio of $K = 1$. An overfill ratio of 1.0 indicates that the native and borrow sand have the same grain size distribution, i.e. the borrow sand is not finer in size than the native beach sand, thus no significant loss of finer material is expected to rapidly occur after sand placement, and thus no over filling is necessary in order to achieve the desired increase in beach size. Based on the overfill ratios presented in Table 6-11, the required sand fill for the three options are presented in Table 6-12.

Table 6-11 Grain size parameters for overfill ratio calculations

Parameter	*Ala Moana Beach*	*Reef Runway (Inner)*	*Diamond Head*	*Hilton*	*Waikiki Maintenance*
Mean grain size, *M*, (*ϕ units*)	1.31	1.5	1.2	0.7	1.6
Sorting (σ)	0.8	0.9	0.6	1.04	0.8
Grain size difference (M_b-M_n) / σ	'---	0.23	-0.13	-0.58	0.33
Overfill factor (*K*)	'---	1.13	1.00	1.00	1.23

Table 6-12 Required sand volumes based on overfill factor

	Option 1	***Option 2***	***Option 3***
Reef Runway—Inner	42,500	57,200	72,200
Diamond Head	37,600	50,600	65,700
Hilton	37,600	50,600	65,700
Waikiki Maintenance	46,200	62,200	80,800

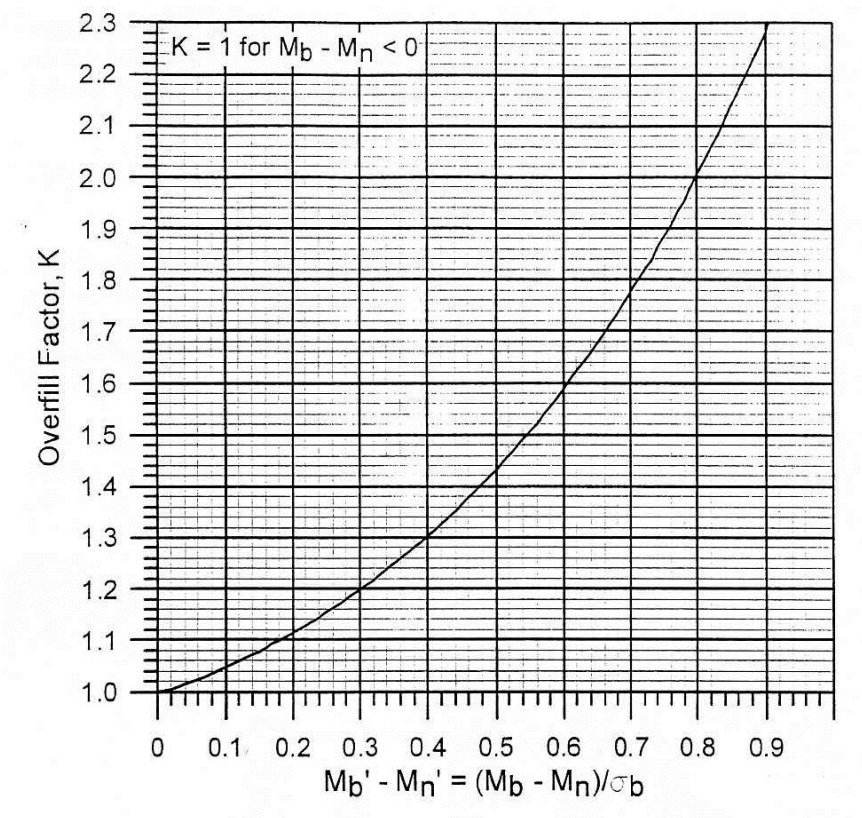

Figure 6-25 Dean's overfill ratio expressed as a single curve (Bodge, 2004).

6.7 Sand deposit constraints

The offshore sand deposits identified in previous sections have been characterized based on applicability to the project (i.e., volume and grain size). There are some additional constraints for each of the offshore sand deposits, addressed individually below.

6.7.1 Reef Runway—Inner

The "Reef Runway—Inner" sand deposit is located near the Ewa end of the Daniel K. Inouye Honolulu International Airport Reef Runway. The deposit is in 60 to 100 feet of water and is believed to contain up to 200,000 cy of sand. The measured median grain size ranged from 0.24 mm to 0.41 mm, which is only slightly finer than the Ala Moana beach sand. The offshore sand, however, contains a significant amount of fine material—2.1% to 6.1%—which is

expected to produce noticeable turbidity, even though the fines are less than the limit set forth by DLNR.

Oceanographic conditions are not expected to be a concern, though waves and weather will have to be monitored. The site is not located significantly close to any surf sites or other recreational activities. The site is, however, located close to the Pearl Harbor channel. Operations are likely to require coordination with the military base and possible the airport. Our crew was interrogated by a security boat during field work.

6.7.2 Hilton

The "Hilton" deposit is located is nearshore waters off Waikiki near the Hilton Hawaiian Village resort. Oceanographic conditions are not expected to be a concern. The area is popular with recreational users, including swimmers, kayakers, and stand-up paddleboarders. Ala Moana Bowls, Rockpiles, In Betweens, and Kaisers are nearby surf spots. The shuttle boats for the Atlantis Submarine pass this area several times per day.

The "Hilton" sand deposit contains an estimated 45,000 cy of sand. The median grain size sampled was in the range of 0.47 mm to 0.83 mm. The sand is slightly coarser than the Ala Moana beach sand. Fines ranged from 0.4% to 1.4%.

The State of Hawaii is producing an Environmental Impact Statement for improvements to Waikiki Beach. The "Hilton" sand deposit has been discussed as a source of sand for nourishing part of Waikiki Beach. Since all of the offshore sand deposits lie within the State's Conservation District, it may be challenging to obtain permission to use the "Hilton" sand at Ala Moana.

6.7.3 Waikiki Maintenance

The "Waikiki Maintenance" deposit is also located is nearshore waters off Waikiki. The sand deposit is directly offshore of the popular "Queens" and "Canoes" surf sites. The area is also popular swimmers, kayakers, and stand-up paddleboarders. The "Waikiki Maintenance" sand deposit was reported in 2012 to contain an estimated 46,000 cy of sand. The median grain size sampled was in the range of 0.26 mm to 0.33 mm. The sand is slightly finer than the Ala Moana beach sand. Fines ranged from 0.0% to 0.6%.

During the 2012 Waikiki Maintenance project, the dredge barge was positioned over the sand deposit in 10 to 15 feet of water. South swell prompted the barge to move offshore three times. Waves would have to be monitored carefully if this site is selected for dredging.

As with the "Hilton" deposit, the Waikiki Maintenance sand might not be available for use at Ala Moana due to the existing Waikiki project.

