HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAELOA

David Y. Ige
Governor

John Whalen
Chairperson

Aedward Los Banos
Interim Executive Director

April 27, 2016

The Honorable David Y. Ige
Governor, State of Hawaii
Executive Chambers
State Capitol
Honolulu, Hawaii 96813

Mr. Scott Glenn, Interim Director
Office of Environmental Quality Control
Department of Health, State of Hawaii
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Governor Ige and Mr. Glenn:

Re: Draft Environmental Impact Statement for the Kakaako Makai Parks Active Use Facilities Master Plan

With this letter, the Hawai'i Community Development Authority ("HCDA") hereby transmits the document package for the *Kakaako Makai Parks Active Use Facilities Master Plan Draft Environmental Impact Statement* ("DEIS") for publication of a notice of availability for public comment in the next available edition of the *Environmental Notice* (May 8, 2016). The Kakaako Makai Parks are situated at various tax map parcels within the Kakaako Community Development District in Honolulu on the island of Oahu. The DEIS include copies of written comments received during the 30-day public consultation period for the Act 172-12 Environmental Impact Statement Publication Notice.

Also enclosed is a distribution list for the verification of the Office of Environmental Quality Control ("OEQC") under Section 11-200-20, Hawaii Administrative Rules. Upon receiving verification from OEQC (along with the bulletin proof of the notice containing the pertinent details for commenters), we will make the DEIS and the bulletin proof available to those so indicated on the distribution list so that they will have the full 45-day statutory period to review and comment on the draft EIS.

Finally, enclosed is the completed OEQC Publication Form, two copies of the DEIS, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to the OEQC. If there are any questions, please contact Mr. Deepak Neupane, P.E., AIA, Director of Planning and Development at (808) 594-0300.

Sincerely,

Aedward Los Banos
Interim Executive Director

Enclosure

c: PBR Hawaii

547 Queen Street
Honolulu, Hawaii
96813

Telephone
(808) 594-0300

Facsimile
(808) 587-0299

E-Mail
contact@hcdaweb.org

Website
www.hcdaweb.org

AGENCY
PUBLICATION FORM

Project Name:	Kakaako Makai Parks Active Use Facilities Master Plan
Project Short Name:	Kakaako Makai Parks Master Plan
HRS §343-5 Trigger(s):	Use of State lands and funds, Use within a shoreline area
Island(s):	Oahu
Judicial District(s):	Honolulu
TMK(s):	Kakaako Waterfront Park: (1) 2-1-060:008, (1) 2-1-060:029 (por.), (1) 2-1-060:030 (por.); Kakaako Gateway Park: (1) 2-1-060:007, (1) 2-1-059:023, (1) 2-1-059:024, (1) 2-1-059:025, (1) 2-1-059:026, (1) 2-1-060:030 (por.); and Kewalo Basin Park: (1) 2-1-058:131 (por.)
Permit(s)/Approval(s):	Amendment to Kakaako Makai Area Plan Amendment to Chapter 15-23, HAR Special Management Area (SMA) Makai Area Development Permit National Pollutant Dishcarge Ellimination System (NPDES) Permit Grading/Building Permits Compliance with DOH Rules for Ash Landfill Re-Contouring
Proposing/Determining Agency:	Hawaii Community Development Authority (HCDA)
Contact Name, Email, Telephone, Address	Deepak Neupane, P.E.,AIA , Director of Planning & Development deepak.neupane@hawaii.gov Telephone: (808) 594-0300 Fax: (808) 587-0299 HCDA, State of Hawaii 547 Queen Street Honolulu, Hawaii 96813
Accepting Authority:	Governor, State of Hawaii
Contact Name, Email, Telephone, Address	The Honorable David Y. Ige Governor, State of Hawai'i Executive Chambers State Capitol Honolulu, Hawai'i 96813 Phone: (808) 586-0034 http://governor.hawaii.gov/contact-us/contact-the-governor/
Consultant:	PBR HAWAII & ASSOCIATES, Inc.
Contact Name, Email, Telephone, Address	Tom Schnell, AICP, Principal sysadmin@pbrhawaii.com Telephone: (808) 521-5631 Fax: (808) 523-1402 PBR HAWAII & Associates, Inc. 1001 Bishop Street ASB Tower, Suite 650 Honolulu, Hawaii 96813

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
Provide a description of the proposed action and purpose and need in 200 words or less.

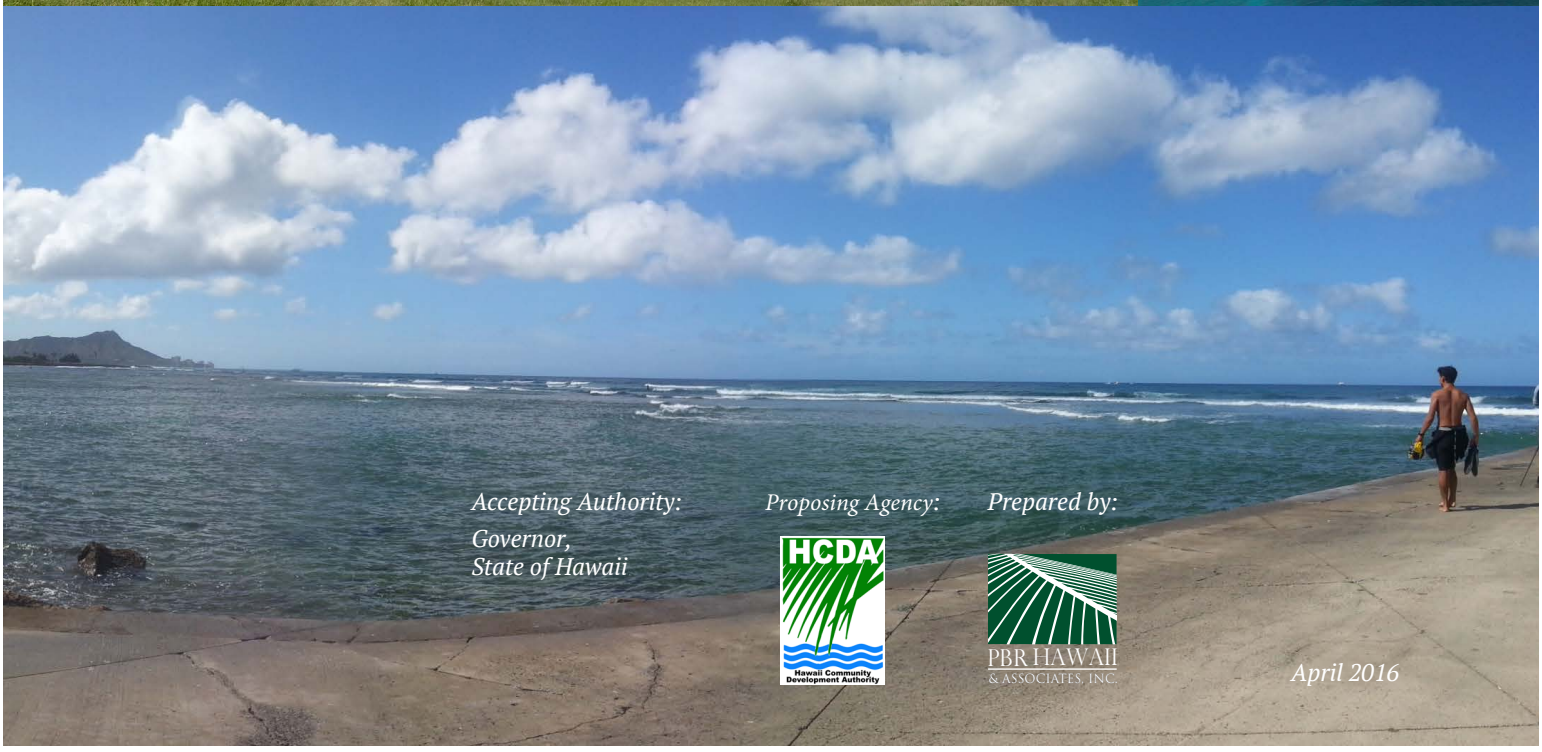
An Active Use Facilities Master Plan (Master Plan) has been prepared for proposed improvements to the Kakaako Makai Parks (Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park). The purpose of the Master Plan is to propose a broad range of park improvements that will serve as the backdrop for sustainable, re-energized, active uses and enhanced gathering places within the Kakaako Makai Parks.

The primary objective of the Master Plan is to set forth a viable plan for park improvements that will encourage and support active uses. The Master Plan details a phased approach for the implementation of proposed improvements that is logical with respect to current needs; cost; public health, and welfare; infrastructure availability; envionrmental iimpacts; and population growth.

Park improvements proposed during Phase I include: improvements to the existing promenade in Waterfront Park; developing "Lei of Green" connections between Kewalo Park and Ala Moana Regional Park; and addressing landscape and drainage needs in Kewalo Basin Park. Subsequent phases would involve other improvements as funding becomes available.

KAKAAKO MAKAI PARKS
ACTIVE USE FACILITIES MASTER PLAN

DRAFT ENVIRONMENTAL IMPACT STATEMENT



Accepting Authority:
Governor,
State of Hawaii

Proposing Agency:
HCDA
Hawaii Community Development Authority

Prepared by:
PBR HAWAII
& ASSOCIATES, INC.

April 2016

KAKAAKO MAKAI PARKS
ACTIVE USE FACILITIES MASTER PLAN

DRAFT ENVIRONMENTAL IMPACT STATEMENT

This statement and all ancillary documents were prepared under my direction or supervision. The information submitted, to the best of my knowledge, fully addresses document content requirements as set forth in sections 11-200-17 and 11-200-18, Hawaii Administrative Rules.

April 27, 2016

Aedward Los Banos, Interim Executive Director
Hawaii Community Development Authority, State of Hawaii

Date

Accepting Authority:
Governor, State of Hawaii

Prepared for:
HCDA

Prepared by:
PBR HAWAII & ASSOCIATES, INC.

April 2016

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PREFACE

The proposed action involves an Active Use Facilities Master Plan (Master Plan) for proposed improvements associated with three parks within the Kakaako Community Development District (KCDD) that are owned and operated by the Hawaii Community Development Authority (HCDA) in Honolulu, Oahu, State of Hawaii. Preparation of an Environmental Impact Statement (EIS) is being undertaken to address requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, Department of Health, Chapter 200, Environmental Impact Rules Hawaii Administrative Rules (HAR). The intent of this document is to disclose a broad range of desired improvements; however not all proposed improvements may ultimately be built. Some of the proposed improvements may require subsequent compliance with Chapter 343, HRS to disclose their specific impacts.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ALISH	Agricultural Lands of Importance to the State of Hawaii
BMP	Best Management Practices
BWS	Honolulu Board of Water Supply
CCH	City and Council of Honolulu
CDC	U.S. Centers for Disease Control and Prevention
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CZM	Coastal Zone Management
CWRM	Commission on Water Resource Management, State of Hawaii
DAR	Division of Aquatic Resources
DBEDT	Department of Business, Economic, Development, and Tourism, State of Hawaii
DLNR	Department of Land and Natural Resources, State of Hawaii
DOH	Department of Health, State of Hawaii
DP	Development Plan
DPP	Department of Planning and Permitting, City and County of Honolulu
EA	Environmental Assessment
EHE	Environmental Hazard Evaluation
EHMP	Environmental Hazard Management Plan
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
ENV	Department of Environmental Services, City and County of Honolulu
FAR	Floor Area Ratio
FEMA	U.S. Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GDP	Gross Domestic Product
GPD	Gallons per Day
GPI	Genuine Progress Indicator
HAR	Hawaii Administrative Rules
HCDA	Hawaii Community Development Authority
HEER	Hazard Evaluation and Emergency Response, State of Hawaii
HRS	Hawaii Revised Statutes
HRTP	Honolulu Rail Transit Project
HTDC	High Technology Development Corporation
H-POWER	Honolulu Program of Waste Energy Recovery
H_2	Hydrogen Gas
H_2S	Hydrogen Sulfide
JABSOM	John A. Burns School of Medicine
KCDD	Kakaako Community Development District
LSB	Land Study Bureau, University of Hawaii
LEL	Lower Explosive Limit
LID	Low Impact Development
LOS	Level of Service

LUC	Land Use Commission, State of Hawaii
LUO	Land Use Ordinance
MADD	Mothers Against Drunk Driving
MSL	Mean Sea Level
mg/L	Milligrams per Liter
NGPC	Notice of General Permit Coverage
NOI	Net Operating Income
NPDES	National Pollutant Discharge Elimination Systems
NRCS	U.S. Department of Agriculture Natural Resources Conservation Services
OEQC	Office of Environmental Quality Control, State of Hawaii
OHA	Office of Hawaiian Affairs, State of Hawaii
OCCL	Office of Conservation and Coastal Lands, State of Hawaii
O_2	Oxygen
PUC	Primary Urban Center
ROW	Right-of-Way
SMA	Special Management Area
SHPD	State Historic Preservation Division
SWMPP	Storm Water Management Program Plans
TOD	Transit Oriented Development
TAR	Traffic Assessment Study
TIAR	Traffic Impact Analysis Report
TMDL	Total Maximum Daily Loads
TMK	Tax Map Keys
TOD	Transit-Oriented Development
UH	University of Hawaii
UHERO	University of Hawaii Economic Research Organization
USFWS	U.S. Fish and Wildlife Service
WWB	Waste Water Branch, Department of Planning and Permitting, City and County of Honolulu

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1.0 OVERVIEW

Throughout this EIS, the terms “Kakaako Makai Parks” or the “Parks” refer collectively to the Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park, located in the Honolulu on the island of Oahu. These parks total approximately 53 acres and comprise about 90% of the public park open space within the Kakaako Community Development District (KCDD). The Kakaako Makai Parks are owned and operated by the Hawaii Community Development Authority (HCDA).

HCDA engaged PBR HAWAII to: 1) complete an Active Use Facilities Master Plan (Master Plan) that would promote active uses in the Kakaako Makai Parks; and 2) prepare and process a Chapter 343, Hawaii Revised Statutes (HRS) Environmental Impact Statement (EIS) for the Master Plan.

The need for the Master Plan is driven by a number of interrelated events and conditions. Since the 2011 Kakaako Makai Conceptual Master Plan (2011 Conceptual Plan) was adopted, the neighborhood has transitioned from its industrial past and experienced land transfers and new developments including:

- In 2012, approximately 30 acres of revenue-generating lands adjacent to or in the vicinity of the Kakaako Makai Parks were transferred from HCDA to the Office of Hawaiian Affairs (OHA). The land transfer was not anticipated by the 2011 Conceptual Plan and it affects the Parks in two ways. First, some land and uses covered in the 2011 Conceptual Plan are subject to a new planning process initiated by OHA. Second, the revenue stream from parking receipts and leases on those lands had, in part, paid for park upkeep and renovations.

- In 2005 and 2013, respectively the University of Hawaii’s (UH) John A. Burns School of Medicine (JABSOM) and Cancer Center opened new facilities adjacent to the Parks in the Makai Area. While JABSOM was accounted for in the 2011 Conceptual Plan, the Cancer Center was not.

- The High Technology Development Corporation (HTDC), a state agency established to facilitate the growth of Hawaii's high technology industry, seeks to relocate their operations from UH Manoa to new facilities on HCDA Makai Area lands (Lot C). Through a phased approach, HCDA proposes to develop the 5.511-acre Lot C site for the Innovation Block to accommodate the HTDC facility, a Kewalo Incubation Center, Learning Center, a Regional Parking Garage, and Innovation Hale. Partnering with the private sector, HCDA proposes an Innovation Hale that will encompass approximately 150,000 square feet, comprised of a retail space and six-story tower of office space. The HCDA Innovation Hale compliments the additional components of the Innovation Block intended to create a focal point for innovation and development of the high tech industry in Hawaii and across the Pacific Rim. A Final Environmental Assessment for this HCDA project was published in January 2016.

- Within the next 15 years, the population of the Kakaako Mauka Area is expected to double to 30,000 people as the result of the continued build out of the area, including new residential uses associated with Transit Oriented Development (TOD).
- In recent years, the Kakaako Makai Area has experienced an influx of homeless individuals and families.

The Master Plan strives to respond to the rapidly changing neighborhood, while considering the robust community input over five years that produced the 2011 Conceptual Plan's 14 guiding principles. In addition to an Environmental Impact Statement Preparation Notice (EISPN), public engagement to acquire perspectives and insights of park users and public occurred through: 1) a series of three Public Open Houses during August 2014 through June 2015; and 2) use of an on-line platform. Details about the public engagement and input received are included in Appendix A, Makai Area Parks Active Use Master Plan Report & Findings on the Public Participation Process.

The purpose of the Master Plan is to propose a broad range of park improvements that will serve as the backdrop for sustainable, re-energized, active uses and enhanced gathering places within the Kakaako Makai Parks. This EIS identifies elements of the proposed park improvements included in the Master Plan and discusses a phased approach. Proposed elements covered in the EIS include:

- great lawn with Gateway Features (Gateway Park into Waterfront Park)
- plaza and water feature (Waterfront Park as an element of the Great Lawn)
- flexible and open community space (Gateway Park and Waterfront Park)
- Lei of Green connections (Waterfront Park-west to Keawe Street; Kewalo Basin Park-east to Ala Moana Regional Park)
- sports complex (Waterfront Park at former "Look Lab" site)
- keiki zone (Waterfront Park, near Children's Discovery Center)
- adventure zone (Waterfront Park)
- beach hale (Waterfront Park, near Point Panic)
- food concessions (Waterfront Park at Adventure Zone and Sports Complex)
- biergarten (Waterfront Park)
- community center (Waterfront Park)
- Re-locate amphitheater (Waterfront Park)
- Re-locate and Re-configure parking (Waterfront Park)
- comfort stations (Waterfront Park and Kewalo Basin Park)

These proposed elements are further described in Section 3.2.

The Master Plan which is the preferred plan and the subject of this EIS, is shown in Figure 1.

A phased approach is proposed for the Master Plan such that elements will be built-out over a span of one to 20 years, through five phases (Phases I through Phases V). Park elements are prioritized during Phase I for completion within one to three years, Phase II within three to five years, Phase III within five to ten years, and Phase IV within ten to twenty years. Based on public and HCDA input, as well as the 2011 Conceptual Plan, the near-term elements include improvements to the existing promenade in Waterfront Park and developing Lei of Green

connections between Kewalo Park and Ala Moana Regional Park, as well as Keawe Street to the Kakaako Makai Parks. Addressing landscape and drainage needs for Kewalo Basin Park are also elements of Phase I. The next phases would involve the remaining proposed improvements of the Master Plan as funding becomes available. See Table 8, Phasing Plan, for additional elements and associated phasing.

Once the EIS process is complete, the Master Plan will be refined based on the input received prior to the HCDA adopting the Master Plan. With a completed Master Plan and EIS, HCDA will then be able to pursue funding for the proposed improvements.

It is important to note that some of the proposed improvements may require subsequent compliance with Chapter 343, HRS to disclose their specific impacts as more detailed design and programming is developed.

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DATE: 3/28/2016

Figure 1
Master Plan

KAKAAKO MAKAI PARKS

HCDA North

Island of Oahu

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretation or other spatial analysis.

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DATE: 4/26/2016

LEGEND

Kakaako Makai Parks

Source: City & County of Honolulu, 2014-2016. Google StreetView, 2016.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 2

Surrounding Land Uses

KAKAAKO MAKAI PARKS

HCDA

North

Linear Scale (feet)

0 250 500

Island of Oahu

PBR HAWAII & ASSOCIATES, INC

2.0 SUMMARY

This Draft Environmental Impact Statement (EIS) has been prepared in accordance with Chapter 343, HRS, for a Master Plan for proposed improvements associated with three parks within the KCDD that are owned and operated by the Hawaii Community Development Authority in Honolulu, Oahu, State of Hawaii. Figure 2 and Figure 3 show the location of Parks in context with Honolulu, with each park labeled by name.

2.1 INTRODUCTION

2.1.1 Project Profile

Project Name: Kakaako Makai Parks Active Use Facilities Master Plan

Location: Honolulu, Oahu, Hawaii

Judicial District: Honolulu

Applicant: Hawaii Community Development Authority (HCDA)

Tax Map Keys: Figure 4 shows the respective Tax Map Key Parcels

Table 1. Kakaako Makai TMK Parcels

Park	Park Area (Acres)	TMK(s)
Kakaako Waterfront Park	39 acres	(1) 2-1-060:008 (1) 2-1-060:029 (por.) (1) 2-1-060:030 (por.)
Kakaako Gateway Park	7.8 acres	(1) 2-1-060:007 (1) 2-1-059:023 (1) 2-1-059:024 (1) 2-1-059:025 (1) 2-1-059:026 (1) 2-1-060:030 (por.)
Kewalo Basin Park	5.8 acres	(1) 2-1-058:131 (por.)

Collectively, throughout this document, the parks and parcels listed above are referred to as the "Kakaako Makai Parks."

Recorded Fee Owner: State of Hawaii

Existing Use: The Kakaako Makai Parks are currently used as passive parks.

Proposed Action: Active Use Facilities Master Plan (Master Plan) for proposed improvements to the Kakaako Makai Parks.

Land Use Designations:

State Land Use District: Urban (Figure 5)

Primary Urban Center DP Land Use Map: Major Parks and Open Space (Figure 8)

County Zoning: State Jurisdiction: Kakaako Community Development District (Makai Area)

Special Management Area (SMA): In the SMA (Figure 9)

HCDA Makai Area Plan: Park and Waterfront Commercial (Figure 10)

Need for Statement:

Compliance with Chapter 343, HRS

- Use of State lands and funds
- Use within a shoreline area

Major Approvals Required/Issuing Body:

Compliance with Department of Health (DOH) Rules for Ash Landfill Re-Contouring/State DOH

National Pollutant Discharge Elimination System (NPDES) Permit/State DOH

Special Management Area (SMA)/State Office of Planning

Grading/Building Permits/ City Department of Planning & Permitting

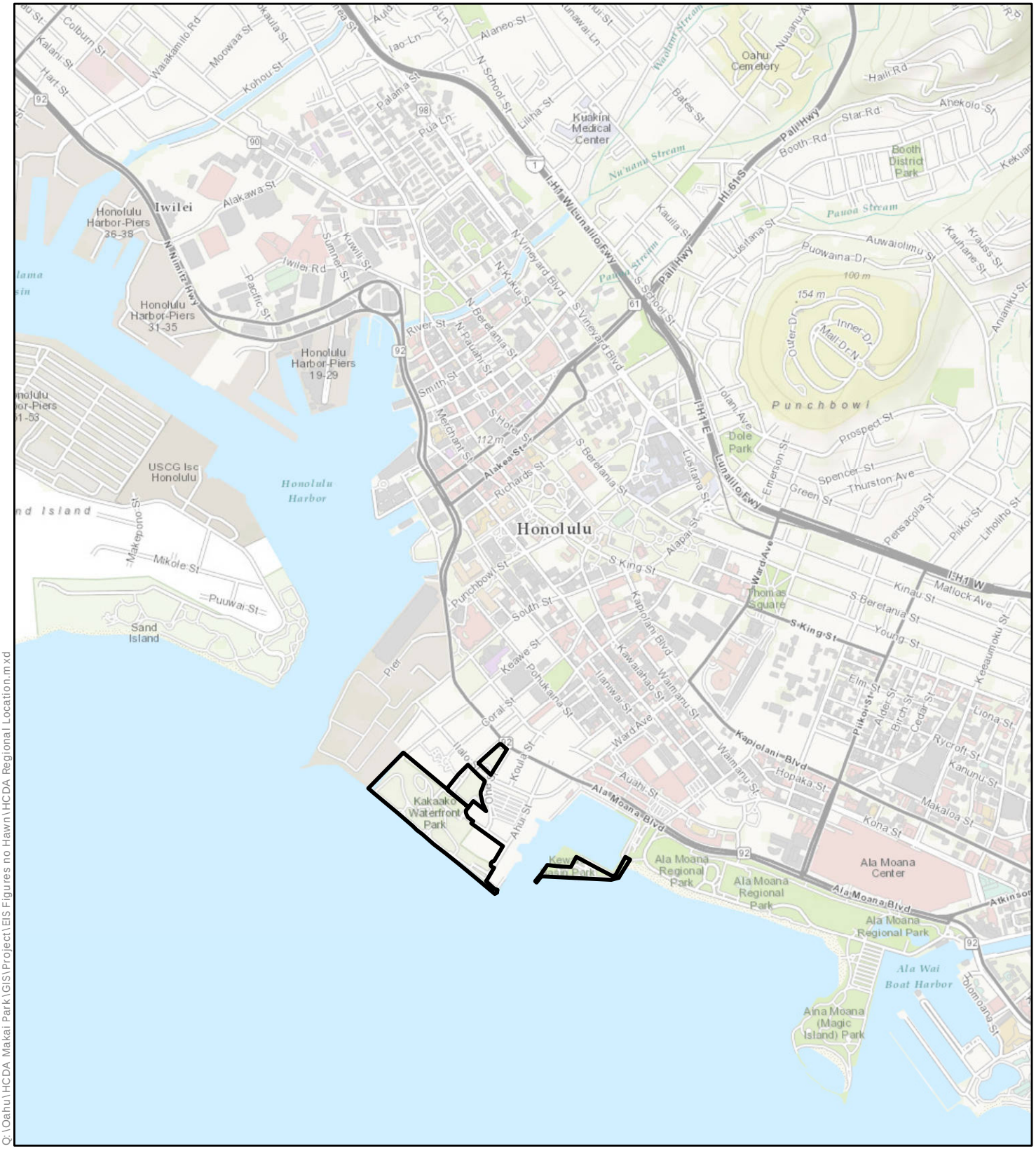
Kakaako Makai Area Plan/HCDA

Chapter 15-23, HAR/HCDA

Makai Area Development Permit/HCDA

Accepting Authority:

Governor, State of Hawaii



DATE: 3/24/2016

LEGEND

Kakaako Makai Parks

Figure 3

Regional Location Map

KAKAAKO MAKAI PARKS

HCDA

Island of Oahu

North

Linear Scale (feet)

0 1,000 2,000

Source: ESRI Online World Topo Map, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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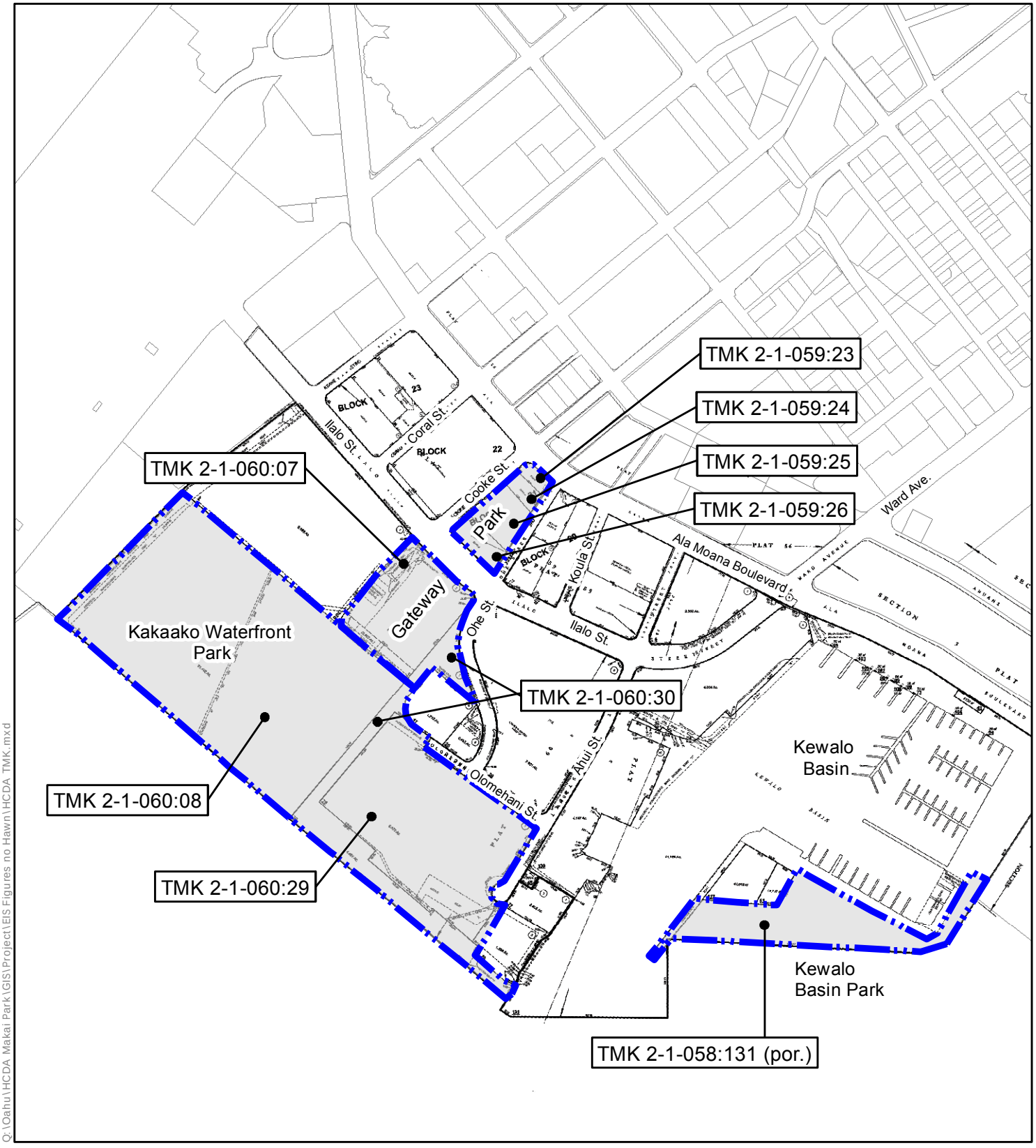

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DATE: 3/24/2016

LEGEND

Kakaako Makai Parks

Figure 4

Tax Map Key

KAKAAKO MAKAI PARKS

HCDA

North

Island of Oahu

Linear Scale (feet)

0 300 600

PBR HAWAII & ASSOCIATES, INC.

Source: City & County of Honolulu, 2014.

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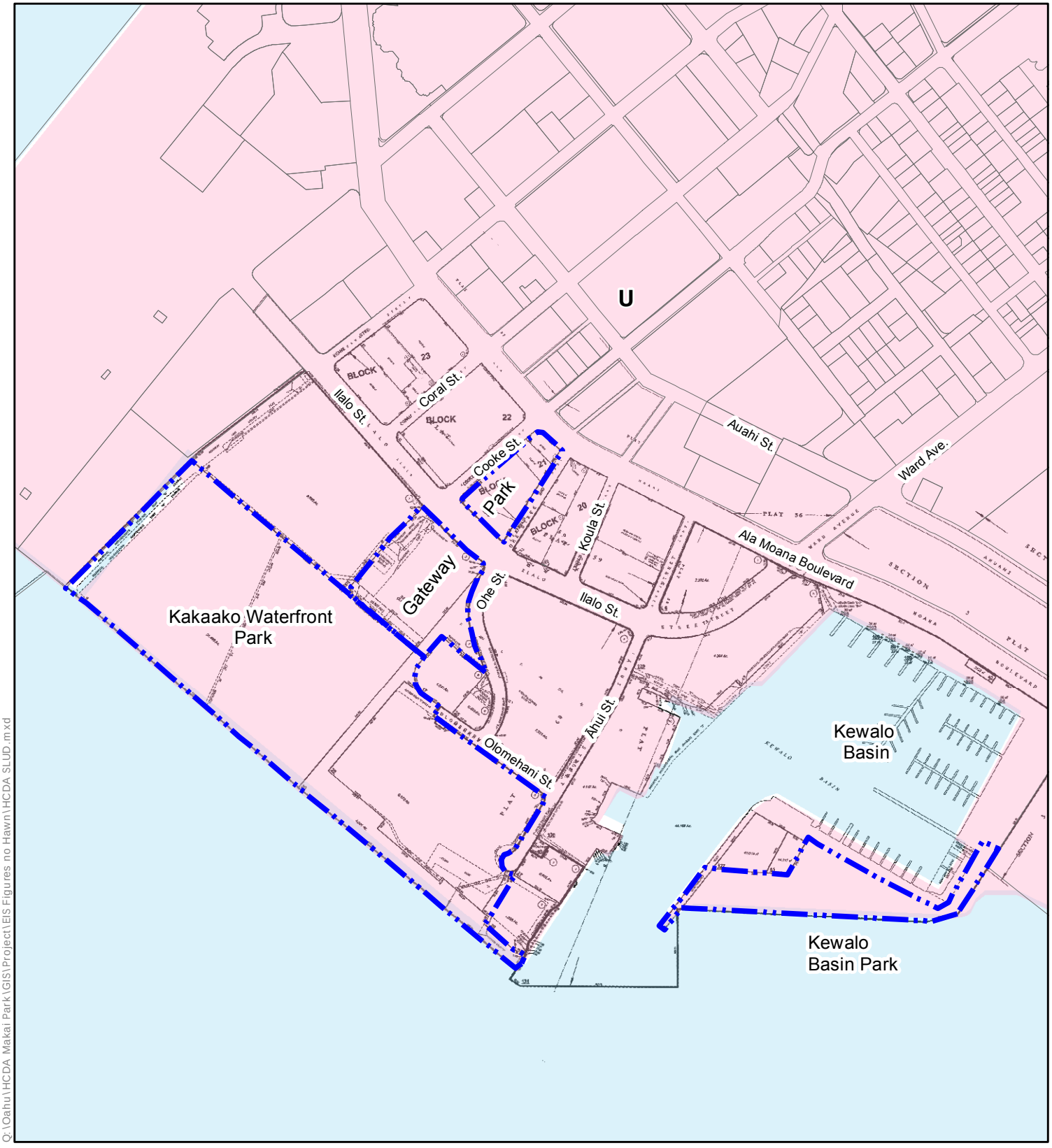

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DATE: 3/24/2016

LEGEND

- Kakaako Makai Parks
- TMK

State Land Use District

- U - Urban
- A - Agriculture
- C - Conservation
- R - Rural

Source: State Land Use Commision, 2014. City & County of Honolulu, 2014.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 5

State Land Use District

KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)

0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

OPEN MAKAI VIEW PLANES

OPEN MAUKA & HARBOR VIEW PLANES

WATERFRONT PROMENADE

LEVEL AREAS

Figure 6
Site Photos Strengths

KAKAAKO MAKAI PARKS
HCDA Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

LACK OF VISUAL & PEDESTRIAN CONNECTIVITY

VANDALISM & DETERIORATION

HEALTH & SAFETY CONCERNS

HOMELESSNESS

Figure 7
Site Photos Challenges

KAKAAKO MAKAI PARKS

HCDA Island of Oahu

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DATE: 4/25/2016

LEGEND

- Kakaako Makai Parks
- District Commercial
- Industrial
- Institutional
- Major Parks and Open Space
- Pedestrian Network
- Harbor

Source: City & County of Honolulu Dept. of Planning and Permitting, Primary Urban Center Development Plan 2004.
Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 8

Primary Urban Center Development Plan

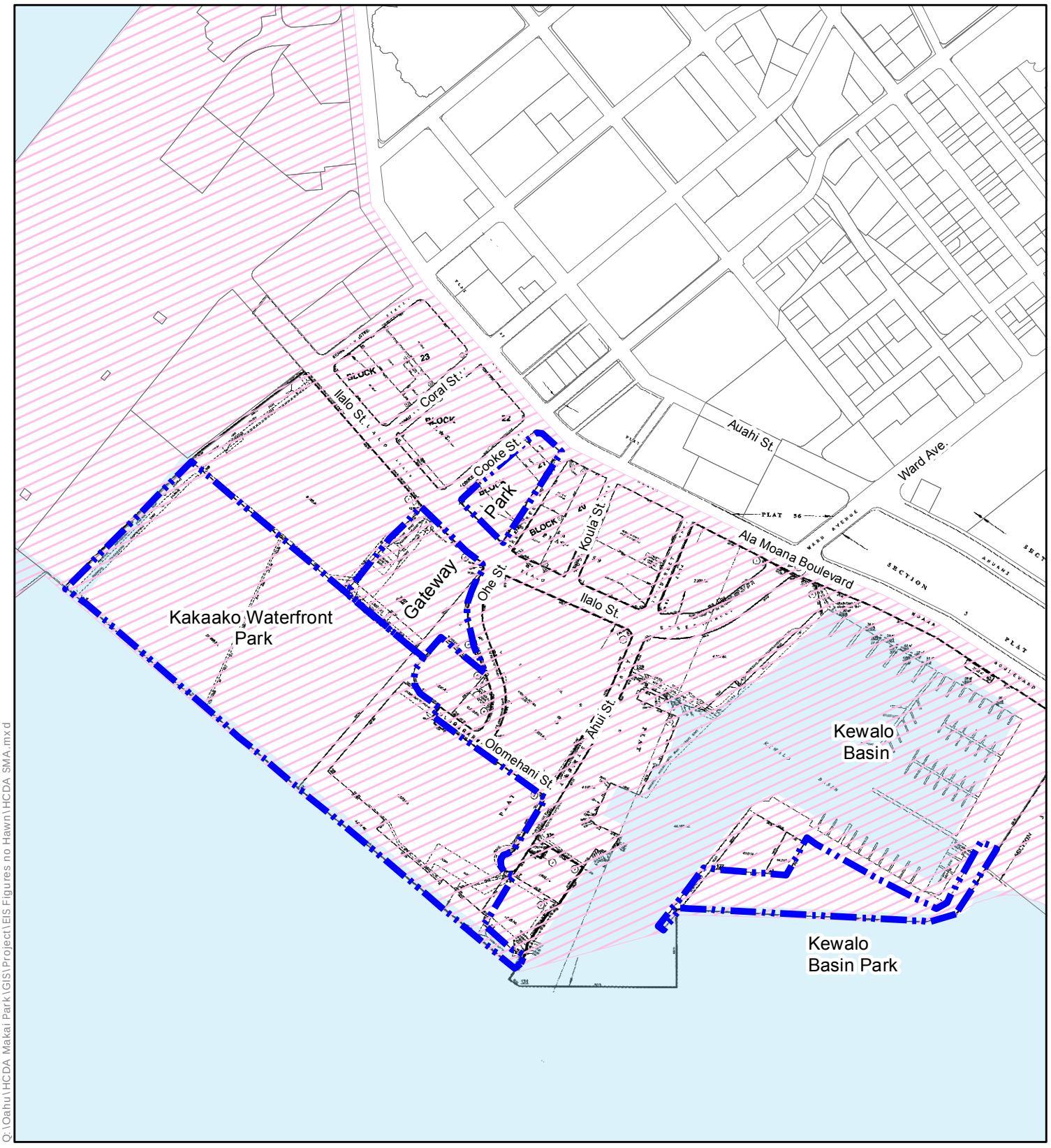
KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)
0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.



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DATE: 4/25/2016

LEGEND

- Kakaako Makai Parks
- TMK
- Special Management Area

Figure 9

Special Management Area

KAKAAKO MAKAI PARKS

HCDA

North

Linear Scale (feet)

0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

Source: City & County of Honolulu, 2011.

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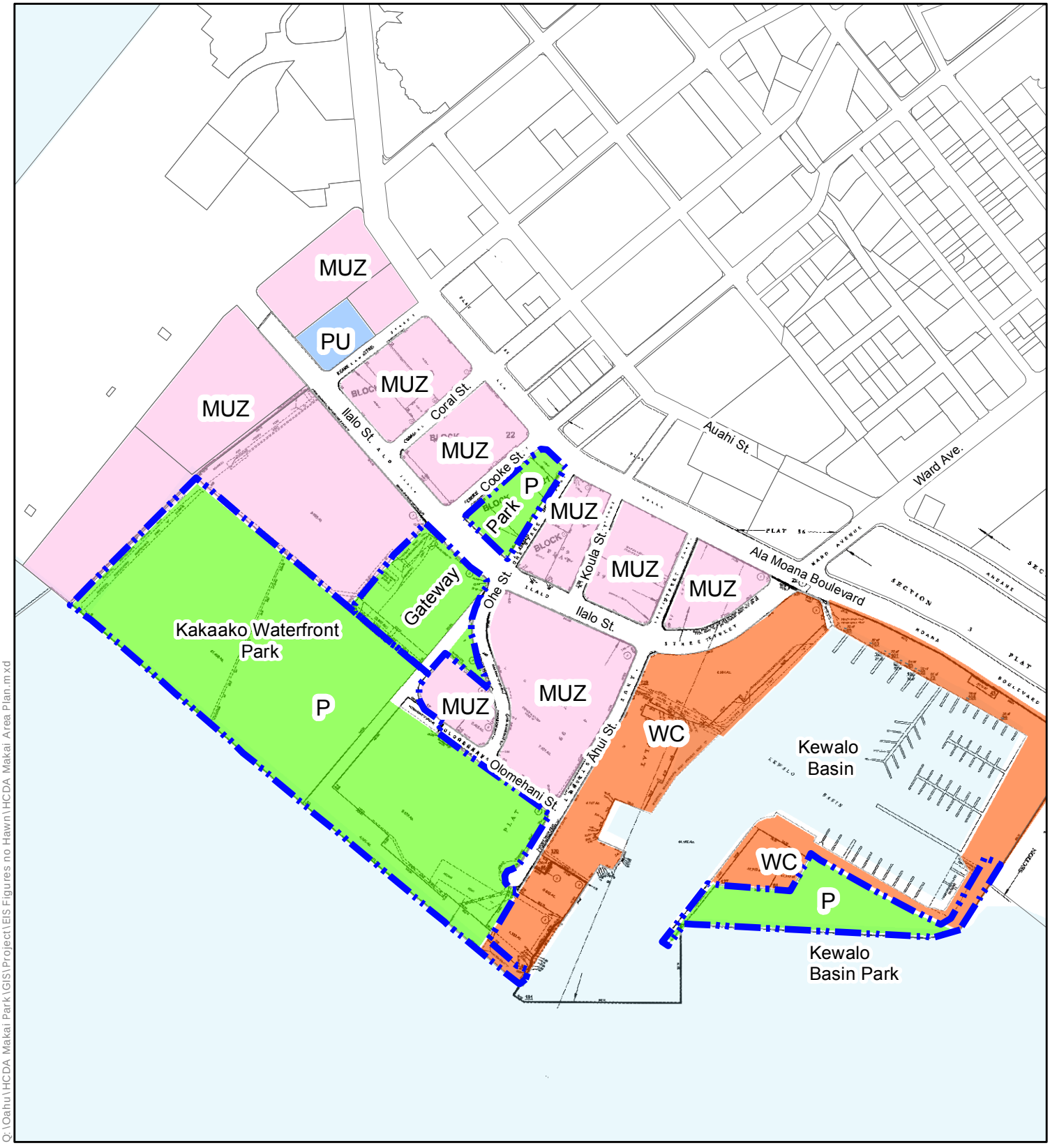

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DATE: 4/25/2016

LEGEND

Kakaako Makai Parks

TMK

HCDA Land Use

MUZ: Mixed Use

P: Park

PU: Public Use

WC: Waterfront Commercial

Figure 10

HCDA Makai Area Plan

KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)

0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

Source: HCDA, Kakaako Community Development District, 2005.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

2.2 LOCATION

This EIS describes the potential impacts of proposed Master Plan improvements for, existing conditions, and surrounding environment of Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park. Collectively, throughout this document, these parks are referred to as the "Kakaako Makai Parks" or the "Parks." The Parks are located in the Kakaako district of Honolulu on the island of Oahu.

Kakaako Waterfront Park encompasses 39 acres and three parcels. Kakaako Gateway Park encompasses 7.8 acres and six parcels. Kewalo Basin Park encompasses a 5.8 acre portion of a single parcel (please refer to Table 1).

2.3 LAND OWNERSHIP

The Hawaii Community Development Authority (HCDA), an agency of the State of Hawaii owns all of the Kakaako Makai Parks parcels.

2.4 SURROUNDING USES

Kakaako Waterfront Park is bordered to the north by the UH John A. Burns School of Medicine (JABSOM) and UH Cancer Center; Children's Discovery Center; and 53 by the Sea Restaurant. West (Ewa) of the Waterfront Park is a warehouse building that houses the Next Step – Shelter and Reuse Hawaii. East (Diamond Head), is the channel that connects Kewalo Basin Harbor to the ocean. Across that channel from Waterfront Park is the Kewalo Basin Park.

The Kakaako Gateway Park is located on the south (makai) side of Ala Moana Boulevard. JABSOM is located to the west of the Gateway Park, while to the east are commercial and parking lots that are transitioning toward re-development by their owners, Kamehameha Schools and the Office of Hawaiian Affairs. See Figure 2 Surrounding Land Uses.

Kewalo Basin Park is bordered to the north by the Kewalo Basin Harbor and associated maritime uses, including warehouse buildings formerly used by the National Oceanic Atmospheric Administration (NOAA), the Pacific Ocean to the south and Ala Moana Regional Park to the west.

2.5 IDENTIFICATION OF THE PROPOSING AGENCY

The Hawaii Community Development Authority (HCDA) is the proposing agency. Contact information is as follows:

Aedward Los Banos, Interim Executive Director
HCDA, State of Hawaii
547 Queen Street
Honolulu, Hawaii 96813
Telephone: (808) 594-0300
Fax: (808) 587-0299

2.6 IDENTIFICATION OF ENVIRONMENTAL CONSULTANT

PBR HAWAII & Associates, Inc. is HCDA's land use and environmental planning consultant for the Master Plan for proposed improvements to the Kakaako Makai Parks.

Contact: Tom Schnell, AICP
Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

2.7 IDENTIFICATION OF ACCEPTING AUTHORITY

Whenever a State agency proposes an action subject to Chapter 343, HRS, the final authority to accept an EIS shall rest the Governor, or the Governor's authorized representative.

Contact: Governor, State Of Hawaii
Hawaii State Capitol
Honolulu, Hawaii 96813
Mr. Mike McCartney, Chief of Staff
Telephone: (808) 586-0034

2.8 COMPLIANCE WITH STATE OF HAWAII ENVIRONMENTAL LAW

Preparation of an EIS is being undertaken to address requirements of Chapter 343, HRS and Title 11, Department of Health, Chapter 200, Environmental Impact Rules, HAR. Section 343-5, HRS, establishes nine "triggers" that require compliance with the State's EIS law. The triggers for the Master Plan improvements include, without limitation, the following:

- Propose the use of state or county lands or the use of state or county funds.
- Propose any use within a shoreline area as defined in Section 205A-41, HRS

In addition, the Master Plan improvements may involve or impact State and/or County lands or funds relating to infrastructure improvements for public facilities, roadways, water, sewer, utility, drainage, or other facilities. While the specific nature of each improvement is not known at this time, the EIS is intended to address all current and future instances involving the use of State and/or County lands and funds relating to the Master Plan improvements.

The intent of this document is to disclose a broad range of desired improvements. Some of the proposed improvements may require subsequent compliance with Chapter 343, HRS to disclose their specific impacts upon further programming and design development.

This Draft EIS was preceded by the Kakaako Makai Park Active Use Facilities Master Plan Environmental Impact Statement Preparation Notice (EISPN). The Hawaii Community Development Authority submitted the EISPN to the State of Hawaii Office of Environmental Quality Control (OEQC) on March 10, 2015. Notice of the availability of the EISPN was published in the March 23, 2015, edition of the OEQC's *The Environmental Notice*. Copies of the EISPN were provided to the appropriate government agencies and other organizations (See Section 9.0). The public comment period for the EISPN began March 10, 2015 and ended April 9, 2015. Comments and responses on the EISPN received during the public comment period are incorporated in this EIS and included in Appendix B.

2.9 STUDIES CONTRIBUTING TO THIS EIS

The information contained in this EIS has been developed from master planning efforts, site visits, and previous technical studies of the Parks and surrounding area. New and relevant consultant reports and studies pertaining to the Parks and Master Plan improvements are listed in Section 10.0. The list of Appendices can be found on page vii.

2.10 SUMMARY OF IMPACTS AND PROPOSED MITIGATION MEASURES

The Master Plan for the Kakaako Makai Parks is informed by the 2011 Conceptual Plan, and accounts for: transfer of lands adjacent to or in the vicinity of the Kakaako Makai Parks from HCDA to OHA that formerly contributed to the Parks' operation and maintenance; the creation of the UH Cancer Center on the JABSOM campus; the proposed Innovation Block on Lot C; the anticipated population increase with the continued build out of the Kakaako Mauka Area; and recent public input on desired park uses. The primary objective of the Master Plan is to set forth a viable plan for park improvements that will encourage and support active uses. Understanding there are funding limitations for improvements at the Parks, the Master Plan proposes a phased approach to improve and include additional Park elements. The full buildout of the Master Plan is shown in Figure 1.

2.10.1 Kakaako Makai Parks Summary Description

The primary objective of the Kakaako Makai Parks Active Use Facilities Master Plan is to set forth a viable plan for park improvements that will encourage and support active uses. The Master Plan includes elements that seek to:

- Plan for uses that sustain themselves financially and provide revenues to support park operations and maintenance without compromising access to recreational space.
- Activate the park with family-friendly outdoor recreational activities that draw people to the park without fear for personal safety.
- Create spaces that encourage lively uses and quality recreational experiences that are akin to the world's best urban parks.
- Respect and incorporate the Guiding Principles of the 2011 Conceptual Master Plan.
- Propose a phased approach to Master Plan elements that is logical with respect to current needs; cost; public health, safety, and welfare; infrastructure availability; environmental impacts; and population growth.

The park elements proposed with this Master Plan are described in detail in Section 3.0 of this report and illustrated in Figure 1 Master Plan. In summary, the Master Plan includes:

- great lawn with Gateway Features (Gateway Park into Waterfront Park)
- plaza and water feature (Waterfront Park as an element of the Great Lawn)
- flexible and open community space (Gateway Park and Waterfront Park)
- Lei of Green connections (Waterfront Park-west to Keawe Street; Kewalo Basin Park-east to Ala Moana Regional Park)
- sports complex (Waterfront Park at former "Look Lab" site)
- keiki zone (Waterfront Park, near Children's Discovery Center)
- adventure zone (Waterfront Park)
- beach hale (Waterfront Park, near Point Panic)
- food concessions (Waterfront Park at Adventure Zone and Sports Complex)
- biergarten (Waterfront Park)
- community center (Waterfront Park)
- Re-locate amphitheater (Waterfront Park)
- Re-locate and Re-configure parking (Waterfront Park)
- comfort stations (Waterfront Park and Kewalo Basin Park)

2.10.2 Summary of Potential Impacts and Proposed Mitigation

The following is a summary of the potential impacts and proposed mitigation measures discussed in this EIS, Section 4.0 Description of the Affected Natural Environment, Potential Impacts of the Proposed Action, and Mitigation Measures and Section 5.0 Assessment of Existing Human Environment, Potential Impacts, and Mitigation Measures.

Climate – The proposed Master Plan is not expected to have an impact on climatic conditions and no mitigation measures are anticipated.

Geology and Topography – The proposed Master Plan will maintain the majority of the exiting topography of the Parks. Elements requiring recontouring of park mounds and contours seek to improve panoramic views, address drainage, and reconfigure and decentralized parking to promote open and accessible green space. These elements include a biergarten and amphitheater, as well as the removal of the existing Waterfront Park main parking lot (parking will be re-located) and adjacent mound to expand the Great lawn. Any construction upon mounds will require geotechnical study to ensure stability of soils. Construction upon mounds may require removal or recontouring of the mounds which may require additional environmental testing to establish health and safety protocols for construction and long-term storage of the underlying landfill material. All grading will conform to the City and Count of Honolulu's grading ordinance and section 11-60.133, HAR Fugitive Dust and Section 11-54-1.1, HAR, Anti-degradation policy.

Soils – A remedial investigation should be completed to delineate the nature, extent, and magnitude of contaminated soil/ash, groundwater, and soil vapor beneath the park. A work plan for the proposed investigation should be developed and approved by the State of Hawaii Department of Health Hazard Evaluation and Emergency Response (DOH HEER) office. The investigation should include analysis of soil/ash and groundwater for hazardous waste

characteristics in case waste disposal/dewatering is required during redevelopment of the site. The investigation should also include an assessment of risk associated with potential exposures.

Based on the findings of the remedial investigation, a feasibility study should be conducted to evaluate, at a minimum 1) the proposed redevelopment of the landfill and future use of the site as a public park and 2) the cost/benefit of redevelopment and future use of the site.

Elsewhere within the Parks, all grading will conform to the City and Count of Honolulu's grading ordinance and section 11-60.133, HAR Fugitive Dust and Section 11-54-1.1, HAR, Anti-degradation policy.

Impacts to soils, such as soil erosion can occur during construction and over the life of a development due to rainwater runoff. During construction, best management practices for soil and erosion control will be implemented to contain and/or filter any runoff and to control sedimentation, erosion, and dust. Given the Kakaako Makai Parks are within the Special Management Area (SMA), proposed improvements will comply with the requirements of the SMA use under Chapter 15-150, HAR.

Ground and Surface Water – The improvements to the Kakaako Makai Parks are not anticipated to have any significant adverse impact on groundwater or surface water resources. The Master Plan proposes the installation of bioswales around the parking lot to filter stormwater before it is conveyed to drainage ways to ensure that Park elements do not contribute to the degradation of surface water resources. During construction, best management practices to control sediment, erosion, dust, or polluting runoff from flowing into waterways will be employed to the maximum extent practicable. Should construction activities within the Kakaako Makai Parks trigger the need for a National Pollutant Discharge Elimination System (NPDES) permit, these activities will comply all NPDES permit conditions.

To protect groundwater resources in the event that landfill mounds are altered, the following measures are also recommended (Appendix C):

- A remedial investigation should be completed to delineate the nature, extent, and magnitude of contaminated soil/ash, groundwater, and soil vapor beneath the park. A work plan for the proposed investigation should be developed and approved by the DOH HEER office. The investigation should include analysis of soil/ash and groundwater for hazardous waste characteristics in case waste disposal/dewatering is required during redevelopment of the site. The investigation should also include an assessment of risk associated with potential exposures.
- Based on the findings of the remedial investigation, a feasibility study should be conducted to evaluate, at a minimum 1) the proposed redevelopment of the landfill and future use of the site as a public park and 2) the cost/benefit of redevelopment and future use of the site.

Wetlands – No new facilities are proposed within known wetlands.

Flora and Fauna – Park improvements are not anticipated to have a significant adverse impact on botanical resources, given the absence of threatened or endangered plants and their habitats.

While no flora mitigation measures are proposed, additional landscaping will be facilitated through the removal of the Gateway Park parking lot, reducing the amount of impervious surfaces. It is recommended that any tree pruning or removal within the Parks be preceded by inspections to ensure no white tern nests are present or will be affected. To address potential impacts on seabirds, all exterior lights will be fully-shielded (completely opaque), downward facing full-cut off fixtures with the lowest light level (lumens) possible to minimize wildlife distraction and disorientation. During fledgling season of September to December, the use of artificial lights should be minimized or reduced as much as possible and night time construction also should be avoided.

Natural Hazards – The following summarizes the potential impacts and mitigation measures related to various natural hazards that may impact the Park.

- **Flood Hazards** – The expansion of open green spaces within the Kakaako Makai Parks serve as a physical buffer minimizing the population impacted by flood mauka of the Parks. As the proposed Master Plan improvements occur within Zones AE and X, improvements will be designed to adhere to the rules and regulations of the National Flood Insurance Program as detailed in Title 44 of the Code of Federal Regulations and in accordance with Chapter 21, Section 1.8 "Flood fringe areas" of the Revised Ordinance of Honolulu.

- **Tropical Storms and Hurricanes** – While it is difficult to predict such natural occurrences, it is reasonable to assume that future incidents are likely, given historical events and the FEMA Special Flood Hazard Areas along the coastline. Because of the nature of these events, there will typically be advanced warning of severe weather conditions and tropical cyclones. Therefore, the Park can also be closed during these events and the public can be notified in advance of the approaching storms to avoid the area. HCDA can notify news and media outlets of Park closures and utilize social media and email announcements to provide updates to the public.

- **Tsunami** – Given the proximity of the Kakaako Makai Parks to the shoreline and location within the SMA. HCDA will adhere to appropriate civil defense evacuation procedures to mitigate impacts of tsunamis.

- **Sea Level Rise** - The existing Kakaako Makai Parks are built up well above sea level on an armored shoreline that is protected from erosion, thus a sea level rise of one to three feet will not have an inundation effect. Such a sea level rise may however increase the risk of flooding at the Parks if surrounding lands or the stormwater system are inundated. Importantly, parks and open spaces contribute to resiliency of urban neighborhoods through acceptance of flood waters and storm surge. To that end, minimal new impervious surfaces are suggested with the Master Plan.

Archaeological and Historic Resources – Section 6E-8 HRS is applicable to proposed development in the Parks. Therefore, prior to design of Park elements, HCDA will provide the

State Historic Preservation Division (SHPD) with an opportunity for review of the effect of the Park elements on any historic property, ground disturbing activities, and/or any federal permits, consistent, with section 6E-43, HRS. In the event that historic resources, including human skeletal remains, cultural layers, cultural deposits, features artifacts, or sink holes, lava tubes, or lava blisters/bubbles are identified during construction and/or other activities, all work in the immediate vicinity of the find will cease, the find will be protected, and SHPD will be contacted immediately.

Cultural Resources – Prior, extensive efforts by HCDA to engage and identify cultural and community groups has occurred and satisfy compliance with Section 343-2, HRS and protocols listed in the OEQC Guidelines for Assessing Cultural Impacts. No adverse effect on cultural resources and practices are expected to result from the Master Plan improvements. No mitigation measures are recommended or suggested.

The Parks occupy land that did not exist prior to the mid-20th Century. It is widely accepted and recognized that other than surfing and subsistence and sports fishing, few if any pre-contact cultural practices continue in the Parks or immediate area. Master Plan improvements will not restrict existing public access to the ocean available through the Parks. As such park improvements are not anticipated to affect the exercise of Native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities.

Sound –To help mitigate temporary construction noise, HCDA will work with contractors to ensure adherence to DOH regulations and the use of proper equipment and regular vehicle maintenance. Equipment mufflers or other noise attenuating equipment may also be employed as additional mitigation.

Should the amphitheater be relocated to the southwestern portion of the Kakaako Waterfront Park and re-oriented north as proposed in the Master Plan, sound mitigation methods and techniques can be integrated as part of amphitheater design and operations; sound impacts are probable if propagation and mitigation are not accounted for during design. Conditions including wind direction, location of listener, as well as amphitheater design and operation mitigation measures can result in either lower or higher sound levels impacting surrounding facilities, commercial spaces, and residences. As part of amphitheater design, a detailed sound propagation model could be developed using specific amphitheater design elements as discussed in Section 5.3 and Appendix D. It is possible that such action could account for sound impacts and identify sound mitigation measures that may result in acceptable sound levels.

Air Quality – In general, the Master Plan improvements encourage pedestrian, bicycle, and transit ridership to the Parks. Because a significant increase in number of parking stalls at the Parks is not proposed emissions from automobiles traveling to the Parks are not expected to negatively impact air quality.

Related to vents at the ash landfill mounds in Waterfront Park, the following specific recommendations include:

- *Landfill gas monitoring/testing* should be conducted to evaluate the presence/absence of potentially toxic/explosive gases emitting from the vents in ambient air, at

topographically low areas, onsite buildings, underground structures, including storm sewer manholes and other utility vaults, etc.

- *An EHE (environmental hazard evaluation) should be performed* to evaluate current potential risks to human health and the environment associated with ongoing oxidation/combustion of waste materials in the landfill. The EHE should include consideration of: exposure to landfill gas emissions from the passive vent system and the landfill cap; potential movement of landfill gas into onsite/adjacent buildings and topographically low areas; and other potential hazardous conditions associated with oxidation/ combustion of waste materials (explosion, subsidence, formation of sinkholes and cracks).

- *An EHMP (environmental hazard management plan) should be prepared* and approved by the DOH HEER office to notify onsite workers and the public of the presence of current potential environmental hazards and to provide guidance to onsite workers regarding proper management of impacted media and potential environmental hazards that may be encountered while working both at the surface and within the subsurface of the site. At a minimum the EHMP should include notifications of risk/exposure (if required), a site safety and health plan.

Elsewhere on site, emissions from operation of construction equipment and other vehicles involved in construction, restoration, and maintenance activities may temporarily affect the ambient air quality in the immediate vicinity. However, these effects will be minimized through proper maintenance of construction equipment and vehicles and scheduling of such activity during Park closures or in areas away from visitor activity whenever possible. In addition, there may be a temporary adverse impact on air quality attributable to dust generated during project construction and maintenance. Best management practices (BMPs) that meet DOH's standards are anticipated to be employed as needed to mitigate dust during these activities.

Visual Resources – Beneficial impacts to the Park's scenic resources are anticipated due to various measures proposed in the Master Plan. Improved scenic views will result from: the expansion of the Great Lawn; recontouring of the Waterfront Park central mound; establishing Lei of Green connections that extend the existing shoreline promenade and connections to urban Honolulu; and relocation and orientation of the amphitheater. The biergarten will be designed to minimize adverse visual impacts and will broaden park user access to both mauka and makai views by including Americans with Disabilities Act (ADA) compliant access.

Infrastructure – The following describes the potential impacts and mitigation measures related to Park infrastructure (Appendix E and F include a Preliminary Engineering Report and a Traffic Report).

- **Roadways and Parking** – The Master Plan includes a combination of physical improvements and programmatic options to enhance Park access for pedestrians, cyclists, riders of public transportation, and motorists, while considering the Transit Oriented Development Plan for Kakaako. In combination, these improvements are expected to provide beneficial impacts to the human and natural environment. Extending the existing

waterfront promenade and implementing the "Lei of Green" concept throughout the Kakaako Makai Parks will increase access and connectivity for those using multi-modal transportation. The new park entry at the Ewa side of Waterfront Park (at Keawe Street) is expected to improve ease of pedestrian and bicycle access to the park. To the east, the pedestrian system is strengthened by the proposed shoreline promenade extension between Kewalo Basin Park and neighboring Ala Moana Regional Park.

A bikeshare station is proposed in the Gateway Park at the intersection of Ohe and Ilalo Streets as suggested by the Honolulu Bikeshare Organizational Study.

The Master Plan improvements will comply with Off-Street Parking and Loading requirements as set forth in §15-23-68 and §15-23-69, HAR, respectively. Through design of decentralized parking, on-site and off-site parking (planned by HCDA on neighboring properties), and use of loading and unloading areas, the Master Plan accommodates the increased public use anticipated by proposed Park elements.

- **Water** – The City and County of Honolulu's Board of Water Supply has determined that the existing water system is adequate to accommodate the proposed improvements in the Kakaako Makai Parks. For Kewalo Basin Park and Kakaako Gateway Park no increases in domestic maximum daily demand are anticipated, as only minimal on-site water system improvements are necessary. For Kakaako Waterfront Park the Master Plan improvements anticipate an additional domestic maximum daily demand of approximately 21,160 gal/day to accommodate required new fire hydrants and additional potable water demand for the food concessions and the biergarten. These facilities will be designed to be as efficient as possible, such that water consumption increases may be offset by installation of new, efficient comfort station fixtures.

- **Wastewater** – The Master Plan improvements anticipate minor on-site sewer improvements at Kewalo Basin Park and Kakaako Gateway Park as increases in sewer quantities are not anticipated. To accommodate additional wastewater generation resulting from the Kakaako Waterfront Park, proposed food concessions and biergarten elements, a new on-site sanitary sewer collection system is needed. This system will consist of gravity sewer lines, clean-out-to-grade, and sewer manholes, as well as grease interceptors for proposed food preparation facilities. The Honolulu's Department of Planning and Permitting - Wastewater Branch (WWB) approved a sewer connection application to accommodate the sewer improvements for the Kakaako Makai Parks, including the new on-site sanitary collection system of Kakaako Waterfront Park. Supplemental facilities such as portable toilets to manage wastewater generation will be necessary for special events within the park, such as festivals and concerts.

- **Drainage** – The Storm Water Management Program Plans (SWMPP) for Kewalo Basin Harbor and for Kakaako Community Development District outline procedures and directives for Kakaako Makai and also dictate the post-construction storm water management for new or redeveloped areas which would discharge into the municipal

separate storm sewer system. The Master Plan improvements and construction projects will comply with the respective SWMPP. Further, any increase in runoff due to the proposed improvements will be retained on-site to mitigate any significant adverse effects on the environment.

The Master Plan improvements will comply with the CCH's Section II Standards for Storm Water Quality such that appropriate Low Impact Development (LID) site design strategies will be implemented to manage stormwater flow and protect near-shore water quality from non-point source pollution. LID techniques may include installation of bioswales in parking areas, rain catchment from roof surfaces for irrigation water re-use, pervious paving, and rain gardens in landscape areas. During construction BMPs will be implemented to minimize and control stormwater runoff. BMPs may include infiltration systems, dry wells, bioretention basins, permeable pavement, green roofs, vegetated bio-filters, enhanced swales, detention basins, sand filters, vegetated swales, and buffer strips. If an NPDES permit is required, specific construction BMPs will be specified in the project's NPDES permit.

- **Electrical and Communication Systems** – Electrical service to the Parks is provided by Hawaiian Electric Company, Inc. A minimal increase to electricity demands are anticipated by the Master Plan improvements. The proposed Park elements including the food concessions, biergarten, and the amphitheater may contribute to the increased electricity needs.

- **Solid Waste** – Kakaako Makai Park solid waste is hauled to the Campbell Industrial Park H-POWER (Honolulu Program of Waste Energy Recovery) Plant. Residual ash and non-combustible waste is disposed of at the Waimanalo Gulch Sanitary Landfill. The Master Plan improvements do not anticipate changes to the management of solid waste except to accommodate intensification of use through increased trash receptacles and the addition of receptacles for recyclable materials.

Population – The Master Plan improvements are not anticipated to result in an increase to the population within the KCDD. Thus, no mitigation measures are planned. However, the improved Parks are expected to help enhance outdoor recreational opportunities for current and future Kakaako and Oahu residents and visitors.

Economy – Master plan improvements in the Kakaako Makai Parks are not anticipated to create a detrimental effect on Honolulu's economy. Construction of facilities will stimulate purchase of materials (generating excise tax revenues) and employment for labor (generating income tax revenues). A small amount of new employment may occur given the expanded opportunities for commerce with introduction of the food concessions, biergarten, amphitheater, sports complex, and community center. The Master Plan improvements are expected to contribute to enhanced property values of commercial and residential properties located mauka in the Kakaako Makai Parks.

Police, Fire, and Medical – The Master Plan improvements are not expected to result in a significant increase in demand for police, fire, and medical services.

Schools – The Master Plan improvements are not anticipated to impact public school facilities, as park use will be maintained and no residential housing will be developed. Though given the proposed community center, keiki zone, adventure zone, sports complex, and amphitheater, there are enhanced opportunities to benefit youth for educational, recreational, and cultural enrichment activities and programming.

Recreational Facilities – An objective of the Master Plan is to maintain open spaces for enjoyment of passive uses, while enhancing active recreational uses, programming, and facilities that improve the quality of the Kakaako Makai Parks. Existing outdoor recreational opportunities such as surfing, walking, picnicking, and nature enjoyment are proposed to continue. A number of Master Plan improvements are proposed to complement existing recreation facilities, including extending the existing promenade through Kewalo Basin Park and Ala Moana Regional Park. Additionally, some of the Master Plan improvements are proposed to augment active recreation, such as the installation of slides in the adventure zone and the provision of space for the construction of courts in the sports complex.

2.10.3 Relationship to Land Use Policies

State Land Use Law, Chapter 205, Hawaii Revised Statutes – The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission (LUC) and authorizes this body to designate all lands in the State into one of four Districts: Urban, Rural, Agricultural, or Conservation. The Parks are in the State Urban District. The proposed Park improvements are consistent with the Urban designation of the Parks. Section 6.1.2 (State Land Use Law, Chapter 205, HRS) contains additional discussion of Parks' land use designation.

Coastal Zone Management Act, Chapter 205A, Hawaii Revised Statutes – The Coastal Zone Management (CZM) Area as defined in Chapter 205A, HRS, includes all the lands of the State. As such, the Parks are within the CZM Area. Section 6.1.3 (Coastal Zone Management Act and Special Management Area, Chapter 205A, HRS) contains a detailed discussion of the Park improvements' compliance with the objectives and policies of the CZM Area and SMA Guidelines.

Special Management Area (SMA) Guidelines, Chapter 206E-8.5, HRS – All request for developments within the SMA within a community development district, for which a community development plan has been developed and approved in accordance with §206E-5, HRS (such as the KCDD), shall be submitted and reviewed by the Office of Planning. Section 6.1.5 (Special Management Guidelines) contains a detailed discussion of the Park improvements' compliance with the SMA Guidelines.

Hawaii State Environmental Policy and Guidelines, Chapter 344-3 & 344-4, HRS – The State Environmental Policy seeks to 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. Consistency with the environmental policy is discussed in Section 6.1.4.

Hawaii State Plan, Chapter 226, Hawaii Revised Statutes – The Hawaii State Plan (Chapter 226, HRS), establishes a set of goals, objectives, and policies that serve as long-range guidelines for growth and development of the State. The proposed improvements to the Kakaako Makai Parks are relevant to many of the goals, objectives, and policies set forth by the Hawaii State Plan. Section 6.1.4 (Hawaii State Plan, Chapter 226, HRS) contains discussion of the Park improvements' compliance with the Plan.

State Functional Plans – The Hawaii State Plan directs State agencies to prepare functional plans for their respective program areas. There are 15 state functional plans that serve the primary implementing vehicle for the goals, objectives, and policies of the Hawaii State Plan. Section 6.1.5 contains discussion of the Park improvements' compliance with the State Plan and the Functional Plan relating to recreation.

Kakaako Community Development District Makai Area Plan – The Kakaako Community Development District Makai Area Plan sets forth a number of guidelines and principles to direct development of the Makai Area so that the area becomes an active, vibrant area that is dedicated and attractive to the people of Hawaii. The Parks are in the "Park" land use zone and the additional park extension to Ala Moana Regional Park is zoned Waterfront Commercial. Section 6.1.7 (Kakaako Community Development District Makai Area Plan) contains discussion of the Park improvements' compliance with the Plan.

Kakaako Community Development District Makai Area Rules – The Kakaako Community Development District (KCDD) Rules (§15-23) were enacted to guide the re-planning, renewal, and redevelopment of the KCDD. Among the findings supporting the Rules is that the KCDD has the potential to become blighted and deteriorated if not redeveloped. Section 6.1.8 (The Kakaako Community Development District Rules) contains discussion of the Park improvements' compliance with the Rules.

Kakaako Makai Conceptual Master Plan (2011 Conceptual Plan) – The 2011 Conceptual Plan establishes guiding principles, broad use categories, and a unifying vision statement. Section 6.1.9 (2011 Conceptual Plan) contains discussion of the Park improvements' compliance with the Plan.

Draft Kakaako Community Development District Transit Oriented Development Overlay (TOD) Plan – The Draft Kakaako Community Development District TOD Overlay Plan enhances the policies and direction set forth in the previously established district plans and rules by maximizing development through the use of smart growth principles, multi-modal transportation, and walkable neighborhood design. Section 6.1.10 (Draft Kakaako Community Development District TOD Overlay) contains discussion of the Park improvements' compliance with the Plan.

City and County of Honolulu General Plan – The General Plan for the City and County of Honolulu is a statement of long-range social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu. Section 6.2.1 (City and County of Honolulu General Plan) contains discussion of the Park improvements' compliance with the Plan.

City and County of Honolulu Primary Urban Center Development Plan – The City and County of Honolulu Development Plan program set forth conceptual schemes for implementing and accomplishing the objectives and policies of the General Plan. The Primary Urban Center Development Plan area is one of eight geographical Development Plan areas that have been established on Oahu. Section 6.2.2 (City and County of Honolulu Primary Urban Center Development Plan) contains discussion of the Park improvements' compliance.

2.10.4 Required Permits and Approvals

Anticipated major permits and approvals required are listed below:

- Compliance with DOH Department of Health (DOH) Rules for Ash Landfill Re-Contouring/State DOH
- National Pollutant Discharge Elimination System (NPDES) Permit/State DOH
- Special Management Area (SMA)/State Office of Planning
- Grading/Building Permits/ City Department of Planning & Permitting
- Kakaako Makai Area Plan/HCDA
- Chapter 15-23, HAR/HCDA
- Makai Area Development Permit/HCDA

2.10.5 Alternatives

Considered alternatives included:

- No action.
- Implementation of the 2011 Conceptual Plan

Under the No Action Alternative, the Kakaako Maki Parks would remain in their current condition. HCDA's efforts to maintain the Parks within existing resources are hampered, given the 2012 loss of revenue-generating lands that previously supported the maintenance needs of the Parks. Based on public meeting responses, concerns for personal safety, lack of attractions, poor site lines, and long distances from parking will likely continue and result in vast areas of the Parks continuing to go unused under the No Action Alternative. The No Action Alternative would deprive the community of HCDA's vision to activate the park with family-friendly outdoor recreational activities. In addition, the environmental benefits of the improvements, particularly the reduced peak stormwater flow and drainage improvements would not be realized.

Under this alternative, the Kakaako Makai Parks and open space would expand to wrap around Kewalo Basin Boat Harbor, creating contiguous open space between Kewalo Basin Park and the Gateway and Waterfront Parks. Since the adoption of the 2011 Conceptual Plan, land ownership patterns have changed, and several parcels key to the plan are no longer under control of HCDA. This alternative is now considered impractical to implement by HCDA, due to lack of ownership. As much as possible, elements of this alternative have been incorporated into the preferred alternative.

2.10.6 Cumulative and Secondary Impacts

Reasonably foreseeable future actions in the Kakaako District include substantial redevelopment in Kakaako Mauka to create a vibrant "live, work, play" urban community. Given the anticipated increase in population in the Mauka area, the Master Plan improvements are expected to contribute to the livability of Kakaako as the redevelopment of Kakaako Mauka progresses. As the population of Kakaako increases, the parks are anticipated to have a cumulative beneficial impact as more people live in the area.

Improvements to the Parks may increase the desirability of the Kakaako District, however population in the District is already projected to increase from approximately 10,673 people in 2010 by an additional 22,793 to 35,508 people, for a total population between 33,466 and 46,181 people, respectively by 2035 (Lee Sichter LLC, 2015). Rather than spurring population growth, the park improvements are anticipated address the need for quality park, open space, and recreational facilities for a growing population.

In context with greater Kakaako redevelopment, negative cumulative impacts related to the Park improvements are expected to be minimal in regard to traffic and other infrastructure considerations such as increased demand for water and wastewater facilities. Similarly, the park improvements are not expected to result in, or contribute to, significant cumulative increases related to school facilities or demands for police, fire, or medical services.

2.10.7 Rationale for Proceeding with the Master Plan Notwithstanding Unavoidable Effects

The public health and wellness benefits gained from lively, active, and safe parks outweigh the few unavoidable effects associated with constructing Park improvements.

2.10.8 Unresolved Issues

Re-development of Landfill Mounds.
Should the Kakaako Makai Parks Active Use Facilities Master Plan be fully implemented, the primary unresolved issue relates to movement or re-contouring of the landfill ash mounds. As discussed in Appendix C, redevelopment of the park involving changes to the mounds will require: testing (characterization of solids and gasses); feasibility study (consider the cost/benefit of making changes to the mounds); and hazard planning (to avoid risk to health and safety of workers and the public).

The Need for Supplemental Environmental Disclosures.
Some of the proposed improvements may require subsequent compliance with Chapter 343, HRS to disclose their specific impacts. Specifically, if the sports complex is proposed for a greater intensity of uses or development, such as enclosed gyms; or if moving the outdoor amphitheater is pursued. For either of these uses, the potential for impacts from additional vehicular traffic and parking needs, sound, demand on public facilities and construction of structures in the shoreline area will require greater design development and consideration.

3.0 DESCRIPTION OF PROPOSED PARK MASTER PLAN IMPROVEMENTS

This section includes background information and a general description of proposed Park Master Plan improvements. The intent is to disclose a broad range improvements that have been proposed; however, not all proposed improvements may ultimately be built. Similarly other improvements may be proposed in context with the overall intent of an active use facility plan for the Parks that may require subsequent compliance with Chapter 343, HRS. This EIS details a phased approach for the proposed improvements and sets a framework for uses that could be allowed in the Parks, but some specific park elements may require additional assessment to disclose their specific impacts.

3.1 BACKGROUND INFORMATION

3.1.1 Location & Development

The Kakaako Makai Parks are within the KCDD, situated in urban core of Honolulu between the downtown central business district and Waikiki. Kakaako Waterfront Park encompasses approximately 39 acres; Kakaako Gateway Park encompasses approximately 7.8 acres; and Kewalo Basin Park encompasses approximately 5.8 acres. Figure 2 and Figure 3 shows the location of the Parks in context with Honolulu, with each park labeled by name.

Kakaako Waterfront Park is bordered by the Pacific Ocean; the University of Hawaii John A. Burns School of Medicine (JABSOM) and University of Hawaii Cancer Center; Next Step Shelter and Reuse Hawaii warehouse; Children's Discovery Center; Kewalo Marine Laboratory; and 53 by the Sea. Kakaako Gateway Park is bordered by JABSOM, two car dealerships (Cutter Chevrolet and Acura of Honolulu), Ala Moana Boulevard, and Ohe Street. Kewalo Basin Park is bordered by the Pacific Ocean, Kewalo Basin Harbor, and Ala Moana Regional Park.

The Parks are developed on fill land that was once low-lying shoreline and submerged lands traditionally used for fishing and sea-salt harvesting (Cultural Surveys Hawaii, Inc., 2010). As Honolulu developed in the 20th Century, this intertidal area was gradually filled and land uses converted to industrial uses, including a municipal refuse incinerator. The incinerator site is not part of this plan. The incinerator building is currently used as the Children's Discovery Center, immediately adjacent to the Parks. The land that is now Waterfront Park was the location of incinerator ash disposal from 1930 until 1977 (Element Enviornmental LLC, 2016). During that time, unburned municipal refuse was also deposited in the landfill. In 1977, the landfill was capped and until 1990, the site was used as a disposal area for construction waste. In 1992, Kakaako Waterfront Park was constructed over the landfill and Gateway Park was established to connect the Parks to Ala Moana Boulevard. Kewalo Basin Park is built on fill dredged to create Kewalo Basin (Cultural Surveys Hawaii, Inc., 2010) and has been used to support maritime uses before evolving to park space in concert with development of the Kakaako Waterfront Park. Although not physically connected, the Waterfront Park and Kewalo Basin share a common element, a waterfront promenade constructed with consistent paving patterns and shade structure/trellis design.

3.1.2 Existing Facilities & Uses

The Kakaako Makai Parks are all currently used as passive parks, which are defined as parks that are generally not actively managed or programmed and require few or no permanent facilities or recreational equipment. Examples of passive recreation include biking, picnicking, jogging, and nature enjoyment.

Kakaako Gateway Park consists of two open, flat grass fields situated between Ala Moana Boulevard and Kakaako Waterfront Park. The fields are sized to accommodate soccer games and are bound by Cooke Street to the west (Ewa) and Ohe Street to the east (Diamond Head). The fields are bisected by Ilalo Street. The most consistent users of the Parks are homeless people, with transient encampments around the edges of the Parks. However, the more makai field is also used for field sports and occasional picnicking.

Table 2. List of Kakaako Gateway Park Existing Improvements

Type	Element
Recreational	Open, grassed, un-striped fields
Infrastructure & Secondary Elements	Landscaping
	Sidewalks
	Underground irrigation

Kakaako Waterfront Park is defined by its man-made topography – most notably large, grassed mounds that overlook the Pacific Ocean. The mounds are man-made caps to a former landfill that rise from 15 feet above mean sea level (MSL) to 45 feet above MSL at their peaks. Atop the prominent east mound is a memorial to the Ehime Maru incident and an amphitheater is situated at the base of the mound on the mauka side.

The Waterfront Park has a network of trails that wind around the mounds and lead to a wide oceanfront promenade surfaced with decorative pavers situated atop a revetment that extends the length of the park's shoreline. Along the promenade are two pergolas planted with hau (*Hibiscus tiliaceus*) to provide shade over picnic tables.

Walking along the promenade and fishing from the revetment makai of the promenade are popular activities for park visitors. Support facilities include an approximately 286 space asphalt parking lot located at the main vehicle entry to the park, an approximately 49 space gravel/asphalt parking lot near Point Panic, two showers, and two comfort stations.

Uses within the Waterfront Park are generally not actively programmed; recreational activities are either spontaneous or organized by community members and approved by permit. The large, grassed mounds are often used for sliding. The taking of wedding photographs along the shoreline (especially near sunset time) is also a popular activity within the park. The amphitheater is used for concerts and music festivals at the rate of approximately one event per month. Point Panic, a popular surf break is located off the east side of the Waterfront Park. A grassed, flat area situated in the west side of the park between Point Panic and the adjacent children's museum provides an area for field sports or games, but is not actively used.

Table 3. List of Waterfront Park Existing Improvements

Type	Element	Locational Notes
Recreational Elements	Shoreline promenade	Length of park's shoreline
	Walking paths	Meandering through rolling topography and connect to the shoreline promenade
	Shade pergolas and picnic tables	Situated along shoreline promenade
	Outdoor amphitheater	Ewa of the entry parking lot and adjacent to the U.H. Cancer Center building
	Open, grassed lawns on rolling topography	throughout
	Open, grassed lawns on flat topography	Makai of Children's Discovery Center
	Memorials (MADD and Ehime Maru)	Ewa terminus of the shoreline promenade and atop the "central" mound, respectively
	Rip-rap jetties and sea steps designed for ocean access	Situated at intervals along the shoreline revetment
Infrastructure & Support Elements	Surface Parking Lots (2)	286+/- space lot at primary vehicle entry point (Cooke and Kelikoi Streets); 49+/- space lot near Point Panic
	Operational comfort stations (2)	Adjacent to shoreline promenade
	Trash bins and charcoal depositories	throughout
	landscaping	throughout
	Underground irrigation	throughout
Non-recreational Elements	Paved/gravel fenced-off lot	commonly known as "Look Lab" site
	Unused metal warehouse building	Adjacent to the Ewa side of the entry parking lot
	Unused, closed comfort station	Adjacent to the Diamond Head side of the entry parking lot

Kewalo Basin Park is a small park that runs along a revetment makai of Kewalo Basin Harbor, which is a commercial small boat harbor under the jurisdiction and ownership of HCDA and managed by a private entity (Kewalo Harbor, LLC) with a lease from HCDA. It has a walking path, a comfort station, picnic tables, and a small grass area at the Diamond Head end with a statue of Saint Marianne Cope, who cared for people with Hansen's disease on Molokai during the late 1800's. A former net shed building is located at the west side of the park which HCDA leases to Kupu, a non-profit community organization that provides environmental stewardship service-learning opportunities to youth. Surfers are the primary recreational users of Kewalo Basin Park. They access a number of popular surf breaks just off shore of the Park and hold surf contests during the summer when the waves are bigger.

Table 4. Kewalo Basin Park: Existing Improvements

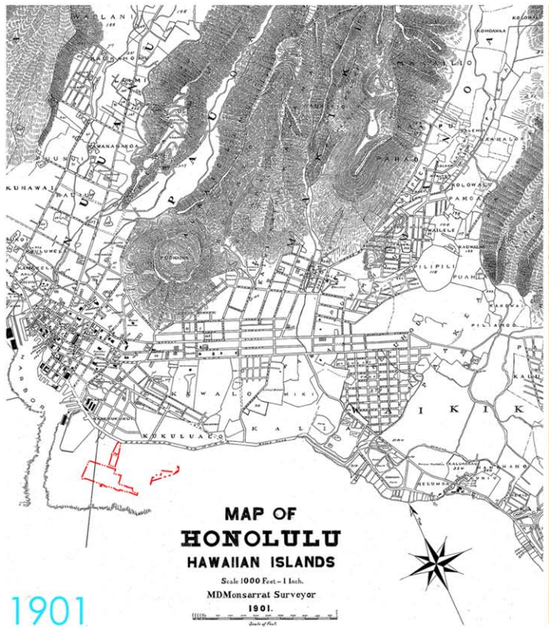
Type	Element	Locational Notes
Recreation	Shoreline promenade	Length of park's shoreline
	Walking paths	Connect parking to the shoreline promenade
	Shade pergolas and picnic tables	Situated along shoreline promenade
	Sculpture/memorials	Ewa side of promenade and memorial sculpture of St. Cope at Diamond Head side of park
Infrastructure & Support	Comfort Station and shower	Centralized adjacent to shoreline promenade
	Landscaping	throughout
	Underground irrigation	throughout
Community Uses	Former net shed building in use by educational non-profit	Ewa side of park
Non-recreational Elements	Gravel/asphalt fenced-off area	Located at the extreme Diamond Head side of park nearest Ala Moana Regional Park

3.1.3 Regional Land Use History

On the Kakaako Makai Peninsula, bordered by the Kewalo Basin and Honolulu Harbor, general leases and revocable permits were issued by the Department of Land and Natural Resources, Department of Transportation, Department of Business, Economic Development & Tourism (Hawaii Community Development Authority, 2005). The Makai Area has been used for maritime and industrial purposes, including maritime break-bulk, limited container cargo operations, ship maintenance, cruise ship facilities, and the Foreign Trade Zone warehouse and offices. Commercial uses in the vicinity have most recently been dominated by car dealerships. A variety of public service uses have also existed in the area including research use by the Pacific Biosciences Research Center, the State of Hawaii, Department of Health, and Ala Moana Wastewater Pump Station.

3.1.4 Kakaako Makai Parks Property History

Oahu's original southern coastline in the vicinity of the Kakaako Makai Parks likely ran along the existing Ala Moana Boulevard. The Kakaako Makai district was at or below sea level, but a seawall was constructed between 1913 and 1927 near the current shoreline. Artificial fill material, including ash from burned municipal refuse, unburned refuse, and automobile batteries, was deposited behind the seawall. Two incinerators, one built in the 1927 and the other in the 1945, contributed ash to the fill seaward of Ahui Street until deposition of ash was banned by the City and County of Honolulu in 1971 (The Limtiaco Consulting Group and EnviroServices & Training Center, LLC, 2009). The fill process resulted in the existence of the land upon which Kakaako Waterfront Park and Gateway Park are now located. The substrate below Kewalo Basin Park was likely created from material dredged from Kewalo Harbor in the 1920s and 1940s. In 1955, workers placed dredged material along the makai side of the Harbor to form the eight-acre land section protected by a revetment a portion of which is now Kewalo Basin Park (Young P. T., 2013).



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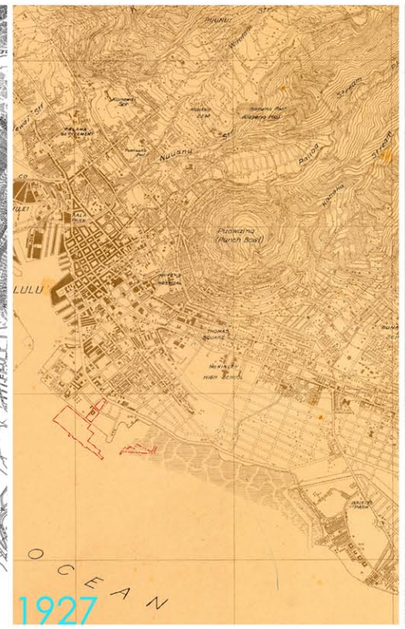
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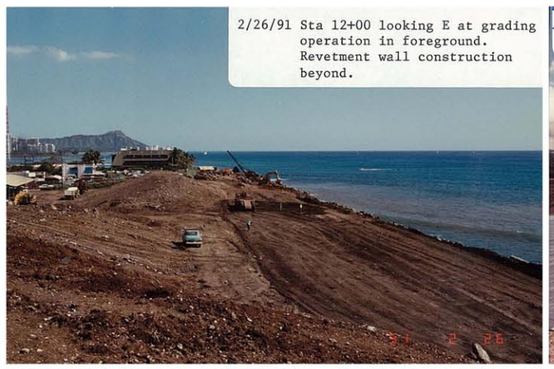

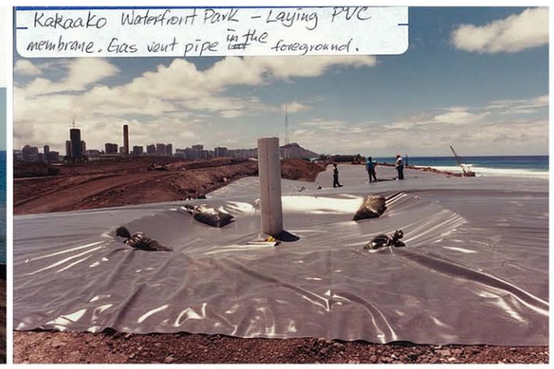

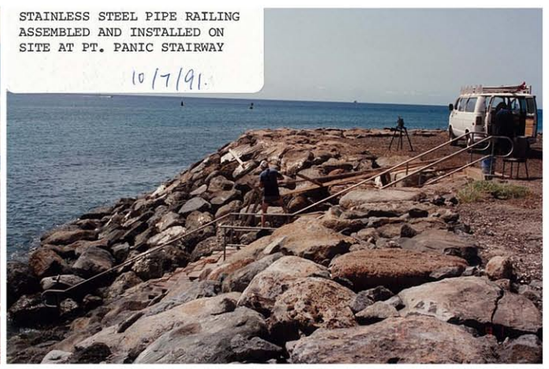

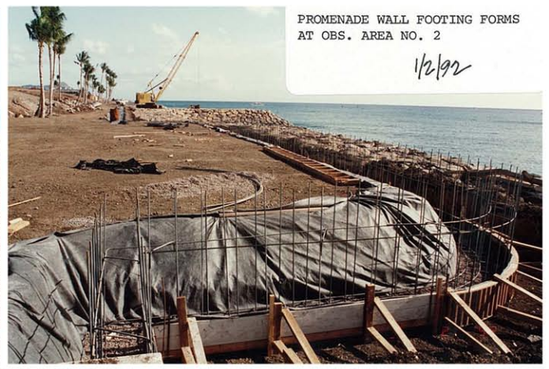

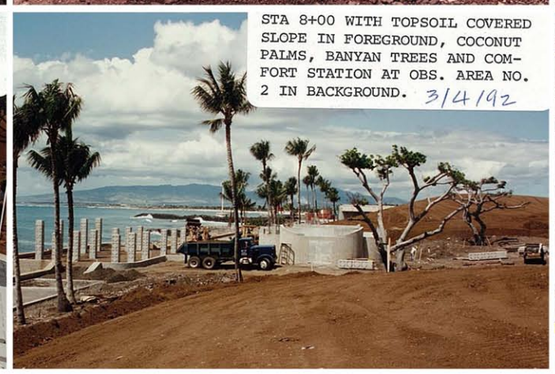

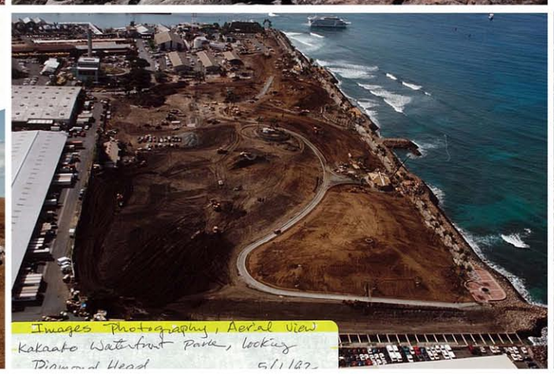

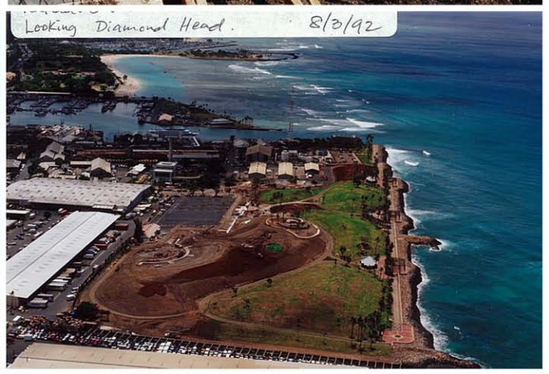

Q:\Oahu\HCDA Makai Park\PSD

Figure 11
Historic Photos

KAKAAKO MAKAI PARKS
HCDA Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

3.2 MASTER PLAN DESCRIPTION

3.2.1 Proposed Elements

Master Plan elements proposed for the Kakaako Makai Pars are described below. Figure 1 contains the graphical representation of the Master Plan.

Great Lawn & Gateway Features
The "Great Lawn" is conceptualized to allow unimpeded visual and physical access from Ala Moana Boulevard to the ocean. It begins at the Gateway Park which is the primary entryway to the Parks complex. Gateway features that announce arrival and nodes that help draw park uses into the core of the park are proposed. The Gateway Park is proposed to be enlarged along the Cooke Street frontage south of Ilalo Street (in front of JABSOM). A revised drop-off for the medical school is proposed.

To continue the Great Lawn, the existing parking lot at Waterfront Park is proposed to be replaced with a plaza and eventually an interactive water feature in front of the Children's Discovery Center. Displaced parking stalls (discussed later in this description) are proposed to be located west of the great lawn, along Olomehani Street and on adjacent parcels of land outside the park for an overall gain in recreation space.

The Great Lawn continues to the ocean by re-contouring the ash mound within Waterfront Park south of the plaza and water feature to complete unimpeded visual and physical access to the ocean.

Flexible & Open Community Space
The Gateway Park's lawn between Ala Moana Boulevard and Ilalo Street is envisioned as an open space, available for impromptu use and regularly programmed activities. Activities could include plant and craft sales, dog shows, and pop-up sporting events. This space draws the public into the park complex, thus, it will be important to ensure lively, regularly programmed activities occur here.

Lei of Green
The Lei of Green is a long-running concept with strong support from the community. The objective is connectivity between public resources along the ocean. Thus, the existing promenade is proposed to be upgraded in place. Immediate expansion of the Lei of Green is proposed to extend the promenade from Kewalo Basin Park to neighboring Ala Moana Regional Park. Extension of the promenade along the west side of the park to Keawe Street and continuing to loop back to the great lawn is also proposed. Eventual connection along the shoreline to Honolulu Harbor is also envisioned.

Sports Complex
A sports complex, to be developed in at least two phases is proposed at the "Look Lab" site (also the site formerly proposed for the Obama Library). Phase 1 is envisioned to be sand volleyball courts and bleachers. Subsequent phases may involve a gymnasium.

Keiki Zone
Active play is encouraged within the interior of Waterfront Park in close proximity to the Children's Discovery Center and the sports complex. Artistic, unique play structures that inspire discovery and creativity are proposed at this highly visible location.

Beach Hale
A beach hale and parking at Point Panic is proposed. The location has been chosen for views of the surf break and in acknowledgement of the site as an existing gathering place for the strong community of watersport enthusiasts that utilize this place.

Food Concessions & Biergarten
An easy to access food concession is proposed across the parking area from the great lawn extension. At the top of one of the mounds, a biergarten with panoramic views of Leahi (Diamond Head), the Waikiki skyline, surf breaks, and the sunset is proposed. Additional food concessions may also be desirable at the sports complex. It is anticipated that the concessionaires would be operated by third party vendors. The biergarten is envisioned as a satellite, open-air "tap-room" for any one of Hawaii's growing craft brewers, or craft beverage purveyors. Market analysis indicates that a biergarten between 2,000 and 3,000 square feet in size could be supported by the growing Kakaako neighborhood. It is highly encouraged that the biergarten vendor be subject to a rigorous selection process where high quality customer experience is strongly emphasized. Further, market analysis has identified interest in development of food concessions in the form of a truck food court with a pad site of approximately 10,000 square feet at the Kakaako Waterfront Park. In addition to providing park users a number of daily food and beverage options, the truck food court could promote a family and community friendly atmosphere as special events are held at the amphitheater and proposed sports complex.

Community Center
A flexible-space community center is suggested at Olomehani Street, flanked by the great lawn and keiki zone. The community center is envisioned to be an open, adaptive space that can be used for a variety of purposes, including a cultural public market, community education, and auxiliary covered space to adjacent outdoor uses for special events. The community center is envisioned to have a food preparation space (non-commercial) that would include double sinks with a grease trap, counter space, and electrical outlets for plugging in cooking appliances.

Adventure Zone
A popular activity that is proposed to be continued and augmented is impromptu sliding on the park's grassy hills. The site of what is now the amphitheater is proposed to be repurposed with an adventure area featuring slides that take advantage of the site's topography. The topography could also be used in creative development of rock climbing features or ropes courses.

Amphitheater
The existing amphitheater currently serves as a performance venue. However, based on user feedback, HCDA staff have identified some shortfalls with the facility, including its size and a lack of permanent stage infrastructure. A larger (5,000-7,000 person lawn and seating capacity), more permanent facility is therefore proposed on the waterfront. The facility is envisioned to be of a capacity comparable to the Waikiki Shell. The placement of the amphitheater is proposed to take advantage of the existing topography, with lawn seating facing the stage with panoramic views of the ocean and Leahi, and the ocean as its backdrop.