6.7.4 Diamond Head

While the sand in the "Diamond Head" sand deposit is an excellent match with the Ala Moana beach sand, recovering this sand may present the most challenges. The sand deposit contains an estimated 110,000 cy of sand, with the deposit wider in the eastern half. The deposit is located in 25 to 40 feet of water and is directly offshore of the popular "Cliffs" surf site.

The proximity to popular surf sites could make permitting a challenge, and the area is shallow and exposed to tradewinds and waves, which is a concern for dredging operations. The main concern would be the rocking of the crane barge as the heavy sand-filled clamshell is lifted from the water and sand is discharged into the scow barge. The suspended swinging weight can be challenging to handle and presents a safety concern for the operation.

7. CONSTRUCTION METHODOLOGY

The "Reef Runway—Inner", "Hilton", "Waikiki Maintenance", and "Diamond Head" sites are shown in the Section 6 to be satisfactory sand source options for beach nourishment at Ala Moana beach. The following discussion of dredging and distribution methods would generally apply to any of the offshore sand deposits. A preferred sand source has not yet been identified, and the final dredging plan would depend partially on permit conditions, as well as the work plan prepared by the contractor hired to perform the work; thus, a range of techniques is presented herein.

7.1 Dredging System

Dredging systems for beach nourishment purposes are designed to recover sand from the seafloor and deliver it to an alternate site. There are various ways to accomplish these operations, some of which store the sand onboard the dredging vessel or deliver it to nearby barges or ships, while others transport the sand directly through a pipeline to the shore. Storing the sand on the dredging vessel requires that the vessel return to a commercial harbor on a regular basis to discharge recovered materials, requiring considerable time, energy, and harbor space. If the sand is pumped to shore, booster pumps and additional barges may be necessary if the distance to the project beach is excessive. The third strategy would be placement of the dredged sand in ships or barges that could be cycled through the recovery and delivery process close to the project site to increase dredging efficiency. This would allow for simultaneous loading and offloading of pairs of these barges and would allow the dredge barge to remain in place for the duration of the recovery effort.

All of these techniques require that the dredge barge be anchored with a stable, minimum four-point mooring in the recovery area. Anchors would be placed within the sand field and marked with floats or buoys, as depicted in Figure 7-1. A four-point mooring would allow the barge to change locations within the recovery area and remain securely anchored without having to adjust anchor placement.

There are several potential dredging techniques that might be employed for the project area, all of which are discussed in the following sections.

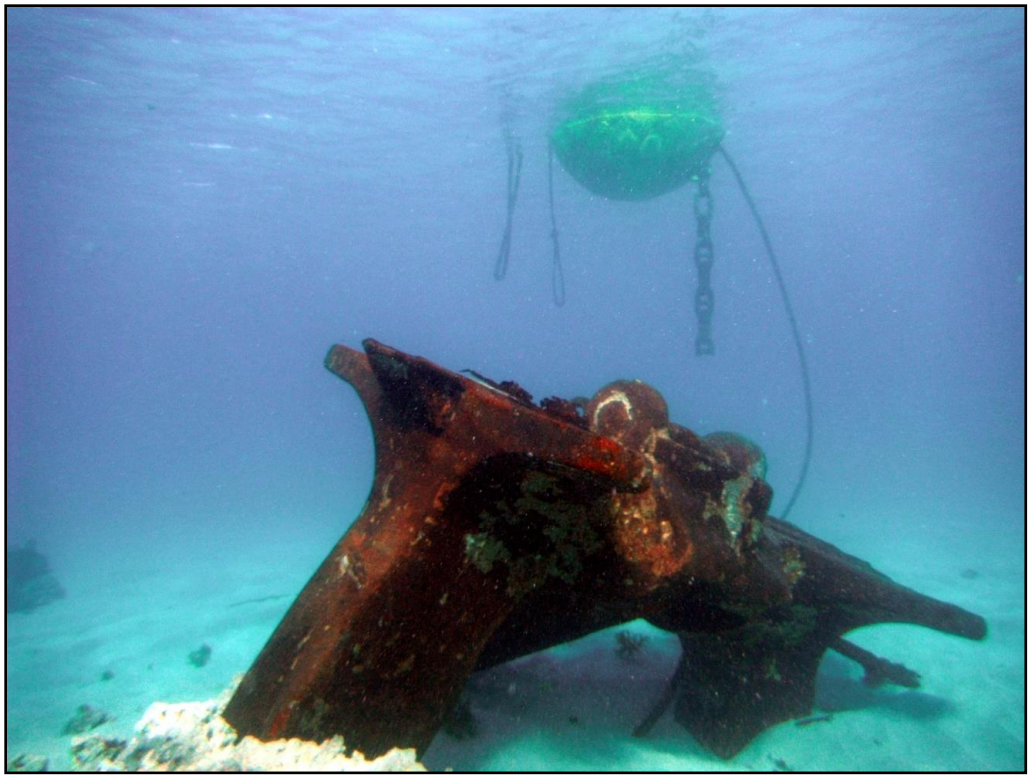

Figure 7-1 Example: Anchor and Anchor Float used in the 2012 Waikiki Beach Maintenance Project.

7.1.1 Clamshell Dredging

Clamshell dredging, shown in Figure 7-2, describes the process of mechanically scooping and lifting the sediment, in this case sand, from the seafloor. An environmental clamshell bucket, such as the one shown in Figure 7-3, is lowered from a crane in the open position, and upon the clamshell reaching the bottom, the crane operator closes the clamshell jaws and lifts the material out of the water. The operator then rotates the crane and opens the bucket to dispense the material into a waiting barge, such as a hopper barge (Figure 7-4).

Clamshell bucket sizes vary from as small as one cu. yd. to over 20 cu. yd., and can be either sealed or open. A sealed bucket creates less turbidity; however, the recovered sand will include a large amount of water which then must be disposed of properly.