Parking
Currently, the Parks are served by on- and off-street parking. Off-street parking spaces number approximately 421 in Waterfront Park and 109 in Kewalo Basin Park for a total of approximately 530 spaces. An additional 70-97 parking spaces are located on Cooke and Ohe Streets adjacent to the Gateway Park and approaching Point Panic.

Parking at the Waterfront Park and Gateway parks is proposed to be decentralized to improve the park arrival experience, and to allow easier access to a variety of locations within the park. The central parking lot at the Waterfront Park will be reduced to allow development of a continuous park experience from the Gateway Park to the ocean. Additional parking is proposed to be added near Point Panic. The Master Plan anticipates that between 100-150 parking spaces will be available in a new structure adjacent to the park at Lot C, where the HCDA has developed a master plan for innovation centered development. This will replace parking stalls lost with the reduction of the central lot, and augment it when needed for special events.

Parking at Kewalo Basin Park is not proposed to change in number, although it may need some reconfiguration when park community uses are developed.

After full-build out, the total number of parking spaces at the Kakaako Makai Parks will number approximately 500. If, in the future, the sports complex at the Waterfront Park develops to include a gymnasium that can accommodate large tournaments, a parking structure that could accommodate an additional 500 vehicles could be added in the Point Panic area.

Table 5 Proposed Parking

Park Location	Existing Parking	Proposed Parking
Waterfront Park	286+/- space lot at primary vehicle entry point (Cooke and Kelikoi Streets); 45+/- space lot north of the Children's Discovery Center (CDC); 41+/- space lot east of the CDC; and 49+/- space lot near Point Panic	129+/- spaces in reconfigured lot west of current central lot; 239+/- spaces in parking lots and angled on-street spaces located at sports complex and Point Panic. Additional 900+/- off-street parking anticipated to be developed by HCDA with technology incubator on Keawe Street (not part of the Parks Master Plan). No changes proposed for the lots north and east of the CDC.
Kewalo Basin Park	109+/- space lot	No change proposed

Vehicle Circulation
To accommodate the park elements, vehicle circulation is proposed to be adjusted and enhanced at the Gateway and Waterfront Parks. As previously mentioned, to expand the Gateway Park, Cook Street is proposed to be moved west of its current location and a reworked drop off is proposed in front of the Medical School. Kelikoi Street is proposed to be constructed to connect Ohe Street to Keawe Street to facilitate east-west vehicular movements, provide access to parking areas, and to create an additional point of vehicular ingress and egress.

Kewalo Basin Park

Few new elements are proposed at Kewalo Basin Park, aside from continuing the Lei of Green to neighboring Ala Moana Regional Park, as previously discussed. The existing net-shed building currently leased to Kupu is proposed to continue to be used for community-supportive uses. The existing comfort station is proposed to remain. Showers are proposed for upgrades, with attention to subsurface materials to facilitate improved drainage.

Comfort Stations
Comfort stations and beach showers are proposed in the following locations:

Table 6. Comfort Station Locations and Proposed Sizes

Location		Number of toilets (unisex)	Number of showers
Waterfront Park			
1	"adventure" concession stand	6	0
2	Biergarten	6	0
3	Waterfront Park Jetty	3	1 multi-head
4	Community Center	6	0
5	Sports Complex	8	1 multi-head
6	Point Panic	2	1 multi-head
Kewalo Basin Park			
7	Kewalos	No change to existing	No change to existing

3.3 MASTER PLAN PURPOSE AND NEED

3.3.1 Project Purpose

The purpose of the Master Plan is to set forth a series of park improvements that will serve as the backdrop for sustainable, re-energized active uses and enhanced gathering places within the Kakaako Makai Parks.

3.3.2 Project Need

The need for a Master Plan that is focused on improvements to promote active uses in the Kakaako Makai Parks is driven by a number of interrelated events and conditions:

- Transfer of revenue-generating lands adjacent to the Kakaako Makai Parks from HCDA to the Office of Hawaiian Affairs (OHA) in 2012. The revenue stream from parking receipts and leases on those lands had, in part, paid for park upkeep and renovations.
- Recognition that the Guiding Principles developed with community support in the 2011 Kakaako Makai Conceptual Master Plan are strong organizing foundations for creating gathering places that are both lively and sustainable.
- Consideration of available park development alternatives based on the public's outdoor recreation needs; public health, safety and welfare; cost; infrastructure availability; environmental impacts; and, population growth.
- On-going development of high density residential housing in the Kakaako District and the need for public park space and the quality of public space for future residents.

Acknowledgement that the growing homeless population within the Parks is a deterrent for recreational park users.

3.3.3 Statement of Objectives

The primary objective of the Kakaako Makai Parks Master Plan is to set forth a viable plan for development of park facilities that will encourage and support active uses. Specifically, the objectives include the following:

- Plan for uses that sustain themselves financially and provide revenues to support park operations and maintenance without compromising access to recreational space.
- Activate the Parks with family-friendly outdoor recreational activities that draw people to the park without fear for personal safety.
- Create spaces that encourage lively uses and quality outdoor experiences that are akin to the world's best urban parks.
- Respect and incorporate the Guiding Principles of the 2011 Conceptual Plan.
- Propose a phased approach to development of the Master Plan elements that is logical with respect to current needs; cost; public health, safety, and welfare; infrastructure availability; environmental impacts; and, population growth.

3.4 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

3.4.1 Proposed Phasing Plan

Implementation of the park improvements is anticipated to begin as soon as all entitlement and permitting approvals have been received. The phasing of park elements will consider public demand, cost, infrastructure availability, environmental impacts and projected population growth. The Draft EIS contains information and data to support the phasing plan based on public input received in the planning process, research into park trends, as well as technical studies and reports prepared by cost estimators, civil engineers, and environmental professionals.

See Table 8 Phasing Plan for park elements to be built-out during four phases (Phases I through IV), during a span of twenty years. Park elements are prioritized during Phase I for completion within one-to-three years, Phase II within three-to-five years, Phase III within five-to-ten years, and Phase IV within ten-to-twenty years.

Phase I (Complete in 1-3 Years)

Based on public and HCDA input, as well as the 2011 Conceptual Plan the near-term elements include opening a park entry at Keawe Street, as well as upgrading to the existing promenade and developing Lei of Green connections between Kewalo Basin Park to Ala Moana Regional Park and Keawe Street. These Master Plan park elements activate the Parks by enhancing access and enhancing recreational opportunities, which the public and park stakeholders have consistently prioritized.

Adjusting the grade of the existing promenade will ensure that stormwater flows to the lawn for infiltration, while the Keawe Street entry will be regraded to provide ADA-compliant connections. Initiating regular programing of the Gateway Park envisions upgrading electrical infrastructure, as necessary to accommodate food trucks that meet local dining and refreshment needs, while supporting local small businesses. Addressing landscape and drainage needs for

Kewalo Basin Park by incorporating a raingarden are also elements of Phase I. These improvements will have the most impact on access and use of the park and focus on enhancing existing park facilities, with minimal infrastructure requirements.

Phase II (Complete in 3-5 Years)

While Phase I focuses on pedestrian access, accommodating vehicular access is a priority of Phase II. The Master Plan proposes decentralized parking to improve the park arrival experience and ease access to various locations throughout the Parks. Phase II includes a new surface parking area at Point Panic and makai of Olomehani Street that will result in stormwater being captured by depressed rain gardens. As this parking becomes available, the existing central parking at Waterfront Park will be reconfigured and replaced with lawn. A new parking structure with approximately 900 parking stalls proposed in the HCDA's master plan for Lot C can accommodate stalls lost from the reduction of the central lot and can also serve as overflow parking for special events. After full-build out parking spaces will number about 500.

Phase II includes construction of new facilities, such as the first phase of the Sports Complex proposed at the "Look Lab" site. Sand volleyball courts and bleachers are planned for in Phase II, while subsequent phases may involve a built gymnasium. At Point Panic, the construction of a Beach Hale and Comfort station is proposed and would require connection to water and wastewater lines at Ahui Street.

Phase III (Complete 5-10 Years)

Modifying existing park feature and constructing additional areas for recreation are prioritized in Phase III. It is envisioned that the Sports Complex will be completed and construction will commence for an accessible keiki play area makai of the Children's Discovery Center as well as a water splash pad and plaza Ewa of the Children's Discovery Center. Additional improvements proposed include the regrading of the central mound at Waterfront Park and realigning Cooke Street along the Gateway Park frontage to create a clear view plain from Ala Moana Boulevard to the ocean. Areas on the Ewa side of the Waterfront Park will be reconfigured to create additional open green space with expansive views. Further, the Kelikoi Street connection to Keawe Street will be completed.

Phase IV (Complete 10-20 Years)

The provision of additional and enhanced venues for community gatherings and entertainment are included in Phase IV. Improvements include construction of a Community Center adjacent to the Great Lawn, as well as the relocation of the Amphitheater. Upgrades to the Amphitheater are proposed to provide a more permanent and larger facility, comparable in size to the Waikiki Shell. The placement of the amphitheater seeks to incorporate the existing topography to accommodate lawn seating facing the stage and ocean. Further, installation of slides and play apparatus are proposed on the mauka-side of the amphitheater.

3.4.2 Cost Estimates

Financial feasibility analyses for Master Plan improvements including the Sports Complex, Amphitheater, Biergarten, and Food Trucks were prepared by Colliers International (Appendix G). These four Master Plan elements are proposed for development in Phases III or IV, such that the earliest related construction would occur in years 5-10, with the exception of the Food Trucks occurring in Phase II during years 3-5. The analyses estimated Total Projected Annual Net

Operating Income (annual NOI) based on development criteria, stabilized revenue, and estimated operating expenses, while Total Development Costs were based on hard costs and soft costs. Hard Costs account for site preparation, utilities, building, and surface parking, while Soft Costs generally include architecture, mechanical, civil, and structural engineer services, construction management, building permits, as well as insurance. Table 7 summarizes information for each of the four elements, with data that is rounded.

For the four Master Plan elements the Total Development Costs ranged from about $178,000 for a space dedicated to food trucks to $26.2 million for a sports complex. Annual Operating Expenses are subtracted from Annual Revenues to develop an estimated Annual Net Operating Income (annual NOI).

Table 7. Summary of Financial Feasibility Analyses for Master Plan Elements

Park Element	Total Development Cost	Estimated Annual Revenue	Estimated Annual Operating Expenses	Total Projected Annual Net Operating Income (NOI)
Sports Complex	$24,552,000[1]	$ 1,652,400	$ 1,586,304	$ 66,096
Amphitheater	$16,694,600[1]	$ 1,467,100	$ 1,320,390	$ 146,710
Biergarten	$ 1,299,700[1]	$ 2,178,000	$ 2,075,940	$ 102,060
Food Trucks (10 trucks)	$ 178,000	$ 360,000	$ 286,800	$ 73,200
Surface Parking (475-500 stalls)	$1,662,500-$1,750,000	-	-	-

1The Colliers International cost estimate (Appendix G) assumes construction of separate surface parking lots for this use. Parking costs have been deducted from this use and calculated as a separate line item in the table above

The financial feasibility analyses determined that all four of Master Plan elements are estimated to generate revenues. Also, the estimates assume that HCDA would solely be responsible for the construction and operations of each of the facilities. As was noted for the Sports Complex, development costs could be off-set if sponsorship or donation funds are secured.

The financial feasibility analysis also suggests that the profitability of these four elements will be dependent upon the chosen operations and management framework. For example, if concert promoters have a financial stake in the success of the amphitheater, they will be more motivated to book performers. As there are no specific design plans for the four proposed Park elements, it is acknowledged that when designs are completed further study may determine refinements to respective Park elements' size, capacity, and other design and operation factors could result in lower Total Development Costs and greater Total Projected Annual Net Operation Incomes.

While the development costs of the four major active uses are significant, each Park element has proposed phasing that is intended to enable HCDA to plan accordingly and secure the necessary funds and financing.

Table 8. Phasing Plan

Phase I (Do Immediately & Complete in 1-3 Years)		
Park Element	Supporting Infrastructure	Notes
Initiate regular programming of Gateway Park	Upgrade electrical as necessary to accommodate food trucks	
Lei of Green connection between Kewalo Basin Park and Ala Moana Regional Park	Adjust grades as necessary to ensure stormwater from promenade sections sheet flow to lawn for infiltration; Adjust grades at Keawe Street	
Regrade contours in Kewalo Basin Park to reduce mounds and improve drainage at showers		Incorporate rain gardens in Kewalo Basin Park to address drainage issues
Refresh landscape in Kewalo Basin Park with coastal native plants		
Open a park entry at Keawe Street		
Lei of Green connection at Keawe Street		Regrade entry to allow ADA-compliant connection to existing pathway system, anticipating eventual sidewalks mauka to makai on Keawe Street
Phase II (3-5 Years)		
Park Element	Supporting Infrastructure	Notes
Construct Beach Hale & comfort station at Point Panic	Connect to water and wastewater lines in Ahui Street	
New surface parking area at Point Panic and makai of Olomehani Street	Grading as appropriate; parking lot stormwater to be captured in depressed rain gardens	Incorporate native plants into rain garden
Once additional parking is available, reconfigure central parking area and replace majority with lawn	Construct bioswales in downsized parking lot to accommodate stormwater	
Establish food truck programming		
Begin first phase of sports complex		
Phase III (5-10 Years)		
Park Element	Supporting Infrastructure	Notes
Regrade central mound in Waterfront Park to create clear visual access from Ala Moana Boulevard to Ocean	Realign Cooke Street along Gateway Park frontage	
Construct accessible keiki play area makai of Children's Discovery Center		
Fill mound areas on Ewa side of Waterfront park to create additional open green space with expansive views		
Install splashpad and plaza Ewa of Children's Discovery Center (former parking lot)		
Complete Kelikoi Street connection to Keawe Street		
Complete sports complex		
Phase IV (10-20 Years)		
Park Element	Supporting Infrastructure	Notes
Community Center adjacent to Great Lawn and accessible keiki play area		
Relocate amphitheater		
Install slides and play apparatus on mauka-side of amphitheater mound (site of old amphitheater)		
Food concessions and comfort station associated with slides and play area		
Add biergarten at top of mound overlooking amphitheater, great lawn, slides and splashpad		

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4.0 DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS OF THE PROPOSED ACTION, AND MITIGATION MEASURES

This section describes the existing conditions of the physical or natural environment, potential impacts on the environment from the park improvements.

4.1 CLIMATE

Existing Conditions
The climate of the Honolulu can be characterized as mild and subtropical. Average temperatures range from about 73 degrees Fahrenheit in the coolest month (February) to about 82 degrees Fahrenheit in the warmest month (August). Average annual rainfall is around 20 inches per year, with December typically being the wettest month and June the driest (National Weather Service, n.d.). The prevailing wind throughout the year is the northeasterly trade wind, although southerly or southwesterly winds are not uncommon between October and April.

Potential Impacts and Mitigation Measures
The park improvements are not anticipated to have any effect on the region's climate, and no mitigation measures are warranted or planned.

4.2 GEOLOGY AND TOPOGRAPHY

Existing Conditions
Kakaako lies on the Honolulu coastal plain, which is a broad coral reef platform that developed during the last interglacial period in the late Pleistocene when the ocean was warmer and the sea level was higher (University of Hawaii Coastal Geology Group, 2013). Unlike most of the Kakaako District, the land underlying the Kakaako Makai Parks is composed of fill material. However, the undeveloped natural condition of the Parks land may have been low-lying marsh, tidal flats, fishponds, and/or reef (Office of Hawaiian Affairs, 2013).

Oahu's original southern coastline in the vicinity of the Kakaako Makai Parks likely ran along the existing Ala Moana Boulevard. The Kakaako Makai district was at or below sea level, but a seawall was constructed between 1913 and 1927 near the current shoreline. Artificial fill material, including ash from burned municipal refuse, unburned refuse, and automobile batteries, was deposited behind the seawall. Two incinerators, one built in the 1920s and the other in the 1940s, contributed ash to the fill seaward of Ahui Street until deposition of ash was banned by the City and County of Honolulu in 1971 (The Limtiaco Consulting Group and EnviroServices & Training Center, LLC, 2009). The fill process resulted in creating the land upon which the Kakaako Waterfront Park and Gateway Park are now located. However, the substrate below Kewalo Basin Park was likely created from material dredged from Kewalo Harbor in the 1920s and 1940s. In 1955, workers placed dredged material along the makai side of the Harbor to form the eight-acre land section protected by a revetment that is now Kewalo Basin Park (Young P. T., 2013).

The topography of the Kakaako Gateway and Kewalo Basin Parks are relatively flat – elevations do not exceed ten feet above MSL with most of the Gateway Park at five feet above MSL. Unlike the other parks, the topography of the Kakaako Waterfront Park is quite varied, as the Park was built on contoured mounds of incinerator ash landfill. On the west side of the Kakaako Waterfront Park, there are two mounds that rise from 15 feet above MSL to 45 feet above MSL at their peaks. There are several smaller mounds on the east side of the Waterfront Park that peak at 30 feet above MSL. See Figure 12 Topographic Features.

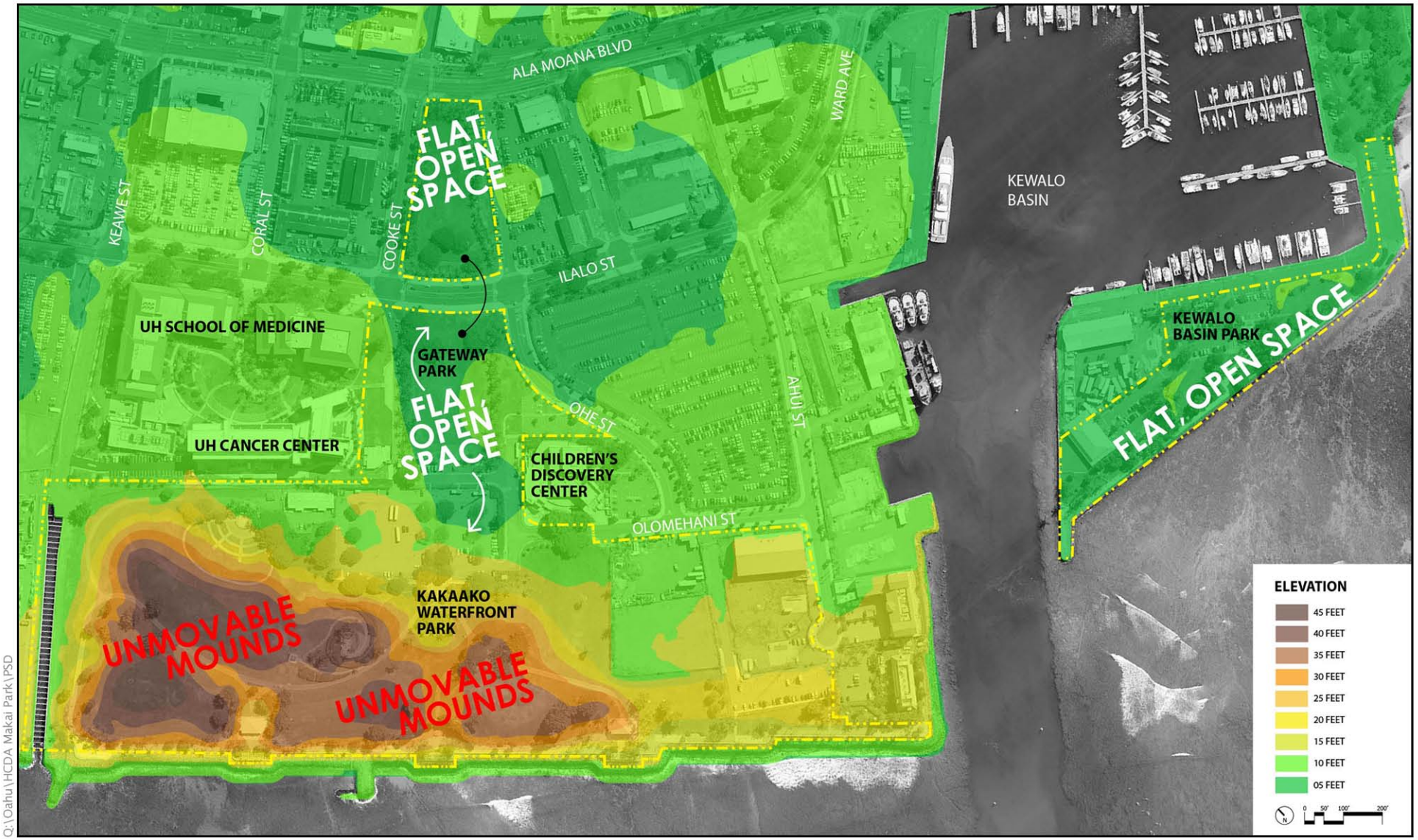
Potential Impacts and Mitigation

Based on public and park stakeholder feedback, efforts are made to expand available and open green space though Master Plan elements including the Great Lawn & Gateway Features, as well as the expansion of lawn at the Gateway Park. The Gateway Park's lawn configuration will be maintained and removal of the Waterfront Park parking lot is proposed to be replaced with continuation of the Great Lawn and eventually an interactive water feature so that upon arrival, park users are welcomed to green space rather than the existing asphalt parking lot.

Recontouring the Park mounds are proposed to improve panoramic views identified in the Kakaako Makai Area Plan, improve drainage, reconfigure and decentralize parking to promote open and accessible green space, and accommodate the amphitheater and the biergarten.

Based on user feedback and in discussion with HCDA staff, shortfalls have been identified with the existing amphitheater which include its size and lack of permanent stage infrastructure. The Master Plan proposes to relocate the amphitheater along the waterfront to accommodate a dedicated more permanent facility that is comparable in size to the Waikiki Shell. The placement of the amphitheater would take advantage of the existing topography, with lawn seating on the mound and the stage with the ocean as the backdrop and panoramic views of Leahi. It is expected that some re-contouring of the mound will be desired to best orient the lawn seating toward the proposed stage area. The adventure zone proposed at the site of the existing amphitheater would maintain and feature the Park's topography allowing continued use for impromptu sliding on the park's grassy hills.

If pursued, the biergarten is proposed on top of one of the mounds. It is expected that the expertise of a geotechnical engineer will be required to determine appropriate construction means and methods to build a structure at this location. Removal or recontouring of the mounds will require additional environmental testing to establish health and safety protocols for construction and long-term storage of the landfill material. All grading will conform to the City and Count of Honolulu's grading ordinance and section 11-60.133, HAR Fugitive Dust and Section 11-54-1.1, HAR, Anti-Degradation Policy.



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LEGEND

Kakaako Makai Parks

Figure 12

Topographic Features

KAKAAKO MAKAI PARKS

HCDA

North

Linear Scale (feet)

0 200 400

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

4.3 SOILS

There are three soil suitability studies prepared for lands in Hawaii whose principal focus has been to describe the physical attributes of land and the relative productivity of different land types for agricultural production; these are: 1) the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey; 2) the University of Hawaii Land Study Bureau (LSB) Detailed Land Classification; and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawaii (ALISH).

4.3.1 NRCS Soil Survey

Reflecting the manmade nature of the geologic history of the Kakaako Makai Park, the NRCS soil survey identifies only one soil type, "Fill land, mixed," underlying the Kakaako Makai Parks. See Figure 13 Soils. A description of this soil type is as follows:

Fill land, mixed (Fl) – This land type consists of areas filled with material dredged from the ocean, excavation from adjacent uplands, and garbage. Fill land occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. Generally, this land type is used for urban development, including airports, housing, and industrial facilities.

4.3.2 Land Study Bureau Detailed Land Classification

The University of Hawaii Land Study Bureau (LSB) document titled *Detailed Land Classification, Island of Hawaii* classifies non-urban land by a five-class productivity rating system, using the letters A, B, C, D and E, where "A" represents the highest class of productivity and "E" the lowest. Soils of the Kakaako Makai Parks are not classified by the LSB.

4.3.3 Agricultural Lands of Importance to the State of Hawaii

The State of Hawaii Department of Agriculture's Agricultural Lands of Importance to the State of Hawaii (ALISH) system rates agricultural land as "Prime," "Unique" or "Other" lands. The remaining land is not classified. The Kakaako Makai Parks are not classified by the ALISH system and therefore is not considered important agricultural land.

4.3.4 Landfill Soils

The Parks are built on fill and the Waterfront Park is notable for its mounded contours which are capped landfill. A description of the landfill, its history, make-up, environmental monitoring, and evaluation of environmental hazards can be found in Appendix C. In summary, the nature of the landfill materials left in place when the Waterfront Park was built is not well documented. The Hawaii Department of Health does not have a landfill closure plan on file. In 1990, the make-up of the landfill was partially characterized prior to construction of the Waterfront Park in 1992. However, grading the landfill materials reduced and changed the shape of the landfill and it is not known if materials were removed from the site at that time. With development of the mounds, passive vents to release gasses were constructed.

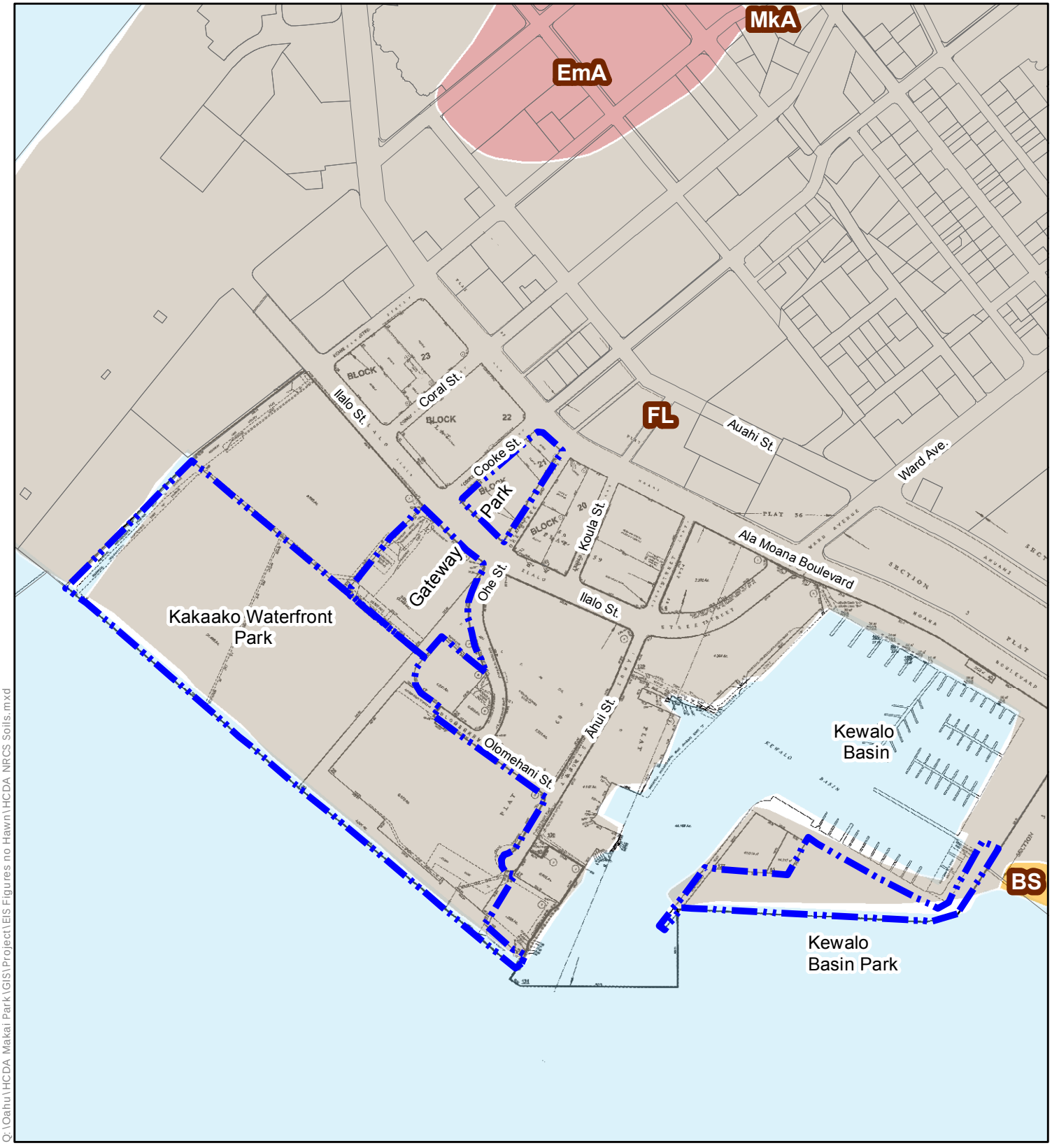
Preliminary environmental screening of soil, groundwater, and air in the vents were conducted for this report. The screening notes contaminants and gas concentrations of potential concern. At this time, the landfill cap limits public exposure to soil and ash and groundwater and it is expected that landfill gasses will deplete with time.

Potential Impacts and Mitigation Measures

The soils of the Kakaako Makai Parks are fill and any impacts will affect an already altered landscape. Grading of the site will be required for many of the park improvements. All of the grading work will occur on fill lands, and some of the work will involve re-contouring or complete removal of ash filled mounds. The environmental report in Appendix C concludes that there are potentially viable options for on-site reinternment of landfill material to facilitate recontouring of the mounds and using the fill to raise other areas of the park, provided additional study and the appropriate precautions are taken to avoid risk to human and environmental health. These measures include:

- A remedial investigation should be completed to delineate the nature, extent, and magnitude of contaminated soil/ash, groundwater, and soil vapor beneath the park. A work plan for the proposed investigation should be developed and approved by the DOH HEER office. The investigation should include analysis of soil/ash and groundwater for hazardous waste characteristics in case waste disposal/dewatering is required during redevelopment of the site. The investigation should also include an assessment of risk associated with potential exposures.
- Based on the findings of the remedial investigation, a feasibility study should be conducted to evaluate, at a minimum 1) the proposed redevelopment of the landfill and future use of the site as a public park and 2) the cost/benefit of redevelopment and future use of the site.

Elsewhere within the park, all grading will conform to the City and County of Honolulu's grading ordinance and section 11-60.133, HAR Fugitive Dust and Section 11-54-1.1, HAR, Anti-degradation policy.



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LEGEND

- Kakaako Makai Parks
- TMK

Soil Types

- BS - Beaches
- EmA - Ewa silty clay loam, moderately shallow, 0 - 2% slopes
- FL - Fill land, mixed
- MkA - Makiki clay loam, 0 - 2% slopes

Source: U.S. Department of Agriculture Natural Resources Conservation Service, 1972.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 13

Soils

KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)

0 300 600

Island of Oahu

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4.4 GROUNDWATER AND SURFACE WATER RESOURCES

4.4.1 Groundwater Resources

Based on the State Commission on Water Resource Management's (CWRM) coding system, the Kakaako Makai Parks overlay the Nuuanu Aquifer System (30102) of the Honolulu Aquifer Sector (301). The Nuuanu Aquifer System is one of six aquifer systems that comprise the Honolulu Groundwater Management Area. Water development and groundwater use within the Honolulu Groundwater Management Area is regulated by the CWRM through the issuance of water use permits, well construction permits, and pump installation permits.

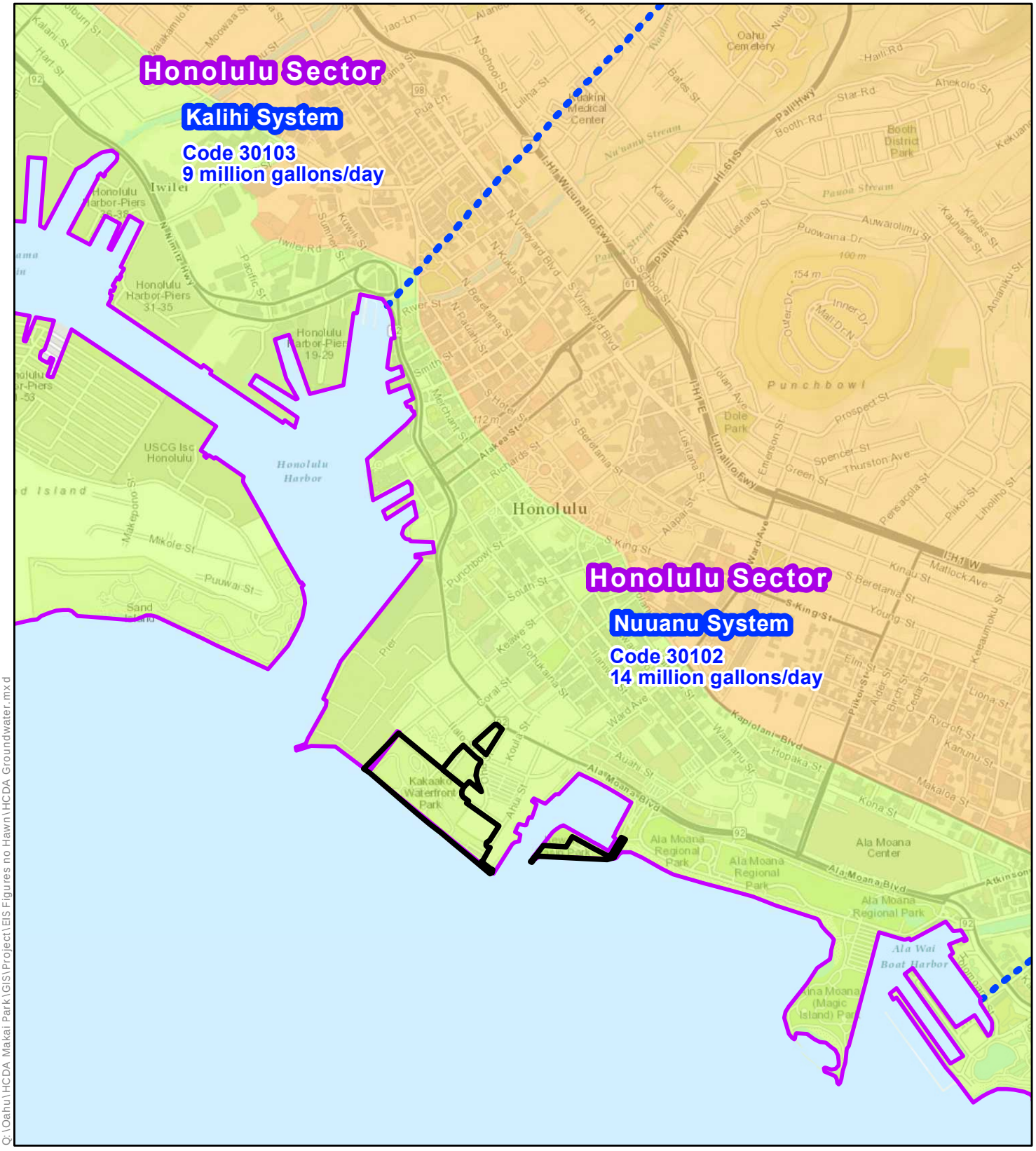
The Nuuanu Aquifer System is an unconfined basal aquifer with sedimentary lithology and has a sustainable yield of 14 million gallons per day. This aquifer is not a direct drinking water source as it has moderate salinity (1,000 to 1,500 mg/L Cl^-) and high vulnerability to contamination. It is considered replaceable. However, the Kakaako Makai Parks are also underlain by a sub-aquifer (30302121) of the Nuuanu Aquifer System that is currently used as a drinking water source. This sub-aquifer is a confined basal aquifer in flank compartments and has fresh salinity (less than 250 mg/L Cl^-) and low vulnerability to contamination. In investigations of the nearby Office of Hawaiian Affairs properties, groundwater was found at depths of 5.8-feet to 8.5-feet below ground surface.

The Kakaako Makai Parks are below (makai of) the Underground Injection Control (UIC) Line. Underground Injection Wells are used for injecting water or other fluids into a groundwater aquifer and are controlled by the Department of Health (DOH). Being below the UIC Line means that the underlying aquifer is not considered a drinking water source, a wider variety of wells are allowed, and some permit limitations are imposed.

The EPA also classifies a large portion of Oahu, including the Nuuanu Aquifer System, as a Sole Source Aquifer (SSA) (see Figure 16). SSAs are designated in areas where few or no alternate drinking water sources are available and where, if contamination occurred, using an alternative source would be extremely expensive.

4.4.2 Surface Water Resources

The western half of Kakaako Waterfront Park and a portion of Kakaako Gateway Park are part of the Nuuanu Watershed while the remainder of the Kakaako Makai Parks are part of the Ala Wai Watershed. There are no surface freshwater resources in or near the Kakaako Makai Parks, however, a stormwater conveyance channel runs adjacent to the Ewa side of Kakaako Waterfront Park and there is also a stormwater drainage system that empties into Kewalo Basin. The nearest surface water bodies are Kewalo Basin and Mamala Bay, both of which are part of the Pacific Ocean. The nearest streams, as classified by the Hawaii Department of Aquatic Resources, are the non-perennial, channelized Kamokuakulikuli Stream (one-mile to the west) and the Ala Wai Canal (one mile to east). Stormwater within the Parks do not discharge to either of these streams.



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LEGEND

Kakaako Makai Parks

Aquifer System Boundary
- Aquifer Sectors
- Aquifer Systems

Underground Injection Control
- Below (makai) UIC Line
- Above (mauka) UIC Line

Source: State Department of Land and Natural Resources, 2014. State Department of Health, 2004.
Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 14
Groundwater Resources

KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)
0 1,000 2,000

Island of Oahu

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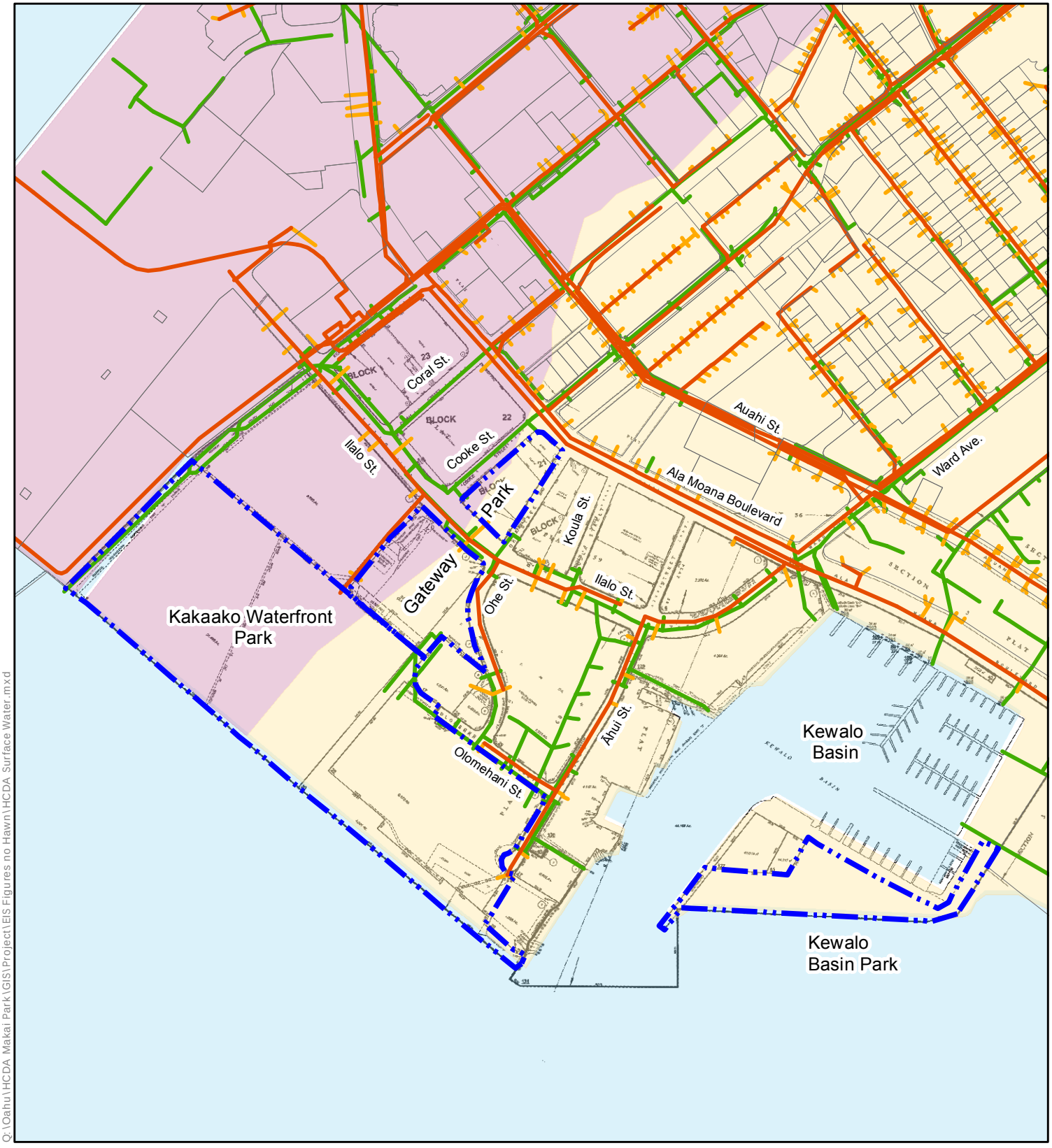

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LEGEND

- Kakaako Makai Parks
- TMK
- Sewer Mains
- Sewer Laterals
- Stormwater Conduits

Watersheds

- Ala Wai
- Nuuanu

Source: City & County of Honolulu, 2014-2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Figure 15

Surface Water Resources

KAKAAKO MAKAI PARKS

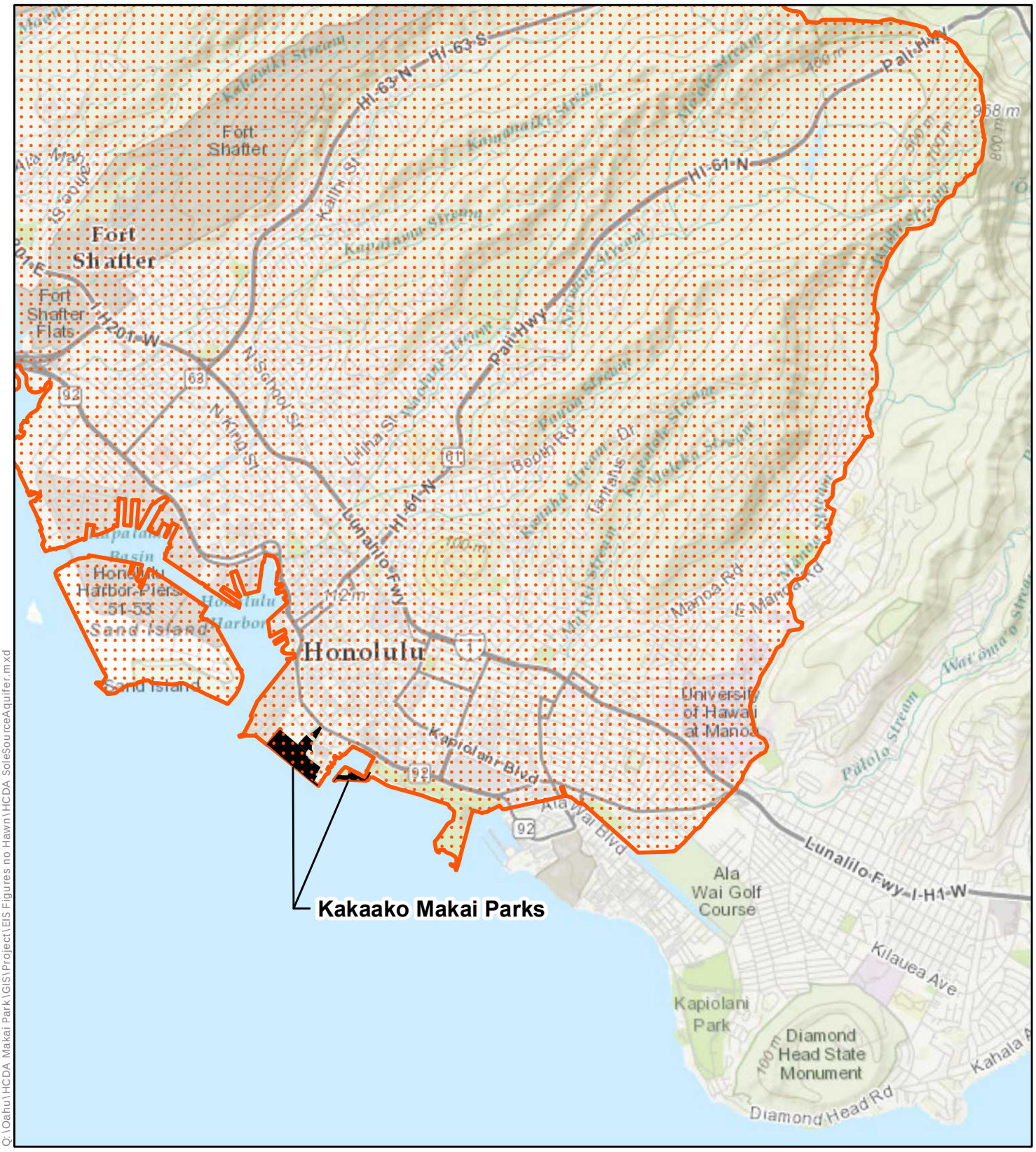
HCDA North

Linear Scale (feet)

0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.



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LEGEND

- Kakaako Makai Parks
- Sole Source Aquifer

Figure 16

Sole Source Aquifer

KAKAAKO MAKAI PARKS

HCDA North

Linear Scale (feet)

0 2,500 5,000

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

Source: U.S. EPA Office of Water (1987)

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

According to the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory, bordering Kakaako Waterfront Park and Kewalo Basin Park is a small strip of Estuarine and Marine Wetland. All other wetlands near the Parks are makai of this strip and are classified Estuarine and Marine Deepwater.

The State DOH Water Quality Standards Map classifies the marine waters makai of the Parks as a Class A and the surface water near the Parks as Class 2. The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. The objective of Class A waters is to protect their use for recreational purposes and aesthetic enjoyment. Discharges into either Class A or Class 2 waters must receive the best degree of treatment or control compatible with the criteria established for this class.

Kewalo Basin has been identified as an impaired water body by the State DOH pursuant to section 303(d) of the Clean Water Act. According to the 2014 Integrated Report, Kewalo Basin exceeds state Water Quality Standards (Hawaii Administrative Rules, Chapter 11-54) for total nitrogen, total phosphorous, turbidity, and chlorophyll α (one of the two types of chlorophyll, that of the two is the principal photosynthetic pigment). At this time, Total Maximum Daily Loads (TMDLs) have not been established for Kewalo Basin. TMDLs are calculations of the maximum amount of substances of concern that can enter a waterbody without violating Hawaii's Water Quality Standards.

4.4.3 Nearshore Resources

Traditionally, sea salt harvesting, fishpond farming activities, and other marine subsistence activities took place in the nearshore waters and former reef system now partially overlain by the Parks (Office of Hawaiian Affairs, 2013). Modern day visitors to the Kakaako Makai Parks still participate in some of these activities, particularly fishing. Surfing is also a popular use of the nearshore resources at Kakaako Waterfront Park and Kewalo Basin Park. Surfing competitions take place regularly at these Parks during the summer months and the inaugural Kewalo Harbor Big Fish community fishing tournament, was held in June 2015.

Potential Impacts and Mitigation

The City and County of Honolulu, Department of Environmental Services (ENV) in their April 17, 2015, correspondence acknowledged that the proposed project is not anticipated to detrimentally affect water quality. The Master Plan improvements to the Kakaako Makai Parks are not anticipated to have any significant adverse impact on groundwater resources. To address contaminated groundwater that may already be present in the Kakaako Makai Parks, it is recommended that education and exposure management controls as described in the 2009 Environmental Hazard Management Plan Kakaako Makai District be implemented for Master Plan improvements that require ground disturbing activities.

This project does not anticipate doing work in, over, or under waters of the United States. Though, should plans change, HCDA will coordinate with the U.S. Army Corps of engineers, Regulatory Branch regarding their permitting requirements.

While no work is proposed makai of the shoreline, we note the Office of Conservation and Coastal Lands (OCCL) guidance provided in their April 10, 2015, correspondence that lands makai of the shoreline are considered within the State Land Use Conservation District Resource Subzone and may require some type of authorization or approval from OCCL. Further, during pre-consultation, both the DLNR Parks and Recreation Division and Boating and Ocean Recreation Division did not raise any concerns about the Master Plan improvements.

Wetlands and surface water resources are not anticipated to be adversely impacted by the Master Plan improvements because the Plan involves minimal additional impervious surfaces, incorporating low-impact design for stormwater management wherever possible. Construction related water quality impacts will be mitigated by complying with the requirements of the National Pollutant Discharge Elimination System (NPDES). Best management practices (BMPs) will be incorporated during construction to prevent stormwater discharges and contaminants such as sediment, pollutants, petroleum products, and other debris from affecting coastal water quality. Best management practices may include phasing grading activities, installing silt fences and other structural controls, directing runoff to retention/detention basins, and installing temporary groundcover. When feasible, the contractors will schedule site work during periods of minimal rainfall to minimize contaminated runoff into the ocean. Lands denuded of vegetation will be replanted or covered as quickly as possible.

As park improvements are made, existing infrastructure will be replaced with low impact development (LID) techniques to manage stormwater flow in ways that better protects near-shore water quality from non-point source pollution. LID techniques may include, but are not limited to installation of bioswales in parking areas, rain catchment from roof surfaces for irrigation water re-use, pervious paving, and rain gardens in landscape areas. However, specific means and methods must be determined at the time of design and construction to best accommodate site conditions such as slope, proximity to resources such as the ocean, and soil infiltration rates at the location of the proposed LID.

To protect groundwater resources in the event that landfill mounds are altered, the following measures are also recommended:

- A remedial investigation should be completed to delineate the nature, extent, and magnitude of contaminated soil/ash, groundwater, and soil vapor beneath the park. A work plan for the proposed investigation should be developed and approved by the DOH HEER office. The investigation should include analysis of soil/ash and groundwater for hazardous waste characteristics in case waste disposal/dewatering is required during redevelopment of the site. The investigation should also include an assessment of risk associated with potential exposures.
- Based on the findings of the remedial investigation, a feasibility study should be conducted to evaluate, at a minimum 1) the proposed redevelopment of the landfill and future use of the site as a public park and 2) the cost/benefit of redevelopment and future use of the site.

4.5 NATURAL HAZARDS

The Hawaiian Islands are susceptible to potential natural hazards, including flooding, tsunami inundation, hurricanes, and earthquakes. The Kakaako Makai Parks' vulnerability to such hazards is described below.

Existing Conditions

Flood. According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA), National Flood Insurance Program, Kakaako Waterfront Park and southern portions of the Kakaako Gateway Park are designated as Zone X, outside of the 0.2-percent-annual-chance (500-year) flood zone. Kewalo Basin Park and northern portions of the Kakaako Gateway Park is designated as Zone AE, inundation by the one-percent-annual-chance flood. See Figure 17. Climate change is anticipated to result in regional impacts on key indicators such as rainfall, frequency and intensity of climatic events, as well as mean sea levels (Pacific Islands Regional Climate Assessment (PIRCA), 2012). In Hawaii, climate change induced conditions may result in increased precipitation conditions and flooding.

Tsunami. Since the early 1800s, approximately 85 tsunamis have been reported in Hawaii (Hawaii Civil Beat, 2011). Seven caused major damage and two were generated locally. All three of the Parks are within the tsunami evacuation zone designated by the Hawaii State Civil Defense (see Figure 18)

Hurricanes. Hurricanes are relatively rare in Hawaii, but since 1980, two hurricanes have had a major effect on Hawaii – Hurricane Iwa in 1982 and Hurricane Iniki in 1992. Hurricane season in Hawaii is from May to November. While it is difficult to predict such natural occurrences, it is reasonable to assume that future incidents are likely, given historical events. The Parks would likely be impacted primarily by the storm surge from a hurricane, but any trees or structures could be vulnerable to wind damage. These impacts will be exacerbated with sea level rise due to climate change.

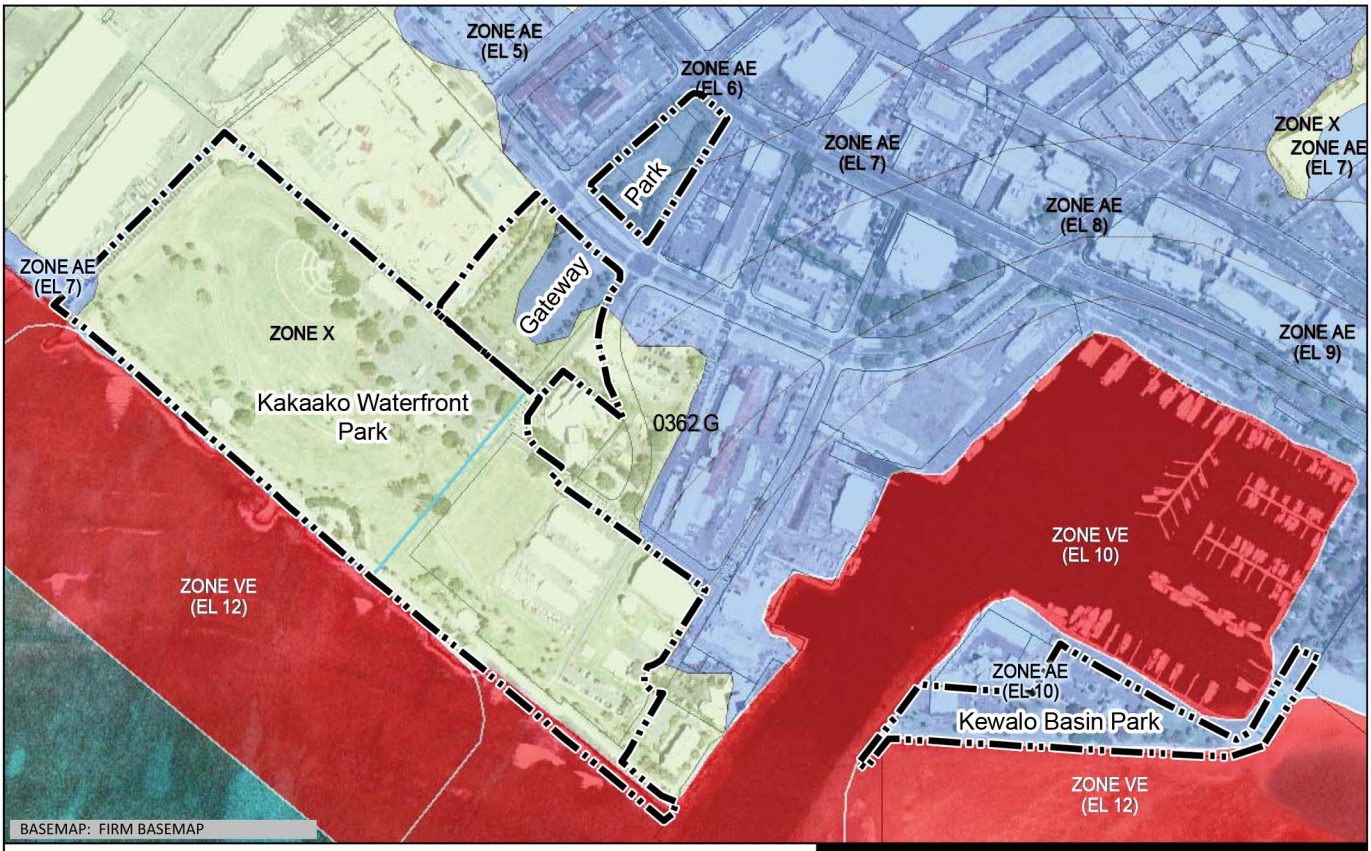
Earthquakes. Unlike other areas where a shift in tectonic plates is the cause of an earthquake, in Hawaii most earthquakes are linked to volcanic activity. Because of this unique situation, most of the thousands of earthquakes that occur in Hawaii each year are primarily located on Hawaii Island. The vast majority of earthquakes are so small they are detectable only with highly sensitive instruments, but there have been several damaging earthquakes in the past.

Potential Impacts and Mitigation

Portions of the Kakaako Makai Parks, including the Kewalo Basin Park, Gateway Park, and eastern portion of the Waterfront Park are located in the one percent annual flood zone (Zone AE) and may be impacted by flooding during storms. Because the Kakaako Makai Parks are near sea level, the potential impacts from flooding will be exacerbated as sea level rises as a result of global climate change. HCDA is using the Center for Island Climate Adaptation and Policy and the University of Hawaii Sea Grant's recommendations to plan for a sea level rise of one foot by 2050 and three feet by 2100. The existing Kakaako Makai Parks are built up well above sea level on an armored shoreline that is protected from erosion, thus a sea level rise of one to three feet will not have an inundation effect. Such a sea level rise may however increase the risk of flooding at the Parks if surrounding lands or the stormwater system are inundated.

Research has found that large parks in urban areas contribute positively to the urban ecosystems, by providing beneficial impacts or "ecosystem services" (Stott, I., Soga, M., Inger, R. and Gaston, K.J., 2015). Importantly, the Kakaako Makai Parks are expected to provide ecosystem services that contribute to resiliency of the surrounding neighborhood through acceptance of flood waters and storm surge. To further minimize impacts in storm situations, minimal new impervious surfaces are planned. Where parking areas are proposed for redevelopment, they are expected to improve upon current environmental and nearshore water quality conditions through the implementation of LID techniques to minimize and control stormwater runoff.

Park improvements will be designed to adhere to building code standards, implemented by the City and County of Honolulu as well as the rules and regulations of the National Flood Insurance Program as presented in Title 44 of the Code of Federal Regulations.



Flood Hazard Assessment Report

www.hawaiinfip.org

Property Information

COUNTY:	HONOLULU
TMK NO:	MULTIPLE TMK PARCELS
WATERSHED:	ALA WAI; NUUANU
PARCEL ADDRESS:	UNKNOWN ADDRESS HONOLULU, HI 96813

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	15003C0362G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: YES
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 400 800 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A**: No BFE determined.
- **Zone AE**: BFE determined.
- **Zone AH**: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V**: Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE**: Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF**: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

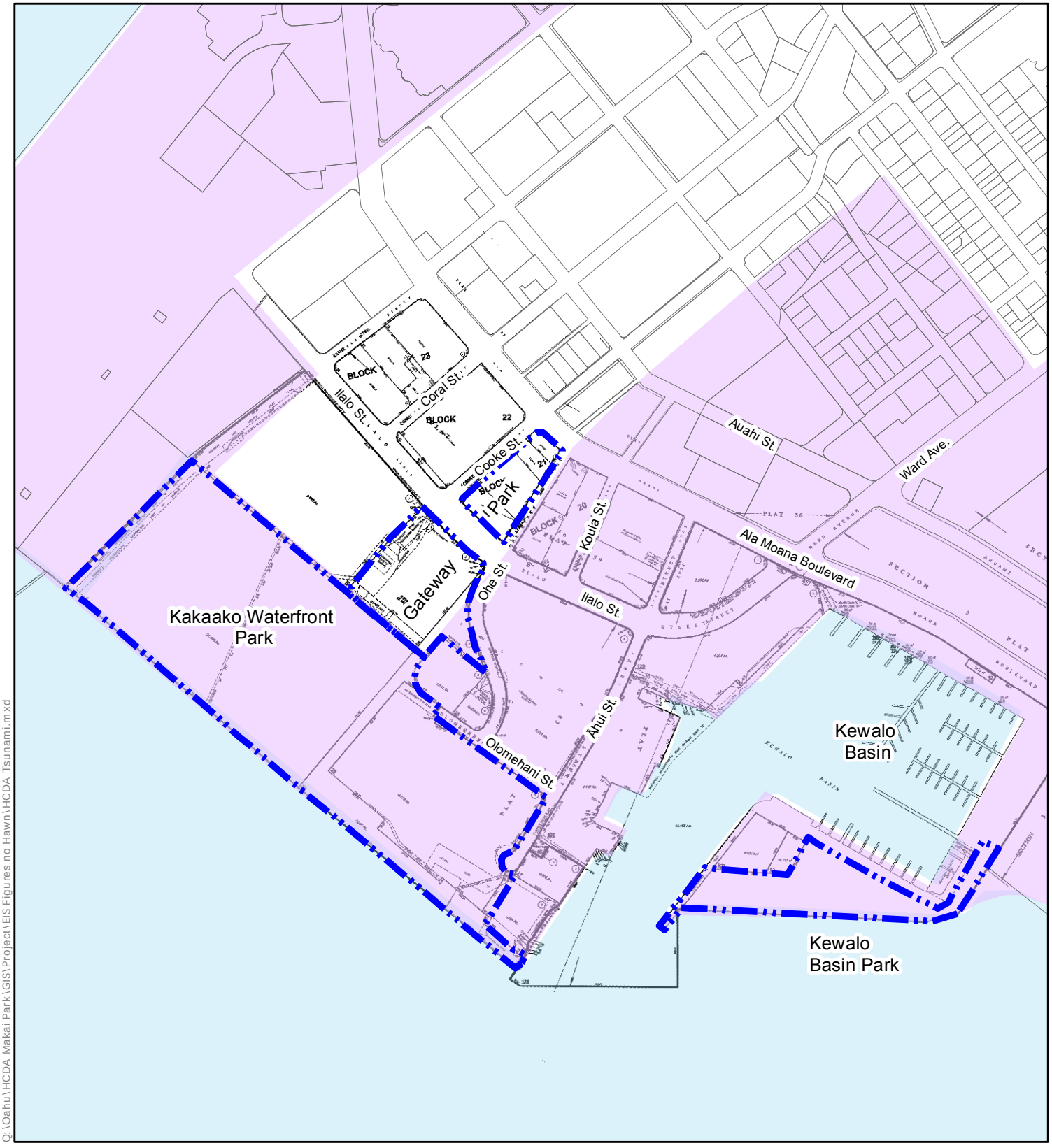
NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D**: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

Figure 17
Flood Hazards
KAKAAKO MAKAI PARKS
HCDA Island of Oahu



Q:\Oahu\HCDA Makai Park\GIS\Project\EIS Figures no Hawn\HCDA Tsunami.mxd

DATE: 4/25/2016

LEGEND

- Kakaako Makai Parks
- TMK
- Tsunami Evacuation Zone

Figure 18

Tsunami Evacuation Zone

KAKAAKO MAKAI PARKS

HCDA

Island of Oahu

North

Linear Scale (feet)

0 300 600

PBR HAWAII & ASSOCIATES, INC.

Source: City & County of Honolulu, 2010.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

The potential impacts of hurricanes and earthquakes will be mitigated through designing all structures in compliance with the CCH's building code. Impacts from natural hazards will be further mitigated by adherence to appropriate civil defense evacuation procedures.

4.6 FLORA

Existing Conditions

A botanical survey of the Parks was conducted during June, 2015 (see Appendix H). The survey concluded that no federally listed threatened or endangered plants were located in any of the Parks, nor do the Parks contain any critical habitat as defined by the USFWS. Vegetation within the Kakaako Makai Parks are dominated by non-native plants that are ornamentals or are lawn or roadside weeds. Six native plant species recorded by the survey, included the endemic akia (*Wikstroemia uva-ursi*) and five indigenous species hala (*Pandanus tectorius*), kou (*Cordia subcordata*), pohuehue (*Ipomoea pes-caprae subsp. Brasiliensis*), naupaka kahakai (*Scaevola taccada*) and popolo (*Solanum americanum*). Monkeypod (*Samanea saman*) trees were abundant, while coconut trees (*Cocos nucifera*), Chinese banyan trees (*Ficus microcarpa*) and Bermuda grass (*Cynodon dactylon*) were commonly found.

Potential Impacts

As the Parks are in urban Honolulu and due to the absence of threatened or endangered plants and their habitats, the botanical survey concluded Park improvements are not expected to have a significant adverse impact on botanical resources. Given the dominance of non-native species in the Parks, incorporation of coastal and lowland native plant species will be included in the landscape designs. No mitigation measures are proposed.

4.7 FAUNA

Existing Conditions

A fauna survey was conducted during June, 2015 (Hobdy, 2015). The Parks presently provide little habitat for faunal species due to their long history of urban use and man-made landscape. The occurrence of introduced feral cats, insects, and non-native birds lacking protective status within the Parks was sparse to moderate. One indigenous seabird, the white fairy tern (which is identified in the Hawaii State Wildlife Action Plan as "Threatened") was observed during the fauna survey. The endemic and protected Hawaiian hoary bat (which is listed as "Endangered" by the U.S. Fish and Wildlife Service) was not detected during the survey. Blackburn's sphinx moths and protected waterbirds, including the aeo or Hawaiian stilt (*Himantopus mexicanus knudseni*), alae keokeo or Hawaiian coot (*Fulica alai*), alaeula or common moorhen (*Gallinula chloropus sandvicensis*) or the koloa or Hawaiian duck (*Anas wyvilliana*) were absent. The survey did not record within the Parks seabirds, the Hawaiian petrels (*Pterodroma phaeopygia sandwichensis*) and Newell's shearwaters (*Puffinus auricularis newellii*), though notes these seabirds may transit over the Kakaako Makai Parks located between nesting sites and the ocean during their breeding season (March through November).

Potential Impacts and Mitigation Measures

White terns have a slowly increasing presence in parks between Koko Head and Honolulu Harbor, including the one identified during the fauna survey. To avoid impacts to the white tern,

as its tree habitats are not highly specialized, it is recommended that any tree pruning or removal within the Parks should be preceded by inspections to ensure no white tern nest are present or will be affected. While not detected during the survey, the Hawaiian petrel and Newell's shearwaters, as nocturnally flying seabirds may become disoriented by exterior lighting and collide with manmade structures. To avoid conditions where night lighting could disorient the seabirds, in the event night construction work is required, it is recommended that lights be shielded to reduce adverse interaction with these seabirds. No other recommendations were made to mitigate potential impacts on faunal species.

5.0 ASSESSMENT OF EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, potential impacts of the park improvements, and mitigation measures to minimize any impacts.

5.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Existing Conditions

The Gateway Park is comprised of the oldest fill and based on knowledge of surrounding resources, has the possibility of containing archaeological resources. Because the land makai of the Gateway Park did not exist in full until 1955 and is made mostly from dredged coral material, there are likely no archaeological or historical resources present. At the Waterfront Park, much of the land is buried ash from incinerators, and remains of the refuse will probably not provide much historical information.

Potential Impacts and Mitigation Measures

No new development beyond landscaping is proposed in the mauka block of Gateway Park, therefore, no archaeological subsurface testing is proposed. At the makai block of Gateway Park, Cooke Street is proposed to be adjusted west, to capture a greater amount of green open space for the Great Lawn. No subsurface testing is proposed at this time, as the improvement, if pursued, will likely be in a later phase of the overall development. Because the lands at Kewalo Basin Park are known to be comprised of fill and no significant improvements beyond landscaping and extension of the promenade are proposed, no subsurface testing is proposed at this time. At the Waterfront Park, the lands did not exist until after 1955 and then in 1991, the ash incinerator piles and surrounding land were heavily disturbed for the park development (see Figure 11). No impacts to significant archaeological or historic resources are anticipated as none are likely to be present.

HCDA acknowledges that Section 6E-8 HRS is applicable to proposed development in the park. Therefore, prior to construction of Park elements, HCDA will provide SHPD with an opportunity for review of the effect of the Park elements on any historic property, ground disturbing activities, and/or any federal permits, consistent, with section 6E-43, HRS.

HCDA and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. Should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal be inadvertently encountered during the construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor shall immediately contact the SHPD, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

5.2 CULTURAL RESOURCES

Existing Conditions

A Cultural Summary Report (CSR) prepared by PBR HAWAII & Associates, Inc. is included in Appendix I. The CSR reviews and examines the existing Cultural Impact Assessments (CIA) and a Supplemental Cultural Impact Assessment that are relevant for the Parks.

The Kakaako Makai Parks are located in the moku of Kona, ahupuaa of Waikiki, and ili of Kakaako, Kukuluaeo, and Kaakaukuki, and Kewalo. The Parks are located east of the historic coastal village of Kou (now Downtown Honolulu), west of the ili of Kalia and Waikiki, and along the coastal edge of the former fisheries of Kaakaukuki and Kukuluaeo, as well as Mamala Bay. Although the land on which the Parks are located is new and came into existence as of the mid-1900s, the adjacent pre-existing lands and waters have been consistently recorded as part of an abundant and productive agri- and aquacultural landscape. Traditionally, paakai (salt harvesting), fishpond farming activities, and other marine subsistence activities took place in the nearshore waters and former reef system now partially overlain by the Parks (Office of Hawaiian Affairs, 2013). Moolelo (stories/legends) point to the coastal marshes of Kewalo as the habitat of the original pueo (owl) that became one of the Native Hawaiians' aumakua (deified ancestors) (Westervelt, 1963).

During the Mahele, Kukuluaeo, which was recorded as being comprised of fishing grounds, coral flats, and salt beds, was conveyed to the Commissioners for Foreign Missions and associated with Punahou School. Kamauleule was awarded to Victoria Kamamalu Kaahumanu IV and was recorded as including four fishponds. In 1919, Kaakaukukui was among several Bishop Estate Properties acquired by the Territory of Hawaii (Wilson Okamoto and Associates, Inc., 2002).

In the late 19th and early 20th century, Kukuluaeo and Kamauleule became a part of a large maritime industrial center. During this time, Kakaako was also the location of several quarantine camps and hospitals for patients with smallpox (1853 epidemic), Hansen's Disease (1853), and the bubonic plague (1899). Kakaako became home to a sewage disposal pumping station (1899), several waste incinerators, iron works, lumber yards, a tuna cannery, and draying companies. Fort Armstrong was constructed on Kaakaukukui Reef (adjacent to the west of Kakaako Waterfront Park) to protect Honolulu Harbor. In 1899, the *sampan*, traditional Japanese sailing vessel was introduced to Hawaii and contributed to the rise of commercial fishing, such that aku and ahi catches were unloaded at Kewalo Basin (Genz, J.H. & Hammett, H.H., 2010). By 1930, Kewalo Basin was home to the *sampan* aku fleet, as well as the site for McFarlane Tuna Company (now Hawaiian Tuna Packers) shipyard and tuna cannery built in 1929 and tuna cannery in 1933, respectively (Clark, 1977). As mentioned in section 4.2, ash from the Kewalo incinerator (located on Ahui Street) was used to fill in behind a seawall from around 1940 to 1971, resulting in the creation of 29 acres of additional land upon which a portion of the Parks are now located.

The CSR identified existing cultural practices and resources that occur within the Kakaako Makai Parks. Feasting (luau) and traditional food preparation of drying fish (aku), as well as fishing (net and pole, aku sampan) occur in the Kewalo Basin Area. Memorial statues of the Pueo Aumakua and Mother Marianne Cope are present in the Kakaako Waterfront Park.

Surfing/body surfing, swimming, and fishing occur in the waters off Kewalo Basin Park and Kakaako Waterfront Park.

Potential Impacts and Mitigation

The CSR determined for the Parks that extensive effort to engage and identify cultural and community groups was previously undertaken and comply with - Section 343-2, HRS and protocols listed in the Guidelines for Assessing Cultural Impacts (Office of Envionrmental Quality Control, 1997). The CSR concluded that the Master Plan improvements are not anticipated to have an adverse effect on cultural resources or practices.

The Kakaako Makai Parks occupy land that is largely man-made and did not exist prior to the mid-20th Century. Other than surfing, subsistence and sports fishing, few if any pre-contact cultural practices continue in the Parks. The proposed Park improvements will not restrict the existing public access to the ocean, nor should there be an impact or affect upon the exercise of Native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities. As such, no mitigation measures are recommended or suggested.

5.3 SOUND

Existing Conditions

At the Gateway Park, sound in the form of traffic noise is pronounced. At the Waterfront Park, which is further removed from Ala Moana Boulevard, traffic sounds are reduced due to distance from the road. On the makai side of the mounds the sound of traffic is replaced with the sound of ocean waves. At Kewalo Basin Park, the sound environment includes engine noise from boats in Kewalo Harbor, and traffic noise from Ala Moana Boulevard that fades as one approaches the ocean and the sound of the waves against the riprap shoreline.

Potential Impacts and Mitigation Measures

The existing use of the Parks is outdoor recreation, including an outdoor amphitheater. Proposed uses are similar outdoor recreation uses. Generally, potential impacts on the ambient noise quality within the Parks and surrounding area due to park improvements are not anticipated to be significant and are likely to be limited to short-term construction activity.

During the construction phase, there may be temporary noise impacts associated with the operation of construction machinery, paving equipment, and material transport vehicles. However, any impact will be short-term. Proper mitigation measures will be employed to minimize construction-related noise impacts and comply with all Federal and State noise control regulations. Increased noise activity due to construction will be limited to daytime hours and persist only during the construction period. Noise from construction activities will be short-term and will comply with State DOH noise regulations (HAR, Chapter 11-46, Community Noise Control). When construction noise exceeds, or is expected to exceed, the DOH's allowable limits, a permit must be obtained from the DOH. Specific permit restrictions for construction activities are:

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

- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 9:00 a.m. and after 6:00 p.m. on Saturday; and
- No permit shall allow any construction activities that would emit noise in excess of the maximum permissible sound levels on Sundays and holidays.

Long-term, proposed Master Plan elements may create changes to the sound environment.

The amphitheater is proposed to be moved from the Honolulu (mauka) side of the Waterfront Park mounds to the ocean (makai) side of the mounds. The stage is proposed to be re-oriented away from the ocean and toward the mound and the city beyond. A sound assessment and model has been prepared by Censeo AV+Acoustics LLC (Censeo) to gain an understanding of the potential impacts of moving and re-orienting the amphitheater. The Censeo Sound Modeling and Prediction Report is included in Appendix D.

The sound modeling and prediction analysis presents an evaluation of existing ambient sound within the Waterfront Park as well as the surrounding community. It then estimates sound within the park and surrounding community, assuming a "worst-case" scenario (rock concert, speakers pointed toward Kakaako, Kona wind). This information is presented graphically with sound contour maps (Figure 5-6, Appendix D).

The Censeo Report determined reducing sound levels from the proposed amphitheater to a level that significantly minimizes the potential sound impact is feasible. Sound mitigation measures may include use of an amphitheater stage canopy/covering, loudspeakers aimed downward toward the audience or away from residential buildings, sound system equipment selections, volume setting, and reorienting the stage and seating can greatly reduce proposed amphitheater sound impacts.

As the Censeo sound contour maps (Figure 5-6, Appendix D) depict conditions where no sound mitigation is implemented, it is not surprising that sound impacts are probable. There are numerous conditions including wind direction, location of listener, and mitigations implemented during design and operation of the proposed amphitheater that can influence sound modeling predictions and actual sound impacts. Currently, without a design for the proposed amphitheater it is difficult to account for these various conditions. As such, it is acknowledged that as part of amphitheater design, a detailed sound propagation model could be developed using specific design elements of the amphitheater and measures and techniques could be evaluated in greater detail at that time.

Based on the Censeo Report, a summary of anticipated sound impacts follows:

- Wind is a significant factor for sound propagation, enabling sound at higher decibel (dBA) levels to travel further under southwest (Kona) wind conditions when compared to prevailing northeast (Trade) wind conditions. The sound model indicates that sound levels observed during Kona winds may be 8 to 9 dBA louder than during Trade wind conditions.

- Contour maps and building façade imagery (Figure 5-9, Appendix D) illustrate the re-oriented amphitheater potential sound impact, under both wind conditions. Generally, the higher sound levels (65-80 dBA) occur closest to the amphitheater or at middle and upper floors of a building with direct site lines of the amphitheater, while lower sound levels (55-60 dBA) occur further from the amphitheater and at lower floors of a building with obstructed site lines of the amphitheater.

- Under Trade wind conditions, 75-80 dBA sound levels occur throughout the Kakaako Waterfront Park and south of Kelikoi Street, while 70 dBA levels occur in an area south JABSOM and Illao Street, as well as west of Keawe Street and east along Ohe Street. Also, sound levels of 65 dBA typically occur south of Ala Moana Boulevard, while nearby residences experience a range of 50-60 dBA. For Kona winds, 75-80dBA levels occur within the Kakaako Waterfront Park and nearby Ilalo Street in areas to the east and west of JABSOM, while 70 dBA levels occur in an area south of Pohukaina Street and JABSOM. Further, 65 dBA levels occur south of Kawaiahao Street, with residential buildings subject to 55-70 dBA.

- Sound levels along residential building facades of the One Waterfront Tower, Waiea Tower, and Keola Lai at lower, middle, and upper floors were also modeled (Figure 7-9, Appendix D). Relative to the proposed amphitheater, One Waterfront Tower is northwest, Keola Lai is north, and Waiea is northeast. Generally, under Trade wind conditions the sound level for lower floors of One Waterfront Tower and Waiea are 61 and 58 dBA, respectively compared to middle and upper floors with a respective range of 70-75 dBA and 65-70 dBA. Given Keola Lai's orientation relative to the proposed amphitheater, the sound levels on the building's façade under Trades conditions for lower to middle floors range from 50-60 dBA, with higher sound levels occurring on the eastern side of the building at upper floors. Under Kona conditions, the highest sound levels of 65-70 dBA occur at all floor levels of Keola Lai, and central units of the building with the most direct site lines.

- The Kakaako Waterfront Park proposed amphitheater is of comparable size, use, and function as the Waikiki Shell. While the 68 dBA limit mandated in the Sound Levels for the Waikiki Shell (Section 41 of Article 34, Revised Ordinances of Honolulu) are specific to that particular venue, it provides a useful reference to assess sound impacts for the proposed amphitheater. The Censeo Report determined that sound levels of the One Waterfront Tower due to the proposed amphitheater at upper sound levels would be approximately 75 dBA during Kona conditions and 67 dBA during Trades conditions. Without implementing any sound mitigation, sound levels from the proposed amphitheater during Kona wind conditions exceed the Waikiki Shell 68 dBA sound limit, though would comply with the sound limit during Trades conditions. The Six Eighty Ala Moana residential building yields similar results, such that proposed amphitheater sound levels would be 74 dBA during Kona conditions and 65 dBA during Trades conditions.

- The previously mentioned potential impacts do not demonstrate the benefit gained by implementing any sound mitigation techniques. The use of both amphitheater design and

operation mitigation measures can reduce sound impacts, possibly to a level that is acceptable for most people.

The DOH noise regulations do not apply to amplified music, crowd noise, or other typical noises that may radiate from the proposed re-oriented amphitheater. Currently it is not envisioned that amphitheater would include heavy mechanical equipment, such as generators or air-handling equipment which are regulated for sound. If such equipment is included for the proposed amphitheater, it will comply with DOH noise regulations for stationary sources.

5.4 AIR QUALITY

Existing Conditions

Air quality at the Parks is generally considered to be good due to the presence of northeasterly trade winds that tend to disperse pollutants seaward. Vehicular traffic on nearby roadways, particularly Ala Moana Boulevard, is anticipated to be the primary source of air pollutants in the vicinity of the Parks. DOH operates several air monitoring stations throughout the state. The closest air monitoring stations are the Sand Island station located in the University of Hawaii Anuenue Fisheries Research Center, about 0.8 miles west of the Parks, and the Honolulu Station located on Punchbowl Street on the roof of the DOH building (Kinau Hale), about one mile from the Parks. The Sand Island station measures concentrations of ozone, PM2.5 (particulate matter that is 2.5 microns or less in diameter), wind direction, and wind speed. The Honolulu Station measures concentrations of PM2.5, PM10 (particulate matter that is 10 microns or less in diameter), carbon monoxide, sulfur dioxide (ppm), wind direction, and wind speed.

According to the State of Hawaii Annual Summary 2011 Air Quality Data, at these stations, measured levels of ozone, PM10, PM2.5, carbon monoxide, and sulfur dioxide were well within state and federal ambient air quality standards. There are no ambient air quality standards for air toxins.

Screening-level landfill gas sampling at the four existing vents was performed for this Master Plan. The results of the air sampling can be found in Appendix C. The air in the vents was tested for temperature, carbon monoxide (CO), oxygen (O_2), methane CH_4, the lower explosive limit (LEL5) as a function of CH4, carbon dioxide (CO_2), hydrogen sulfide (H_2S), hydrogen gas (H_2), and the remaining “balance gas”, which is primarily nitrogen.

It was noted that methane, which can be highly flammable in the presence of oxygen, was detected in all of the vents, but at a level above the lower explosive limit of 5% volume in Vent 2. Methane often occurs at landfills as a by-product of decomposition of organic materials.

Elevated Oxygen levels were also detected in Vents 1, 3, and 4. Hydrogen sulfide was not detected, but pockets could be present.

Landfill gas concentrations have historically been shown to vary and the results should be considered cursory due to the limited sample size and the absence of the proper monitoring valves in the vents.

Potential Impacts and Mitigation Measures

The Ash Landfill Assessment concludes that it is likely that landfill gas production has peaked some years ago and that gas production will continue to decrease. However, the following recommendations are made:

- *Landfill gas monitoring/testing* should be conducted to evaluate the presence/absence of potentially toxic/explosive gases emitting from the vents, in ambient air, at topographically low areas, onsite buildings, underground structures, including storm sewer manholes and other utility vaults, etc.

- *An EHE should be performed* to evaluate current potential risks to human health and the environment associated with ongoing oxidation/combustion of waste materials in the landfill. The EHE should include, but not be limited to consideration of the following: exposure to landfill gas emissions from the passive vent system and the landfill cap; potential movement of landfill gas into onsite/adjacent buildings and topographically low areas; and other potential hazardous conditions associated with oxidation/combustion of waste materials (explosion, subsidence, formation of sinkholes and cracks).
- *An EHMP should be prepared* and approved by the DOH HEER office to notify onsite workers and the public of the presence of current potential environmental hazards and to provide guidance to onsite workers regarding proper management of impacted media and potential environmental hazards that may be encountered while working both at the surface and within the subsurface of the site. At a minimum the EHMP should include notifications of risk/exposure (if required), a site safety and health plan

ENV in its April 17, 2015, correspondence acknowledged that the proposed project is not anticipated to detrimentally affect air quality. Emissions from construction vehicles and equipment may temporarily affect ambient air quality in the immediate vicinity. Temporary adverse air quality impacts may also occur during grading and other land disturbing activities. Impacts will be minimized through proper maintenance of construction equipment and vehicles and through development and implementation of a dust control plan. Dust control measures may include watering loose soils, erecting dust screens, phasing land disturbing activities to minimize open soils, or establishing temporary groundcover. All construction activities will comply with the provisions of Chapter 11-60.1-33, HAR on fugitive dust.

5.5 VISUAL RESOURCES

Existing Conditions

The Parks afford expansive views of the Pacific Ocean, Leahi (Diamond Head), and Waikiki. However, from the Gateway Park and as one approaches Waterfront Park, these views are obscured by the ash fill mounds. Once inside, Kakaako Waterfront Park is particularly notable for its views in all directions – in addition to ocean views, the mounds the Waterfront Park provide vantage points for views of the Ewa Plain, the Waianae Mountain Range, the Honolulu skyline, and the Koolau Mountain Range. Within the HCDA Makai Area, the views also occur from Ala Moana Boulevard to Kewalo Basin and from Kewalo Basin Park along the shoreline (Hawaii Community Development Authority, 2005)

The City and County of Honolulu's Primary Urban Center Development Plan identifies significant panoramic views in the region. All of the views described above (except of the Waianae Range) are depicted on the Primary Urban Center Development Plan's "Significant Panoramic Views" map.

Potential Impacts and Mitigation Measures

Park elements and improvements are proposed to capitalize upon views without altering the panoramic views identified in the Primary Urban Center Development Plan. A number of Park improvements will purposefully enhance visual sightlines and panoramic views. Recontouring

the Waterfront Park Central mound creates a "Great Lawn" with a clear view from Ala Moana Boulevard to the ocean that currently does not exist. A comfort station that currently exists in this axis is proposed to be replaced with other facilities outside the new view corridor. The expansion of the Great Lawn at the Gateway Park provides more lawn space encouraging park users to linger and enjoy improved, unobstructed views. Establishing Lei of Green connectors that extend the shoreline promenade from Kewalo Basin Park to neighboring Ala Moana Regional Park, as well as along the west side of the park to the intersection of Kelikoi and Keawe Streets, provide additional Pacific Ocean, Leahi (Diamond Head), and Waikiki views that are not currently accessible from the shoreline. Further, the orientation and placement of the amphitheater is purposefully designed to capitalize on panoramic makai and Leahi views, taking advantage of the mounded topography of the Waterfront Park. While the proposed placement of the biergarten is atop a mound, its design will minimize any adverse visual resource impacts from those mauka of the site. Further, improvements will provide Americans with Disabilities Act (ADA) compliant access to the biergarten that has the desired effect of broaden park user access to both mauka and makai views.

5.6 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions

Annually, the HCDA spends about $1 million maintaining the Kakaako Makai Parks. These funds are derived from HCDA asset management in-part from lease payments or developer public facilities dedication fees. The Master Plan proposes balancing the community's expressed desire for open-space and minimal commercial development, with revenue generating improvements that will address Park maintenance and support construction of the Master Plan proposed park elements.

Presently, Kakaako Makai Park has three major categories of users. One is the weekday visitors, either residents or from off-island, who are visiting the park for views, picnicking, play/exercise or for access to the ocean (surfing, bodysurfing, etc.). The second are the weekend visitors, who are similar to the first, but with a greater visitor count. The third, are those that are illegally camping overnight, but are present both weekdays and weekends. Public parks are one of several places that those lacking permanent housing sleep and/or live (Portland Rescue Mission, 2011).

Urban parks can struggle to attract visitors if they are perceived to be unsafe or unmaintained (Harnik, 2010). Overnight camping in urban parks, which is only permitted on special occasions, does impact the desirability of using park by other users. The 2015 State Comprehensive Outdoor Recreation Plan noted:

> "*User conflict can harm a participant's experience of outdoor recreation and sometimes can cause them to quit an activity altogether. In recreation theory, conflict is often conceptualized as "goal interference" and can occur along a spectrum from complementary to antagonistic… Recreation providers also identified several conflicts that were confirmed in the public survey …* ***safety concerns, especially in reference to the homeless.***"[emphasis added]

In a January 2016, Hawaii Poll conducted by Ward Research, Inc., 433 registered voters on Oahu were asked "Do you believe that the homeless problem on Oahu is impacting your own

quality of life through beaches, parks, sidewalks and other places they congregate?" A total of 65 percent of responded yes, while 36 percent responded no and 1 percent responded don't know or refused to answer. Comparing this information to a July 2015 Ward Research Inc., poll 403 Oahu residents were asked the same question resulted in 70 percent responding yes, 29 percent responding no, and 1 percent responding don't know/refused. Informed by these polls, since July 2015 there is a 6 percent decrease in those that believed homeless was impacting respondent quality of life. While this represents a slight reduction, it records that more than 50 percent believe they are being impacted, including their use of public places, like parks (Honolulu Star Advertiser, 2016).

5.6.1 Population and Housing

The Kakaako District is part of the Urban Honolulu Census Designated Place and is roughly made up of 86 Census blocks ("the District"). Population in the District is increasing and is expected to increase more in the coming decades. According to the U.S. Census, the population of the District was 7,482 people in 2000 and 10,673 people in 2010, a 42 percent increase. By contrast, during the same time period, Oahu's total population increased by only 8.9 percent.

The Kakaako Community Transit Oriented Development Final EIS (June 10, 2015) projects that the total population of the District will be between 33,466 to 46,181 people by 2035, depending on the development scenarios implemented by HCDA (Lee Sichter LLC, 2015). These 2035 projections represent an additional 22,793 to 35,508 people, respectively, when compared to 2010 population levels.

The redevelopment of Kakaako is likely responsible for much of the population increase already experienced in urban Honolulu. A 2014 study by the Department of Business, Economic Development, and Tourism (DBEDT), concluded that Kakaako was at least partly responsible for the higher rate of population growth (0.9%) in the area of Honolulu within two miles of Honolulu Hale.

The City and County of Honolulu's General Plan seeks to distribute between 45.1 to 49.8 percent of Oahu's population within the Primary Urban Center Development Plan area. In 2000, the Primary Urban Center had a population of 419,333, or 47.9 percent of Oahu's population. Based on projections by the City Department of Planning and Permitting (DPP), Oahu's population is projected to increase to 969,467 by 2020. This corresponds to a desired population of 437,230 to 487,794 people within the Primary Urban Center area.

The following shows general demographic characteristics of the Kakaako District and Oahu.

Table 9. Demographic Characteristics of the Kakaako District and Oahu

	Kakaako District (86 Census Blocks)		Oahu	
	Number	Percent	Number	Percent
Total Population	10,673	100%	953,207	100%
Age				
Under 5 years	359	3.4%	61,261	6.4%
18 years and over	9,235	86.5%	742,707	77.9%
65 years and over	2,055	19.3%	138,490	14.5%
Median age	42.80*	--		--
Household (By type)				
Total Households	5,253	100%	311,047	100%
Average household size	2.00*	--	2.95	--
Average family size	2.60*	--	3.48	--
Housing				
Total housing units	6,131	100%	336,899	100%
Owner occupied	2,436	39.7%	174,387	51.8%
Renter occupied	2,817	45.9%	136,660	40.6%
Vacant units	878	14.3%	25,852	7.7%

Source: (U.S. Census Bureau, 2010)
*Excludes zero values.

The Kakaako Community Transit Oriented Development Final EIS (accepted September 16, 2015) reported that the existing residential unit count in Kakaako is 8,618. The table below summarizes existing, future baseline, and two projections for total residential units in Kakaako.

Table 10 Kakaako Residential Unit & Population Projections

	Residential Units	Full-Time Residential Population
Existing Condition	8,618	-
Future Baseline	21,146	33,466
Low End Projection	26,588	42,477
High End Projection	28,968	46,181

Source: (Lee Sichter LLC, 2015)

Potential Impacts and Mitigation Measures

Adverse impacts to population and housing are not expected. Rather, the improved Parks are expected to help enhance outdoor recreational opportunities for current and future Kakaako and Oahu residents and visitors. The Master Plan improvements seek to activate the Kakaako Makai Parks by enhancing access and bolstering recreational and exercise opportunities to positively impact neighboring populations. The proposed improvements do not displace the homeless from the park, nor do they make additional accommodations for the homeless. The Master Plan

encourages more recreational use of the park so that perceptions of the park being unsafe due to the presence of homeless individuals can be alleviated.

The Master Plan is anticipated to have beneficial impacts for the community. The Centers for Disease Control and Prevention has examined the connection between parks, trails, and health, concluding that walkable access to parks increases the likelihood and frequency of physical activity (Centers for Disease Control and Prevention (CDC), 2013). Upgrades and expansion of the existing promenade bolster access to the Kakaako Makai Parks, while increased open green space and addition of new recreation facilities like the Keiki Zone, Adventure zone, and Sports Complex promote increased levels of physical activity, while increasing safety and reducing injury through the provision of safe spaces for the public to exercise and play.

The Master Plan improvements result in additional public benefits such as providing venues for stress reduction that improve mental health and realizing environmental benefits by reducing air and water pollution. The park elements proposed seek to foster community interaction and cohesion, as it encourages use of the Kakaako Makai Parks by Park users of various ages and with a wide array of interests. Given the current demographics of Kakaako District and anticipated full time residential population of between 33,466 to 42,477 people by 2035, the Master Plan improvements can contribute to improved physical, mental, and wellbeing outcomes for this significant population.

5.6.2 Economy

In terms of income, the largest contributors to the State of Hawaii's Gross Domestic Product (GDP) are "Government," followed by "Real Estate, Rental, & Leasing," and the "Accommodation & Food Services" industries. Combined, these industries account for about 50 percent of the GDP. As of 2014, Hawaii's real GDP is 71.9 billion dollars and is expected to grow by more than two percent annually through at least 2017 (State of Hawaii Department of Business, Economic Development, and Tourism, 2014).

The Hawaii economy is highly dependent on tourism, which has been at record levels in 2013 and 2014. The Economic Research Organization at the University of Hawaii (UHERO) anticipates that both visitor arrivals and spending will continue to increase in 2015 (The Economic Research Organization at the University of Hawaii, 2014). UHERO also expects that the construction industry may pick up some of the economic slack left by tourism's stall. In general, Hawaii is now in a period of much slower growth than during the tourism-centered recovery, and this makes the state more vulnerable to economic disturbances that might come from the rest of the world (The Economic Research Organization at the University of Hawaii, 2014).

Since 2012, the State of Hawaii Environmental Council has assessed the state's Genuine Progress Indicator (GPI), which offers a framework to move beyond GDP and adjust for hidden costs and benefits of economic growth across three categories: economic, environmental, and social. According to the Environmental Council's 2013 report, Hawaii has made genuine progress since 1969, but there is divergence between the GPI and GDP, suggesting that the GDP overstates the well-being of the state.

Kakaako has traditionally been an industrial area, but in recent years, as residential buildings have been constructed, there has been a shift toward more of a mixed use economy. According to the unemployment insurance data from the Hawaii Department of Labor, there were 1,260 businesses operating in Kakaako in 2012. Forty-five of these businesses fit under Kakaako's traditional economic use – Maintenance and Repair, but the remainder are categorized into a diverse mix of sectors (see Table 11). More than three-quarters of businesses in Kakaako have less than ten employees.

Table 11. Kakaako Businesses by Sector (2012)

Sector	Number of Businesses	Percent of Businesses
Professional, Scientific, and Technical Services	171	13.6%
Organizations	156	12.4%
Business Organization (mostly AOAO)	(116)	9.2%
Retail Trade	134	10.6%
Food Services and Drinking Places	106	8.4%
Wholesale Trade	100	7.9%
Health Care Services (Ambulatory)	79	6.3%
Finance and Insurance	71	5.6%
Construction	62	4.9%
Real Estate and Rental and Leasing	56	4.4%
Administrative and Support Services	50	4.0%
Maintenance and Repair	45	3.6%
Information	33	2.6%
Other Sectors	197	15.6%
TOTAL	1,260	100%

Source: (UrbanCoreLiving)

Potential Impacts and Mitigation Measures

The Active Use Facilities Master Plan is expected to provide beneficial economic impacts to the community through increased property values and some business and employment opportunities. The presence of parks in neighborhoods is known to enhance property values. Often the use of public funds for park developments are justified by increasing real estate collections (taxes) from neighboring properties whose value is enhanced (Garvin, 2000). Further, it has been established that parks contribute about $140 billion to America's annual economy through employment of recreation professionals and operations staff (Clower, Terry Ph.D. et. al., 2015).

Active uses proposed in the Master Plan are anticipated to provide additional economic gain through employment and Net Operation Income (NOI). Colliers has prepared a financial feasibility analysis of four active uses proposed in the Master Plan, including a sports complex, amphitheater, biergarten, and food trucks. The financial feasibility analyses determined that all four of Master Plan elements are estimated to generate revenues. Also, the estimates assume that HCDA would solely be responsible for the construction and operations of each of the facilities. As was noted for the Sports Complex development costs could be off-set if sponsorship or donation funds are secured.

The financial feasibility analysis also suggests that the profitability of these four elements will be dependent upon the chosen operations and management framework. For example, if concert promoters have a financial stake in the success of the amphitheater, they will be more motivated to book performers. As there are no specific design plans for the four proposed Park elements, it is acknowledged that when designs are completed further study may determine refinements to respective Park elements' size, capacity, and other design and operation factors could result in lower Total Development Costs and greater Total Projected Annual Net Operation Incomes.

While the development costs of the four major active uses are significant, each Park element has proposed phasing that is intended to enable HCDA to plan accordingly and secure the necessary funds and financing. Additionally, construction of the park elements will provide temporary economic benefits through employment of individuals in the building trades.

5.6.3 Employment

In 2014, unemployment in Hawaii was 4.4%, which is slightly higher than Honolulu County's 4.1% unemployment rate (State of Hawaii Department of Business, Economic Development, and Tourism, 2014). The state's unemployment rate fell in 2013 to 4.7% and DBEDT projects that unemployment will continue to fall to 3.5% in 2017.

Median household income in Hawaii is $67,492 (ACS 2012 5-year estimate). 10.8% of people in Hawaii had an income below the poverty level in 2012.

The top employment sectors in Hawaii are "Educational services, and health care and social assistance," "Arts, entertainment, and recreation, accommodation, and food services," and "Retail trade." At $53,204, public administration is the industry with the highest median earnings (ACS 2012 5-year estimate).

Potential Impacts and Mitigation Measures

Master Plan improvements in the Kakaako Makai Parks will not have a detrimental effect on Honolulu's employment and may in fact stimulate a small amount of new employment. Expanded opportunities for commerce and small businesses are envisioned given the proposed introduction of food concessions, biergarten, amphitheater, and community center.

In the short term, construction of the park elements will provide economic benefits through employment of individuals in the building trades.