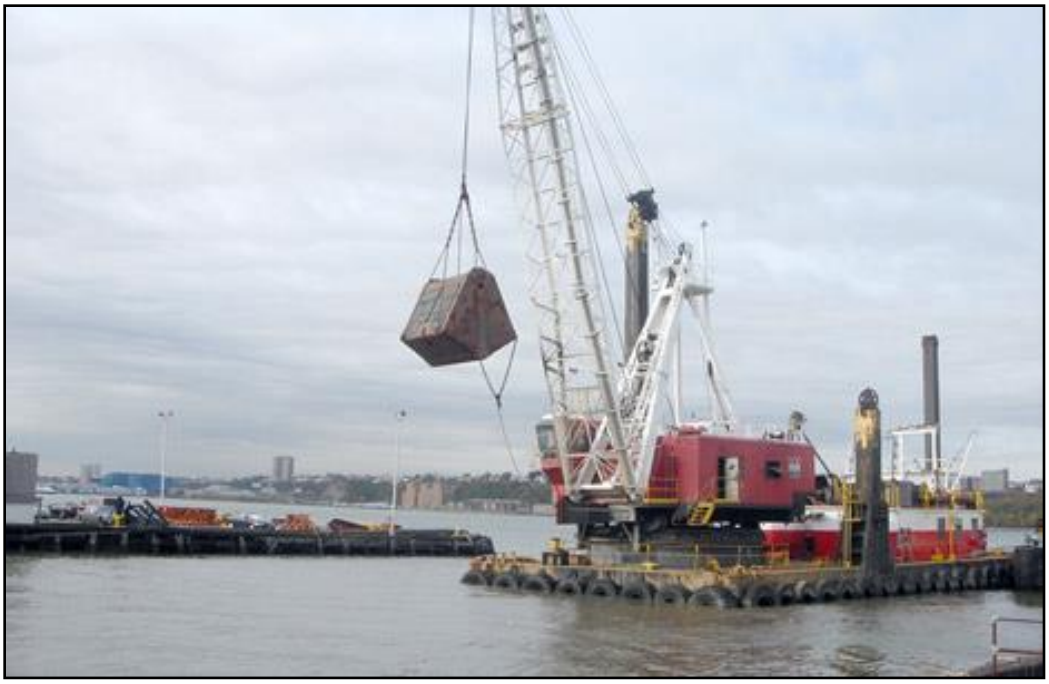

Figure 7-2 Example: Clamshell Dredge with Environmental Bucket
(http://www.conedison.com/ehs/2009annualreport/environmental_stewardship)

Figure 7-3 Example: Environmental Clamshell Bucket
(http://www.alibaba.com/product-free/107658423/Environmental_clamshell_grab.html)

Figure 7-4 Hopper Barge
(http://www.thecargogroup.net/)

Clamshell dredging is often used in association with a large barge, such as the hopper barge shown in Figure 7-4, on which the sediment is deposited. Once the sediment is onboard the barge, transport is accomplished by either moving the barge to a dock and offloading or using a waterborne sand delivery system to deliver the sand to the shoreline.

The benefits of using clamshell dredging are that it is very mobile, it can operate at any depth that the crane cable can reach, it can be used in moderate swell conditions, and it can recover a wide variety of material types. Addition, little specialized equipment beyond the clamshell is needed for dredging operations. The drawbacks are that it is less efficient than other dredging systems, such as those utilizing hydraulic or slurry pumps, and it requires the sand deposits to be thick enough that the clamshell does not reach hard substrate.

7.1.2 Submersible Slurry Pump

Submersible slurry pumps, referred to as "Toyo Pumps" after the largest supplier of such, are distinguishable by the way that they are lowered from overhead and suspended above the sediment they are pumping. The pumps can be hydraulically or electrically driven, and are available in a range of sizes. Models are available with up to 400 hp. Toyo DP75B (75hp) hydraulic pumps were used successfully for dredging both the 2007 Kuhio Beach restoration project and 2012 Waikiki Beach Maintenance Project. Respectively, the projects pumped approximately 10,000 and 24,000 cu. yd. of sand from offshore onto the beach within the Kuhio Beach crib walls.

Several equipment elements are required to successfully recover sand utilizing a submersible pump. A barge and crane are necessary to position a hydraulic or electric powered pump over the sand bottom. The crane can move the pump across a small area, dependent on the crane size and length of its boom. Accessing different portions within the recovery area is achieved by repositioning of the pump barge using a minimum four-point mooring array. Additionally, depending on the size of the slurry pump, a booster pump may be required if the distance to the shoreline is excessive. An additional piece of equipment called a "jet ring" can be mounted on the pump to aid in entraining sand to increase the percent of sand in the slurry. This jet ring requires a water pump on deck and an additional 4-inch water hose connected to the submersible pump. An illustration of this dredge system is shown on Figure 7-5, taken from the Kuhio Beach project after-action report (American Marine, 2007). Figure 7-6 shows the Healy Tibbitts dredge barge used in the 2012 Waikiki Beach Maintenance Project.

The benefit of the submersible pump is its precise positioning and ability to reach into tight spaces. Using a crane-tip GPS unit to locate the pump, the operator can accurately position the pump to within a few feet of any location to effectively remove the sand from near the edges and corners of the recovery area. In addition, sand recovery with a slurry pump can be more efficient than mechanical recovery when a high sand to water ratio can be achieved.

The primary drawbacks to the submersible pump are that the operation is labor intensive and it requires dewatering. Operation requires a crane operator, a rigger, and several people to handle the pumps, generators, and pipelines on deck. Additionally, the pump must be held at a relatively constant height above the sand. If the pump is lifted too high it will not entrain the sand, and if it is too low the slurry will become too concentrated and the pipeline may clog. Maintaining this balance is especially difficult for the crane operator in the presence of swells greater than one to two feet; however, the dredge equipment can be operated from an ocean-going barge, which provides reasonable seaworthiness. Submersible pumping requires that the slurry be properly dewatered, which increases on-land space requirements. For example, the 2012 Waikiki Maintenance project utilized a one-acre dewatering basin within Kuhio Beach Park, requiring the Diamond Head basin to be completely closed to the public. Given the location of the offshore deposits identified in Section 6, hydraulically pumping sand to shore does not appear to be a viable option. If a submersible pump is used to dredge the sand, the sand and slurry would then have to be contained in a barge until the water can be released into the ocean.

Contractor production records for the 2012 Waikiki Maintenance project showed that the contractor recovered 400 to 800 cy of sand in a 10-hour day, and placed sand on the beach at a rate of 1,500 to 2,000 cy in a 5-hour day.