5.7 INFRASTRUCTURE AND UTILITIES

A Preliminary Engineering Report (PER) prepared by Wilson Okamoto Corporation presents an assessment of the civil infrastructure and utility systems for the Master Plan improvements. The PER details existing conditions and proposed improvements for roadway and parking layout, site grate and flood hazard, storm drainage system, sanitary sewer system, and water system. See Appendix E for the PER. A Traffic Assessment Report (TAR) prepared by Wilson Okamoto Corporation is included in **Error! Reference source not found.**.

5.7.1 Roadways and Traffic

Existing Conditions
Roads within the KCDD Makai Area are two-way, two-lane collector streets, the majority of which are maintained by the City and County of Honolulu (CCH). HCDA owns and maintains Ahui, Ohe, and Olomehana Streets, as well as Keawe and Cooke Streets from Ilalo to Kelikoi Streets. Ala Moana Boulevard is owned and maintained by the State of Hawaii (DOT). Ilalo Street and Ward Avenue Extension are owned and maintained by CCH.

Ala Moana Boulevard, Ilalo Street, Olomehani Street, and Kelikoi Street provide east-west access while the remaining streets provide *mauka-makai* access. Primary access to Kakaako Waterfront Park and Kakaako Gateway Park are provided via Cooke Street and Ohe Street with access to Kewalo Basin Park provided via an access road off Ala Moana Boulevard that is shared with Kewalo Basin Harbor. See Appendix F.

Ala Moana Boulevard. In the vicinity of the Project Site, Ala Moana Boulevard is a predominantly six-lane, two-way roadway generally oriented in the east-west direction. At the intersection with Cooke Street, both approaches of Ala Moana Boulevard have an exclusive left-turn lane, two through lanes, and a shared through and right-turn lane.

East of the intersection with Cooke Street, Ala Moana Boulevard intersects Ohe Street. At this unsignalized intersection both approaches of Ala Moana Boulevard have two through lanes and a shared through and right-turn lane.

Further east, Ala Moana Boulevard intersects an access roadway serving the Kewalo Basin Park and Kewalo Basin Harbor. At this signalized intersection, the westbound approach of Ala Moana Boulevard has three through lanes while the eastbound approach has two through lanes and a shared through and right-tum lane. The access road approach of the intersection has exclusive left-tum and right-turn lanes at this intersection.

Cooke Street. At the northeast comer of the Kakaako Gateway Park, Cooke Street intersects Ala Moana Boulevard. At the signalized intersection with Ala Moana Boulevard, both approaches of Cooke Street have an exclusive right-turn lane and a shared left-turn and through lane. Cooke Street originates at Kelikoi Street as a two-lane, two-way roadway that transitions into a four-lane roadway north of Ilalo Street. Cooke Street intersects Ilalo Street. At this all-way stop intersection, the northbound approach of Cooke Street has one lane that serves all traffic movements while the southbound approach has an exclusive right-turn lane and shared

left-turn and through lane. At the southeast comer of the Kakaako Gateway Park, Cooke Street intersects Kelikoi Street. At this unsignalized t-intersection, the southbound approach of Cooke Street has one lane that serves left-tum and through movements.

Ohe Street. Ohe Street is a two-lane, two-way roadway generally oriented in the north-south direction between Ala Moana Boulevard and Olomehani Street. At the intersection with Ala Moana Boulevard, Ohe Street has one stop-controlled lane that serves right-tum traffic movements. Ohe Street intersects Ilalo Street, such that the northbound approach of Ohe Street has an exclusive left-turn lane and a shared through and right-turn lane at this intersection while the southbound approach has one lane that serves all traffic movements. Southeast of the Cooke Street and Kelikoi Street intersection, Ohe Street intersects Olomehani Street. At this unsignalized intersection, the southbound approach of Ohe Street has one stop-controlled lane that serves left-turn and right-turn traffic movements.

Ilalo Street. Ilalo Street is a predominantly two-lane, two-way roadway generally oriented in the east-west direction. At the intersection with Cooke Street, both approaches of Ilalo Street have one lane that serves all traffic movements. East of the intersection with Cooke Street, Ilalo Street intersects Ohe Street. At this unsignalized intersection, both approaches of Ilalo Street have one lane that serves all traffic movements.

Kelikoi Street. Kelikoi Street is a two-lane, two-way roadway generally oriented in the east-west direction between the Children's Discovery Center and Cooke Street. It should be noted that Kelikoi Street is connected to Olomehani Street by a short private roadway. At the intersection with Cooke Street, the Kelikoi Street approach has one stop-controlled lane that serves left-turn and right-turn movements. The northbound approach of the intersection is comprised of a driveway for the Kakaako Waterfront Park parking area which has one lane that serves through and right-turn traffic movements.

Olomehani Street. Olomehani Street is a two-lane, two-way roadway generally oriented in the east-west direction between the Kakaako Waterfront Park and Ahui Street. At the intersection with Ohe Street, both approaches of Olomehani Street have one lane that serve the allowed traffic movements.

Ward Avenue. Ward Avenue is a mauka-makai roadway providing access between Ala Moana Boulevard and the H-1 Freeway. The Ward Avenue intersection with Ala Moana Boulevard is signalized. Ward Avenue provides two lanes in each direction, with a center left-turn lane. Makai of Ala Moana Boulevard, Ward Avenue continues as Ilalo Street which curves to align parallel with Ala Moana Boulevard. Ilalo Street provides access and vehicular circulation for the Kakaako Makai area.

At the Ward Avenue intersection with Ala Moana Boulevard, the both Ewa and Diamond Head-bound Ala Moana Boulevard approaches to Ward Avenue have exclusive left-turn lanes and the Ewa-bound approach adds an exclusive right-turn lane. The Ward Avenue approach to Ala Moana Boulevard is configured with exclusive left, shared through-left, and shared through-right lanes. The Ilalo Street approach is configured with separate left, through, and right lanes.

In the vicinity of its intersection with Ala Moana Boulevard, both sides of Ward Avenue are lined by mostly commercial retail land uses, and on-street parallel parking is provided on the Diamond Head side of Ward Avenue between Auahi Street and Ala Moana Boulevard.

Existing Traffic Conditions

The general AM peak hour of traffic generally occurs between 7:15AM and 8:15AM, while the PM peak hour of traffic generally occurs between 3:30PM and 4:30PM. The Ala Moana Boulevard operates very well at Level of Service (LOS) A during both peak periods at the northbound approach of Ohe Street, as well as both eastbound and westbound approaches for Kewalo Basin Access Road. For Cooke Street during PM peak period, traffic volume is higher traveling northbound than traveling southbound. Both approaches of Keawe Street operate acceptably at LOS D during both peak periods.

Bicycle & Pedestrian Facilities

There are sidewalks on both sides of Ala Moana Boulevard between Ward Avenue and Kamakee Street. Crosswalks are provided across all legs of the Ward Avenue/Ala Moana Boulevard intersection and across all legs except the Ewa leg at the Kamakee Street/Ala Moana Boulevard intersection. A crosswalk is provided across the East Kewalo Basin driveway.

There are no marked bicycle facilities along Ala Moana Boulevard between Ward Avenue and Kamakee Street. The State of Hawaii Bicycle Master Plan indicates future plans for bike lanes along this segment of Ala Moana Boulevard. A bike share facility is proposed by the CCH at the Kakaako Gateway Park (City and County of Honolulu, 2014). The Honolulu Bikeshare Organizational Report identifies the potential for a bikeshare station at the intersection of Ohe and Ilalo Streets (City and County of Honolulu, 2014).

Public Transit

The City and County of Honolulu operates several TheBus routes in the vicinity of the Parks (see Figure 19). Routes 19, 20, 42, 55, 56, 57, 57A, 65, 88A, W1 run on Ala Moana Boulevard. The nearest bus stop to the Parks is #892 “Ala Moana Bl + Koula St,” which is 355-feet from the boundary of Kakaako Gateway Park (Figure 19). Kakaako Gateway Park is also approximately ½-mile from the planned Civic Center Station and Kakaako Station of the proposed Honolulu Rail Transit Project (HRTP). Kewalo Basin Park is less than ½-mile from the planned Kakaako Station. The full HRTP is anticipated to be complete in 2019.

Potential Impacts and Mitigation Measures

HCDA is working with the City and County of Honolulu to address multi-modal circulation needs that support efforts to connect the Parks through and across existing street networks, including planned residential areas that are mauka of Ala Moana Boulevard. To facilitate circulation, the proposed Master Plan improvements include construction of a new two-way, two-lane roadway (Kelikoi Street) between Keawe Street and Coral Street along the along the makai side of the UH Cancer Center and the north edge of the Kakaako Waterfront Park. Access to the new roadway is expected to be restricted to service vehicles during normal hours, though may be opened for public use during large events and/or as warranted. New non-vehicular access to the Kakaako Makai Parks are proposed at Keawe Street for the Kakaako Waterfront Park and at Ala Moana Regional Park for the Kewalo Basin Park.

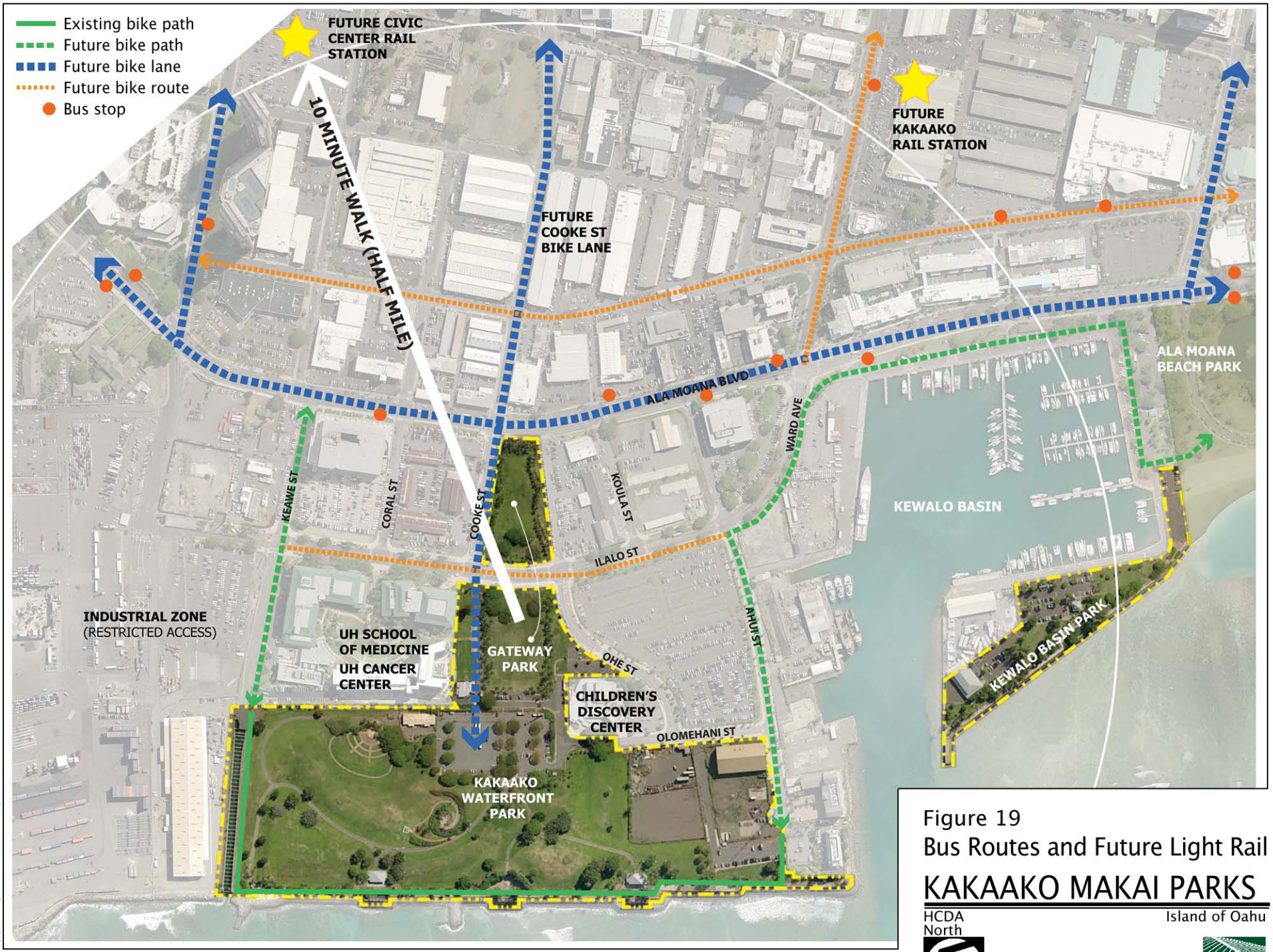


Figure 19
Bus Routes and Future Light Rail

KAKAAKO MAKAI PARKS

HCDA
North

Island of Oahu

PBR HAWAII
& ASSOCIATES, INC.

Source: DTS Oahu Bikeways Map

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Q:\Oahu\HCDA Makai Park\PSD

The TAR evaluates Level of Service (LOS) for surrounding roads today, and in the future, factoring in the proposed park Master Plan, population growth, and expected development in the Kakaako area. LOS analysis considers traffic at the peak-use hours during AM and PM rush hours. The TAR concludes that the majority of the Master Plan improvements are not expected to significantly increase site-generated traffic during the AM and PM peak periods. The proposed biergarten construction in later phases of the development may generate additional trips of 34 vehicles during the PM peak period. Construction of this element may require a traffic management plan to minimize impacts to traffic.

Special events held at the Kakaako Makai Parks, although expected primarily during non-peak hours or weekend periods, may require the implementation of a traffic management strategies. The preparation of a Traffic Management Plan for special events is recommended to minimize the impact of vehicles associated with special events on the surrounding roadway network. Also, TAR recommendations included maintaining sufficient sight distance for motorists to safely enter and exit the project driveways and provision of adequate on-site loading and off-loading, turn-around area for vehicles to maneuver to avoid reversing onto public roadways, as well as sufficient turning radii at all project driveways/roadways to minimize vehicle encroachment to oncoming traffic lanes will be considered during project design.

The proposed pedestrian and bicycle improvements are expected to have beneficial impacts to the human and natural environment. The new park entry at the Ewa side of Waterfront Park (at Keawe Street) is expected to improve ease of pedestrian and bicycle access to the park and further the “lei of green” concept as best as possible at this end of the park. To the east, the “lei of green” concept is supported with the proposed shoreline promenade extension between Kewalo Basin Park and neighboring Ala Moana Regional Park. A bikeshare station is proposed in the Gateway Park at the intersection of Ohe and Ilalo Streets as suggested by the Honolulu Bikeshare Organizational Study.

Driveways, access roads, and parking lot layouts for the proposed Master Plan will be designed to meet applicable state or city requirements. Perimeter walkway and parking lot layout, dimensions, longitudinal and cross slopes shall comply with ADA Accessibility Guidelines to the maximum extent practicable. As site plans are developed for Master Plan improvements it is recommended that consultation occur with the appropriate jurisdictions to coordinate and determine vehicular driveway locations, crosswalk locations, pedestrian sidewalk widths, bicycle facilities, and emergency vehicle access lanes.

5.7.2 Water System

Existing Conditions

The Honolulu Board of Water Supply (BWS) is responsible for the management, control and operation of Oahu’s municipal water system. The BWS presently provides potable water service to the Kakaako Makai Parks. Water is used at the Parks for irrigation, bathrooms, showers, and drinking water fountains.

Figure 6-1 in Appendix E shows a schematic diagram of existing water mains, lines, hydrants and valves.

Potential Impacts and Mitigation Measures

The Master Plan improvements are not anticipated to increase the domestic maximum daily demand for Kewalo Basin Park and Kakaako Gateway Park. The estimated additional domestic maximum daily demand for the proposed park elements at Kakaako Waterfront Park is 21,160 gal/day. The supporting calculations are included in Appendix E. Potable water demands were derived from the project's program requirements and the domestic consumption guidelines and fire flow requirements provided in the City and County of Honolulu Board of Water Supply Water System Standards dated 2002. Domestic consumption and fire flow were based on the proposed commercial areas and an industrial land use, respectively.

Minimal on-site water system improvements are anticipated for Kewalo Basin Park and Kakaako Gateway Park. Figure 6-2 includes a schematic diagram of the conceptual water system to support the Master Plan improvements. Kakaako Waterfront Park on-site water system improvements will consist of water lines, backflow preventers, and valves upstream of the water meter. New fire hydrants shall be provided as required to ensure adequate fire protection for the adjacent buildings. The potable water demand for the Kakaako Makai Parks improvements is expected to minimally increase due to the addition of food concessions and biergarten. Some increase may be offset by the installation of new, efficient comfort station fixtures.

A preliminary water availability request letter for the proposed project has been submitted to CCH's BWS for review. On January 28, 2016, BWS determined that the existing BWS system is able to accommodate the proposed project. Further, that on-site fire protections requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. Based on calculated water demands from the proposed project, it shall be determined during the design phase whether the existing water meter(s) and lateral(s) servicing each park can be reused or if a new meter and lateral will be required.

5.7.3 Wastewater System

Existing Conditions

Detailed description of the existing wastewater facilities can be found in a Preliminary Engineering Report prepared by Wilson Okamoto Corporation **Error! Reference source not found.**. Wastewater service to the Parks is provided by the City and County of Honolulu Department of Environmental Services. Wastewater flows are conveyed from the Kakaako Makai Parks to the Ala Moana Pump station and eventually treated at the City's Sand Island Wastewater Treatment Plant, which provides secondary treatment of effluent.

In 2004 it was estimated that the three Parks would generate an average daily flow of approximately 33,810 gpd (ParEn, Inc., 2004). DPP Wastewater Branch (WWB) indicated that the sewers in the KCDD area were constructed in accordance with the 2004 Sewer Master Plan. See Figure 5-1 in Appendix E.

Potential Impacts and Mitigation Measures

Master Plan improvements at Kewalo Basin Park and Kakaako Gateway Park are not expected to generate any increase in sewer quantities and minor on-site sewer improvements are expected. For Kakaako Waterfront Park, the new on-site sanitary sewer collection system will consist of

gravity sewer lines, clean-out-to-grade, and sewer manholes. Grease interceptors, as specified by a mechanical consultant will be provided for any proposed food preparation facilities. The total proposed average daily flow for Master Plan improvements is about 23,820 gpd. That estimate accounts for maintained sewer quantities for the Kakaako Gateway Park (520 gpd) and Kewalo Basin Park (4,640 gpd), as well as for the community center, comfort station, concession stand, beach hale at Point Panic, sports complex, and biergarten (18,660 gpd). The proposed system will connect to the City sewer system; see Figure 5-2 in Appendix E. for the Conceptual Sanitary Sewer System Layout.

At the Waterfront Park, it is anticipated that the existing sanitary sewer alignments can be maintained. Trenching for the proposed underground piping will comply with the Soil Engineer's recommendations. It is recommended that a geotechnical engineer be consulted to determine if jet grouted columns are required to avoid settlement of sewer lines.

Based on the proposed Master Plan park elements for Kakaako Waterfront Park and sewer generation rates from DOH, the estimated projected average daily flows total 23,820 gpd. This volume is significantly less than the sewer generation quantity used in the 2004 Sewer Master Plan (33,810 gpd). Thus, downstream sewer lines appear to be adequate to accommodate the proposed Master Plan improvements. Special events within the park such as festivals and concerts will necessitate supplemental facilities such as portable toilets to manage solid waste.

A preliminary sewer connection application based the current program information has been submitted to the City and County of Honolulu's DPP WWB. In assessing the adequacy of the City system with ENV input, on January 25, 2016, WWB approved the proposed project being able to connect to its system.

Once an updated proposed program and timetable is developed, it is recommended that detailed sewage flow quantities be estimated and revised sewer connection applications for the Kakaako Makai Parks be submitted to WWB.

5.7.4 Drainage System

Existing Conditions

HCDA owns and maintains the roadways and storm drainage systems at Ahui, Ohe, and Olomehani Streets, and along Keawe Street.

At Kakaako Waterfront Park, rainfall runoff sheet-flows to inlets along the mauka and makai borders of the park. Drainage inlets within the parking lot and along the mauka portion of the property collect runoff and discharge into the 30-foot wide drainage canal at the end of Keawe Street via a 48-inch drainage outlet. A 40-foot wide HCDA drainage easement was established for the open drain channel and box culvert. Drainage inlets within the grassed areas along the makai portion of the property discharge to Mamala Bay.

At the Gateway Park, rainfall runoff on the mauka block sheet-flows to the catch basins along Cooke Street, while runoff on the makai block sheet-flows to the four (4) on-site drain inlets connected to the City storm drainage system at Cooke Street and Ohe Street.

At Kewalo Basin Park, runoff on landscaped areas and concrete walkways on the makai side of the park sheet-flows to the ocean, while trench drains collect runoff from paved parking lots and access roads via piped connections to Kewalo Basin Harbor.

Potential Impacts and Mitigation Measures
The majority of the Parks' rainwater runoff discharges into the adjacent roadway drainage system or directly into the ocean.

Drainage improvements and runoff rates for the proposed improvements will be determined based on City standards. Any increase in runoff due to the proposed improvements will be retained on-site to ensure that the improvements will not have any significant adverse effects on the environment. The Park improvements will also necessitate compliance with the CCH's Section II Standards for Storm Water Quality, which direct projects greater than five (5) acres to implement appropriate Low Impact Development (LID) site design strategies. As park improvements are made, existing infrastructure will be replaced with LID techniques to manage stormwater flow in a way that better protects near-shore water quality from non-point source pollution. LID techniques may include installation of bioswales in parking areas, rain catchment from roof surfaces for irrigation water re-use, pervious paving, and rain gardens in landscape areas. However, specific means and methods must be determined at the time of design and construction to best accommodate site conditions such as slope, proximity to resources such as the ocean, and soil infiltration rates at the location of the proposed LID.

During construction, BMPs will be implemented to minimize and control stormwater runoff. BMPs may include infiltration systems, dry wells, bioretention basins, permeable pavement, green roofs, vegetated bio-filters, enhanced swales, detention basins, sand filters, vegetated swales and buffer strips. If an NPDES permit is required, specific construction BMPs will be specified in the project's NPDES permit.

The Storm Water Management Program Plans (SWMPP) for Kewalo Basin Harbor and for Kakaako Community Development District outline procedures and directives for the existing development area and also dictate the post- construction storm water management of areas that are new or redeveloped which would discharge into the municipal separate storm sewer system (MS4). The Master Plan improvements and construction projects will comply with the respective SWMPP.

5.7.5 Electrical and Communications Systems

Existing Conditions
Electrical service to the Parks is provided by Hawaiian Electric Company, Inc.

Potential Impacts and Mitigation Measures
The Master Plan improvements are anticipated to minimally increase electricity demands. Park elements including the food concessions and biergarten, as well as the Amphitheater may contribute to the increased electricity needs.

5.7.6 Solid Waste

Existing Conditions
Solid waste is hauled to the Campbell Industrial Park H-POWER (Honolulu Program of Waste Energy Recovery) Plant. Residual ash and non-combustible waste is disposed of at the Waimanalo Gulch Sanitary Landfill.

Potential Impacts and Mitigation Measures
No change to the management of solid waste is proposed and no new impacts are expected.

5.8 PUBLIC SERVICES AND FACILITIES

5.8.1 Schools

Existing Conditions
The Kakaako Makai Parks are located in the Department of Education's McKinley Complex Area. The present enrollment for schools in the vicinity of the Parks are shown in Table 12.

Table 12. Capacity and Enrollment for Public Schools

School	Enrollment in 2015-2016 School Year
Kaahumanu Elementary	547
Kaiulani Elementary	378
Kauluwela Elementary	367
Lanakila Elementary	382
Likelike Elementary	358
Royal Elementary	411
Central Middle	398
McKinley High School	1,603
Myron B. Thomas Academy New Century Public Charter School*	683
Voyager Public Charter School*	296

*Charter Schools are shown under the geographic complex-area and/or complex responsible for certain support to that school.
Source: State of Hawaii Department of Education, 2015

Potential Impacts and Mitigation Measures
The Kakaako Makai Parks Master Plan will not impact student enrollment at public or private schools as it will not add any residential housing. Though given the anticipated population growth within the KCDD, the Master Plan recognizes the Parks will serve the increasing recreational needs of area residents and the general public, including students. During the pre-consultation process, the State of Hawaii's Department of Education expressed the need for open public space and strongly encouraged the Master Plan to accommodate organized sports, recreation, and activities given population growth in the area.

Currently, the Kakaako Makai Parks are all used as passive parks that are generally not actively managed or programmed and require few or no permanent facilities or recreational equipment. While the Master Plan seeks to maintain opportunities for passive recreation include biking, picnicking, jogging, and nature enjoyment, the Master Plan includes the addition of park elements that encourage active recreation.

Through Park elements the Master Plan seeks to enhance "play" opportunities as part of a live, work and play neighborhood for the KCDD that promotes healthy and active lifestyles among youth and elder generations. The Great Lawn at Gateway Park is intended to provide flexible and open community space for organized, regularly scheduled recreation activities and impromptu sporting events. The Gateway Park is sized adequately to accommodate soccer fields. In place upgrades and Lei of Green connectors will expand the existing promenade while enhancing accessibility to the Kakaako Makai Parks and provide a needed connection through Kewalo Basin Park to the Ala Moana Regional Park. The Lei of Green connections are designed to draw park users, including students using public transportation, bicycles, and other modes of transportation to the Parks for recreational and educational programming and activities.

A Sports Complex is proposed to be developed in two phases, with sand volleyball courts and bleachers being constructed as part of the first phase, followed by the possibility of a built gymnasium for indoor sports. Given the popularity of sliding on the Kakaako Makai Parks' grassy hills by youth and family, the Master Plan proposes to create an Adventure Zone as a dedicated area for sliding featuring the natural topography of the site where the amphitheater is currently located. The Adventure Zone may include development of rock climbing features or ropes courses that appeal to various ages including young adults and adults. A Community Center at Olomehani Street is proposed to be an adaptive space for various purposes such as community education, cultural public market, and auxiliary covered space adjacent to outdoor uses for special events. The Community Center could provide place-based cultural and educational activities that compliment traditional classroom learning for Hawaii's students.

5.8.2 Police, Fire, and Medical

Police. The Kakaako Makai Parks are located within the jurisdiction of the City and County of Honolulu Police Department's District 1 (Honolulu), Sector 3. The Honolulu Police Headquarters is located less than one mile mauka of the Gateway Park at 801 South Beretania Street.

Fire. Fire protection in the vicinity of the Kakaako Makai Parks is provided by the Honolulu Fire Department's Headquarters, located less than one mile west of the Gateway Park at 636 South Street.

Medical. Within three miles of the Kakaako Makai Parks, there are 14 medical facilities. The largest facilities are The Queen's Medical Center, Straub Clinic and Hospital, Kapiolani Medical Center for Women and Children, Kaiser Honolulu Clinic, and Kuakini Medical Center. Emergency medical service is provided by the City's Department of Emergency Medical Services. The nearest Emergency Medical Service is at Straub Clinic and Hospital on King Street.

Potential Impacts and Mitigation Measures

While there may be an occasional and unavoidable demand for police and fire services, the Master Plan is not expected to create an increased demand on existing police, fire, or medical services. As such, no mitigation is warranted or planned.

5.8.3 Recreational Facilities

Existing Conditions

The Kakaako Makai Parks are state-owned recreational facilities. Other nearby public recreational facilities include Ala Moana Regional Park, Mother Waldron Neighborhood Park, Kolowalu Park, Sand Island State Recreation Area, and Thomas Square Park.

Ala Moana Regional Park is adjacent to Kewalo Basin Park and has a half-mile long sandy beach, lifeguards, pedestrian trails, tennis courts, a music pavilion, food concessions, and comfort stations. Sand Island State Recreation Area offers picnicking, shore fishing, surf access, and weekend-only shoreline camping. Sand Island is physically very close to Kakaako Waterfront Park (less than a half-mile), but the recreation area is not directly accessible across the Honolulu Channel and requires a six-mile trip from the Waterfront Park to access. Mother Waldron Park and Thomas Square are urban parks with no beach access.

Table 13. Area of Neighboring Parks

Parks	Area (acres)
Kakaako Parks	
Kakaako Makai Parks (Gateway, Waterfront, Kewalo Basin Park)	52.6
Mother Waldron Neighborhood Park	2.73
Kolowalu Park	2.57
Kawaiahao Street Mini Park	0.2
Subtotal of Kakaako Parks	**58.1**
Neighboring Parks	
Ala Moana Regional Park (including Magic Island)	119.18
Thomas Square	6.5
Subtotal of Neighboring Parks	**125.68**
Total Park Area	**183.78**

Source: HCDA Final Environmental Impact Statement for the TOD Overlay Plan, July 2015

According to the Kakaako Community Transit Oriented Development Final EIS (June 10, 2015), private recreational facilities associated with particular buildings provide another 16 acres of recreational opportunities in the area.

At the neighborhood level, the urban public parks within Kakaako, measure approximately 58 acres. With a projected population of between 33,466 and 46,181 persons by 2035 (Lee Sichter LLC, 2015), this equates to a projected range of between 1.7 and 1.3 acres of park per 1,000 persons within the discrete boundary of the Kakaako. If the two parks contiguous to Kakaako are factored in, there is a projected range of 5.5 to 3.9 acres of park per 1,000 Kakaako residents.

Potential Impacts and Mitigation Measures

The proposed Master Plan improvements will are expected to have a positive impact on both the KCDD, nearby recreational facilities, and contribute to the County and State's diverse parks and open space system through the provision of both passive and active orientated facilities and activities to appeal to a greater variety of interests, abilities and purposes.

Recent studies have attempted to quantify parks and open space on a per capita basis and identify outdoor recreation needs and demands:

- The Trust for Public Lands' "2015 City Parks Facts", determined that Honolulu is 18th out of 60 cities in the United States in the number of acres of parkland available to 1,000 daytime occupants. Honolulu provides 26.2 acres per 1,000 residents, whereas, the national median is 11 acres per 1,000 persons. Furthermore, the Trust for Public Land report finds that 83.2% of Honolulu's population is within a ½ mile walk from a park. The Trust for Public Land calculations include Honolulu's mauka forest land, while not designated as "parks" are critical to Honolulu's visual resources, wayfinding (i.e. *mauka* and *makai*); as well as an outdoor recreational resource for hikers, mountain bike enthusiasts, hunters, and wildlife observers.

- Hawaii's Statewide Comprehensive Outdoor Recreation Plan (SCORP) (State of Hawaii Department of Land and Natural Resources, 2015) includes a goal to provide a world class recreation experience. Supporting strategies include, "provide and maintain a continuous bike and pedestrian network, especially in areas with high pedestrian use and between residential communities, business/retail districts, and recreation areas…", "provide passive recreation facilities that have multiple uses, such as open fields that could be used for picnicking, outdoor concerts and festivals, and sports", and "construct additional multipurpose or sports-specific fields to accommodate an increase variety of uses and longer seasons…".

Based on observations of current use, provision of green space alone is insufficient to attract people or groups to the Kakaako Makai Parks on a continued, regular basis and large areas within the parks go unused. A balance is therefore sought between providing open, flexible green spaces as well as venues for exercise, entertainment, and food, uses that are directly supportive of Hawaii's SCORP. The proposed park elements seek to activate the Kakaako Makai Parks, providing safe, accessible, and well maintained facilities that complement the existing recreation environment. Through programming and development of park elements, the Master Plan seeks to engage park users of all ages, individuals, and families.

Anticipated beneficial impacts include:

- The Master Plan improves and diversifies park elements that appeal to an array of park users.
- The Master Plan contributes to the health and wellbeing of the community by providing additional active recreation facilities.
- The addition of sports fields in the Kakaako Makai Parks will help to fulfill the year-round demand placed on Honolulu's parks.

- Master Plan park elements such as the great lawn and adventure zone offer free exercise venues for residents that complement the neighboring recreational facilities and parks.
- Given the prevalence of residents and visitors eating out doors in Hawaii, the Master Plan accommodates food vendors within the park including a biergarten.
- In addition to attracting the public to the Kakaako Makai Parks, a portion of revenue generated from food vendors can be utilized to address maintenance and park element construction.
- The amphitheater and community center will enhance use of the Parks as a forum for communities to gather for entertainment such as live-music concerts, theatrical performances, art presentations, as well as hula and other cultural showcases.
- To implement the lei of green concept it is envisioned the existing promenade will:
    - Extended to connect to Ala Moana Regional Park though Kewalo Basin Park, which is expected to improve the functionality of both parks by facilitating a continuous pedestrian way along the ocean.
    - Connect to a new Waterfront Park entry at Keawe Street, which should allow more convenient park access from urban Honolulu and the proposed Innovation Center
    - Connect to a loop within Waterfront Park to the great lawn.
- The Master Plan continues access to shoreline and the promenade.

During pre-consultation process, the City and County of Honolulu Department of Parks and Recreation did not raise any concerns or objections to the Master Plan.

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6.0 LAND USE CONFORMANCE

This section describes the land use plans, policies, and ordinances relevant to the Master Plan park improvements. Each section includes discussion of how the project conforms to the plans and requirements.

6.1 STATE OF HAWAII

6.1.1 Chapter 343, Hawaii Revised Statutes (HRS)

Section 343-5, HRS, establishes nine "triggers" that require compliance with the State's EIS law. The triggers for the Master Plan improvements include, without limitation, the following:

- Propose the use of state or county lands or the use of state or county funds,
- Propose any use within a shoreline area as defined in Section 205A-41, HRS.

In addition, the Master Plan improvements may involve or impact State and/or County lands or funds relating to infrastructure improvements for public facilities, roadways, water, sewer, utility, drainage, or other facilities. While the specific nature of each improvement is not known at this time, the EIS is intended to address all current and future instances involving the use of State and/or County lands and funds relating to the Master Plan improvements.

This Draft EIS was preceded by the Kakaako Makai Park Active Use Facilities Master Plan Environmental Impact Statement Preparation Notice (EISPN). The Hawaii Community Development Authority submitted the EISPN to the State of Hawaii Office of Environmental Quality Control (OEQC) on March 10, 2015. Notice of the availability of the EISPN was published in the March 23, 2015, edition of the OEQC's *The Environmental Notice*. Copies of the EISPN were provided to the appropriate government agencies and other organizations (See Section 9.0). The public comment period for the EISPN March 10, 2015 and ended April 9, 2015. Comments and responses on the EISPN received during the public comment period are incorporated in this EIS and included in Appendix B.

6.1.2 State Land Use Law, Chapter 205, HRS

The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission and authorizes this body to designate all lands in the State into one of four (4) Districts: "Urban," "Rural," "Agricultural," or "Conservation."

The Kakaako Makai Parks are within the State Land Use Urban District. See Figure 5. The proposed park improvements are consistent with the Urban designation.

6.1.3 Hawaii Coastal Zone Management Program, Chapter 205A, HRS

The U.S. Congress enacted the Coastal Zone Management (CZM) Act to assist states in better managing coastal and estuarine environments. The act provides grants to states that develop and implement federally-approved CZM plans. The State of Hawaii's CZM Act Program was enacted pursuant to Chapter 205A, HRS. The program outlines management objectives centered

around ten areas: 1) Recreational Resources; 2) Historic Resources; 3) Scenic and Open Space Resources; 4) Coastal Ecosystems; 5) Economic Uses; 6) Coastal Hazards; 7) Managing Development; 8) Public Participation in Coastal Management; 9) Beach Protection; and 10) Marine Resources. All lands within the State of Hawaii fall within the CZM area, including the Parks.

The Kakaako Makai Parks' are located within the SMA (Figure 9). The objectives and policies of the Hawaii CZM Program, along with a detailed discussion of how the renovations and improvements in the Parks conform to these objectives and policies, are discussed below.

(1) Recreational resources;

Objective*: Provide coastal recreational opportunities accessible to the public.*

Policies:

(A) Improve coordination and funding of coastal recreational planning and management; and

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

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

Discussion: The proposed improvements to the Parks will have a positive impact on coastal recreational resources. The Master Plan improvements will in no way restrict the existing public access to the ocean available through the Kakaako Waterfront Park, Kakaako Gateway Park, or

Kewalo Basin Park. Further, the Park improvements enhance public recreation activities, while maintaining access and existing recreational value currently enjoyed by the public.

(2) Historic resources;

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

Policies:

(A) Identify and analyze significant archaeological resources;

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

(C) Support State goals for protection, restoration, interpretation, and display of historic resources.

Discussion: Section 6E-8 HRS is applicable to proposed development in the park. Therefore, prior to design of Park elements, HCDA will provide SHPD with an opportunity for review of the effect of the Park elements on any historic property, ground disturbing activities, and/or any federal permits, consistent, with section 6E-43, HRS.

Few if any pre-contact cultural practices continue in the Parks, with the exception of surfing, subsistence and sports fishing within the Parks, The improvements in the Parks will not restrict the existing public access to the ocean available through the Kakaako Waterfront Park, Kakaako Gateway Park, or Kewalo Basin Park. As such, the exercise of Native Hawaiian rights, or any ethnic group, related to gathering, access, or other customary activities should not be impacted or affected.

(3) Scenic and open space resources;

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

Policies:

(A) Identify valued scenic resources in the coastal zone management area;

(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

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

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: The Parks have views of the Pacific Ocean, Leahi (Diamond Head), and Waikiki. The proposed improvements will not alter the panoramic views identified in the Primary Urban Center Development Plan and will not alter the existing quality of any significant stationary or roadway views defined in the City and County of Honolulu's 1987 Coastal View Study. The primary objective of the proposed improvements is to encourage and support active uses that

include preserving open spaces for nature viewing and preserving coastal views. Further, the Park improvements preserve open space, while maintaining access to existing scenic resources currently enjoyed by the public.

(4) Coastal ecosystems;

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

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

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

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

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

Discussion: As discussed in Chapter 4.4 (Groundwater and Surface Water Resources), the Master Plan improvements are not anticipated to alter the marine environment or negatively impact marine waters. The Master Plan improvements are intended to activate the Kakaako Makai Parks resulting in enhanced opportunities for the public to connect with and appreciate coastal resources. Specific Master Plan park elements like the community center and flexible and open green space may provide venues for park users and visitors to learn more about the unique coastal environment and resources, as well as how they can contribute to its stewardship and protection. Further, the Master Plan improvements enhance public waterfront accessibility that positively impacts cultural and traditional use and stewardship practices.

(5) Economic uses;

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

Policies:

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at

such areas, and permit coastal dependent development outside of presently designated areas when:

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

Discussion: Prioritizing the maintenance and implementation of proposed park elements, the Master Plan will provide opportunities for local businesses to contribute to the public good and use of the Kakaako Makai Parks. The Master Plan improvements seek to activate the park and attract a wide array of park users, while enhancing economic opportunities in the areas of exercise, food, and entertainment. The introduction of park elements such as the great lawn & entrance features, sports complex, keiki zone, and adventure zone encourage exercise and recreational activities. Food concessions and biergarten can provide vendors the opportunity to meet Park food and beverage needs. The amphitheater provides an attractive outdoor space for concerts, theatrical performances, and cultural presentations that showcase local musicians and entertainers while providing an opportunity for revenue generation.

(6) Coastal hazards;

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

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and non-point source pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
(D) Prevent coastal flooding from inland projects.

Discussion: The Kakaako Gateway and Kewalo Basin Parks are located in the one percent annual flood zone (Zone AE) and may be impacted by flooding during storms. Because the Parks are near sea level, the potential impacts from flooding will be exacerbated as sea level rises as a result of global climate change.

The HCDA is using the Center for Island Climate Adaptation and Policy and the University of Hawaii Sea Grant's recommendations to plan for a sea level rise of one foot by 2050 and three feet by 2100. The Kakaako Maki Parks are well above sea level on an armored shoreline that is protected from erosion, and so a sea level rise of one to three feet will not have an inundation effect. Though sea level rise may increase the risk of flooding at the Parks if surrounding lands

or the stormwater system are inundated. Importantly, parks and open spaces contribute to resiliency of urban neighborhoods through acceptance of flood waters and storm surge. To that end, minimal new impervious surfaces are suggested in the Master Plan.

To mitigate against increased flood damage, in accord with the Chapter 21 Section 1.8 "Flood fringe areas," ROH[1], the Master Plan improvements will also be designed to adhere to the rules and regulations of the National Flood Insurance Program as presented in Title 44 of the Code of Federal Regulations.

The potential impacts of hurricanes will be mitigated through designing all park elements in compliance with the City and County of Honolulu's building code. Impacts from natural hazards will be further mitigated by adherence to appropriate civil defense evacuation procedures.

(7) Managing development;

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

Policies:

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

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

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

Discussion: As discussed in Section 9.0 (Public Engagement), information about the proposed Park improvements have been disseminated to the public through a series of community meetings and presentations, community consultation, printed handouts, and this EIS. In addition to in-person meetings, an on-line, web-based public engagement platform was utilized to reach people that were not able to attend the public meetings. The dedicated project website provided an ability for individuals to share their perspectives and input throughout the planning process.

The purpose of this EIS is to articulate the potential short and long-term impacts of the proposed improvements to the Parks at an early stage in the process. After it is published, the Draft EIS will be made available to agencies and stakeholders for review.

(8) Public participation;

[1] As established by Ordinance 14-9, adopted May 7, 2014 by the Honolulu City Council.

Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies:

(A) Promote public involvement in coastal zone management processes;

(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and

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

Discussion: Prior to the EISPN and its public notice period, HCDA met with general public and stakeholders. The Public Participation Report (Appendix A) detail the public meeting dates, locations, participants, purposes and discussions for the Master Plan.

(9) Beach protection;

Objective: *Protect beaches for public use and recreation.*

Policies:

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

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

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

Discussion: While the Kakaako Waterfront Park and Kewalo Basin Park are along the shoreline, the shoreline is hardened providing protection to the existing promenade. The proposed Park improvements will not add any erosion protection structures and will not in any way restrict the existing public access to the ocean. Given the man-made nature of the shoreline, the proposed Park improvements will not interfere with natural shoreline processes. Appropriate BMPs and erosion control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

(10) Marine resources;

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

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

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

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

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

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

Discussion: The Park improvements will not restrict the existing public access to nearby marine and coastal resources. The DLNR Division of Aquatic Resources (DAR) in their April 9, 2015, Memorandum expressed that it has no objection to the proposed project, though it is concerned with short and long term effects of construction activities on the aquatic environment given the Project is adjacent to the shoreline. Appropriate BMPs and erosion control measures will be implemented to ensure that marine and coastal resources are not adversely impacted by Master Plan improvement construction activities. These BMPs may include those highly recommended by DAR to avoid temporary inputs of sediment and pollutants due to construction activities from entering the aquatic environment. Should re-contouring of the ash landfill be pursued, the recommendations found in **Error! Reference source not found.** should be followed to ensure there is no exposure of hazardous materials or substances to the nearshore environment.

6.1.4 Hawaii State Environmental Policy and Guidelines, Chapter 344-3 & 344-4, HRS

The State Environmental Policy provides guidelines for agencies to 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. The environmental Guidelines (§344-4, HRS) suggest that insofar as practical, in the development of programs consider: population; land, water, mineral, visual, air, and other natural resources; flora and fauna; parks, recreation, and open space; economic development; transportation; energy; community life and housing; education and culture; and, citizen participation.

Discussion: Consideration of the Environmental Policies were given throughout the planning process. No population impacts are anticipated as discussed in Section 5.6.1. Land and water impacts are anticipated to be of a temporary nature and are mitigatable, as discussed in Sections 4.1, 4.2, 4.3, 4.4, and 4.5. There is no adverse effect expected to flora and fauna (Section 4.6 and 4.7). The Master Plan is the improvement of parks and recreation space that maintain scenic, historic, cultural, recreation areas. Shoreline access is maintained for recreational, educational and scientific uses. The Master Plan improvements are intended to directly support the promotion of open space for both aesthetic purposes as well as an ennobling, living environment as described in the Guidelines. Additionally, the active uses suggested in the Master Plan will contribute to economic development as discussed in Section 5.6.2, while encouraging alternative transportation in an urban environment that is transitioning to a live, work, play and learn transit-oriented development driven neighborhood. Citizen participation in the planning process is encapsulated in Appendix A.

6.1.5 Hawaii State Plan & Recreation Functional Plan Chapter 226, HRS

The Hawaii State Plan directs State agencies to prepare functional plans for their respective program areas. There are 14 State Functional Plans that serve as the primary implementing vehicle for the goals, objectives, and policies of the Hawaii State Plan.

The Recreation Functional Plan is intended to be a "guidepost" for implementing the Hawaii State Plan in the realm of recreation. It identifies major statewide concerns and suggests actions for recreation-related policies, programs, and priorities.

Discussion: The Kakaako Makai Parks Active Use Facilities Master Plan supports specific action items identified in the Recreation Functional Plan:

- *Improve and expand the provision of recreation facilities in urban areas (Objective II-C)*
    - *Provide additional playing fields and upgrade existing fields for both youth and adult sports leagues (Implementing action II-C(1)b)*
    - *Work with government agencies and developers to provide urban trails and walkways (Implementing Action II-C(1)c.*

Below is discussion regarding the ability of the Master Plan Park improvements to meet Hawaii State Plan objectives, policies, and priority guidelines related to: growth of a diversified economic base (recreational and visitor industry), cultural advancement, physical land resources, and climate change priorities.

§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 Hawaii's present and future generations.

(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.

(3) Physical, social, and economic well-being, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring, and of participation in community life

Discussion: The proposed Park improvements contribute to attainment of these three goals by 1) providing employment opportunities for present and future residents of Oahu, 2) directly enhancing the Kakaako Makai physical environment currently enjoyed by the public, and 3) providing additional recreational uses for individuals and families within Hawaii.

§226-6 Objectives and policies for the economy--in general.

§226-6(3) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.

§226-6(4) Transform and maintain Hawaii as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.

§226-6(19) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.

§226-8 Objective and policies for the economy--visitor industry.
§226-8(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.

Discussion: The proposed Park improvements will enhance existing recreational facilities and resources for the use by both residents and visitors. These improvements contribute to the quality of visitor destination areas, reactivating the Parks and drawing visitors to utilize the facilities and enjoy the panoramic views along the Parks waterfront. The Master Plan improvements enhance the Kakaako Makai Parks as a welcoming and well-maintained environment that contributes to the health and wellness of the public, while supporting purposeful business opportunities and generating revenue that can be used, in part to address maintenance and park element needs into the future.

§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.

§226-11(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.

§226-11(2) Effective protection of Hawaii's unique and fragile environmental resources.

- *Take into account the physical attributes of areas when planning and designing activities and facilities.*
- *Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.*
- *Pursue compatible relationships among activities, facilities, and natural resources.*
- *Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.*

Discussion: The Master Plan improvements support the wise use of Kakaako Makai Parks and their land-based and shoreline resources. The proposed Park elements seek to manage the natural resources by expanding the great lawn and entrance features, as well as enhancing the existing topography of the Waterfront Park to create sight-lines to the ocean. The biergarten and amphitheater in particular, seek to enhance the physical attributes of the area while promoting the preservation of views available for the aesthetic enjoyment of mountain, ocean, and scenic landscapes. The Master Plan improvements seek to encourage compatible relationships among the various park elements that accommodate both passive and active use of the Parks.

§226-20 Objectives and policies for socio-cultural advancement--health.

§226-20(1) Fulfillment of basic individual health needs of the general public.

§226-20(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.

§226-21 Objective and policies for socio-cultural advancement--education.

§226-21(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

§226-21(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.

§226-23 Objective and policies for socio-cultural advancement--leisure.

- *Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.*
- *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.*
- *Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.*
- *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.*
- *Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.*
- *Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.*
- *Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.*
- *Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.*
- *Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.*

§226-25 Objective and policies for socio-cultural advancement--culture.

§226-25(1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.

§226-25(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.

§226-25(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.

§226-25(4) Foster increased knowledge and understanding of Hawaii's ethnic and cultural (4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.

Discussion: The Master Plan improvements increase recreational, exercise, leisure, and educational facilities and opportunities. The expansion of open green space, implementation of Lei of Green connections from Kakaako Makai Parks to Ala Moana Regional Park enhance access to the parks for exercise, entertainment, and interaction with others in the community. The sports complex, adventure zone, and keiki zone park elements promote physical activity across all ages and diverse resident and visitor populations. Park elements such as the community center, Great Lawn & Gateway features, biergarten, amphitheater, and beach hale provide venues for the fulfilment of artistic, cultural, educational and recreation needs. Given the Community Center's scenic views and proximity to the shoreline it is a wonderful venue to foster natural and cultural education activities and workshops that perpetuate Native Hawaiian and local values and culture, as well as strengthening connection to and responsibility to care for the environment. Regular and special event programming can foster community interaction, whether it's through musical or cultural performances, fitness programs, or developing a public market to showcase local artisans or use for plant or craft fairs. Incorporating the existing topography and modifying portions of the Parks contribute to enhancing open green space and sites within the Parks for park users to relax and enjoy scenic and inspiring views.