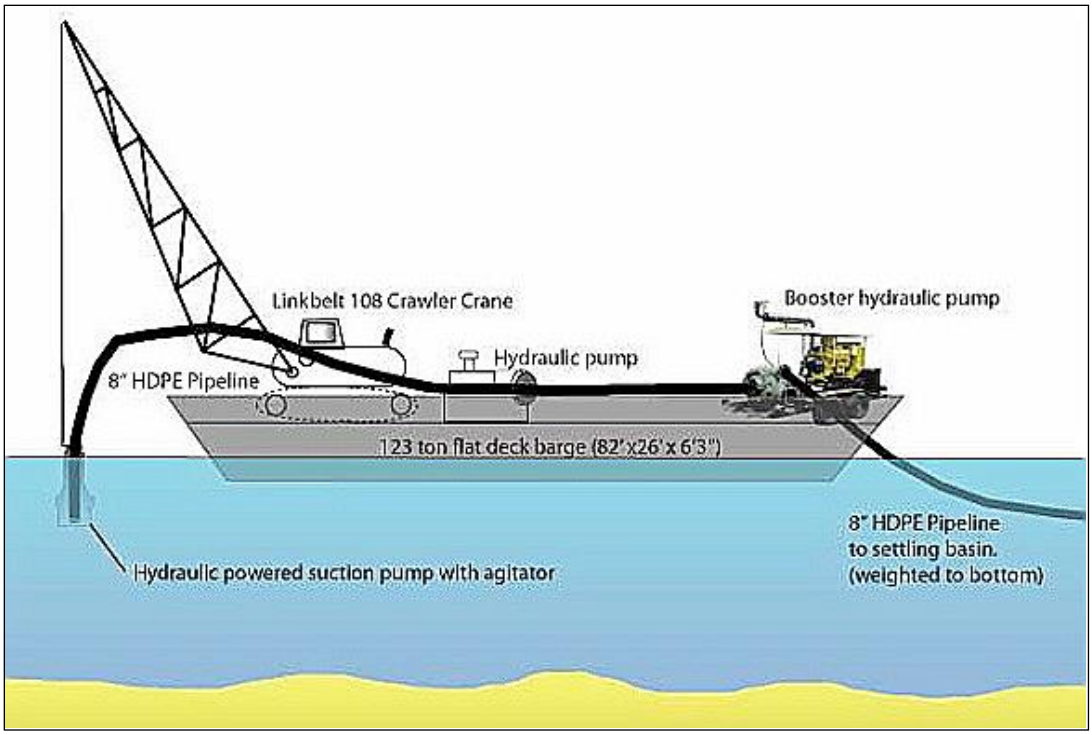

Figure 7-5 Schematic of sand pumping arrangement (American Marine, 2007)

Figure 7-6 Healy Tibbitts Crane Barge used in the 2012 Waikiki Beach Maintenance Project

7.1.3 Delivery to a Nearby Harbor

The offshore sand sources identified in Section 6 as being satisfactory matches for the Ala Moana beach sand are too far from the project site to consider pumping the sand to shore. The next best option is to dredge the sand and load it into a barge. After the barge is loaded with sand, it will need to be transported to a commercial harbor, where it will be offloaded, stockpiled, and transported to Ala Moana park. Barging can require extensive time and energy between towing the barge to a commercial harbor, such as Honolulu Harbor or Kalaeloa (Barber's Point) Harbor. Barge travel distances are presented in Table 7-1.

Table 7-1 Barge distances from offshore sand sources to commercial harbors on Oahu

	Barge distance (miles, roundtrip)			
	Reef Runway	**Hilton**	**Waikiki Maintenance**	**Diamond Head**
to Honolulu Harbor	13	8	10	15
to Kalaeloa Harbor	30	44	46	50
to Ala Wai Boat Harbor	14	2	4	9

The most efficient delivery would be through the Ala Wai Small Boat Harbor. Delivery of the sand directly to Ala Moana park is possible by barging the sand into the Ala Wai Samll Boat Harbor and mooring alongside the Magic Island parking lot. The barge would be moored with two lines on shore and two anchors within the harbor. The sand would be offloaded onto a conveyor belt system and transported directly across the parking lot to the beach or into waiting dumptrucks which would then move the sand to the central and Ewa nourishment areas. Sand conveyance and trucking within the park could be performed during evening and night time hours to limit the impact on park users. The Magic Island parking lot could stay open during the say, with one area closed for equipment. This method would have the shortest barge and truck routes, and it would be the fastest and least expensive of the delivery options. Production rates of greater than 1,000 cy per day are anticipated with this method.

Alternatives are Honolulu and Kalaeloa Harbors. Pier space at Honolulu Harbor is limited, and personnel at Honolulu Harbor reported that Honolulu Harbor does not accept bulk product delivery such as sand. Kalaeloa Harbor would be the nearest commercial facility for offloading sand. Barging to Kalaeloa, however, would entail an ocean transit of as much as 25 miles to the harbor, offloading of the barge into dump trucks, and the 25-mile truck route back to the sand recovery site. This method would result in an involved and circuitous delivery to the project site, which is only a few miles from the sand deposits presented Section 6. In addition to the distance traveled to deliver the sand at pier side, additional travel may be required to dewater the barge at an acceptable offshore location prior to offloading.

Discussions between the City and the State are recommended to determine if a short-term offloading site at Honolulu Harbor could be developed for use during the project. It is possible that a temporary offloading site could be accommodated on the west side of Sand Island. There is some presently unutilized land, and a barge could access the shoreline via the Kalihi channel and the seaplane runway adjacent to the shore. This possibility will be further evaluated with the State and the City.

Figure 7-7 Example of barge offloading at Ala Wai and Magic Island

7.1.4 Offloading and trucking to project site

Pier side delivery of sand from a barge requires adequate space to offload sand into dump trucks. The sand could be loaded onto trucks with an excavator or similar equipment, or a conveyor system could be deployed for more efficient handling. Examples of sand conveyance from barge to shore are shown as Figure 7-8 and Figure 7-9. Conveyor belt systems can move an estimated 150 cy of sand per hour.

Using mid-size (15 cu. yd.) or larger (20 cu. yd.) dump trucks for truck hauling of the sand would require between 3,250 and 4,300 truckloads for the 65,000 cy required for Option 3. An estimated 30 days of trucking would then result in approximately 80 to 100 dump truck loads delivered to Ala Moana each day. Based on a 10-hour workday, this would mean 8 to 10 dump truck deliveries per hour.

The advantage of truck hauling is that it minimizes impacts to the seafloor by eliminating delivery pipes to the shoreline. The disadvantages would include the increased cost due to time, equipment, and energy to move the sand by trucks rather than pipe it directly to the shoreline, and additional traffic impacts from moving 8 to 10 dump trucks into and out of the project area each hour.

Figure 7-8 Barge-mounted conveyor system

Figure 7-9 Barge-mounted conveyor system

7.1.5 Sand Placement

As sand is trucked to the project site, the sand would be moved directly to the beach and placed to the design lines and grades. There is no dewatering associated with the truck hauling method. Sand movement and placement during the 2012 Waikiki Beach nourishment project was accomplished using standard mechanical equipment, including a front-end bucket loader, dump trucks, and bulldozers. This method is proposed for use with the present project.

Sand movement and placement during the 2007 Kuhio Beach project was accomplished using standard mechanical equipment, a front-end bucket loader, bulldozers, and trucks (Figure 7-10 and Figure 7-11). The same method could be used to accomplish this project. Some noise and smell from the equipment, and possibly some additional short-lived odor from the sand, will be unavoidable.

The beach width will be increased from onshore to offshore, thus building dry substrate for machinery to operate on as it is built seaward. Proper beach shape would be verified during construction with surveys and by placing survey stakes with final beach height markings as references. Design beach profiles and volume calculations would be part of the construction drawings.

A containment system will be required in the area of active sand placement to reduce the potential for turbidity impacts to coastal waters during sand placement in the water. Silt curtains and fences will be required, consistent with previous requirements of the DOH. Schematics of these containment devices are shown as Figure 7-12 through Figure 7-14.

Phasing of the sand placement is not important since the beach dynamics are relatively slow. It is recommended, however, that once placement begins in an area, nourishment continue until complete in that area. Working on one area at a time would limit the impact to park users, as much of the beach would stay open during the work day.

Figure 7-10 Sand placement, 2012 Waikiki Beach Maintenance Project.

Figure 7-11 Example: floating silt curtain and small bulldozer used for sand placement in the 2012 Waikiki Beach Maintenance project.

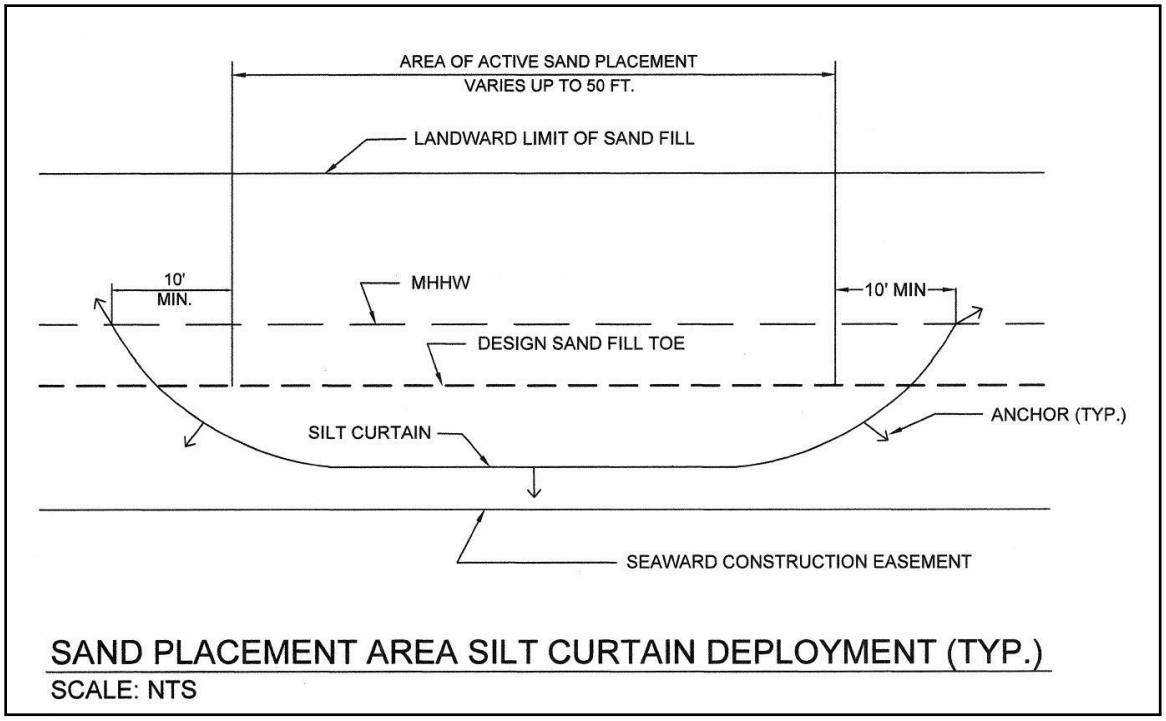

Figure 7-12 Silt curtain layout for sand placement

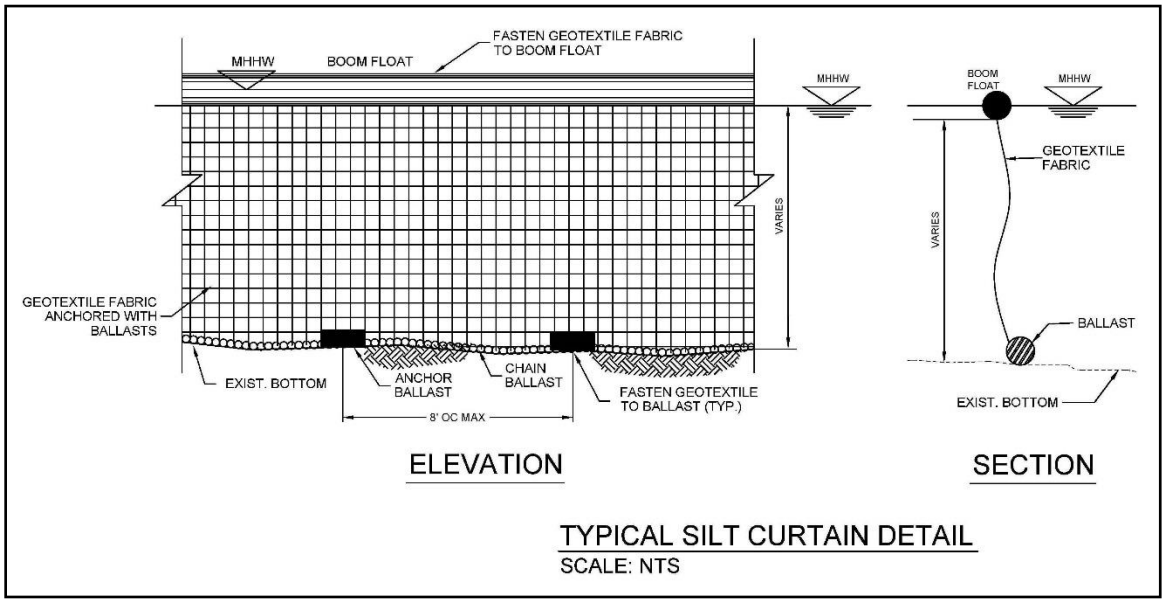

Figure 7-13 Typical silt curtain detail

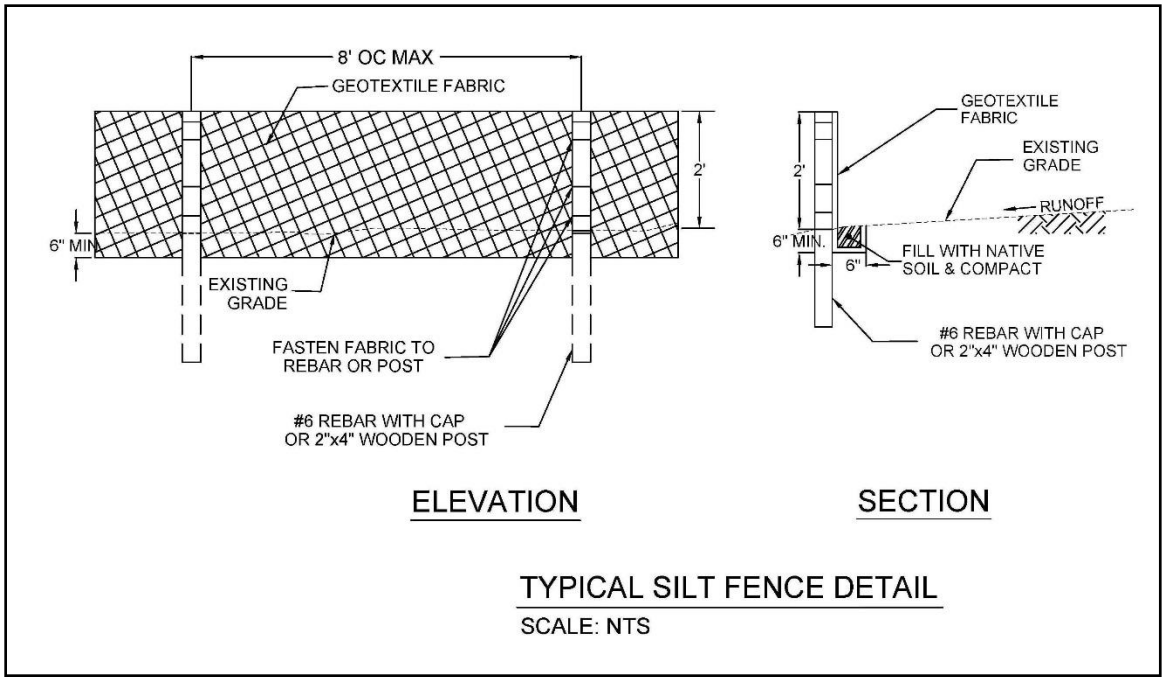

Figure 7-14 Typical silt fence detail

7.1.6 Operational Considerations

The wave and wind environment at the sand recovery site presents a challenge for the dredging contractor. Dangerous conditions can occur from both south Pacific swell and tradewinds, and can be reasonably expected to occur at any point during project construction. The most advantageous work period is fall to early winter, when southern swell and tradewinds can be expected to be the least intense. Strong tradewinds can also create seas and currents that would make it difficult to hold the dredge barge and scows in relatively stable positions. For this reason, the operation is proposed to occur during low wave and wind conditions in the fall months.

There are no oceanographic constraints to offloading in a commercial harbor, which would be expected to be sheltered from wave energy. Similarly, sand placement at Ala Moana beach could be satisfactorily accomplished during any time of the year. Tides are more critical than waves for sand placement on the beach.

8. POTENTIAL IMPACTS

Previous beach nourishment efforts in Hawaii and domestically have generated data on potential project impacts. Review of these projects, including the recent Waikiki Beach Nourishment and Iroquois Point Beach Nourishment efforts, and their outcomes has resulted in the following list of potential impacts. This list is not exclusive and additional, undiscussed and/or undocumented impacts may evolve during the course of the project.

8.1 Fines and Turbidity

Sand recovered from the ocean, though highly compatible with the dry beach sand, would still have some fine content that would be winnowed from the beach system and moved offshore during the initial equilibration process and beach erosion events. Dredging, transport, and placement of carbonate sand can also increase the percent of fines through mechanical abrasion of the friable grains.

Turbidity, or a reduction in water transparency, occurs when fine sediment particles are suspended in the water column. Turbidity is anticipated to be a temporary construction impact, and would naturally dissipate as fine sediment settles out of the water column.

Nearshore turbidity is anticipated along the beach restoration shoreline during construction. Silt curtains and containment barriers would be deployed along the shoreline where sand placement is occurring. Following placement of sand on the beach, there will likely be periodic turbidity associated with equilibration of the beach profile and planform, as sand moves along the beach and cross-shore. Larger sand size grains are currently stable along the coastline and make up the existing beach face; however, finer material will likely move in the offshore direction.

Offshore turbidity is also expected at the dredge site. As the clamshell bucket grabs sand from the seafloor, it would disturb fine particles adjacent to the bucket. As the bucket is raised through the water column, minor volumes of sand containing fine particles would be released into the water column. Turbidity at the dredge site will be reduced by using an environmental clamshell bucket, which is an industry best practice and has been used to minimize turbidity during dredging of harbor channels in Hawaii. Environmental clamshell buckets typically have tighter seals and overlapping sides. These buckets are designed to minimize sediment loss from within the bucket, resuspension at the dredge site, and water entrainment with each grab. Turbidity generated from dredging operations is expected to be transported with the currents moving parallel to shore. Wave action has the potential to transport turbidity inshore.