§226-109 Climate change adaptation priority guidelines.

§226-109 Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:

(1) Ensure that Hawaii's people are educated, informed, and aware of the impacts climate change may have on their communities;

(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;

(3) Invest in continued monitoring and research of Hawaii's climate and the impacts of climate change on the State;

(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;

(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;

(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;

(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;

(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;

(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; and

(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.

Discussion: The HCDA is following the Center for Island Climate Adaptation and Policy and the University of Hawaii Sea Grant's recommendations to plan for a sea level rise of one foot by 2050 and three feet by 2100. The Kakaako Maki Parks are well above sea level behind an armored shoreline that is protected from erosion, thus a sea level rise of one to three feet will not have an inundation effect. Sea level rise may increase the risk of flooding at the Kakaako Makai Parks if surrounding lands or the stormwater system are inundated. Importantly, parks and open spaces provide an ecosystem service by contributing to resiliency of urban neighborhoods through acceptance of flood waters and storm surge.

6.1.6 Special Management Area Guidelines

The Kakaako Makai Parks are within the Special Management Area and as a community development district pursuant to §206E-5, HRS, all requests for development within the SMA shall be submitted and reviewed by the Office of Planning. As the Master Plan improvements are expected to exceed $500,000, HCDA is required to obtain SMA use approval under § 15-150-11(4), HAR. Prior to construction of Master Plan improvements, HCDA will obtain a SMA use approval from the Office of Planning.

6.1.7 Shoreline Area

Pursuant to §15-150-20, HAR, shoreline setback lines are established in community development districts (such as the KCDD) 40 feet inland from the certified shoreline. Some proposed improvements (such as landscaping and paving) in a portion of Park Improvement Area may be in the shoreline setback area. These proposed improvements would not adversely affect beach processes and will not artificially fix the shoreline, as the shoreline in this area is formed by a rock revetment.

6.1.8 Kakaako Community Development District Makai Area Plan

The Kakaako Community Development District Makai Area Plan sets forth a number of guidelines and principles to direct development of the Makai Area so that is becomes an active, vibrant area that is dedicated and attractive to the people of Hawaii. The Makai Area Plan is incorporated into the Makai Area Rules by reference (§15-23-4, HAR). The Kakaako Makai Parks are in the land use zone "Park" (Figure 10). According to the Makai Area Plan, "within the 'Park' land use zone, cultural and educational uses along with a variety of active recreation activities will be allowed and encouraged, to provide additional public resources." The Makai Are Plan requires that all development proposals require obtaining a development permit, as outlined in the Makai Area Rules.

Specific design concepts included in the Makai Area Plan are:

- An iconic mixed-use public or cultural facility within the Diamond Head portion of the Kakaako Waterfront Park.
- A large urban "green" area for active play and festivals.
- An interactive children's play area with water features and play apparatus.
- An amphitheater adjacent to the urban "green" area and interactive children's play area.
- Extensions of the current promenade around Kewalo Basin and mauka via the mauka/makai promenade.

Major principles that have driven priorities reflected in the Makai Area Land Use Plan include:

- Substantial portions of the Makai Area being set aside for public enjoyment and access to the waterfront.
- Portion of State lands be developed for commercial uses, with revenues derived therefrom used to support the public parks and other amenities.
- Focus of park lands as a central corridor of park lands, as a centerpiece for adjacent commercial development
- Preservation of important view corridors of Ala Moana Regional Park, Diamond Head, mauka/makai corridor along Cooke Street, and existing view corridor down Ala Moana Boulevard will be maintained.

The Makai Area Plan details that parking demand will be accommodated by a combination of on-street, surface lot, and off-street parking facilities, with respective parking requirements established in the Makai Area Rules. Public transportation is primarily provided by the City bus system, though rapid transit and bicycle system seeks to increase non-vehicular access to the Makai Area from Downtown, Ala Moana Regional Park and the HCDA Mauka Area.

Discussion: The Master Plan improvements maintain the use of lands as park for the enrichment of the surrounding community, supporting recreational, educational, and cultural programming, facilities, and activities. The proposed park elements uphold and reflect the specified Makai Area Plan design concepts. These Master Plan park elements include the Community Center within the Kakaako Waterfront Park; Great Lawn and Gateway Features, Flexible and Open Community Space; Keiki Zone, Adventure Zone, Sports Complex; enhancements to the amphitheater; and extending the existing promenade around Kewalo Basin Park and mauka via the mauka/makai promenade.

The Master Plan implements a primary principle of the Makai Area Plan to balance public amenities with revenue generation to address maintenance needs of the Kakaako Makai Parks. Park elements including the food concessions and biergarten, as well as the amphitheater will assist in generating revenue for maintenance purposes.

Consistent with the Makai Area Plan, the Master Plan improvements prioritize public access to the waterfront by maintaining the approximately one-mile of shoreline dedicated to park use. The Master Plan seeks to enhance waterfront access by in place upgrades and Lei of Green connectors that will extend the existing promenade from the Waterfront Park through Kewalo Basin Park into the Ala Moana Regional Park and ultimately connecting to the Great Lawn.

The Master Plan improvements promote accessibility by various modes of transportation, with an emphasis on pedestrian movement to maintain the waterfront as a people-oriented place. The Master Plan considers plans including the Draft Kakaako Transit Oriented Development Plan and Oahu Bike Plan, and development of the Hawaii Rail Transit Project. Beyond enhanced pedestrian access through the promenade, the park improvements promote multi-modal transportation access through the enhancements on the promenade as well as planning that may include bicycle racks, storage areas, and other accessories in areas that are well-lit and secure for cyclist use.

6.1.9 Kakaako Community Development District Makai Area Rules (§15-23)

The Kakaako Community Development District (KCDD) Rules were enacted to guide the re-planning, renewal, and redevelopment of the KCDD. Master Plan improvements comply with Makai Area Rules designated uses for "Park" that include amphitheaters; performing arts centers; museums, art galleries and workshops; active and passive recreation; parking; uses and structures that are customarily accessory and clearly incidental and subordinate to principal use structures; or other uses allowable by HCDA.

As the Kakaako Makai Parks are within KCDD, the Master Plan improvements will comply with the general development standards contained in the KCDD Makai Area Rules In compliance with the Makai Area Rules, proposed Master Plan improvements will require necessary Development Permits and ensure adequate infrastructure facilities are available or will be made available to service proposed development prior to occupancy. The Master Plan improvements will comply with Off-Street Parking and Loading requirements as set forth in §15-23-68 and §15-23-69, HAR, respectively.

6.1.10 Kakaako Makai Conceptual Master Plan (2011 Conceptual Plan)

In April 2011, HCDA completed the Conceptual Master Plan Final Report with a vision statement:

> *"The Hawaiian Place of Kaakaukukui and Kukuluaeo—Kakaako Makai is the community's gathering place. A safe place that welcomes all people, from keiki to kupuna, with enriching cultural, recreational and educational public uses. A special place that continues the shoreline lei of green with scenic beauty,*

connects panoramic vistas mauka to makai, and encourages ecological integrity of land, air and sea. Kakaako Makai honors, celebrates and preserves its historic sense of place, Hawaiian cultural values and our unique island lifestyle for present families and future generations."

Further, the 2011 Conceptual Plan (MVE Pacific, 2011) established fourteen guiding principles and elements including:

- Community Cultural Gathering Place
- Hawaiian Culture & Values of the Ahupuaa
- Open View Planes
- Coastal and Marine Resources
- Expanded Park and Green Space
- Public Accessibility
- Public Safety, Health, and Welfare
- Public-Land Use Legislation - Public Use of Public Lands in the Public Interest
- Kewalo Basin
- Cultural Facilities
- Small Local Business
- Site Design Guidelines – A Hawaiian Sense of Place in Landscape, Setting, and Design
- Community/Government Planning Partnership
- Future Funding and Management

Discussion:
The Master Plan represents a logical progression of park planning based on the 2011 Conceptual Plan while responding to the changing neighborhood population and land ownership changes.

6.1.11 Draft Kakaako Community Development District Transit Oriented Development Overlay Plan

In May 2013, HCDA published a draft Transit Oriented Development (TOD) Overlay Plan that provides recommendations relating to connectivity and circulation, parks and open space, urban form, and land use for those lands generally within a ¼ mile of the Honolulu Rail Transit Project's planned transit stations. In particular, the Draft Kakaako Community Development District TOD Overlay Plan enhances the policies and direction set forth in the previously established district plans and rules by maximizing development through the use of smart growth principles, multi-modal transportation, and walkable neighborhood design. The Draft TOD Overlay Plan would result in no new development and no transit-oriented development in the Makai Area, other than possible street improvements. HCDA published a Final TOD Overlay Plan EIS in June 2015 that was accepted by the Governor of Hawaii on September 16, 2015.

Discussion:
The Kakaako Makai Parks are identified in the Draft TOD Overlay Plan. Specific to Parks the Final TOD Overlay Plan EIS notes that neither the HCDA nor the City's Department of Parks and Recreation currently plans to construct additional parks in or near Kakaako, suggesting that impacts from Transit Oriented Development will be confined to existing parks in the region. The

Master Plan improvements consider increased population utilization of the Parks resulting from Kakaako residential developments.

6.2 CITY AND COUNTY OF HONOLULU

County-specific land use plans pertaining to the Project include the Oahu General Plan and Oahu Sustainable Community Plan.

6.2.1 City and County of Honolulu General Plan

The General Plan for the City and County of Honolulu is a policy document for the long-range development of the Island of Oahu. The General Plan is a statement of social, economic, environmental, and design objectives for the general welfare and prosperity of the people of Oahu. These objectives contain desirable conditions to be sought in the 20-year planning horizon. The General Plan also includes policies to help direct attainment of the plan's objectives. It was originally adopted in 1977 and most recently amended in 2002.

Discussion: The Master Plan improvements in the Kakaako Makai Parks are in conformance with relevant objectives and policies of the General Plan for the City and County of Honolulu. In particular, the Master Plan improvements advance the objectives related to economic activity, health and education, as well as culture and recreation. Construction of the Master Plan park elements will provide economic benefits in the form of construction jobs, construction spending, and multiplier effects on the local economy, as well as jobs for operation of Food Concessions and biergarten.

The Master Plan improvements seek to enhance the Kakaako Makai Parks by increasing accessibility and available recreation facilities to promote exercise and physical activity that contribute to improved health of the people of Oahu. Park elements such as the expanded open green space and Community Center are ideal forums to convene educational and workshop activities that provide a wide range of educational opportunities for Oahu residents. Further, the Amphitheater and Community Center can also host cultural performances, demonstrations, and educational events that foster greater public awareness, understanding, and appreciation of Native Hawaiian and multi-ethnicity heritage of Hawaii.

6.2.2 City and County of Honolulu Primary Urban Center Development Plan

The Primary Urban Center (PUC) Development Plan is intended to help guide public policy, investment, and decision-making through the 2025 planning horizon. The PUC is one of two areas on Oahu where major growth in population and economic activity will be directed. The PUC's Vision for Honolulu emphasizes retaining the qualities that attract both residents and visitors while encouraging growth and redevelopment to accommodate the projected increases in jobs and residential population.

Discussion: The Master Plan improvements in the Kakaako Makai Parks are in conformance with the relevant policies and guidelines of PUC Development Plan. In particular, the improvements further the PUC's goal of ensuring "Honolulu's Natural, Cultural, and Scenic Resources Are Protected and Enhanced." The HCDA's vision is to maintain and activate the

Parks as an open and inclusive space to be used for public benefit. The park elements seek to enhance access to the waterfront and scenic views, while featuring open green spaces to be enjoyed by residents and visitors, alike. Park elements such as the beach hale, community center, and biergarten serve as sites to enjoy the natural, cultural and scenic resources, given the Kakaako Makai Parks proximity to the shoreline.

6.3 APPROVALS AND PERMITS

A listing of anticipated major permits and approvals required for the Park improvements is presented below:

Table 14. List of Anticipated Permits and Approvals

Permit/Approval	Responsible Agency
Compliance with DOH Rules for ash landfill re-contouring	State Department of Health
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Special Management Area (SMA)	State Office of Planning
Grading/Building Permits	City Department of Planning & Permitting
Development Permit	HCDA
Kakaako Makai Area Plan	HCDA
Chapter 15-23, HAR	HCDA

7.0 ALTERNATIVES TO THE PROPOSED ACTION

In compliance with HAR Title 11, DOH, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(F), the Draft EIS will contain a section discussing alternatives that could attain the park improvements' objectives (refer to Section 2.10.1), regardless of cost, in sufficient detail to explain why the specific alternative was rejected. Alternatives to be discussed in further detail in the in the Draft EIS include the following.

7.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Kakaako Maki Parks would remain in their current condition. The HCDA's efforts to maintain the Kakaako Makai Parks within existing resources are hampered, given the 2012 loss of revenue-generated lands that previously supported the maintenance needs of the Parks. Based on public meeting responses, concerns for personal safety, lack of attractions, poor site lines, and long distances from parking will likely continue and result in vast areas of the Parks continuing to go unused under the No Action Alternative. The No Action Alternative would deprive the community of the community's as well as HCDA's vision to activate the park with family-friendly outdoor recreational activities. In addition, the environmental benefits of the improvements, particularly the reduced peak stormwater flow and drainage improvements would not be realized.

7.2 ALTERNATIVE OF IMPLEMENTING THE 2011 KAKAAKO MAKAI CONCEPTUAL MASTER PLAN

Under this alternative, the Kakaako Makai Parks and open space would expand to wrap around Kewalo Basin Boat Harbor, creating contiguous open space between Kewalo Basin Park and the Gateway and Waterfront Parks. Since the adoption of the 2011 Conceptual Plan, land ownership patterns have changed, and several parcels key to the plan are no longer under control of HCDA. This alternative is now considered impractical to implement by HCDA, due to lack of ownership. As much as possible, elements of this alternative have been incorporated into the preferred alternative.

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8.0 CONTEXTUAL ISSUES

8.1 SHORT TERM USES OF THE ENVIRONMENT & MAINTENANCE OF LONG-TERM PRODUCTIVITY

Short-term uses and long-term productivity weighs the temporary nature of construction impacts against the long-term public health and welfare benefits of urban parks. As each phase or element is constructed, there will be short-term temporary impacts from construction including the potential for dust, erosion, and construction noise, in addition to disruption of park activities. However, these short-term impacts can be mitigated with standard best practices for construction. Should elements of the Master Plan be implemented that require alteration to the landfill ash mounds, more intensive study of the mounds' make-up and appropriate hazard mitigation plans will be required to protect the health of construction workers and the general public.

The long-term "productivity" of the Kakaako Makai Parks is outdoor recreation, which is supported by State and County land use plans as well as by previous community efforts (2011 Conceptual Plan). The trade-off of short-term construction impacts is minor in consideration of the long-term community benefits gained from the Kakaako Makai Active Use Facility Master Plan improvements.

Long-term community benefits include:

- Increasing overall health and wellbeing by providing additional active recreation facilities for current and future Kakaako and Oahu residents and visitors
- Adding to the inventory of high-demand sports facilities
- Activating the Parks with family-friendly outdoor recreational activities that draw people to the park without fear for personal safety
- Increasing exercise opportunities and promoting increased levels of physical activity
- Enhancing Park and shoreline access
- Providing safe areas for quiet contemplation and stress reduction
- Implementing "Lei of Green" connections (Waterfront Park-west to Keawe Street; Kewalo Basin Park-east to Ala Moana Regional Park)—thus contributing this long-running community desire to create a continuous pathway from Waikiki to Honolulu Harbor
- Providing "ecosystem services" such as flood storage
- Increasing environmental protection and nearshore water quality by implementing LID techniques to minimize and control stormwater runoff
- Contributing to enhanced property values for properties located mauka of the Parks
- Contributing to the long-term maintenance and of the Parks by providing appropriate income-generating uses and concessions

In addition, the overall Park improvements and any remediation of Park soils may ultimately provide positive long-term impacts regarding maintaining the productivity of the Park land for public uses.

In light of the long-term community benefits and maintenance of the land for continued park uses, the proposed park improvements do not foreclose the future options, narrow the range of beneficial uses of the environment, or pose long-term risks to health or safety.

8.2 POTENTIALLY IRREVERSABLE COMMITMENTS OF RESOURCES

The Kakaako Makai Parks are currently used for outdoor recreation and will continue to be used as such. The State (HCDA) designates this land for parks which removes it as an available resource for other urban development, such as commercial or residential development. The continued use of the Kakaako Makai Parks for recreation is deemed to be an acceptable and desirable commitment of urban resources due to the social, health, and wellness benefits provided to Kakaako and Oahu residents and visitors from parks. As such, the proposed park improvements and the continued use of the land for parks and do not irreversibly curtail the range of potential uses of the environment.

Any unavoidable impacts (such as short-term construction impacts) and the commitment of non-renewable resources (such as funding or the use park land for the proposed improvements) must be weighed against the significant positive and recurring community benefits that will be derived from the proposed improvements as opposed to taking no action.

Implementation of certain elements of the Kakaako Makai Active Use Facility Master Plan require adjustment and re-contouring of the landfill ash mounds. If pursued, additional testing and hazard management plans will be required to avoid impacts to human and environmental health.

8.3 CUMULATIVE IMPACTS

Cumulative impacts are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The Kakaako Makai Active Use Facility Master Plan proposes improvements to existing park areas and does not recommend a change from park uses, therefore the proposed Park improvements do not change the mix of uses in the highly urban Kakaako area.

Reasonably foreseeable future actions in the Kakaako District include substantial redevelopment in Kakaako Mauka to create a vibrant “live, work, play” urban community. Given the anticipated increase in population in the Mauka area, the Master Plan improvements are expected to contribute to the livability of Kakaako as the redevelopment of Kakaako Mauka progresses. As the population of Kakaako becomes more dense, the parks are anticipated to have a cumulative beneficial impact as more people will rely on the open space for their outdoor recreation needs.

In context with greater Kakaako redevelopment, negative cumulative impacts related to the Park improvements are expected to be minimal in regard to traffic and other infrastructure considerations such as increased demand for water and wastewater facilities. Similarly, the park improvements are not expected to result in, or contribute to, significant cumulative increases related to school facilities or demands for police, fire, or medical services.

8.4 SECONDARY IMPACTS

Secondary impacts, or indirect impacts, include those that are caused by the action and are later in time or are farther removed in distance, but are still reasonably foreseeable. They may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. According to the EIS rules: "The population and growth impacts of an action shall be estimated if expected to be significant, and an evaluation made of the effects of any possible change in population patterns or growth upon the resource base, including but not limited to land use, water, and public services, of the area in question."

Adverse impacts to population resulting from the Master Plan are not expected. Rather, the improved Parks are expected to enhance park facilities and outdoor recreational opportunities for current and future Kakaako and Oahu residents and visitors. While improvements to the Parks may increase the desirability of the Kakaako District, population in the District is already projected to increase from approximately 10,673 people in 2010 by an additional 22,793 to 35,508 people, for a total population between 33,466 and 46,181 people, respectively by 2035 (Lee Sichter LLC, 2015). Rather than spurring population growth, the park improvements are anticipated address the need for quality park, open space, and recreational facilities for a growing population.

Positive secondary impacts associated with the Master Plan improvements are anticipated to include:

- Increased recreational facilities, including high-demand sports facilities
- Enhanced outdoor recreational opportunities
- Increased exercise opportunities
- Maintained shoreline access
- Safe open space areas and ocean vistas for quiet contemplation and stress reduction
- Employment opportunities

The proposed park improvements are not anticipated to have detrimental impacts on land uses. Potential positive impacts on area land uses may include the increased desirably and livability of the Kakaako area and increased property values for properties located mauka of the Parks.

In regard to infrastructure and public services in the area, the park improvements are not expected to result in, or contribute to, significant secondary impacts in regard to increased demand for infrastructure and utilities (see Section 5.7) or public services and facilities (see Section 5.8).

Research has found that large parks in urban areas contribute positively to the urban ecosystems, by providing beneficial impacts or "ecosystem services" (Stott, I., Soga, M., Inger, R. and Gaston, K.J., 2015). Importantly, the Kakaako Makai Parks are expected to provide ecosystem services that contribute to resiliency of the surrounding neighborhood through acceptance of flood waters and storm surge. To further minimize impacts in storm situations, minimal new

impervious surfaces are planned. Where parking areas are proposed for redevelopment, they are expected to improve upon current environmental and nearshore water quality conditions through the implementation of LID techniques to minimize and control stormwater runoff.

As the Master Plan improvements are intended address the needs of a growing population, the improvements are not anticipated to result in secondary impacts or indirect impacts; rather the improved Parks will help to address, in part, secondary impacts of population growth from already proposed commercial and residential development in the Kakaako district and greater Oahu.

8.5 PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Potential environmental impacts resulting from the Master Plan and proposed Park improvements have been discussed throughout this EIS. Potential adverse environmental effects that cannot be avoided are minimal provided mitigation measures are implemented. Paramount among the mitigation measures is addressing the potential environmental impacts associated with re-contouring the landfill ash mounds.

8.5.1 Rationale for Proceeding with the Master Plan Improvements Notwithstanding Unavoidable Effects

The long-term community benefits and maintenance of the land for continued park uses outweigh the minimal unavoidable effects associated with proceeding with the Master Park improvements. The community recognizes the benefits of park improvements, as evidenced by the effort that was exerted for the 2011 Conceptual Master Plan and validated for the current effort. Any unavoidable impacts are more than off-set by the substantial compliance with, and implementation of, government policies associated with construction of park improvements. These policies include:

- The State Land Use Law (Chapter 205, HRS) and the Parks' designation as Urban.

- Hawaii's Coastal Zone Management Act Program (Chapter 205A, HRS) and its objectives to provide coastal recreational opportunities accessible to the public and to protect, preserve and improve the quality of scenic, open space, and coastal ecosystem resources.

- The Hawaii State Plan (Chapter 226, HRS) and the implementing Recreation Functional Plan (Chapter 226, HRS) as they relate to action items to: 1) improve and expand recreation facilities in urban areas; and 2) provide additional playing fields and urban trails and walkways.

- The Hawaii State Plan (Chapter 226, HRS) and its objectives pertaining to socio-cultural advancement for health, leisure, and culture as well as its climate change adaptation priority guidelines (§226-109).

- The Makai Area Plan (§15-23-4, HAR) including specific design concepts and major principles:
  - An iconic mixed-use public or cultural facility within the Diamond Head portion of the Kakaako Waterfront Park.
  - A large urban "green" area for active play and festivals.
  - An interactive children's play area with water features and play apparatus.
  - An amphitheater adjacent to the urban "green" area and interactive children's play area.
  - Extensions of the current promenade around Kewalo Basin and mauka via the mauka/makai promenade.
  - Substantial portions of the Makai Area being set aside for public enjoyment and access to the waterfront.
  - Portion of State lands be developed for commercial uses, with revenues derived therefrom used to support the public parks and other amenities.
  - Focus of park lands as a central corridor of park lands, as a centerpiece for adjacent commercial development
  - Preservation of important view corridors of Ala Moana Regional Park, Diamond Head, mauka/makai corridor along Cooke Street, and existing view corridor down Ala Moana Boulevard will be maintained.

8.6 MITIGATION MEASURES

Mitigation measures to avoid, minimize, or reduce impact to the natural and human environment are discussed throughout this document and summarized in Section 2.

8.7 UNRESOLVED ISSUES

The unresolved issues described herein can and should be addressed prior to commencement of the specific elements they pertain (re-grading landfill mounds to improve sight lines and/or to accommodate amphitheater seating; intensification of uses such as a larger, relocated amphitheater and sports complex that involves indoor facilities).

Re-development of Landfill Mounds.
Should the Kakaako Makai Parks Active Use Facilities Master Plan be fully implemented, the primary unresolved issue relates to movement or re-contouring of the landfill ash mounds. As discussed in Appendix C, redevelopment of the park involving changes to the mounds will require: testing (characterization of solids and gasses); feasibility study (consider the cost/benefit of making changes to the mounds); and hazard planning (to avoid risk to health and safety of workers and the public).

The Need for Supplemental Environmental Disclosures.
Some of the proposed improvements may require subsequent compliance with Chapter 343, HRS to disclose their specific impacts. Specifically, if the sports complex is proposed for a greater intensity of uses or development, such as enclosed gyms; or if moving the outdoor amphitheater is pursued. For either of these uses, the potential for impacts from additional vehicular traffic and parking needs, sound, demand on public facilities and construction of structures in the shoreline area will require greater design development and consideration.

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9.0 PUBLIC ENGAGEMENT & CONSULTATION

9.1 PUBLIC ENGAGEMENT

The Master Plan was informed by the previous planning efforts specific to the HCDA Makai Area, Kakaako Community Development District, and 2011 Conceptual Plan, as well as public engagement specific to development of the Master Plan. Between August 28, 2014 and June 2015, public input was solicited on the Master Plan through public meetings and an on-line public engagement platform. Utilization of both in-person and electronic venues sought to bolster public participation facilitating outreach among meeting participants, technologically proficient members of the public, and those that were not able to attend the meetings. Public meetings are identified below with a detailed summary of the Master Plan public participation process and results contained in Appendix A.

Table 15. Public Meetings for the Planning Process

Meeting	Date	Location
Public Open House—Series 1	August 28, 2014 and September 6, 2014	HCDA Office 461 Cooke Street Honolulu, HI 96813
Public Open House—Series 2	October 30, 2014 and November 8, 2014	
Parks Peek Event	December 6, 2014	Kakaako Makai Gateway Park 461 Cooke Street Honolulu, HI 96813
Environmental Impact Statement (EIS) Public Scoping Meeting	April 16, 2015	HCDA Office 547 Queen Street Honolulu, HI 96813
Public Open House—Series 3	June 4, 2015 and June 13, 2015	
HCDA Board Meeting	June 24, 2015	

9.2 ENVIRONMENTAL IMPACT STATEMENT PREPARATION SCOPING MEETING

A public scoping meeting was held on April 16, 2015. Nine individuals signed in at the meeting (see Appendix A). Individuals attending the public meeting provided comments. Those comments along with responses are included in Appendix B.

9.3 ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE

In the course of planning for the park improvements, the following agencies or individuals were consulted and/or provided information and asked to comment. Comment letters and responses are found in Appendix B.

Federal

- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Transit Authority
- National Marine Fisheries Service
- National Park Service
- Natural Resources Conservation Services, Pacific Islands Area Office
- U.S. Army Corps of Engineers, Honolulu District
- U.S. Coast Guard, District 14
- U.S. Department of Navy, Naval Facilities Engineering Command, Hawaii
- U.S. Environmental Protection Agency, Pacific Islands Contact Office
- U.S. Fish & Wildlife Service
- U.S. Geological Survey, Pacific Islands Water Science Center

State of Hawaii

- Hawaii Community Development Authority
- Department of Agriculture
- Department of Accounting & General Services
- Department of Business, Economic Development & Tourism (DBEDT), Office of Planning
- DBEDT Research Division Library
- DBEDT Hawaii State Energy Office
- Department of Education
- Department of Defense
- Department of Hawaiian Home Lands
- Department of Health (DOH)
- DOH, Environmental Planning Office
- DOH, Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
- DLNR, State Historic Preservation Division
- Department of Transportation

- Office of Hawaiian Affairs
- UH Environmental Center
- UH Marine Option Program
- UH Water Resources Research Center

City and County of Honolulu

- Board of Water Supply
- Department of Community Services
- Department of Customer Services, Municipal Reference Center
- Department of Design and Construction
- Department of Environmental Services (ENV)
- Department of Facility Maintenance
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- Honolulu Fire Department
- Honolulu Police Department

Libraries

- Hawaii State Library - Hawaii Documents Center
- Hawaii Kai Regional Library
- Hilo Regional Library
- Kaimuki Regional Library
- Kaneohe Regional Library
- Kahului Regional Library
- Legislative Reference Library
- Lihue Regional Library
- Pearl City Regional Library
- UH Thomas H. Hamilton Library
- UH Edwin H. Mookini Library
- UH Maui College Library
- UH Kauai Community College Library

News Media

- Honolulu Star Advertiser
- Hawaii Tribune Herald
- West Hawaii Today
- The Garden Island
- Maui News
- Molokai Dispatch
- Honolulu Civil Beat

Elected Officials

- Senator Brickwood Galuteria

- Representative Tom Brower
- Councilmember Ernest Martin
- Councilmember Ikaika Anderson
- Councilmember Kymberly Marcos Pine
- Councilmember Trevor Ozawa
- Councilmember Ann Kobayashi
- Councilmember Carol Fukunaga
- Councilmember Joey Manahan
- Councilmember Brandon Elefante
- Councilmember Ron Menor
- Mayor Kirk Cardwell
- U.S. Senator Brian Schatz
- U.S. Senator Mazie Hirono
- U.S. Representative Tulsi Gabbard

Other

- Friends of Kewalo Basin
- Hawaiian Electric Company
- Howard Hughes Corporation
- Kewalo Harbor Master
- Kewalo Keiki Fishing Conservancy
- Michelle Matson, Kakaako Makai Community Planning Advisory Council
- Public Meeting Attendees

9.4 EIS CONSULTATION

The DEIS has been distributed to the following individuals and organizations. Comment letters received for the corresponding EISPN are included in the Draft EIS.

Federal

- Federal Aviation Administration
- Federal Emergency Management Agency
- Federal Transit Authority
- National Marine Fisheries Service
- National Park Service
- Natural Resources Conservation Services, Pacific Islands Area Office
- U.S. Army Corps of Engineers, Honolulu District
- U.S. Coast Guard, District 14
- U.S. Department of Navy, Naval Facilities Engineering Command, Hawaii
- U.S. Environmental Protection Agency, Pacific Islands Contact Office
- U.S. Fish & Wildlife Service
- U.S. Geological Survey, Pacific Islands Water Science Center

State of Hawaii

- Hawaii Community Development Authority

- Department of Agriculture
- Department of Accounting & General Services
- Department of Business, Economic Development & Tourism (DBEDT), Office of Planning
- DBEDT Research Division Library
- DBEDT Strategic Industries Division
- DEBT Hawaii State Energy Office
- Department of Education
- Department of Defense
- Department of Hawaiian Home Lands
- Department of Health (DOH)
- DOH, Environmental Planning Office
- DOH, Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
- DLNR, State Historic Preservation Division
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- Senator Ronald Kouchi
- Representative Joseph Souki
- Representative Tom Brower
- Representative Scott Saiki
- Councilmember Ernest Martin
- Councilmember Ikaika Anderson
- Councilmember Ann Kobayashi
- Councilmember Carol Fukunaga
- Mayor Kirk Caldwell
- Neighborhood Board No. 11 Chair Ryan Tam
- Neighborhood Board No. 13 Chair Alvin Au
- U.S. Senator Brian Schatz
- U.S. Senator Mazie Hirono
- U.S. Representative Mark Takai

Other

- Friends of Kewalo Basin
- Hawaiian Electric Company
- Howard Hughes Corporation
- Kakaako Improvement Association
- Kamehameha Schools
- Kewalo Harbor Master
- Kewalo Keiki Fishing Conservancy
- Kupu
- Michelle Matson, Kakaako Makai Community Planning Advisory Council
- Public Meeting Attendees

10.0 LIST OF PREPARERS

The Draft EIS has been prepared by PBR HAWAII & Associates, Inc., 1001 Bishop Street, ASB Tower, Suite 650, Honolulu, Hawaii 96813.

Several key technical consultants were employed to provide specific assessments of environmental factors for this project. These consultants and their specialty are listed below:

Name	**Area of Expertise**
Element Environmental LLC	Environmental Hazards
Censeo AV+Acoustics	Sound
Wilson Okamoto Corporation	Traffic & Civil Engineering
Robert Hobdy Environmental Consultant	Biological Resources
PBR HAWAII & Associates, Inc.	Cultural Impact
Colliers International	Market & Economic Impact

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Appendix A:

MAKAI AREA PARKS ACTIVE USE FACILITIES MASTER PLAN Report & Findings on the Public Participation Process

MAKAI AREA PARKS
ACTIVE USE FACILITIES MASTER PLAN

Report & Findings on the Public Participation Process

Prepared for:

HCDA
Better Communities for Tomorrow

Prepared by:

PBR HAWAII
& ASSOCIATES, INC.

April 2016

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Appendices

Introduction

The purpose of this report is to document the public engagement process and to compile input and feedback received from the public during the planning process. The information herein will inform the Makai Area Parks Active Use Master Plan and its Environmental Impact Statement.

Understanding public preferences for outdoor recreation facilities is important. To that end, several opportunities for public engagement were provided to help inform the project team. The primary means for public engagement were though public meetings and through an on-line public engagement platform.

Public Participation Techniques

Public Meetings

A series of public meetings were planned to span the planning process. The purpose of the meetings was to collect information from the public and allow the community to interact, share stories, ask questions, and provide suggestions one-on-one with the project team.

Table 1 Public Meetings

Meeting	Date	Location
Public Open House—Series 1	August 28, 2014 and September 6, 2014	HCDA Office 461 Cooke Street Honolulu, HI 96813
Public Open House—Series 2	October 30, 2014 and November 8, 2014	
Parks Peek Event	December 6, 2014	Kakaako Makai Gateway Park 461 Cooke Street Honolulu, HI 96813
Environmental Impact Statement (EIS) Kick Off Meeting	April 16, 2015.	HCDA Office 547 Queen Street Honolulu, HI 96813
Public Open House—Series 3	June 4, 2015 and June 13, 2015	
HCDA Board Meeting	June 24, 2015	

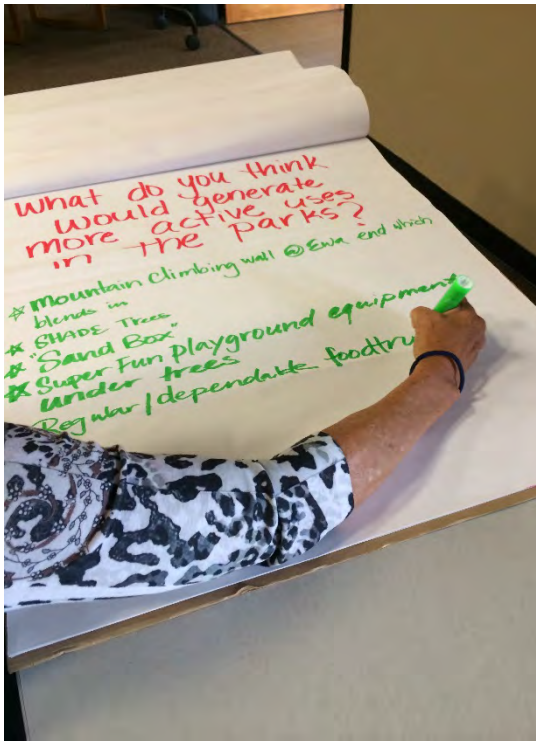
Public Open House Series 1

Public engagement commenced with an open house series held on two dates, Thursday, August 28th, 2014 from 5:30 p.m. to 7:30 p.m. and Saturday, September 6th, 2014 from 10:00 a.m. to Noon at the HCDA offices on Cooke Street. The meetings were informal, and guests were encouraged to view materials that were organized by topic (history, opportunities, challenges, etc.) that were posted around the room and leave comments on

large format paper at each topic area. HCDA and PBR HAWAII staff were on hand to talk about the materials and the planning process. The open houses also included a short video loop that documented some visible challenges in the park, a PowerPoint slideshow and a station to learn more about the on-line public engagement platform.

57 people signed-in as attendees at the public open house series (Appendix A).

Figure 1. Open House Series 1 Activities



Public Open House Series 2

Conceptual theme diagrams were presented to the public on two dates, Thursday, October 30th, 2014 from 5:30 p.m. to 7:30 p.m. and Saturday, November 8th, 2014 from 10:00 a.m. to noon at the HCDA offices on Cooke Street. Like the first series of open houses, the meetings were informal, and guests were encouraged to view materials that were organized by topic and posted around the room. The public was asked to complete two comment cards: one asked the commenter to list the top ten active uses they would like to see in the park; the other asked the commenter to choose which of the five themed use diagrams they most preferred. There were also sheets on the tables for free form comments. HCDA and PBR HAWAII staff was on hand to talk about the materials and the planning process. HCDA and PBR HAWAII also gave a presentation detailing the design process up to this second open house series. The presentation included audience polling, the results of which are detailed in the Results section.

66 people signed-in as attendees at the public open house series (Appendix A).

Kakaako Parks Peek

On Saturday December 6, 2014 HCDA hosted the Kakaako Parks Peek. This event, which promised a "sneak peek at the future of Kakaako Makai," included food trucks, live music, a volleyball tournament, games, art, and a number community booths. HCDA and PBR HAWAII staff members ran a booth where attendees had the opportunity to learn about and comment on their preferred active uses and the conceptual theme diagrams presented at the Open House Series 2. The comment cards used at this event were the same as those used at the Open House Series 2.

EIS Kickoff Meeting

The EIS process was announced to the public at a 5:00 p.m. open meeting on Thursday, April 16th, 2015, at the HCDA Office on Queen Street. At the meeting, PBR Hawaii staff made a presentation about the purpose of the meeting, project background, and timeline of the EIS process. The presentation provided an overview of the planning process, which would develop an active facilities master plan for the Kakaako Parks, building on the prior 2011 Conceptual Master Plan and accounting for changes that occurred in the area since that time. Attendees could ask questions and provide their input on issues and concerns that should be addressed in the EIS.

Public Open House Series 3

Design concepts were shared with the public on two dates, Thursday, June 4th, 2015 from 5:30 p.m. to 7:00p.m and Saturday, June 13th, 2015 from 10:00 a.m. to Noon at the HCDA Office on Queen Street. The format of the meeting began with opening remarks and introduction of PBR HAWAII presenters, followed by a 10 minute HCDA video describing the Kakaako Makai Park history, past planning efforts, and park utilization concepts and opportunities for collaboration. After the video three presentations were made by PBR HAWAII staff discussed how input from the past 2 open house series meetings and 2014 parks peek event informed the planning process to date; alternative park concepts and notional layouts for parking, green space, art/water features, amphitheater, concession stand, community hale/pavilion, biergarten, and other areas for both active and passive activity use were reviewed; and next steps and opportunities for public participation in the Draft Environmental Impact Statement process. Then attendees were able to discuss with HCDA and PBR HAWAII staff public comments and questions. Attendees were encouraged to submit written input via comment cards and the on-line engagement project web presence.

HCDA Board Meeting

On Wednesday, June 24th, 2015, a general business meeting of the Kakaako Members of the HCDA was held from 8:30 a.m to 10:30 a.m at the HCDA Office. HCDA Executive Director reported that the HCDA had previously authorized the Environmental Impact Statement (EIS) for the Kakaako Makai Area Parks Active Use Master Plan. PBR HAWAII staff summarized the primary issues raised in the three series of Open House meetings and the Parks Peek event. Overall received positive reactions in developing the master plan, especially to prioritize connection of the Kakaako Makai Parks to Ala Moana Beach Park and have venue for food trucks and regularly programmed events. Movement of amphitheater was well received, as long as design was

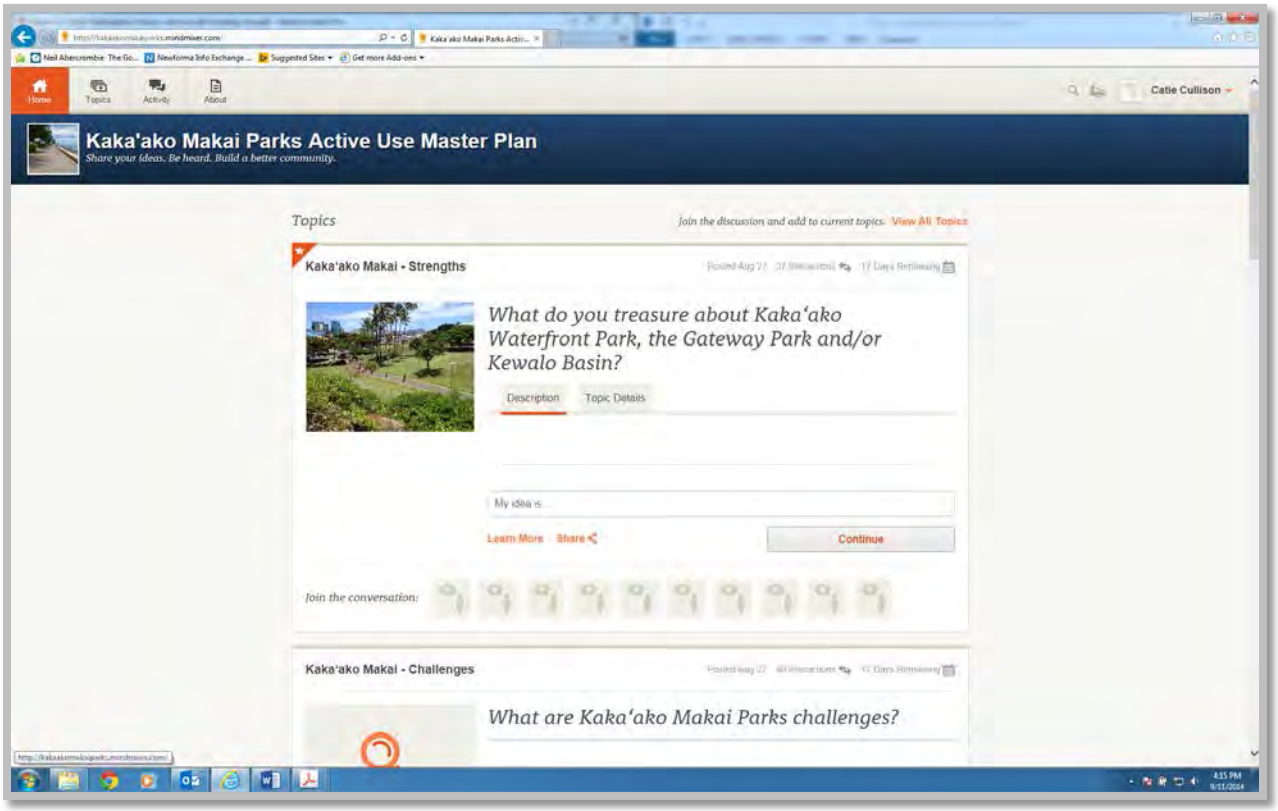
thoughtful and respected views. Coordination was a focus issue, including coordination with surrounding property owners resulting in cohesive development, avoidance of park uses conflicting with neighboring commercial development, and opportunities to coordinate as improvements are made for Ala Moana Beach Park. Varying perspectives on parking were shared, as some expressed preference in scattering parking to ease park access while others supported a single parking facility to enable more open green space overall. Strategic drop off areas may provide a compromise in addressing parking preferences.

On-line Public Engagement

With the knowledge that a mere 6.3% of Hawaii residents participate in public meetings (Corporation for National & Community Service, 2015), the HCDA and PBR HAWAII project team sought to provide alternative venues to give people who might otherwise be overlooked or overshadowed a voice in the planning process. To that end, an on-line public engagement platform was provided. The goal for on-line engagement was to find a way to reach the people who cannot or will not attend public meetings, but have important contributions to make to the planning process.

The team utilized the on-line engagement platform provided by MindMixer and established a project web presence at http://kakaakomakaiparks.mindmixer.com.

Figure 2. Project Website



The site was launched on August 28, 2014, the same day as the first public open house.

Notice of the site was provided to meeting attendees at the open house on August 28th and September 6th. Meeting attendees were also emailed with a link to the site and HCDA staff provided links to the site on the HCDA website. The website was accessible to the public through July 31, 2015.

Results

Open House Series 1

Following is a list of comments provided by the public at the open house series. The comments are sorted by question and where comments were duplicative, a number is noted in parentheses. One participant in the public meetings provided a short white paper on "all access and abilities" playgrounds. It is included in Appendix A.

Station #1: My Memories of Kakaako Makai Parks…

- *Beautiful waves, sunsets and green open space with picnics*
- *A place to go to unwind after a hectic day at the office. Relaxes and expands your sense as you view nature at its finest*
- *Green, clean and maintained (past)*
- *Hawaiians used to live in this area, Let's bring that back.*
- *Kids sliding down the hill (2)*
- *It was a large green park, now it is shrinking to special interests*
- *Rubbish dump*
- *Tuna Packers Factory*
- *Fishing boats*
- *Why not provide an interpretive signage program to recall Kakaako's rich past with an orientation center at the Historic pump station (kakaakos gateway)*

Station #2: What do you treasure about Kakaako Makai Parks?

- *The beautiful view of the ocean/mountain*
- *Public gathering, ocean and open space*
- *Recreational use for growing communities*
- *Crucial to have bike path and walking connection Kewalo Park to Waterfront Park to Ala Moana Park & Aloha Tower*
- *Ensure connection to Mother Waldron Park with greenway (lei of parks) on Cooke and connection to Gateway Park*
- *Gathering Place*
- *Central location (2)*
- *Connection to the sea and surfers (2)*
- *Openness and Views (4)*

Station #3: How do you use the park?

- *Walk my dog (2)*
- *Used to walk my dog, but because of homeless I don't do it unless accompanied by a friend*
- *Morning exercise*
- *Family picnics (3)*
- *bike riding area (3)*

- *Informal meetings or get togethers*
- *Events/concerts*
- *Watch sunsets (2)*
- *Watch International Space Station flyovers*
- *Observe shoreline/waves (2)*
- *Community for surfers and body surfers*
- *Observe mountains and the sea*
- *Oasis in the City (2)*
- *We love children's discovery center, but homeless camp is a bummer*
- *Used to go there for the Discovery center before children grew up*
- *Bodysurfing, surfing, skin diving, fishing, fireworks, picnics, bicycle, jogging, meetings, picture taking, walks, sunsets, views of Waikiki, surf watching, lunches*

Station #4: What challenges would you like to see resolved?

- *Homeless (5)*
- *Need more sanitary conditions for homeless*
- *Give homeless more jobs. (doing a good job already) but let's do more to get them to take ownership of surroundings with dignity*
- *Clear direction, plan, funding*
- *See more play in Kakaako*
- *Tree lined access into park –very hot to walk*
- *Public restrooms need help*
- *Attract the public*
- *Need more family friendly activities*
- *Urban pedestrian connectivity is needed.*
- *Waterfront Park is too isolated it needs a plan that "sticks"*
- *Pedestrian connector and biking connector between Ala Moana beach park & Kakaako Park*
- *Grand "via" across Ala Moana for pedestrians and bikes to connect with center of park. Needs to be at a shallow grade and as wide as a street*
- *Retail restaurants/bars/etc or food wagons to encourage pau hana and weekend use*
- *How to integrate the disparate views of stakehodlers: OHA, community, private enterprise, state, city…how to create cohesive plan*
- *Invest in composting toiles*
- *Install graywater system from medical ctr bldgs. For irrigation*
- *Install raingutters to capture water for irrigations*
- *Install solar for electrical use*
- *Collaborate and partner with variety for stakeholders, community etc to spread costs*
- *Filling in the park, sidewalks and setbacks with concrete & commercial clutter is not the answer*
- *OHA should be allowed to exchange Kakaako Lands with other State Lands*

Station #5: What do you think would help generate more active uses within the park?

- *Family-friendly activities (2)*
- *Dog park (4)*
- *Water activity restricted (surf, fishing, etc) Need water access (beach area for children and other uses)*
- *Urban gardening-edible landscaping in parks, community greenhouse*
- *Facilities for indoor and beach volleyball (*added by another writer: *Not in the green open space)*
- *Public community centers* (compilation of several comments relating to community-center type facilities)
    - *gyms,*
    - *basketball,*
    - *volleyball,*
    - *skateboard,*
    - *community meeting spaces*
    - *Sports facilities to attract family and community to the park*
- *Outdoor spaces/places with support activities for public use* (compilation of several comments relating to outdoor facilities)
    - *ie. skate park,*
    - *cycle track,*
    - *story telling areas*
    - *water play area*
    - *fishing piers*
    - *market kiosks*
    - *all access "inclusive playground" (see Appendix A)*
    - *interactive fountains/water features with music*
    - *canoe dragon boat halau and rowing and kayaking*
    - *bike share station*
    - *community garden*
    - *mountain climbing wall at Ewa end*
    - *sand box*
    - *super fun playground equipment under trees*
    - *regular/dependable food trucks*
- *More active recreation for youth and families*
- *Build public roadway through park (like Ala Moana Beach Park)*
- *Shade trees*
- *The level of activity in Kakaako is skyrocketing. No other park in Hawaii sustains itself. Parks are financed through real estate taxes, general funds or a small amount of appropriate non-invasive commercial activities within the park*
- *Don't fill up green space with commercial clutter*
- *This is not the time for future planning*

- *Why are the examples always from somewhere else? Aren't there good examples in other places in Hawaii?*
- *Park Activities=More annual maintenance (taxes?)*

Open House Series 2 and Kakaako Parks Peek

This section provides a summary of the public input from the second open house series and the Kakaako Parks Peek. For the complete results, see Appendix A.