8.2 Sand Compaction

Compaction occurs when grains are pressed together, reducing pore space between them. Heavily compacted sand can become partially or wholly lithified (solidified), having consistency ranging from compact but friable (able to be easily broken down into sand grains), to more rock-like. Indurated (well compacted) beach rock cannot be easily broken up into individual sand grains.

Sand compaction was observed after the 2012 Waikiki Beach Maintenance project along the truck haul route between the dewatering basin and the sand placement area. A 1- to 3-foot tall

hardened berm formed along the seaward edge of the haul route (Figure 8-1). SEI engineers attributed this sand compaction to loaded dump trucks traveling over the beach fill. Additionally, chemical processes in the form of carbonate dissolution likely contributed to the hardening of the beach fill.

Sand would be moved through the park utilizing the driveway where possible. Bulldozers would operate on the beach to spread the sand. The combination of pressure, dissolution of calcium carbonate material from fresh water, and the presence of fines could increase the chances of induration (hardening) of the placed sand. Compaction can be minimized by mechanically loosening or turning the sand along the truck haul route every few days. Moreover, haul routes can be monitored and plowed after project completion, if needed.

Figure 8-1. Sand compaction and induration along Waikiki Beach

8.3 Coral Rubble

Coral cobbles and rubble were an issue during the 2012 Waikiki Beach Maintenance project. These larger grains were uncomfortable for beach users, as they tended to accumulate in the nearshore at the toe of the beach. The potential for coral rubble was addressed by engineers during the design process, and efforts were made to reduce recovery of large pieces of rubble from the offshore sand deposit. However, the amount of rubble reaching the beach still exceeded construction specifications, specifically for long and narrow pieces of rubble that were able to fit through a screen on the hydraulic sand pump. After placement, the rubble became concentrated

at the beach toe, just offshore of the waterline. The contractor removed coral rubble by hand, and the Waikiki Improvement Association organized volunteer rock picking efforts.

Though the grain size distributions of the offshore sand areas have been documented, coral rubble, or sediment grains that are much larger than the median grain size, may exist sporadically within the sand deposit. During offshore sand sampling, limited coral rubble was encountered in the offshore sand deposits. Rubble, however, may exist in discreet pockets within the sand deposit.

One of the disadvantages of clamshell dredging is that there is no method to screen coral rubble from the recovered sand at the dredge site. The contractor, therefore, should monitor the sand for coral rubble as the clamshell bucket empties the sand onto the scow. If excessive coral rubble is encountered in an area within the offshore sand deposit, sand recovery operations should move to a different location within the deposit.

Screening the sand as it is offloaded from the scow is possible, but would drastically slow production and could still allow cobbles to enter the beach system. Careful inspection of the sand as it is being recovered is the most effective way to minimize rubble content by identifying any areas that have higher volumes of large grains.