Comment Cards. Both the Open House and Parks Peek utilized two comment cards. One asked the commenter to list the top ten active uses they would like to see in the park; the other asked the commenter to choose which of the five themed use diagrams they most preferred.

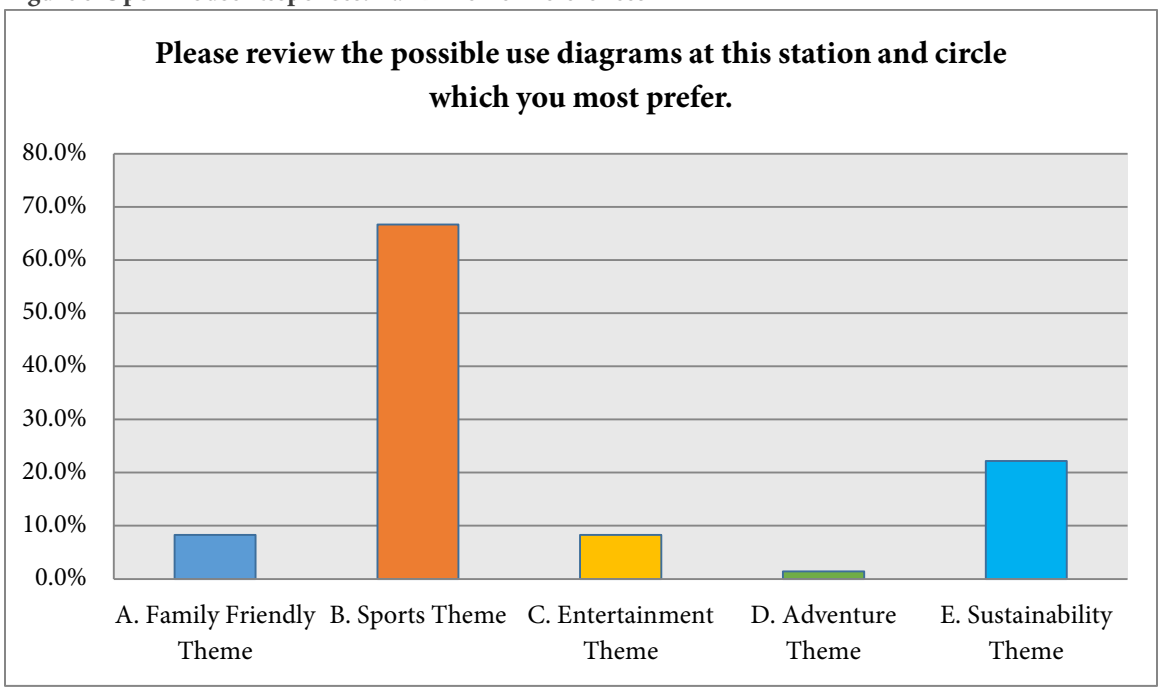
The following is a summary of the responses to the active uses comment cards.

Table 2 Open House Responses: Preferred Activities

Top Uses by Number of Responses	Top Uses by Mean Ranking
1. volleyball	1. volleyball
2. farmers market	2. stormwater collection
3. outdoor concert	3. basketball
4. outdoor shaded food court	4. climbing wall
5. outdoor movie	5. workout stations
6. workout stations	6. storytelling
7. amphitheater	7. light display (Illuminage)
8. giant slide park + light tunnel	8. playground + sandbox
9. basketball	9. baseball
10. semi-permanent themed food trucks	10. trampoline park

The following is a summary of responses to the themed use diagrams. No one completed these comment cards at the first meeting (October 30, 2014).

Figure 3 Open House Responses: Park Theme Preferences

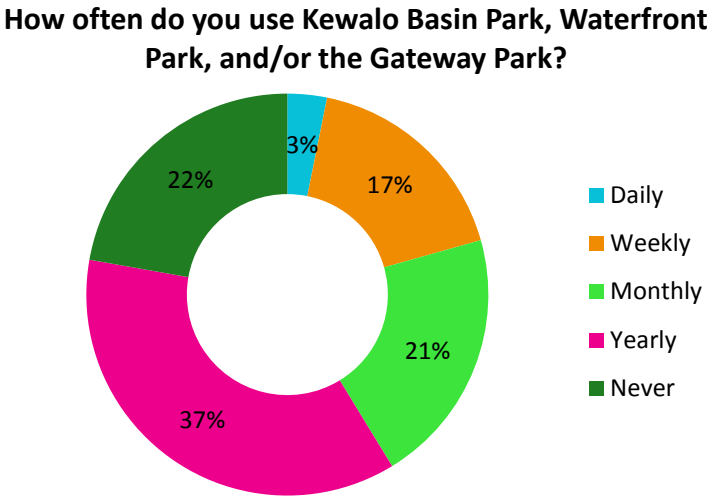


The use diagram comment card also had a space for respondents to suggest elements they want to combine from different use diagrams. These comments are listed below:

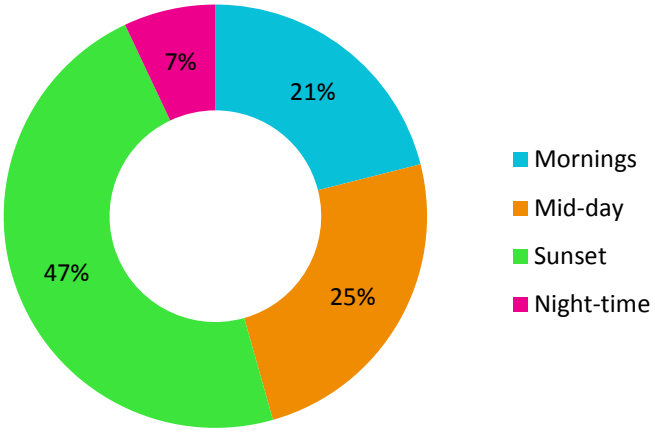
1. The parks need to have the ability to generate funds to support maintaining the park. Run leased to private company.
2. B, A
3. The family and sports could be combined.
4. Should incorporate family friendly zone and convert one open space for sports :)
5. I do like the family friendly theme too with the parking garage with rooftop beer garden. Incorporated those with the sustainability theme would be awesome!
6. Play fields (sports), entertainment area, obstacle course
7. Sports + entertainment
8. Family and sports
9. E and D
10. Add family friendly element to sustainability. Make sure to have enough parking.
11. Sus, with sports theme
12. E + stormwater filtration garden and sustainable gardens
13. Praise and worship retreats/events
14. I would like to see the bridge from the adventure theme added to C. entertainment theme.
15. A, B + C
16. Sports + Family + Entertainment
17. Pieces of each combined where multiple things can be done maybe seasonally. Diagram 5.
18. There are elements of each one of the diagram that I would love to see combined but mostly a sports/family theme. Thank you!

19. Get rid of tents around the Park
20. Sports/entertainment themes a transition from day to night from sports to entertainment.
21. Sports and family
22. Sports and entertainment themes with sustainability (commercial and food trucks, etc.)
23. Sustainability and sports
24. Sports/family/entertainment
25. Entertainment and garden
26. Mainly B but add part of A. family friendly
27. Prefer B. Possibly combine with C.
28. I prefer sports theme but believe it could be combined with family friendly, entertainment and sustainability.
29. I would prefer the sports theme but I think you could combine the family friendly and entertainment theme with it also.
30. C seems to provide the best blend of recreation for all ages.
31. B/C
32. B and C
33. B and C
34. A,C,D
35. Sports/adventure themes ideal for daytime uses. Entertainment food for evening use.

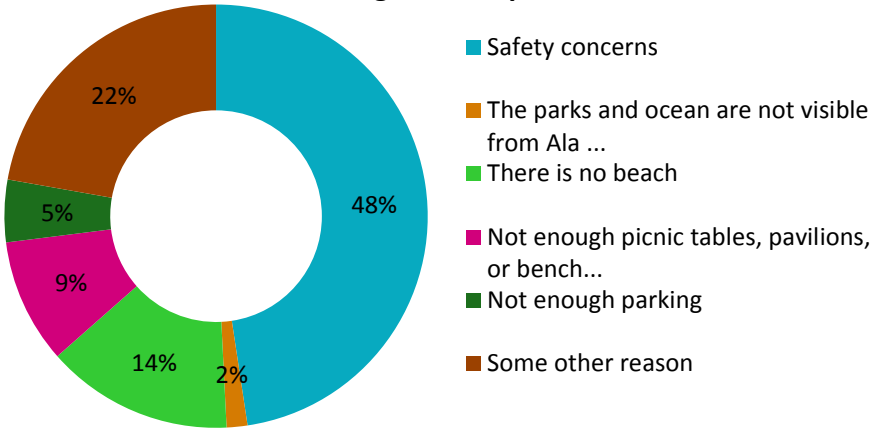
Audience Polling. Only the Open Houses had audience polling, which was conducted at the end of the informational presentation. The results shown below are the combined results from the Thursday, October 30th meeting and the Saturday, November 8th meeting.



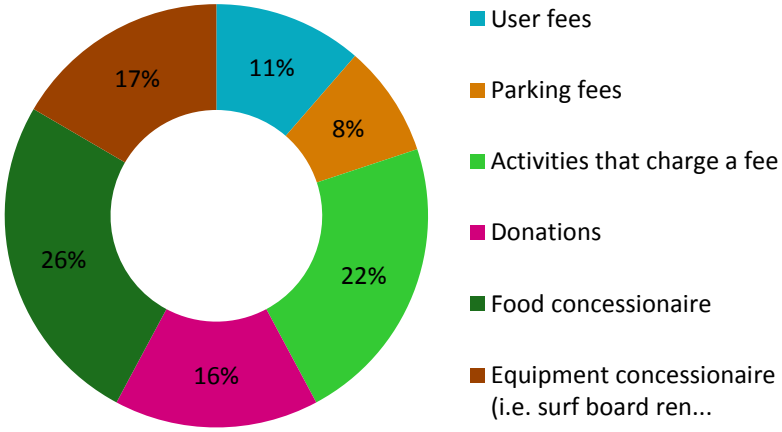
What time of day do you most often use the parks?



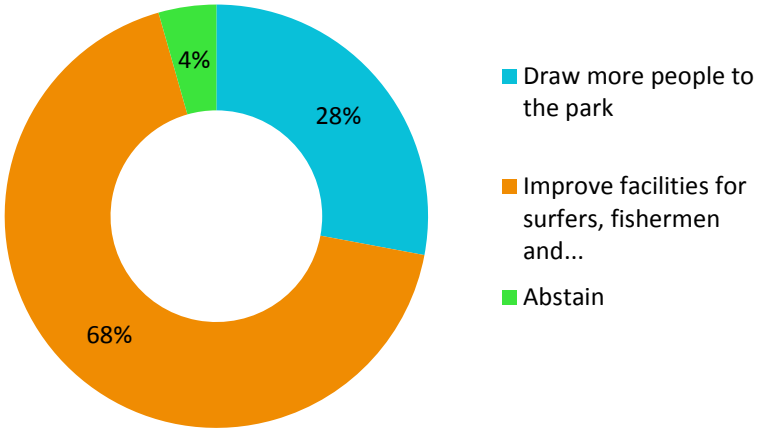
What is the main thing that keeps you from recreating in these parks?



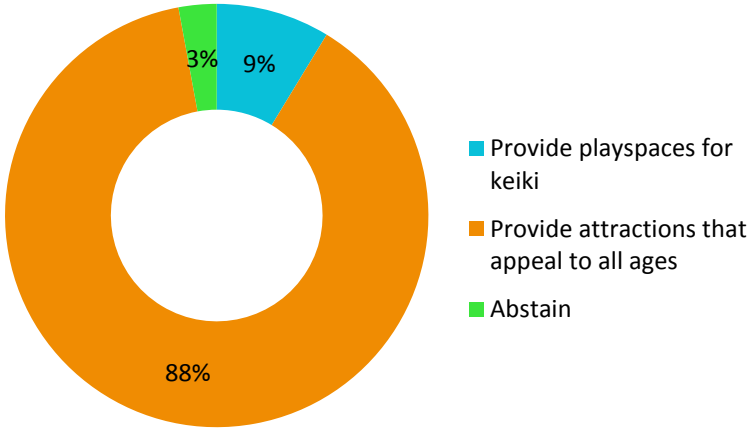
Would you support any of the following ways to help pay for park operations and maintenance?



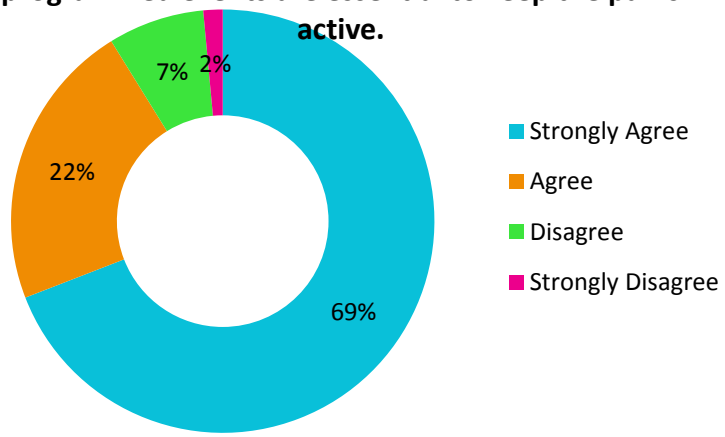
At Kewalo Basin Park, I feel it is more important to:



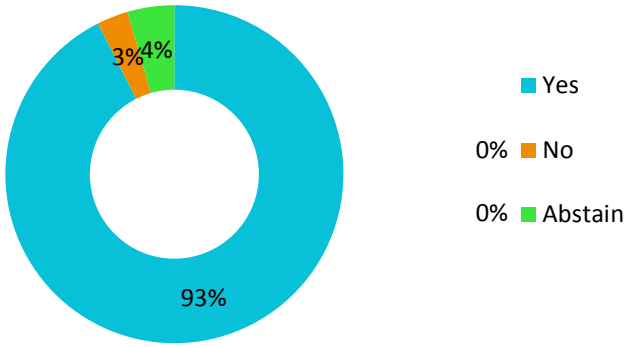
At the Waterfront Park, I feel it is more important to:



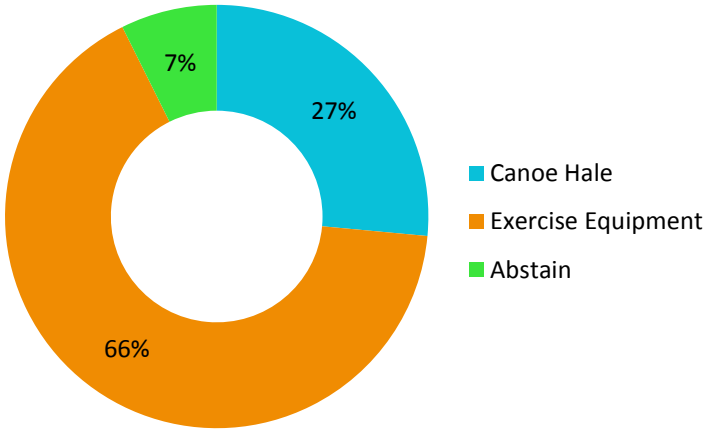
At the Waterfront and Gateway Parks, regularly programmed events are essential to keep the parks active.



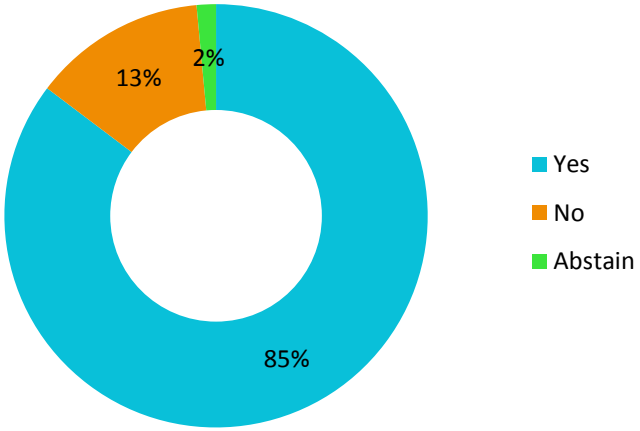
If there were programmed events that included local food vendors every two weeks at Waterfront and Gateway Parks, would you be interested in going?



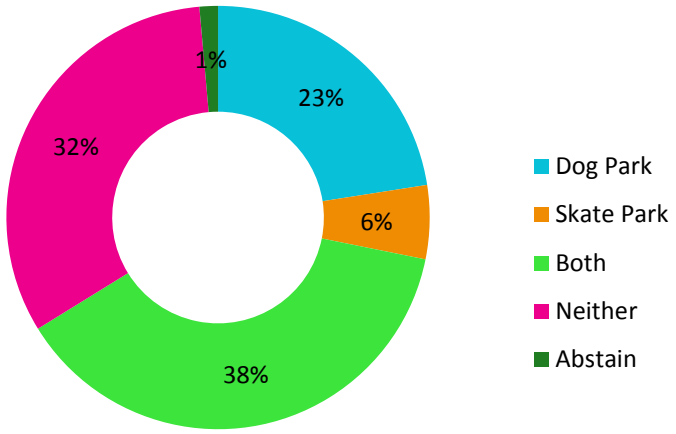
Of these two uses, which do you prefer at Kewalo Basin Park?



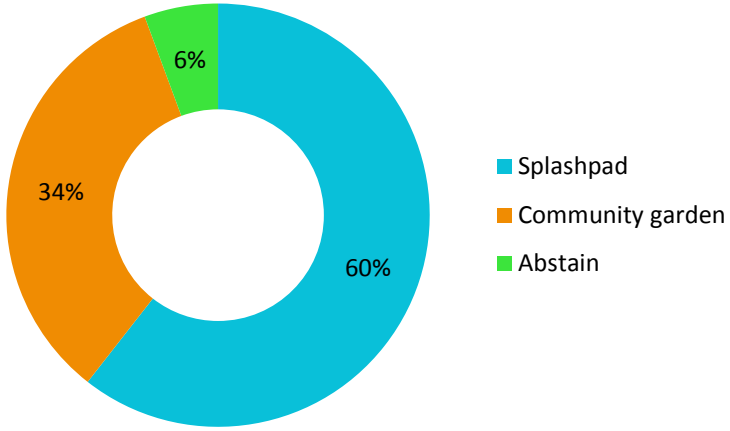
Building a slide park into or on the mounds at Waterfront Park is a creative idea worth exploring.



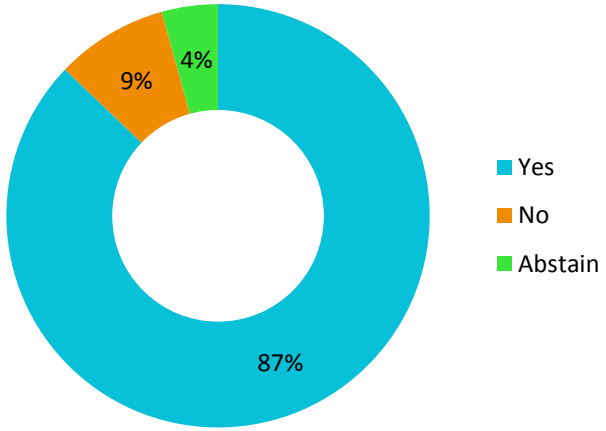
Which do you prefer in the Gateway and/or Waterfront Parks?



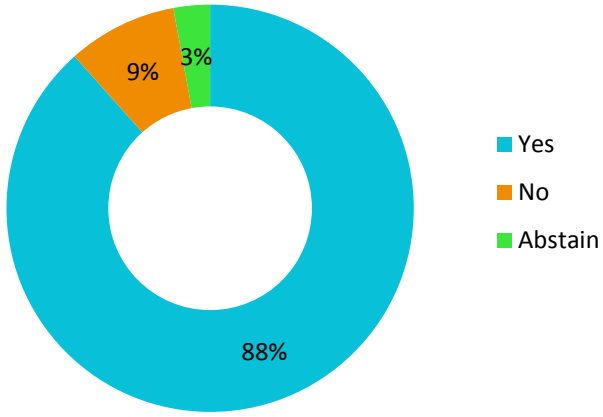
If you had to choose one, which would you prefer to see in the Parks?



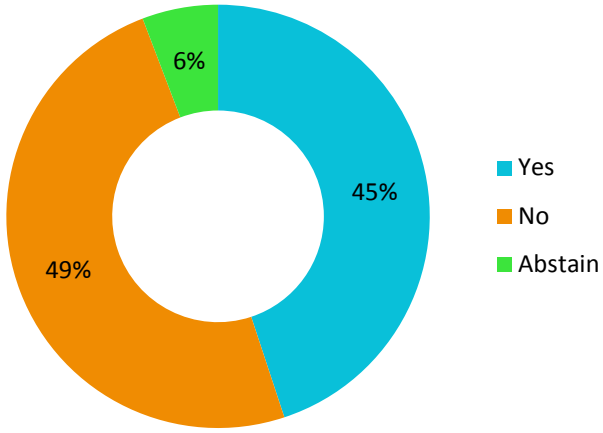
Do you prefer an indoor volleyball center over an indoor trampoline park in the Kakaako Makai Parks?



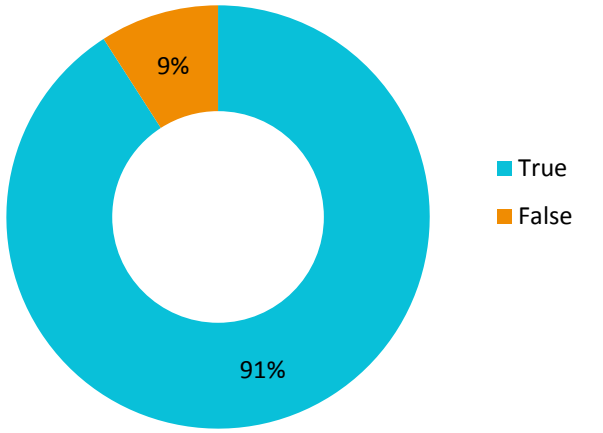
Do you prefer an outdoor volleyball court over outdoor basketball court in the Kakaako Makai Parks?

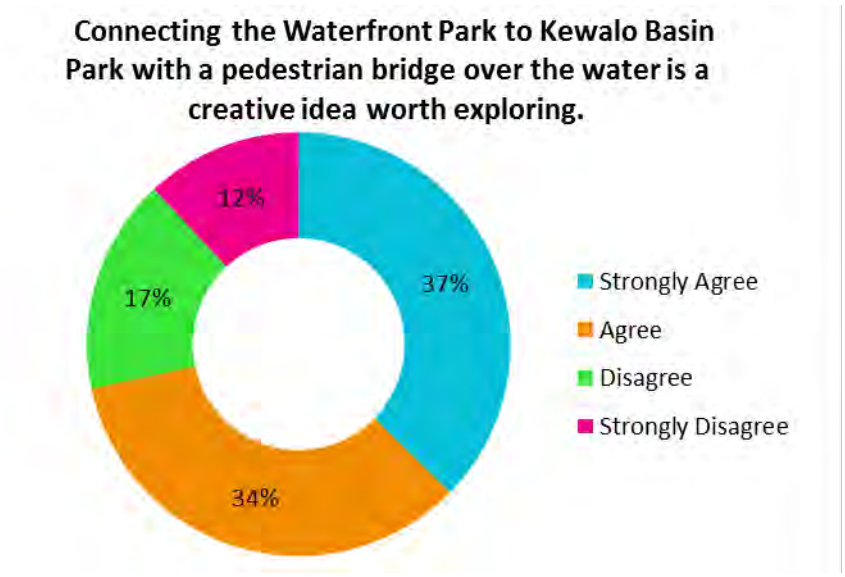


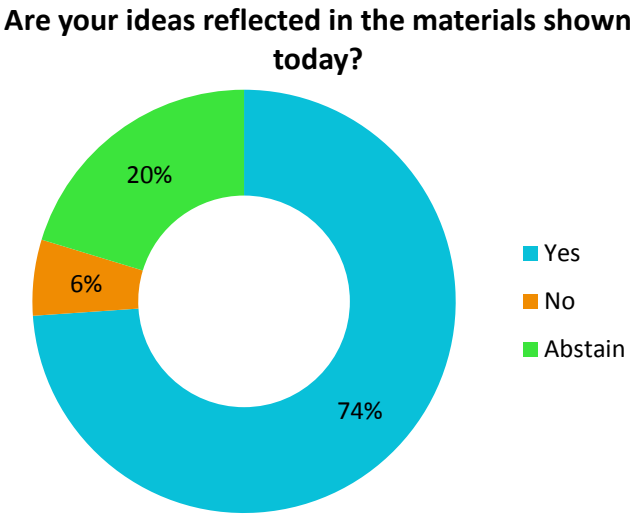
Along with other uses, would you favor a Beer Garden in the park?



Connecting the Waterfront Park to Kewalo Basin Park for pedestrians is important.

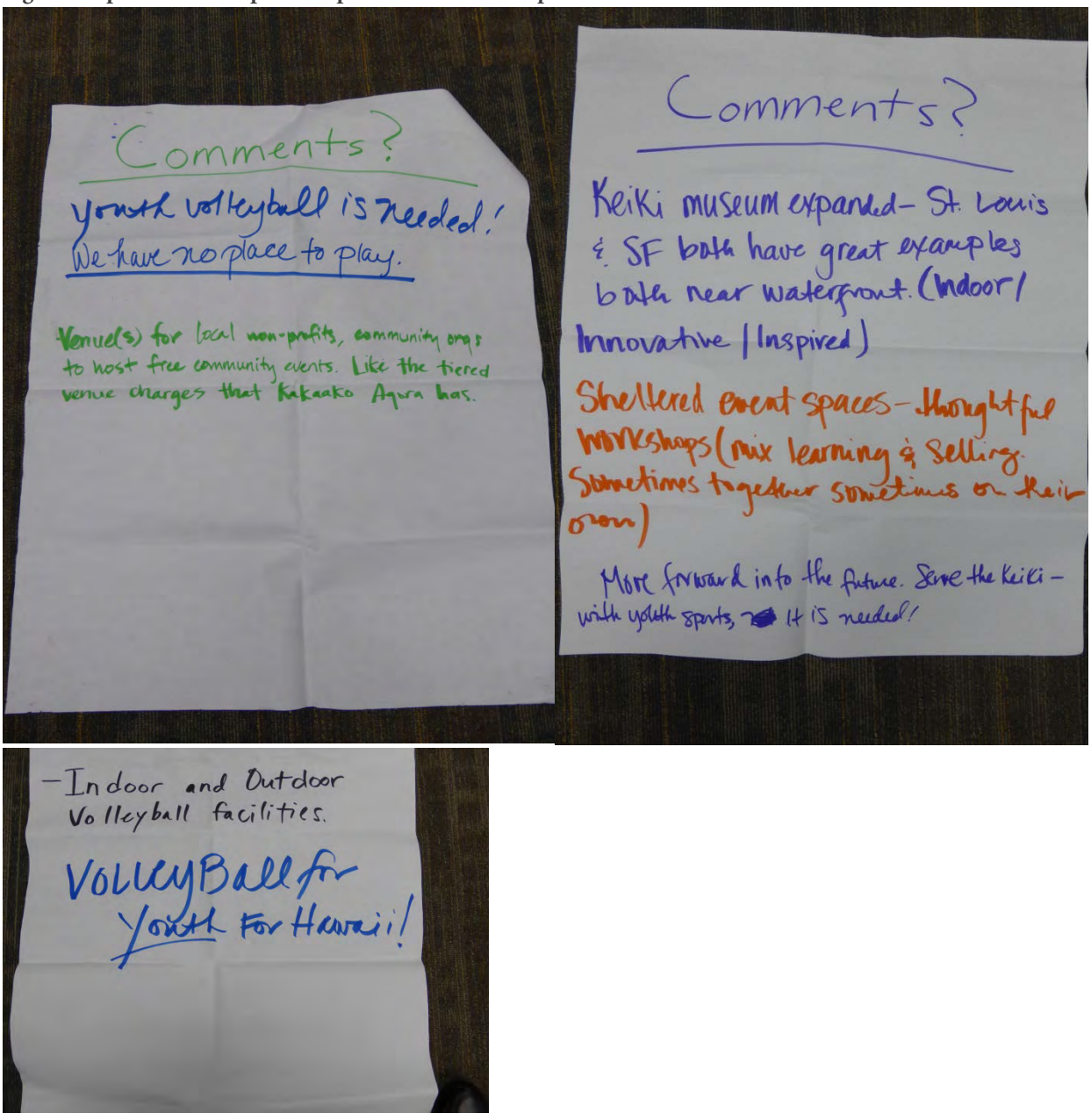



Connecting the Waterfront Park to Kewalo Basin Park with a pedestrian bridge over the water is a creative idea worth exploring.
12%
37%
17%
34%
Strongly Agree
Agree
Disagree
Strongly Disagree


Are your ideas reflected in the materials shown today?
20%
6%
74%
Yes
No
Abstain

Several people also left comments on the blank paper made available for open comments:

Figure 4 Open House Response: Open Comment Examples



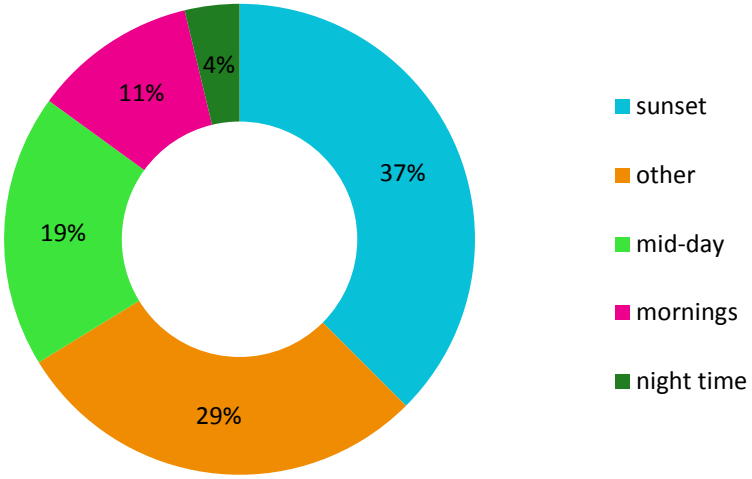
On-Line Engagement Participation & Comments

As of the date of this report, activity at the Kakaako Makai Parks website has included 634 unique site visitors with over 2,707 page views.

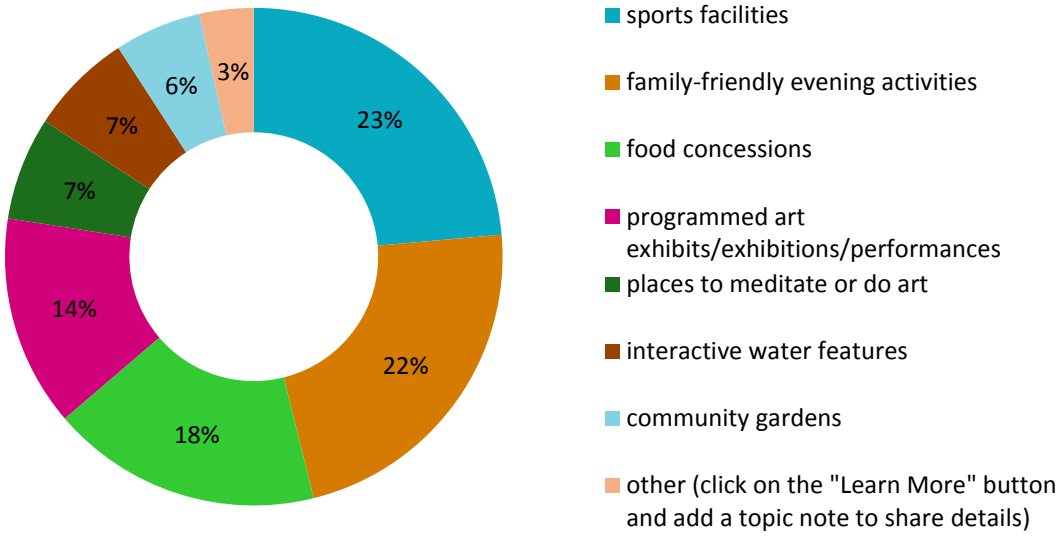
Figure 5. Project Website Activity Summary

The Kakaako Makai Parks website has several ways to provide comments. The following charts are summaries of the responses to several questions on the website.

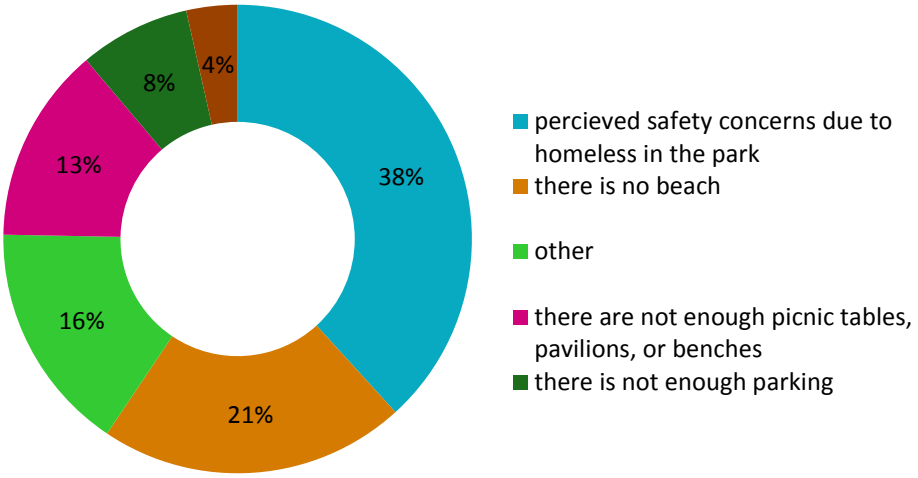
What time of day do you most often use Kakaako Makai Parks?



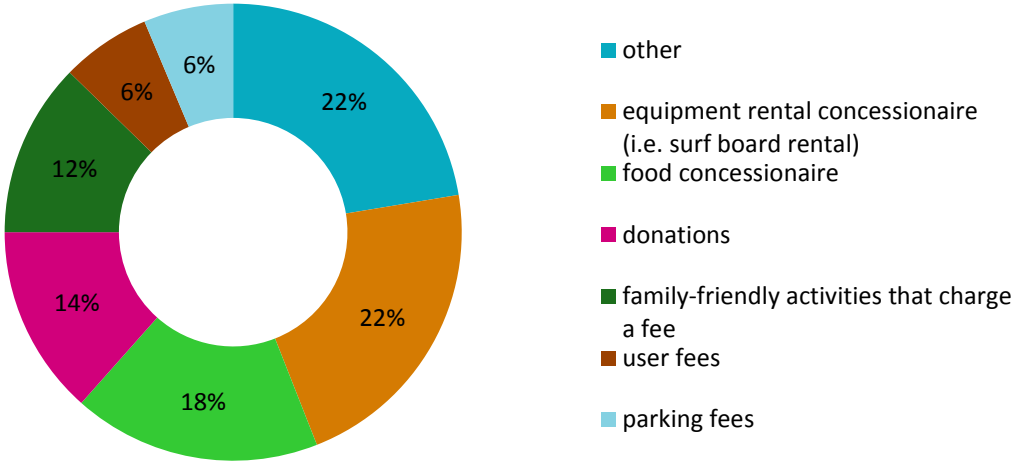
What uses would you favor to activate the Kakaako Makai Parks?



What keeps you from recreating at Kakaako Makai Parks?



Would you support any of the following ways to help pay for park operations and maintenance? (choose all that you support)



Participants can also provide "ideas" on the website. Ideas to date are provided in the following table.

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Table 3. Online Ideas, Compiled

		ID	Topic Name	Idea Title	Idea Summary	Author	Seconds
Aug 31, 2014 19:06:03	Nov 18, 2014 07:40:33	135647	Kakaako Makai - Strengths	A community hub with youth beach and indoor volleyball.	A community hub for the youth of Hawaii featuring beach volleyball courts, indoor courts, and multi-use community areas. There are no permanent courts anywhere on this island for youth to play and volleyball is Hawaii's sport!	Sherry H	0
Sep 05, 2014 02:37:48	Nov 18, 2014 07:40:33	136540	Kakaako Makai - Strengths	A community center would benefit the people of Honolulu.	An activity oriented Community Center would benefit the people from Honolulu. I imagine a place that could hold Youth sporting events, particularly things like Hula and Sand Volley Ball. Currently, this 'park' is a waste of space to most of the community due to lack of upkeep and the homeless who have found this a easy habitat. We were so optimistic when the Children's Museum arrived there, but they are fighting a losing battle due to the aforementioned problems. Normal Hawaii citizens should have the benefit of such a wonderful space that until now has only been beneficial to wealthy condo owners and land developers. Growing up in Hilo, I remember a civic center that was well loved and well used for many years by all of the local community and it was a happy place.	Peeve E	0
Sep 03, 2014 00:56:36	Nov 18, 2014 07:40:33	136049	Kakaako Makai - Strengths	Community center with family-oriented activities (gathering)	The parks would benefit by a "gathering place" for family activities, namely volleyball and other sports facilities. The area needs more parking and venues to attract local people to the area. But they also need to feel safe. In addition, the area's beautiful views may attract national and international sports events to be featured there to boost tourism. A community center or gathering place for arts/cultural events and youth programs after school will attract families there and introduce them to a healthy productive lifestyle.	Stephanie N	0
Sep 09, 2014 08:56:25	Nov 18, 2014 07:40:33	137024	Kakaako Makai - Strengths	Build a large multi-purpose community center	The parks' waterfront location in urban Honolulu is central and ideal. It remains a sleeping giant, as the potential to transform the area into a vibrant and productive component of our community is yet untapped.	J S	0
Sep 09, 2014 20:06:16	Nov 18, 2014 07:40:33	137319	Kakaako Makai - Strengths	Indoor and outdoor (sand) volleyball center	Indoor and outdoor (sand) volleyball center	Maureen S	0
Sep 22, 2014 07:40:10	Nov 18, 2014 07:40:33	139728	Kakaako Makai - Strengths	Location and views	I overheard an idea for a community center where they could have volleyball (indoor and beach). This is one of the fastest growing sports for all ages. We could have tournaments and picnics at the same time. Let's have a place for Hawaii people to enjoy besides Ala Moana Beach Park and Kapiolani Park.	Rex S	0
Aug 29, 2014 22:30:08	Nov 18, 2014 07:40:33	135556	Kakaako Makai - Strengths	The elevated views from on top of the grass mounds.	I also enjoy the mixed-use paths where I can ride my bike right along the edge of the water. I wish there was a place to hang my hammock, because apparently I'm not suppose to hang them from the palms. More waterfront/promenade bike parking would be nice too. Community accessible sand volleyball courts would be great. It would be awesome and unique if there were courts elevated on top of one of the mounds so we could access some of the parks breathtaking views while playing. However, wind should be considered, as strong winds can significantly impact play.	Carson S	0
Sep 04, 2014 16:46:09	Nov 18, 2014 07:40:33	136423	Kakaako Makai - Strengths	Family friendly space for all income levels	This is a centrally located area that could service all of our Hawaii citizens with family friendly activities that could spurr food concessions, live music, movies and beach activities. Currently there is a huge shortage of beach volleyball courts that our families could enjoy	Amalia H	0
Sep 11, 2014 02:43:07	Nov 18, 2014 07:40:33	137749	Kakaako Makai - Strengths	great location! located in the center of Honolulu	Due to the lack of park users for decades, the park has turned into a homeless community. The parks is underutilized and to reduce the homeless problem, we should make the park more active and incorporate family friendly activities and make it more welcoming to park users such as the light park. The light park will not be building permanent structures that will change the landscape of the park. All the lights are temporary and can be taken down whenever necessary. Give a reason for people to come to the park!	Nishimura M	0

Sep 22, 2014 15:45:12	Nov 18, 2014 07:40:33	139746	Kakaako Makai - Strengths	A Volleyball Facility that could also host community events.	It is centrally located with beautiful ocean views, perfect venue for an activity center. The Makai areas are not pleasant nor safe with the upkeep and homeless. It would be great to have a volleyball facility that could host community events - bring the community to Kakaako. This would allow average Hawaii citizens and families to have access to an area that has been mostly beneficial to Land Developers and the wealthy who could afford million dollar condos.	Jeanine M	0
Aug 31, 2014 18:52:42	Nov 18, 2014 07:40:33	135646	Kakaako Makai - Strengths	A place for the community to be active and play in Kakaako	We should have a site that brings the community to Kakaako. Right now it just seems like its for the developers, the rich, and the international condo buyers. Where are the Hawaiians? Where are the kids? Why don't the locals get any benefit on all the billions of dollars being spent and made in Kakaako.	Kevin W	0
Sep 10, 2014 18:27:33	Nov 18, 2014 07:40:33	137601	Kakaako Makai - Strengths	It would be great to have some volleyball courts!	There is a shortage of sand volleyball courts and even indoor courts...the activity has a lot of families involved and we need more space as the interest expands.	Shirlene O	0
Sep 09, 2014 23:14:02	Nov 18, 2014 07:40:33	137396	Kakaako Makai - Strengths	Sand Volleyball courts for the community	Sand Volleyball is gaining popularity and this is a great sport for all ages.	Ian G	0
Sep 05, 2014 19:28:59	Nov 18, 2014 07:40:33	136676	Kakaako Makai - Strengths	The parks are centrally located with Ocean views	and a great layout. The Makai areas are dangerous and have issues with the upkeep and homeless. It would be great to have a volleyball facility that could also host community events. This would bring the community back to Kakaako.	gayle M	0
Sep 04, 2014 09:38:13	Nov 18, 2014 07:40:33	136342	Kakaako Makai - Strengths	The views	The most valuable aspect of Kakaako Makai Parks are the impeccable views of Honolulu, the Koolaus and the ocean. Also, the Amphitheater is under utilized and its use should not be restricted. It is a fantastic venue and needs upgrades to formalize it as performance space.	David L	0
Sep 22, 2014 07:58:54	Nov 18, 2014 07:40:33	139729	Kakaako Makai - Strengths	Volleyball!	We feel that the parks are centrally located, with ocean views, but there isn't a catalyst for activity in the area. The Makai areas are dangerous and have issues with upkeep and the homeless. It would be great to have a volleyball facility that could host community events. This would bring the community back to Kakaako. This would allow normal Hawaii citizens and their ohana access to an area that has been mostly beneficial to Land Developers, Land Owners, and the richest of the rich who can afford million dollar condos.	Malulani K	0
Sep 22, 2014 20:30:34	Nov 18, 2014 07:40:33	139773	Kakaako Makai - Strengths	Volleyball Courts	Would love to see some Sand Volleyball courts.	Jalene H	0
Aug 29, 2014 05:14:18	Nov 18, 2014 07:40:33	135417	Kakaako Makai - Strengths	Open, beautiful views, plenty of parking, quiet, great surf!	I go to Kakaako Park because I know I can find parking and I will have plenty of room to do the activities I like to do. Its quiet, peaceful, and enjoyable place to be. Excellent, not super crowded surf spots.	Matt J	0
Sep 07, 2014 23:27:34	Nov 18, 2014 07:40:33	136839	Kakaako Makai - Strengths	OASIS in the midst of town!!! Close, deep water/ocean access	Immediate reconnect w Ocean once U see it!!! Accessible & fun surf spots; ewa side has swimming and snorkeling area for kids; great bike promenade for kids & adults. Big stones/boulders keep us warm on chilly days; shade trees keep us cool on hot days. Great place for picnics & sunsets. A towny spot to reconnect w nature..Everybody in a good mood...friendly atmosphere. Hawaiians & Surfers are Happy Here!!! Beautiful views of DH to Waianae's. Showers, plenty parking & open space. Fun to see & hear laughter of kids sliding down hills! LAID BACK! Many from offices come for lunch break. Views from Kewalos & magic island at city lights are epic as well!!!	Lisa M	0
Sep 23, 2014 21:45:03	Nov 18, 2014 07:40:33	140046	Kakaako Makai - Strengths	It's on the water and in central Honolulu	easy access in an urban center.	Glenn H	0
Sep 22, 2014 23:17:23	Nov 18, 2014 07:40:33	139802	Kakaako Makai - Strengths	Arena	The area needs to be cleaned up and cleared out. If an arena is installed in the area, with ample parking, the area can host family-friendly events - either music, sporting, theater, to draw users to the area. Infrastructure would help as well, with food concessions, rentals, and ample restroooms.	Malia E	0
Sep 23, 2014 21:24:19	Nov 18, 2014 07:40:33	140036	Kakaako Makai - Strengths	We feel that there are problems with safety and homelessness	We feel that there are problems with safety and homelessness, there is no beach, and that an "other" problem could be a lack of facilities and active uses for the park.	VIOLET B	0

Sep 22, 2014 18:44:00	Nov 18, 2014 07:40:33	139764	Kakaako Makai - Strengths	My family enjoys the location, beauty, and functionality.	We treasure the centralized location and physical beauty of the park. We love that it is available for individual and group use and provides lots of parking.	J A	0
Oct 01, 2014 00:57:27	Nov 18, 2014 07:40:33	141504	Kakaako Makai - Strengths	Add Tennis Courts, Subtract stray cats and homeless.	Not enough tennis courts on Oahu. Haven't been there for awhile but the last time I was there the cat and homeless situation was a turn off.	Sam A	0
Nov 08, 2014 20:45:33	Nov 18, 2014 07:40:33	148661	Kakaako Makai - Strengths	Bodysurfing Point Panic.	Started bodysurfing at Point Panic in 1971 when it was just a dump, with only the Aku boats , and Bumble Bee tuna packers as the core business there. Over the years the changes have seen the full gamut of what is good and bad of development. The Waterfront Park is good for all to have access the ocean for everyone, the bad is that it can become only an exclusive area for only a select few , those seeking exclusivity and status.	Ernest M	0
Oct 15, 2014 04:00:54	Nov 18, 2014 07:40:33	144464	Review Others' Ideas	A place for youth volleyball.	Honor Kakaako's rich history while looking towards the future. Create a space for beach and indoor youth volleyball for the community. This will be great for many reasons! Beach Volleyball was invented here in Hawaii and indoor volleyball is one of the most popular sports. The children can use this as a platform to further their education through potential scholarships. Most importantly a community based program where children and families can come together would be amazing. The state of Hawaii needs this for our keiki's future!	Sherry H	0
Sep 26, 2014 06:58:13	Nov 18, 2014 07:40:33	140520	Review Others' Ideas	Bring people to the park!	Kakaako Waterfront Park's biggest problem is lack of people coming to enjoy it. It needs something to draw locals and tourists to come and use the park. Having a night-time family activity at the park will not only be great for Kakaako, it will be great for Hawaii. The light display park being discussed is a great idea with a new concept that will bring everyone from young and old, local or tourist, family or couples all with the same desire: a break from reality where we can all be amazed and enjoy. I saw the smiles of the thousands of people who were walking around the light park in Japan with me. And I know I will see that if there was a light park here too!	Riki S	0
Sep 26, 2014 02:11:17	Nov 18, 2014 07:40:33	140500	Review Others' Ideas	Light Display Park	While in Japan, I came across some parks with beautiful light displays akin to their famous ice sculpture display. It is breath taking. Kaka`ako Park would be the perfect location for such a unique display. If done right it could become an attraction center not unlike those found in Japan that tourists would center their trip around. It is something for local families to enjoy as well. It could me a money maker if done right through admission fees. It would allow for activities there at night where it would normally not be used. Disney makes a parade out of lights that attract thousands. Google light parks to see what is possible at kaka`ako.	Sam A	0
Nov 04, 2014 19:22:40	Nov 18, 2014 07:40:33	147831	Review Others' Ideas	Surfrider would like to see some Ocean Friendly Gardens	Ocean Friendly Gardens (OFG) revive our watersheds and oceans by applying CPR - Conservation, Permability and Retention. Read more @ http://www.surfrider.org/programs/entry/ocean-friendly-gardens	Aydee B	0
Oct 24, 2014 20:26:23	Nov 18, 2014 07:40:33	146096	Meeting Announcement	COVE Volleyball Center	I would love to have the COVE volleyball center in Kakaako. We need places in town where the kids can play sports and participate in other community activities. There is a lot of talk about shops and restaurants, but we need places for the kids to play games and sports. The volleyball gym would be fantastic since volleyball is so popular in Hawaii. The kids can develop skills that can lead to college scholarships, and it will keep them involved in a healthy activity and in school. There's nothing in Kakaako now that would make me go there, but I would if the volleyball center was built.	Kelly B	0
Oct 23, 2014 19:21:36	Nov 18, 2014 07:40:33	145932	Meeting Announcement	Create a small football/soccer stadium	Aloha Stadium is too big and too far from the urban core. By creating a small stadium with a parking structure, sports museum and meeting halls, you would create a gathering center for Kakaako and East Honolulu. The field could be used for college and high school football events, concerts, high school soccer and other large events. Buy creating a parking structure you would cut down on tailgating before events which usually is the cause of over drinking and rowdy behavior before sporting events. The facility/banquet halls could be used for weddings, 1st birthdays, small expos and other local events. The sports museum highlighting all Hawaii sports and athletes, would ensure a stead visitor floor and revenue source. Green Bay's stadium utilizes this same concept on a larger scale.	Mary L	0

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References

Corporation for National & Community Service. (2015, December). *Volunteering & Civic Engagement in Hawaii*. Retrieved from Volunteering & Civic Life in America.