8.4 Sand Dynamics

Chronic erosion would continue to affect the shoreline along the full length of Ala Moana beach, as would seasonal and episodic erosion and beach adjustment events. In addition to these natural phenomena, the beach may also be impacted by large magnitude events such as strong Kona storms, hurricanes, tsunamis, extreme water level changes, and other oceanographic and atmospheric catastrophes. Any and all of these can cause a large-scale change in the beach. As a result of one or more of these events, all placed sand and more could be lost from the beach.

8.5 Design Life

If the historical erosion rate of 2.4 feet per year remains constant into the future, it can reasonably be expected that the beach at this location would return to its pre-nourishment condition after about 20 years for the Option 1 nourishment and after about 35 years for the Option 2 and Option 3 nourishments. With increasing sea level, however, greater wave energy will reach the beach and possibly increase erosion rates. Recent State sea level rise studies forecast as much as 3.2 feet of sea level rise by the year 2100. Additionally, storm impacts from hurricanes or Kona storms could result in a rapid and irreversible loss of sand.

Regular maintenance of the beach is recommended to keep the usability of the beach at a high level. It is recommended that following the initial sand placement, re-nourishment be conducted at regular intervals in order to maintain an improved beach width. The additional sand added to the Diamond Head beach area can be used to add volume to the sand in a similar manner as was used in the 2016 sand pushing. This could be executed rather efficiently and on an as-needed basis while the supply lasts.

8.6 Anoxic Content

There are some portions of the offshore sand areas that have anoxic conditions beneath the surface of the sand. When sand is recovered from anoxic environments, it would typically have a gray color and an odor. Both of these issues would be expected as part of the restoration and enhancement phases. Both the color and odor have been documented to fade with exposure to sun and air, based on previous sand recovery efforts in Hawaii.

8.7 Marine Activities

The anchor lines at the offshore sand site would be in place for the duration of sand recovery operations, and floating sections or anchor lines would be marked with floats and lights as needed. The machinery operating on the barge would be run from the early morning until later in the afternoon each day. Some lighting would be needed on the barge to conduct operations during the morning hours.

Dredging and barging would be taking place in the nearshore waters, and are expected to directly impact ocean recreation and access in the area. Careful planning will be necessary to minimize these impacts, resulting in a recommendation for longer work days, and working seven days a week, to significantly reduce the overall duration of the project.

Public safety during construction is of utmost importance. A Notice to Mariners detailing construction activities and locations should be publicly issued through the United States Coast Guard prior to mobilization of construction equipment on site. A public awareness campaign is recommended to be initiated through the City and DLNR to help spread awareness about construction activities. DPR will be coordinated with so they may inform park users of construction activities. All onshore and offshore hazards will be clearly marked with signage and/or marker floats. Transit corridors, both on the beach and in the water, will be clearly labeled. Flag persons will be provided as needed.

8.8 Beach Activities

Placement operations on the beach would require lengths of the coast to be cordoned off during trucking operations. Crossing guards would be placed intermittently along the shoreline to assist the public in transiting across the access route. While operating, the heavy machinery would emit noise and exhaust. Again, working longer days, seven days a week, will limit the overall impact by reducing overall project duration. The 2016 sand pushing project successfully operated during evening and nighttime hours, thus reducing the impact on users.

8.9 Surf Activities

Surfing takes place along the reef edge offshore of the park, generally during the summer months under southern swell conditions, but can happen year around. The beach nourishment project is expected to have no effect on the surf break; however, users typically enter the water from within the park. During construction, parts of the beach will be closed, and surfers may need to take a different route across the shoreline to the surf sites.

8.10 Recreational Hazards

Users experience certain recreational hazards in Ala Moana Regional Park. These hazards include swimming accidents such as drowning, collisions between users, trips and falls, sharp objects, and poor water quality. These hazards exist at the park and will continue to exist after the nourishment project.

8.11 Water Quality and Marine Biology

8.11.1 Water quality

Water quality and marine biology of the park's nearshore waters were assessed by Marine Research Consultants Inc. (MRCI) for this project. Water chemistry field collection was conducted on April 30, 2018. Water chemistry was assessed by collecting four linear sets of samples (i.e., transects) extending perpendicular from the shoreline, extending from the highest wash of waves to the boundary of the dredged basin and undredged reef flat.

The physical structure of the marine habitats where it is proposed to place offshore sand in the intertidal areas to cover the existing rubble shoreline is composed of a man-made dredged swimming channel that runs parallel to the beach face. As there are no deep openings in the reef flat into which the channel is cut to facilitate exchange of water with the open ocean, the residence time of water in the channel is likely far greater than on an exposed coastline. Results of analyses of water chemistry from samples collected along transects that extend from the shoreline to the outer edge of the channel cut indicate some effects to nutrients in the nearshore zone, likely as a result of low flushing, increased temperature, and in one area, input of fresh water.

While the values of most water quality constituents are near Department of Health water quality standard specific criteria for open coastal waters, values of turbidity are consistently well above the values specified in DOH standards. The elevated values of turbidity are primarily a response to resuspended fine sediment emanating from beach sand that is trapped within the semi-enclosed dredged channel. When offshore sand was placed on the shoreline in Waikiki, nearshore turbidity temporarily increased substantially as fine-grained sediment that was not washed from the donor sand was resuspended in the water column. As it is inevitable that there will be a similar component of fines in material used to nourish the beach at Ala Moana Regional Park, it can be expected that there will be a temporary increase in turbidity over the present levels. Such an increase would be expected to be temporary until fines are winnowed out of the donor sand to the level that exists at present.

8.11.2 Marine Biology

Biotic community structure of the marine environment was semi-quantitatively assessed by investigators swimming throughout the offshore area from the shoreline to the inner margin of the dredged reef off each of the survey transect sites described above. During these reconnaissance swims, notes were taken on physical structure and marine species presence. Numerous photographs were taken of typical features of all habitats to provide a descriptive representation of the area fronting the project site.

Results of biotic surveys reveal that an important component of the benthic community is abundant, patchy meadows of Hawaiian seagrass throughout the deep dredged swim channel. As the specific habitat for this species of seagrass is shallow calm water with soft sand substratum, the floor of the swim channel is an ideal habitat for seagrass. It is apparent that the elevated levels of turbidity owing to resuspended sediment in the water column of the channel are not an impediment to seagrass occurrence. While placement of offshore sand on the beach will likely result in a temporary increase in resuspended sediment, it is not likely that there will be substantial settlement of new sediment on the floor of the channel sufficient to bury or impact existing assemblages of seagrass. As the new sediment should not be qualitatively different than the existing sand, it is not likely that there will be a change in habitat composition sufficient to alter seagrass abundance. Care should be taken however in the placement of new sand to ensure that it does not cover any existing seagrass beds.

The other component of the benthos that is an important consideration in the environmental effects of sand nourishment is the existence of small corals on rubble in the nearshore zone. As this is the area intended to be transformed from a rubble shoreline to a sand shoreline, with no mitigation in terms of removing rubble prior to sand placement, the new sand would bury these small corals. As the abundance of these corals is very low, and they are all attached to unconsolidated surfaces, a possible mitigation measure would be to move them to either a rubble zone off Ala Moana Park that is not proposed for beach nourishment, or to a location on the outer reef flat. As wave motion on the reef flat adjacent to the channel cut is low, corals transplanted to this area would likely have a high potential for survival. Another alternative would be to donate these corals to the State DAR Coral Nursery on Sand Island.

The marine habitat in the outer channel adjacent to Magic Island is presently populated by a variety of large, healthy corals. These corals are protected from wave impacts by the bordering shallow reef flat and occur in an area where water quality is more similar to open ocean settings than the inner channel. While there may be temporary slight increases in turbidity in this area following beach nourishment, it should not be of a magnitude beyond the natural tolerance of these species. In addition, the more rapid flushing of this area with clean ocean water should prevent any sediment deposition on existing corals.

8.11.3 Threatened and Endangered Species

Several species of marine animals that occur in Hawaiian waters have been declared threatened or endangered by Federal jurisdiction. The swim channel is presently a preferred habitat for green sea turtles, particularly juveniles. Characteristics of the area that are ideal for turtles are protection from predators and abundant food resources in the form of algae and seagrass. The temporary changes to water quality from sand placement should not be of a magnitude to affect turtle behavior, as they seem unaffected by turbid waters. During sand placement operations, observers should be in place to spot any turtles that might enter the work area. If such actions occur, a mitigation plan should be in effect to stop work until turtles leave the area.

8.11.4 Conclusion

Based on the results of this survey, it can be concluded that with proper management and mitigation practices to limit to the extent possible release of fine-grained material to the water

column from donor sand, and removal of corals from the rubble zone, the proposed replacement of rubble on the shoreline should have little or no potential for significant permanent effects to the existing marine environment.

9. MITIGATION

9.1 Mitigation During Construction

9.1.1 Protection of Endangered Species

The following Best Management Practices (BMPs) as typically recommended by the National Marine Fisheries Service (NMFS) will be adhered to during construction of the project to avoid impacts to the turtles.

1. Conduct a survey for marine protected species before any work in the water starts, and if a marine protected species is in the area a 150-foot buffer must be observed between the protected species and the work zone.
2. Establish a safety zone around the project area whereby observers will visually monitor this zone for marine protected species 30 minutes prior to, during, and 30 minutes post project in-water activity. Record information on the species, numbers, behavior, time of observation, location, start and end times of project activity, sex or age class (when possible) and any other disturbances (visual or acoustic).
3. Conduct activities only if the safety zone is clear of turtles.
4. Upon sighting of a turtle within the safety zone during project activity, immediately halt the activity until the animal has left the zone. In the event a marine protected species enters the safety zone and the project activity cannot be halted, conduct observations and immediately contact NMFS staff in Honolulu to facilitate agency assessment of collected data.
5. For on-site project personnel that may interact with a protected species potentially present in the project area, provide education on the status of any listed species and the protections afforded to those species under Federal laws.

9.1.2 Best Management Practices During Construction

Best Management Practices (BMPs) for construction operations will be developed to help minimize adverse impacts to coastal water quality and the marine ecosystem. The project specifications will require the Construction Contractor to adhere to environmental protection measures, including, but not limited to, the following:

- The Contractor shall perform the work in a manner that minimizes environmental pollution and damage as a result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of the construction period.
- Any construction related debris that may pose an entanglement hazard to marine protected species must be removed from the project site if not actively being used and/or at the conclusion of the construction work.
- The Contractor shall submit a Best Management/Environmental Protection Plan for approval prior to initiation of construction. The plan shall include, but not be limited to:
    1. Protection of Land Resources
    2. Protection of Water Resources
    3. Disposal of Solid Waste
    4. Disposal of Sanitary Waste
    5. Disposal of Hazardous Waste

6. Dust Control
7. Noise Control

- The construction contractor shall be required to employ standard BMPs for construction in coastal waters, such as daily inspection of equipment for conditions that could cause spills or leaks; cleaning of equipment prior to operation near the water; proper location of storage, refueling, and servicing sites; and implementation of adequate spill response procedures, stormy weather preparation plans, and the use of silt curtains and other containment devices.
- No contamination (trash or debris disposal, alien species introductions, etc.) of marine (reef flats, lagoons, open oceans, etc.) environments adjacent to the project site shall result from project related activities.
- The Contractor shall confine all construction activities to areas defined by the drawings and specifications. No construction materials shall be stockpiled in the marine environment outside of the immediate area of construction.
- The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface or marine waters. Construction related turbidity at the project site shall be controlled so as to meet water quality standards. All water areas affected by construction activities shall be monitored by the Contractor. If monitoring indicates that the turbidity standards are being exceeded due to construction activities, the Contractor shall suspend the operations causing excessive turbidity levels until the condition is corrected. Effective silt containment devices shall be deployed where practicable to isolate the construction activity, and to avoid degradation of marine water quality and impacts to the marine ecosystem. In-water construction shall be curtailed during sea conditions that are sufficiently adverse to render the silt containment devices ineffective.
- Waste materials and waste waters directly derived from construction activities shall not be allowed to leak, leach or otherwise enter marine waters.
- Fueling of project related vehicles and equipment should take place away from the water. A contingency plan to control the accidental spills of petroleum products at the construction site should be developed. Absorbent pads, containment booms and skimmers will be stored on site to facilitate the cleanup of petroleum spills.
- The project shall be completed in accordance with all applicable State and County health and safety regulations.
- The sand shall be of beach-compatible quality, moderately well sorted with rounded and polished grains composed of primarily calcareous material. The sand shall be dominantly composed of naturally occurring carbonate beach or dune sand. Crushed limestone or other man-made or non-carbonate sands are not allowable.
- All construction material including sand shall be free of contaminants of any kind including: excessive silt, sludge, anoxic or decaying organic matter, turbidity, temperature or abnormal water chemistry, clay, dirt, organic material, oil, floating debris, grease or foam or any other pollutant that would produce an undesirable condition to the beach or water quality.
- Sand fill placement shall not be done during storms.
- Any spills or other contaminations shall be immediately reported to the DOH Clean Water Branch (808-586-4309).

- Best management practices shall be utilized to minimize adverse effects to air quality and noise levels, including the use of emission control devices and noise attenuating devices.
- A dust control program shall be implemented, and windblown sand and dust shall be prevented from blowing offsite by watering when necessary.
- Public safety best practices shall be implemented, possibly including posted signs, areas cordoned off, and on-site safety personnel.
- Public access along the shoreline during construction shall be maintained so far as practicable and within the limitations necessary to ensure safety.
- The Contractor shall review all best management practices with the project applicant/representative prior to the commencement of beach nourishment activities.

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