Appendix A:
Meeting Flyers, Sign-in Sheets, & Open House Series Comments

Kakaako Makai Parks

Active Use Facilities Master Plan

Environmental Impact Statement (EIS) Scoping Meeting

HCDA will accept public comments on the issues you feel should be disclosed in the EIS.

Where: 547 Queen St
Honolulu, HI 96813

When: April 16th, 2015
5:00 p.m.

For More information please contact:
Lindsey Doi
Compliance Assurance and Community Outreach Officer
lindsey.doi@hcdaweb.org
808.594.0328

A copy of the EIS Preparation Notice can be found on our website at www.hcdaweb.org

HCDA
Hawaii Community Development Authority

SIGN-IN SHEET

KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | EIS SCOPING MEETING

APRIL 16, 2015

NAME	AFFILIATION/AGENCY	PHONE	E-MAIL
Tom McLaughlin	HCDA Board / Ala Moana Kakaako N. Board	294-3370	tjmclaughlin@gmail.com
Bobbie Lau	Howard Hughes Corp.	791-2987	bobbie.lau@howardhughes.com
Marina Nishimura		321-1147	nishimuramarina@gmail.com
Michelle Matson	CPAC	222-3936	MSMatson@hawaii.rr.com
Steve Scott	HCDA Board		
Jackie Scott	↓		
WAYNE TAKAMINE	CPAC	294-4099	Waynetakamine@hawaii.rr.com
Shannon Wood	WAA		
Mike Hamasu	Colliers	523-9792	mike@colliershawaii.com

KAKA'AKO MAKAI PARKS
EIS SCOPING MEETING

4/16/15

- MM: guiding principles include public facilities (to Ilalo St?)
- What do you mean in terms of "safety" concerns?
MM: EIS is basically a disclosure document
Gov't agencies → state, county, or federal?
- Timing for when governor will see EIS?
- Why don't you have CC consultant? Work has been done by SOEST
  ↳ climate change & sea level rise will be included in the EIS
Draft will be out in summer? (July/Aug)

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

public recreational facilities
open to all residents + visitors

volleyball training facility is
an exclusive, restrictive use
consuming public park space

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA PBR HAWAII

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Adhere to the national urban
planning standard for
urban park space:

2 - 2½ acres / 1000 capita
open recreational open space
(Shoreline to Diamond Head)
green recreational open space
public recreational facilities
in a park setting (Diamond Head to Ala Moana)

Think: New York Central Park
Golden Gate Park

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA PBR HAWAII

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Economic + Public Safety Impact —
Relocate homeless to sand Island
"Safe Area" camp.
This is long overdue!

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA

PBR HAWAII

COMMUNITY OPEN HOUSE

Planning Active Use Facilities for the Kaka'ako Makai Parks

OPEN TO THE PUBLIC

Where: **HCDA Office**
461 Cooke Street
Honolulu, HI 96813

You are invited to attend one of two open house sessions for the planning and revitalization of the Kaka'ako Makai Parks.

Attend Either Session

Thursday, August 28 5:30p
Saturday, September 06 10:00a

The open house will focus on:

- Current parameters and challenges
- Concepts of popular gathering places in Hawai'i and other communities
- Programs, uses, and activities to contribute to the sustainability and livelihood of the parks
- Your ideas to activate and enhance the parks as "gathering places"

Other information will include:

- Introduction to the Kaka'ako Makai Parks Planning process
- Master planning schedule
- Community engagement process

For more information or questions please contact:

Lindsey Doi
Hawai'i Community Development Authority
Compliance Assurance and
Community Outreach Officer
lindsey.doi@hcdaweb.org
Office: 808.594.0328

www.hcdaweb.org

Hawai'i Community Development Authority

The Hawai'i Community Development Authority (HCDA), a State agency that was established by the State Legislature in 1976, supplements traditional community renewal methods by promoting and coordinating public and private sector community development in urban areas in the State that are in need of timely redevelopment.

In creating the HCDA, the Legislature designated the Kaka'ako area of Honolulu as the Authority's first Community Development District, recognizing the area's potential for increased growth and development and its inherent economic importance to Honolulu as well as the State.

This Legislative vision realizes that mixed use redevelopment of Kaka'ako will offer tremendous opportunities for housing, parks, open areas, and new commercial and industrial space in close proximity to downtown Honolulu.

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
August 28, 2014, 5:30 p.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
Marina Nishimura		1200 Queen Emma St 3707 Hon. HI 96813	321-1177	
Wayne Takamine	CPAC			
Kiu Bonilla		600 QUEEN ST #3904 HONO, HI 96813		KIM@HAWAII.EDU
Matt Johnson	Oahu Fresh	845 Queen St #205 Honolulu, HI 96813	808-221-0921	info@oahufresh.com
LEONARD CIUPAK	OAHU BEACH VOLLEYBALL	~~1133~~ P.O. Box 10741 HONOLULU, HI 96816	808-725-0944	LCIUPAK@HOTMAIL.COM
Pam & John Wood	Resident	725 Kapiolani Blvd #3002	808 781-1782	pwood229@gmail.com
Bob Ode	KS	567 S. K St. #201 96813		
Kevin Cockett	Cockett Communications	P.O. Box 26315 Honolulu, HI 96825		kevin@kevincockett.com
Maria Simon	UH	2410 Campus Rd Honolulu Hi 96822		simonm@hawaii.edu
Rodney Chang	NB 11 Alamoana Kaiulani	920 KAHEKA ST Hon HI 96814		

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
August 28, 2014, 5:30 p.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
Michelle Matson	CPAC	3931 Gail St. Honolulu HI 96815-4502	923-2254	MSMatson@hawaii.rr.com
GERALD CHUN	KDIR	785 KAPIOLANI BLVD #1205 Hon HI 96813		CHUNG023@HAWAII.RR.COM
LINA CHUN	"	"		"
Sharon Schaedler		5042 Maunalanicei Honolulu, Hi 96816		stays@hawaiiantel.net
Ron Iwami	Friends of Kewalos		222-6645	
David Alexander	Hawaii Bicycling League	3214 McKinley St. Honolulu 96816	275-6717	david@hbl.org
Frank Brandt		4039 Papu Circle Hon Hi 96816	735-1756	fbrandt@pbrhawaii.com
Chris Lethum		PO Box 75481 Hon HI 96836	744 0851	ChrisLethum@gmail.com
Glen Fox	KÜ			

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
August 28, 2014, 5:30 p.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
Dexter Okada	KBLA	P.O. Box 898 Honolulu 96808	597-1102	dexter.okada@vokacla.com
Donna Smith	E.K. Fernandez Shows	91-246 Oihana St. Kapolei, HI 96707	682-5767	donna@ekfernandez.com
Thomas Iwai Jr	Friends of Kewalos	44-703 Maluhani St. Kaneohe, HI 96744	230-7785	TIZAquaMan@gmail.com
Tom HEINRICH	Senator Brian Taniguchi	State Capitol, Room 219 Honolulu, HI 96813	586-6042 Cell 551-4098	t.heinrich@capitol.hawaii.gov
Allen Kam	OHA	560 N. Nimitz Hwy, Suite 200 Honolulu 96817	594.1921	ALLENK@OHA.ORG

WHAT DO YOU THINK WOULD HELP GENERATE MORE ACTIVE USES WITHIN THE PARKS?

- Family Friendly activities
  Dog Park
- WELL MAINTAINED FACILITIES & GROUNDS
- DON'T Fill up vital open green space with commercial clutter and blight. KEEP the necessary open green space and EXPAND it for the health & welfare of Kakaako Makai's projected population of 30,000 - 40,000 people!

* With the Large Amount of Critism for this HCDA Board And the sound loss by this Administration, I do not think this is the time for Future Planning

* more state bonds.

HOW DO YOU USE THE PARKS?

Walk my dog!

1) MORNING EXERCISE

Walk my dog too.
have lunch at the
benches
ocean access

2) Family picnics / Eating lunch - dinner / Informal meetings - get togeth

- go to events, concerts

watch sunsets; International Space Station
flyovers

Take in the beautiful shoreline + open space with stars visible above - it is a Hawaiian cultural place to see "the mountains to the sea"

3) Away from Hustle & Bustle of a growing metropolitan. Oasis in the city.

WHAT DO YOU THINK WOULD HELP GENERATE MORE ACTIVE USES WITHIN THE PARK?

Why are examples always from somewhere else. Aren't there good examples in other places in Hawaii?

- WATER ACTIVITY RESTRICTED (surf, fishing, etc.) Need water access / Beach area for children & other users

- MORE AREA THAT CAN BE USED (mounds & slopes do NOT allow MAXIMUM utilization of Acreage.

- The Level of activity in Kakaako is skyrocketing. No other Park in Hawai: sustains itself. Parks are financed through real estate taxes, general funds or a small amount of appropriate, non-invasive commercial activities within the park. The County has figured it out, let them take over the park.

- Urban gardening - edible landscaping in parks, community greenhouse

What challenges would you like to see resolved?

1) HOMELESS LIVING IN PARK
Homeless, maintenance of bathrooms

HOMELESS

2) CLEAR DIRECTION, PLAN, FUNDING

3) See more ~~live-work~~ play in Kakaako

4) tree lined access into park from residential - very hot to walk.

5) Homeless - Safety for park users + their parked cars.

6) Public restrooms need help.

HOMELESS INHABITATION - HCDA IS DOING NOTHING
FILLING THE PARK, SIDEWALKS AND SETBACKS WITH CONCRETE & COMMERCIAL CLUTTER IS NOT THE ANSWER!

7 OHA should be allowed to exchange Kakaako Lands with other State Lands.

My Memories Of Kaka'ako Makai Parks...

Beautiful waves, sunsets and green open space with picnics DO NOT DESTROY this asset.

- A place to go to unwind after a hectic day at the office. Relaxes & expands your senses as you view nature at its finest.
- GREEN, CLEAN & MAINTAINED (PAST)
- Hawaiians used to live in this area. Lets bring that ~~ea~~ back
- Kids sliding down the hill

Of the State Lands.

HOW DO YOU [illegible]

My memories of Kakaako Makai Parks...

1) IT WAS A LARGE GREEN PARK,
NOW IT IS SHRINKING to SPACE (INTEREST.

How do you

what do you treasure about Kaka'ako makai Parks

1) The Beautiful View of the ocean / Mountain
2) Public gathering, ocean and open space recrecational use for growing communities.
3) Crucial to have bike path & walking connection Kewalo park to waterfront Park to Ala Moana P. & Aloha Tower
4) ~~Rec~~. Ensure connection to Mother Waldron P. w/ greenway [lei of parks] & Cooke ? connection to Gateway Park
5) gathering place, ~~create a~~

of the

What do you treasure about Kaka'ako Waterfront Park, the Gateway Parks and/or Kewalo Basin?

- One of few oceanside promenades
- Low-key, largely passive enjoyment.
- Best sunsets and other great views
- Dog friendly (sort of)
- Escape from congestion.
- Harbor area: should be a "crown jewel" area

What do you think would help generate more active uses within the Kaka'ako Waterfront Park, Gateway and Kewalo Basin Parks?

- Greater sense of security
- Fewer homeless encampments
- Children's playground
- Casual F&B options along the promenade
  - could be carts, "pop-up" coffee shop, etc
- Defined bike trails & better connection to Ala Moana Park
- Access along the entire waterfront, e.g. connection along Kewalo Basin Harbor to Ala Moana Park
- Dog park – large/small separated

HCDA Hawaii Community Development Authority

PBR HAWAII & ASSOCIATES, INC.

What keeps you from recreating at Kaka'ako Makai Parks? ***Choose as many as you like.***

- [x] *perceived safety concerns due to homeless in the park*
- [ ] *the parks and ocean are not visible from Ala Moana Boulevard*
- [ ] *there is no beach*
- [x] *there are not enough picnic tables, pavilions, or benches*
- [ ] *there is not enough parking*
- [ ] *other* Overall sense that the area is in decline due to infiltration of homeless camps. Off-leash dogs

Kaka'ako Makai Parks cost about $1M annually to operate. Would you support any of the following ways to help pay for park operations and maintenance? ***Choose all that you support.***

- [x] *user fees*
- [x] *parking fees*
- [ ] *family-friendly activities that charge a fee*
- [x] *donations*
- [x] *food concessionaire*
- [x] *equipment rental concessionaire (i.e. surf board rental)*
- [ ] *other* _____

What time of day do you most often use Kaka'ako Parks?

- [x] *mornings*
- [ ] *mid-day*
- [x] *sunset*
- [ ] *night time*
- [ ] *other* other than morning afternoon and evening and night, what other times are there?

What uses would you favor to activate the Kaka'ako Makai Parks? Choose up to 8

- [ ] *places to meditate or do art*
- [ ] *family-friendly evening activities*
- [ ] *community gardens*
- [ ] *interactive water features*
- [ ] *sports facilities*
- [x] *food concessions*
- [ ] *programmed art exhibits/exhibitions/performances*
- [ ] *other* Childrens all access playground. Music - concerts w/ emphasis on classical, jazz, Hawaiian music Dog park!

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
September 6, 2014, 10:00 a.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
TOM MCLAUGHLIN	ALA MOANA-KAKA'AKO NEIGHBORHOOD BD	930 KAHEKA ST 1803 HONOLULU, HI 96814	294-3370	tjmclaughlin@gmail.com
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Savana + Ian + Kristi Greene	Spike + Serve	46-389 Hulopua Place Kaneohe HI 96744	389-5126	greene@hawaii.rr.com
ANTHONY AALTO				
Julie Nishimura				
Michelle Matson	CPAC			
Marina N				
Dick Pratt	UHM			
Tamara Edwards	UH			

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
September 6, 2014, 10:00 a.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
JASON SELLEY	PACIFIC ARCH WORKSHOP	1331 7TH AVE. HONOLULU HI. 96816	808-226 5145	jselley@pa-workshop.com
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TOM WITTEN	YOUTH VOLLEYBALL	2277 HALAKOU ST. HON. HI. 96821	284-8401	"
Todd Cullison	Self	332 Aylmer Rd Kailua		toddcullison@gmail.com

Makai Park Active Use Master Plan Open House
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September 6, 2014, 10:00 a.m.

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Name	Organization	Mailing Address	Phone No.	E-Mail Address
Stephanie Nishimura	Spike & Serve VBC	3080 Hielie St. Honolulu, HI 96822	368-5917	skinishimura@hawaiiantel.net

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Name	Organization	Mailing Address	Phone No.	E-Mail Address
Patrick Nishimura	Spike + Serve	3080 Hehie St Hon HI 96822	368 5918	
RYAN TAM	NHB 11	1004 Kapiolani Blvd. Hilo Hon, HI 96814	931-0030	rtam.nb11@gmail.com

Makai Park Active Use Master Plan Open House
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September 6, 2014, 10:00 a.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
CLARA & FRANCIS MORIKAWA	IMPERIAL PLAZA KDR	725 KAPIOLANI		
Caroline Kishida	" "			
Annie Koh	Ala Moana resident; DURP student			koha@hawaii.edu
Wayne Takamine	CPAC			
Lisa Mitchell	808 Restaurant			lisalaeha@yahoo.com
EVA Gallegos	Resident	RCP 876 CURTIS ST.		evagall@cs.com
Kevin Wong	Spike and Serve			Kkwong1111@aol.com
Dianne, Dean, Dru Pang	Spike + Serve	803 11th Ave Hon, HI 96816		leikiana@yahoo.com
Daniela Kittinger	Hawaii Presidential Center	244 Hawaii Loa St Honolulu, HI 96821		dkittinger@hawaiipresidentialcenter.com
RUSS CHUNG	PBR	1001 Bishop ST		RChung@pbhawaii.com
Dean Sakamoto				

My memories of the Kaka'ako Makai parks...

- sliding down the hill

- RUBBISH DUMP, TUNA PACKERS' FACTORY, FISHING BOATS —

→ WHY NOT PROVIDE AN INTERPRETIVE SIGNAGE PROGRAM TO RECALL KAKA'S RICH PAST → & FOR AN ORIENTATION CENTER AT THE HISTORIC PUMP STATION AT KAKA'AKO'S GATEWAY

Post-it Easel Pad Tableau à feuilles mobiles Block de Hojas Repositionables Super Sticky Super Collant Super Adhesivo 3M

What do you think would help generate more active uses in the parks?

Facilities for indoor and beach volleyball - NOT IN THE GREEN OPEN SPACE!

Creating a dog park! +1 +1

Public Community Centers
Gyms, ~~Courts~~ Basketball / Volleyball / Skateboard
Community Meeting spaces

SEE THE COMMUNITY-BASED MAKAI MASTER PLAN!

Family Friendly activity

↑ Park Activities = ↑ Annual Maintenance (↑ taxes?)

- OUTDOOR SPACES/PLACES WHICH SUPPORT ACTIVITIES FOR PUBLIC USE: I.E. SKATE PARK

- CYCLE TRACK

- STORY TELLING AREAS

- WATER PLAY AREA

- FISHING PIERS

- MARKET KIOSKS.

- Sports facilities to attract family & community to promote area & the Park. Pleasant environment.

MORE ACTIVE RECREATION FOR YOUTH & FAMILIES ... PLACE TO GATHER

YOUTH VOLLEYBALL CENTER - SAND & COURTS

ALL ACCESS "INCLUSIVE" CHILDREENS PLAYGROUND

- Interactive fountains/water features w/ music

- Canoe/Dragon Boat Halau
+ Rowing/Kayaking

- Bike Share station

- Community garden

- Build public roadways through park

frontage roads

like ala moana beach park

How do you use the park?

- We have not been there in years -- used to go there for the Discovery Center but now my children are older.

- I ♥ we ♥ the Childrens Disc. CENTER — BUT HOMELESS CAMP IS A BUMMER. HCDA — PLS. HELP!

YES - Bodysurfing, Surfing, Skin diving, fishing, fireworks, picnics, bicycle-jogging, meetings, picture taking, walks, sunsets, views of Waikiki, surf watching, Lunches

- Walked my dog. However because of homeles
ES I dont do it unless accompied by a frie

S -FAMILY PICNIC ON OCEANFRONT ... WATCH FIREWORKS

S -SAFE BIKE RIDING AREA

S

- ☐ I bike ride there on weekends.

★ Surf at Kewalos & Point Panic.
★ Bike thru
★ Enjoy Sunsets
★ Peace & quiet btwn hustle & bustle & HEAT of Town
★ COOL OFF !!!
★ Community for Surfers & Bodysurfers
★ SightSee WATCH WAVES check Surf
★ Snorkel & Swim
picnic

What challenges would you like to see resolved?

- Homelessness -- more active community use may deter the "camping".
- More activities need to be there to attract the public. Or, facilities that people of all ages could enjoy ie: a gym, volley ball courts, etc.
- More Family Friendly activities and more people at the park to resolve the homeless problem.
- URBAN (PEDESTRIAN) CONNECTIVITY IS NEEDED! W.E. PARK IS TOO ISOLATED - IT NEEDS A PLAN THAT "STICKS"
- More family-friendly events are needed to attract community members. Sports facilities for young families promote healthy, active lifestyle.

Maintenance costs will soar with all these activities planned. Who will pay for it?

WE NEED OPEN SPACE — NOT CONGESTION — WE NEED SPACE TO RELAX & ENJOY NATURE. CHILDREN NEED SPACE TO PLAY.

MORE ACTIVE SPORTS : FAMILY GATHERING AREA

YOUTH VB CENTER : TRAINING FACILITY

More Sanitary conditions for homeless populations.

- pedestrian connector + biking connectors between Ala Moana beach park & Kakaako park.

Grand "Via" across Ala moana for pedestrians & bikes to connect w/ center of park. Needs to be at a shallow grade and as wide as a street.

Retail / restaurants / bars / etc or food wagons to encourage pan hana & weekend use.

ive homeless more jobs. (doing a good job already) but lets do more to get m to take ownership of surroundings w/ dignity.

CHALLENGE: HOW TO INTEGRATE THE DISPARATE VIEWS OF STAKEHOLDERS: OHA, COMMUNITY, PRIVATE ENTERPRISE, STATE, CITY → HOW TO CREATE COHESIVE PLAN?

- ★ Invest in Composting Toilets; Nature's Head
- ★ Install Grey Water system from Medical CTR Bldgs for irrigation
- ★ Install rainguttters to capture water for irrigation
- ★ Install solar for electrical use
- ★ Collaborate & partner w/ variety of Stakeholders, Community etc. to spread costs.

Post-it

3M

Things that I
- treasure -
at the Kaka'ako
makai Parks...

- Great central location - ditto.
- Connection w/the sea & Surfers. - ditto.
- Oppeness & views - ditto!
- Place for families to enjoy - ditto!

* OPEN SPACE - GREEN GRASS & TREES.
OUR LIVES ARE SO BUSY & STRESSFUL. CONDO LIVING
DOES NOT GIVE US OPEN SPACE & WITH ALL THE CONDOS
BEING BUILT & THE THOUSANDS MORE RESIDENTS, WE N
THE OPEN SPACE WITH GRASS & TREES SO WE CAN REL
& ENJOY NATURE. - ditto!

ALL OF THE ABOVE

Post-it

3M

Things that I
- treasure -
at the Kaka'ako
makai Parks...

- Great central location - ditto.
- Connection w/the sea & Surfers. - ditto.
- Oppeness & views - ditto!
- Place for families to enjoy - ditto!

* OPEN SPACE - GREEN GRASS & TREES.
OUR LIVES ARE SO BUSY & STRESSFUL. CONDO LIVING
DOES NOT GIVE US OPEN SPACE & WITH ALL THE CONDOS
BEING BUILT & THE THOUSANDS MORE RESIDENTS, WE N
THE OPEN SPACE WITH GRASS & TREES SO WE CAN REL
& ENJOY NATURE. - ditto!

ALL OF THE ABOVE

What do you think would generate more active uses in the parks?

- Mountain climbing wall @ Ewa end which blends in
- SHADE Trees
- "Sand Box"
- Super Fun playground equipment
- Super Hot trees
- under
- Regular | dependable foodtru

COMMUNITY OPEN HOUSE

Planning Active Use Facilities for the Kaka'ako Makai Parks

SERIES 2

OPEN TO THE PUBLIC

Where: **HCDA Office**
461 Cooke Street
Honolulu, HI 96813

Attend Either Session
Thursday, Oct. 30, 5:30p
Saturday, Nov. 08, 10:00a

You are invited to attend the second series of open house sessions for the planning and revitalization of the Kaka'ako Makai Parks.

The open house will focus on:

- Community feedback to date
- Active use ideas that have been suggested
- Concepts of where active and passive uses interplay with each other and the surrounding landscape

Join Us Online!

http: //kakaakomakaiparks.mindmixer.com

For more information or questions please contact:

Lindsey Doi
Hawai'i Community Development Authority
Compliance Assurance and
Community Outreach Officer
lindsey.doi@hcdaweb.org
Office: 808.594.0328

www.hcdaweb.org

Hawai'i Community Development Authority

The Hawai'i Community Development Authority (HCDA), a State agency that was established by the State Legislature in 1976, supplements traditional community renewal methods by promoting and coordinating public and private sector community development in urban areas in the State that are in need of timely redevelopment.

In creating the HCDA, the Legislature designated the Kaka'ako area of Honolulu as the Authority's first Community Development District, recognizing the area's potential for increased growth and development and its inherent economic importance to Honolulu as well as the State.

This Legislative vision realizes that mixed use redevelopment of Kaka'ako will offer tremendous opportunities for housing, parks, open areas, and new commercial and industrial space in close proximity to downtown Honolulu.

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
October 30, 2014, 5:30 p.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
Mike Hamasu	Colliers	2205 King St Ste 1800 Honolulu 96813	523 9792	Mike.Hamasu@colliers.com
TOM MCLAUGHLIN	ALA-MOANA KAKA'AKO NEIGHBORHOOD BOARD	—	—	.
Pam & John Wood				
Wayne Takamine	CPAC			
Thomas Lim	4th.			
Marina Nishimura	.		321-1177	marina@illuminagegroup.com
Aaron London	Ala Moana-Kakaako NB			aaron@54xton.com
PAUL CONRY	H.T. HARVEY & ASSOC.		808-441-2081.	PCONRY@HARVEYECOLOGY.COM

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
October 30, 2014, 5:30 p.m.

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Name	Organization	Mailing Address	Phone No.	E-Mail Address
Matthew Gonser	McCully Resident UH Sea Grant			gonserm@hawaii.edu
Kellie Lai	Buddy shelters	801 Koko Isle Circle Hon Hi 96825	808-388 1363	Keli808@yahoo.com
Vinee Dydasco	" "	" "	808 294 6316	dydascov@yahoo.com
Wyatt Gordon	Manoa Neighborhood Board	1711 East-West Rd.	804 928 7907	yitgordon@gmail.com
Tom MASTERSON	NAKOA COMPANIES		808- 22-1042	TMMASTERSON@HAWAII.RR.COM
Shahin Ansari	H.T. Harvey & Associates	745 Fort St Honolulu HI 96813	808441 2082	sansari@harveyecology.com

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
October 30, 2014, 5:30 p.m.

PLEASE PRINT LEGIBLY!!!

Name	Organization	Mailing Address	Phone No.	E-Mail Address
DARREL PATTER Jill Potter	BUDDY SHELTERS	17829 59TH AVE NE, BUILDING 13 ARLINGTON WA 98223	425. 239.8104	MAINSTREAMDARREL@AOL.COM
Tamara Edwards	UH Manoa	2754 Kuilei St #206 Honolulu, HI 96826	257-200-2550	tamarae@hawaii.edu
RUSSELL CHUNG	PBR Hawaii	1001 BISHOP ST STE 650 HON HI 96813	521 5631	rchung@pbrhawaii.com
Jackie Mild Lau	Hawaii Craftsmen	2446 Lamaku Pl. Honolulu HI 96816	232 -3971	sculptureartofhand@gmail.com
Frank Brandt		4039 Papu Circle Hon HI 96816	735-1756	fbrandt@pbrhawaii.com

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [2] giant slide park + light tunnel
- [4] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [3] amphitheater
- [4] semi-permanent themed food trucks
- [1] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [5] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [6] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [5] bungee jumping
- [ ] trampoline park
- [8] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [9] giant chess
- [4] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [10] community garden
- [ ] farm-to-table café
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- [ ] beekeeping
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- [ ] recycled water irrigation

ENTERTAINMENT
- [3] beer garden
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- [ ] semi-permanent themed food trucks
- [1] light display (Illuminage)
- [2] interactive water jets

MONTHLY EVENTS
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- [ ] scavenger hunt
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- [ ] outdoor concert
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- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
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- [ ] fine arts studios
- [ ] music studios
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- [ ] frisbee golf
- [7] photography studios
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- [ ] lessons + classes
- [ ] musical art

Additional comments:

HCDA PBR HAWAII

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

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- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
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- [ ] diving tank
- [ ] surf park
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- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
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ECO-VILLAGE/MODERN AHUPUA'A
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ENTERTAINMENT
- [5] beer garden
- [1] amphitheater
- [2] semi-permanent themed food trucks
- [3] light display (Illuminage)
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MONTHLY EVENTS
- [ ] storytelling
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- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [5] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [10] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
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- [ ] croquet
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- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [2] lessons + classes
- [ ] musical art

Additional comments:

Less emphasis on "court" sports that allocate quite a bit of space to quite a few people.

Play equipment for kids, taking advantage of topography.

Food/Concessions

Programming and events, plus some community ideas informed to some extent by OHA's developing plans. (e.g., "modern ahupua'a.")

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

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- [ ] musical art

Additional comments:

As an artist I've watched venues for creation and display of art.
Would love to see artist studio work space pavilion or building - and collaborate w/ where artists can work in proximity to each other and have contact with the public.
Would like to participate in discussion on the development of such a project.

Jackie Mild Lau
sculpteoutofhand@gmail.com

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- [ ] lessons + classes
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Additional comments:

flood control/tsunami inundation mitigation techniques should be integrated into the park facilities/structures/activities as a challenge to showcase techniques.

Ped bridge btwn Waterfront Park and Kewalo Basin needs to consider engineering costs and realism. While it may be attractive to community it needs to be realistic and achievable. Are there other options to achieve the same result?

How would the Presidential Center connect w/ the educational (JABSOM/ cancer center) and other Makai area uses/activities (OHA/ KS uses/programs)?
Needs to be integrated

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

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- [ ] fishing pier
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- [2] outdoor shaded food court

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- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

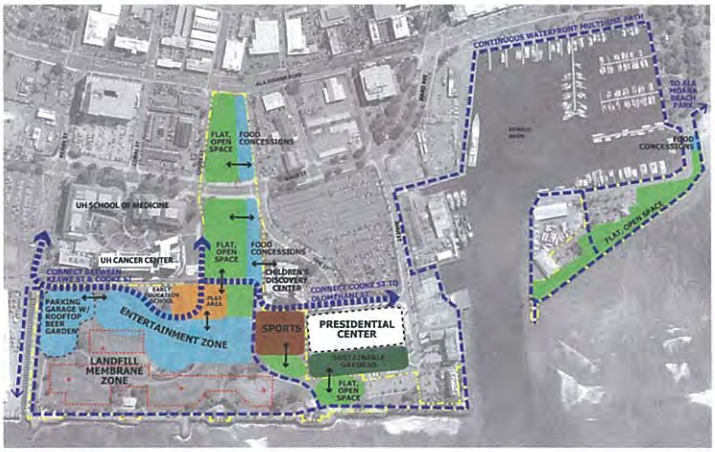
THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [10] lessons + classes
- [ ] musical art

Additional comments:

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme

D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

Sports/Adventure themes ideal for daytime uses. Entertainment good for evening use.

3. Do you have any additional comments?

Combination of daytime active uses with nighttime uses allows for maximum potential benefit to various users.

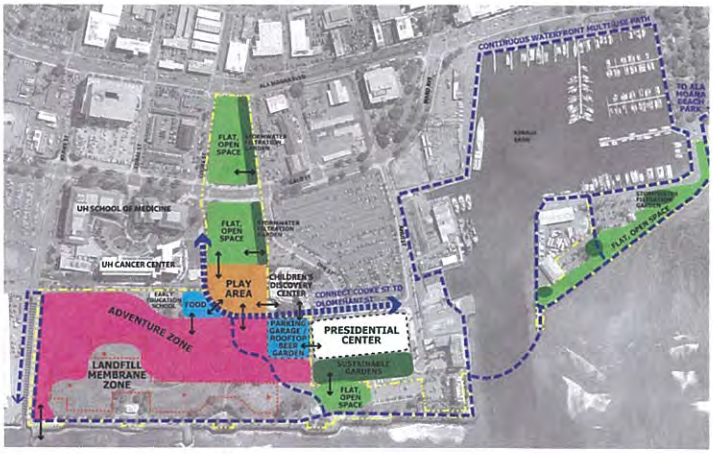
Conducted effort w/ OHA will allow for cohesion and mutual benefit for both.

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

A, C, D

3. Do you have any additional comments?

Light Park at Kakaako

HCDA

PBR HAWAII & ASSOCIATES, INC

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
November 8, 2014, 10:00 a.m.

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Name	Organization	Mailing Address	Phone No.	E-Mail Address
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KAPUNAHELE MONTGOMERY		149-A ULUPA ST. KAILUA, HI 96734	358-5795	KAPUNAHELE@HAWAII.RR.COM.

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
November 8, 2014, 10:00 a.m.

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Susan Motter				
Vicky Smith	SAS	91-1109 Koanimakani St Kapolei Hi 96707	471-9109	vickysmithrealtor@yahoo.com
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Makai Park Active Use Master Plan Open House
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November 8, 2014, 10:00 a.m.

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Kristi Greene			392-5584	
Brooke Longbridge		218 Paiko Dr Hon HI 96821	372-3727	
Victoria Gacutan		2047 KAKELA DR.		
Dean-Pang				
Kauai Hong			683-9575	
SHANNON CRISTOBAL		1133 ALEWA DR. HON, HI 96817	925-354-1596	

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November 8, 2014, 10:00 a.m.

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Will Gacutan		2047 Kakela Dr Hon, HI 96822	2852877	
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Race Agcaoili		91-1018 Waihua Pl. Ewa Beach, HI 96706		
JASON SELLEY		1331 7th AVE Honolulu, HI 96816	226-5145	jselley@workshop-hi.com

Makai Park Active Use Master Plan Open House
Hawaii Community Development Authority, Makai Conference Room
November 8, 2014, 10:00 a.m.

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Name	Organization	Mailing Address	Phone No.	E-Mail Address
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Gel Agcaoili		91-1018 Waihua Pl Ewa Beach, HI 96706		gelbebagze@gmail.com

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [5] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [8] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [7] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [6] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [2] community center
- [9] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [10] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [4] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [3] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [2] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [3] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [9] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [8] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [10] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [9] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [7] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [4] storytelling
- [ ] scavenger hunt
- [6] outdoor movie
- [5] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [4] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [7] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [10] outdoor shaded food court

SPORTS FACILITIES
- [3] workout stations
- [2] basketball
- [1] volleyball
- [ ] baseball
- [8] soccer
- [ ] yoga
- [9] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [5] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [6] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [X] bicycle rental
- [X] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [X] basketball
- [ ] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [X] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [X] community garden
- [ ] farm-to-table café
- [X] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [X] hydroponics greenhouse – Aquaponics
- [ ] learning garden
- [X] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [X] beer garden
- [X] amphitheater
- [X] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [X] storytelling
- [ ] scavenger hunt
- [X] outdoor movie
- [X] outdoor concert
- [ ] cooking/pickling class
- [X] artist studio tour
- [ ] intramural games
- [X] farmers market
- [X] Beer of the Month

THE STUDIOS
- [X] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Aquaponics for a portion of the gardens.

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [3] workout stations
- [2] basketball
- [1] volleyball
- [4] baseball
- [5] soccer
- [7] yoga
- [6] dog park + agility course
- [8] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [2] ~~yoga~~
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [2] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [3] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [5] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [4] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Indoor Volleyball facility.

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [9] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [6] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [7] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [10] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [2] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [3] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [4] outdoor movie
- [5] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
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Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

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- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [x] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [x] basketball
- [x] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
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- [ ] trampoline park
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FLAT, OPEN SPACE
- [ ] lawn bowling
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- [ ] mini-golf
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- [ ] ultimate frisbee
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- [ ] giant chess
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ECO-VILLAGE/MODERN AHUPUA'A
- [x] community center
- [ ] community garden
- [ ] farm-to-table café
- [x] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
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- [ ] hydroponics greenhouse
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- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [x] outdoor movie
- [x] outdoor concert
- [x] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [x] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Hawaii can be a mecca for sports + Volleyball is a perfect location. The quality of volleyball coming out of Hawaii in national level competition needs to be supported. Kakaako park is a perfect location to incorporate community centered activities.

HCDA PBR HAWAII

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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- [x] playground + sandbox
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- [ ] rollerblade rental
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SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [x] volleyball
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- [ ] yoga
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- [ ] hockey rink

ADVENTURE
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ECO-VILLAGE/MODERN AHUPUA'A
- [x] community center
- [ ] community garden
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- [ ] farmers market
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- [ ] wind turbine
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- [ ] hydroponics greenhouse
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ENTERTAINMENT
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MONTHLY EVENTS
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- [x] outdoor concert
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- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
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FAMILY FRIENDLY
- [3] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [2] workout stations
- [4] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [10] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
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ECO-VILLAGE/MODERN AHUPUA'A
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- [ ] community garden
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- [ ] wind turbine
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- [ ] beekeeping
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ENTERTAINMENT
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MONTHLY EVENTS
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- [ ] outdoor movie
- [5] outdoor concert
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- [6] intramural games
- [7] farmers market
- [ ] Beer of the Month

THE STUDIOS
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- [ ] frisbee golf
- [ ] photography studios
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- [ ] fishing pier
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- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
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ADVENTURE
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ENTERTAINMENT
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MONTHLY EVENTS
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THE STUDIOS
- [ ] collaboration lab
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- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [x] volleyball
- [ ] baseball
- [ ] soccer
- [x] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
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- [ ] surf park
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FLAT, OPEN SPACE
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- [ ] badminton
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ECO-VILLAGE/MODERN AHUPUA'A
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- [ ] community garden
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- [ ] beekeeping
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ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [x] semi-permanent themed food trucks
- [ ] light display (Illuminage)
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MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [x] intramural games
- [x] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
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- [ ] lessons + classes
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Additional comments:

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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [10] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
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ECO-VILLAGE/MODERN AHUPUA'A
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- [ ] community garden
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- [3] farmers market
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- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [4] amphitheater
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- [5] light display (Illuminage)
- [6] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [2] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [7] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [8] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [9] musical art

Additional comments:

HCDA PBR HAWAII

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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [4] workout stations
- [ ] basketball
- [1] volleyball
- [2] baseball
- [3] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
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FLAT, OPEN SPACE
- [ ] lawn bowling
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ENTERTAINMENT
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MONTHLY EVENTS
- [ ] storytelling
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SPORTS FACILITIES
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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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SPORTS FACILITIES
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ENTERTAINMENT
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- [10] semi-permanent themed food trucks
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- [ ] fishing pier
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- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [9] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [5] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [10] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [4] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [2] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [ ] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [3] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
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- [ ] photography studios
- [ ] POW! WOW! HAWAII
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SPORTS FACILITIES
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- [ ] baseball
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ADVENTURE
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Additional comments:

With the limited space for sports clubs, it is important to have this space for sports activities as it will ~~increase~~ provide opportunities for our children as well as private clubs to excel & provide a permanent place for them to gather and have a sense of home - for that club/team.

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- [5] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [ ] farm-to-table café
- [ ] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- 2 [2] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [4] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

Additional comments:

Sand volleyball!

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [2] giant slide park + light tunnel
- [ ] climbing wall
- [6] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [3] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [ ] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [4] community garden
- [ ] farm-to-table café
- [5] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [ ] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
- [ ] zero-waste composting
- [ ] beekeeping
- [ ] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [7] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [9] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [8] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
- [ ] music studios
- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [10] musical art

Additional comments:

Sand Volleyball is needed! Would have been #2 on my list.

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
- [x] climbing wall
- [x] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [x] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [x] bicycle rental
- [x] outdoor shaded food court

SPORTS FACILITIES
- [x] workout stations
- [ ] basketball
- [x] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [x] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [x] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [x] zip-lining

FLAT, OPEN SPACE
- [ ] lawn bowling
- [ ] bocce
- [ ] mini-golf
- [ ] croquet
- [x] frisbee golf
- [ ] ultimate frisbee
- [ ] badminton
- [x] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- [ ] community center
- [ ] community garden
- [x] farm-to-table café
- [x] farmers market
- [ ] fishpond + pay-to-fish
- [ ] Hawai'i island Model
- [ ] wind turbine
- [x] energy-generating bikes
- [ ] hydroponics greenhouse
- [ ] learning garden
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- [ ] beekeeping
- [x] stormwater collection
- [ ] recycled water irrigation

ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [ ] semi-permanent themed food trucks
- [ ] light display (Illuminage)
- [ ] interactive water jets

MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [x] outdoor movie
- [x] outdoor concert
- [ ] cooking/pickling class
- [x] artist studio tour
- [x] intramural games
- [x] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [x] fine arts studios
- [ ] music studios
- [x] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [x] lessons + classes
- [x] musical art

Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- ☐ giant slide park + light tunnel
- ☐ climbing wall
- ☐ playground + sandbox
- ☐ waterfall
- ☐ rollerblade rental
- ☐ carousel
- ☐ kite-flying
- ☐ fishing pier
- ☐ keiki choo-choo
- ☐ bicycle rental
- ☐ outdoor shaded food court

SPORTS FACILITIES
- ☐ workout stations
- ☐ basketball
- ☐ volleyball
- ☐ baseball
- ☐ soccer
- ☐ yoga
- ☐ dog park + agility course
- ☐ hockey rink

ADVENTURE
- ☐ skate park
- ☐ challenge course
- ☐ diving tank
- ☐ surf park
- ☐ skydiving wind tunnel
- ☐ bungee jumping
- ☐ trampoline park
- ☐ zip-lining

FLAT, OPEN SPACE
- ☐ lawn bowling
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- ☐ croquet
- ☐ frisbee golf
- ☐ ultimate frisbee
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- ☐ giant chess
- ☐ Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
- ☐ community center
- ☐ community garden
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- ☐ farmers market
- ☐ fishpond + pay-to-fish
- ☐ Hawai'i island Model
- ☐ wind turbine
- ☐ energy-generating bikes
- ☐ hydroponics greenhouse
- ☐ learning garden
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- ☐ beekeeping
- ☐ stormwater collection
- ☐ recycled water irrigation

ENTERTAINMENT
- ☐ beer garden
- ☐ amphitheater
- ☐ semi-permanent themed food trucks
- ☐ light display (Illuminage)
- ☐ interactive water jets

MONTHLY EVENTS
- ☐ storytelling
- ☐ scavenger hunt
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- ☐ outdoor concert
- ☐ cooking/pickling class
- ☐ artist studio tour
- ☐ intramural games
- ☐ farmers market
- ☐ Beer of the Month

THE STUDIOS
- ☐ collaboration lab
- ☐ fine arts studios
- ☐ music studios
- ☐ dance studios
- ☐ frisbee golf
- ☐ photography studios
- ☐ POW! WOW! HAWAII
- ☐ lessons + classes
- ☐ musical art

Additional comments:

HCDA PBR HAWAII

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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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- [ ] playground + sandbox
- [ ] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [ ] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [2] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
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- [ ] mini-golf
- [ ] croquet
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- [ ] ultimate frisbee
- [ ] badminton
- [ ] giant chess
- [ ] Quidditch

ECO-VILLAGE/MODERN AHUPUA'A
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- [3] community garden
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- [ ] stormwater collection
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MONTHLY EVENTS
- [ ] storytelling
- [ ] scavenger hunt
- [10] outdoor movie
- [ ] outdoor concert
- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
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- [ ] frisbee golf
- [ ] photography studios
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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [2] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
- [ ] challenge course
- [ ] diving tank
- [ ] surf park
- [ ] skydiving wind tunnel
- [ ] bungee jumping
- [ ] trampoline park
- [ ] zip-lining

FLAT, OPEN SPACE
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- [ ] intramural games
- [ ] farmers market
- [ ] Beer of the Month

THE STUDIOS
- [ ] collaboration lab
- [ ] fine arts studios
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- [ ] dance studios
- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
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Additional comments:

Rank the **top ten** active uses you would like to see at the Kaka'ako Makai Parks by putting a number in the box next to the use. 1 = highest priority, 10 = lowest priority.

FAMILY FRIENDLY
- [3] giant slide park + light tunnel
- [ ] climbing wall
- [ ] playground + sandbox
- [4] waterfall
- [ ] rollerblade rental
- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [2] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [ ] soccer
- [ ] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
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- [ ] surf park
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FLAT, OPEN SPACE
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ECO-VILLAGE/MODERN AHUPUA'A
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ENTERTAINMENT
- [ ] beer garden
- [ ] amphitheater
- [6] semi-permanent themed food trucks
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MONTHLY EVENTS
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- [8] outdoor movie
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- [ ] cooking/pickling class
- [ ] artist studio tour
- [ ] intramural games
- [9] farmers market
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- [ ] collaboration lab
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Additional comments:

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FAMILY FRIENDLY
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ECO-VILLAGE/MODERN AHUPUA'A
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- [ ] collaboration lab
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- [ ] musical art

Additional comments:

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FAMILY FRIENDLY
- [ ] giant slide park + light tunnel
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- [ ] playground + sandbox
- [ ] waterfall
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- [ ] carousel
- [ ] kite-flying
- [ ] fishing pier
- [ ] keiki choo-choo
- [ ] bicycle rental
- [ ] outdoor shaded food court

SPORTS FACILITIES
- [2] workout stations
- [ ] basketball
- [1] volleyball
- [ ] baseball
- [3] soccer
- [4] yoga
- [ ] dog park + agility course
- [ ] hockey rink

ADVENTURE
- [ ] skate park
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- [ ] frisbee golf
- [ ] photography studios
- [ ] POW! WOW! HAWAII
- [ ] lessons + classes
- [ ] musical art

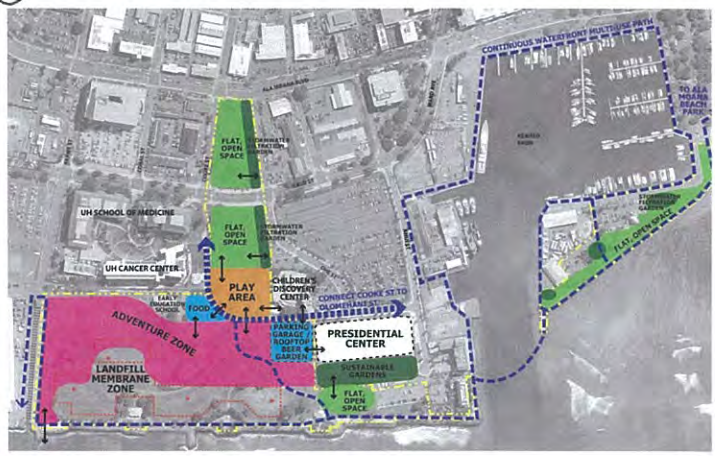
Additional comments:

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

B + C

3. Do you have any additional comments?

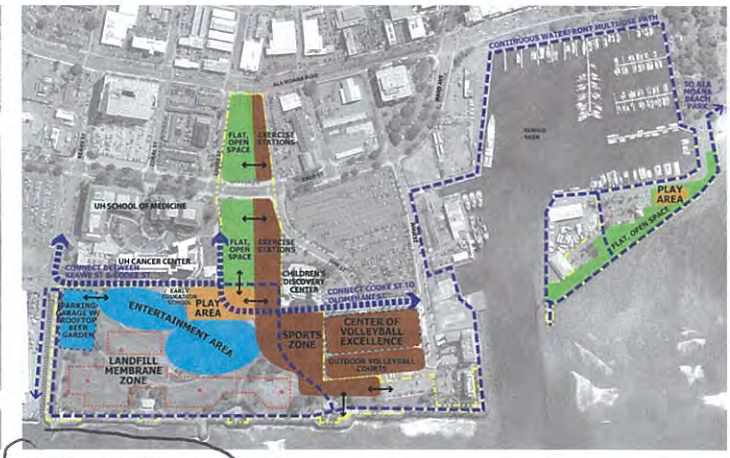
Indoor & Beach Volleyball!

HCDA

PBR HAWAII & ASSOCIATES, INC.

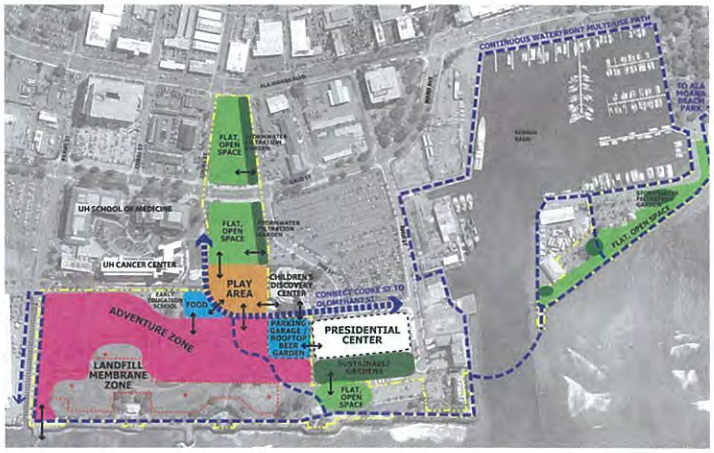
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme



B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

~~A~~ B and C

3. Do you have any additional comments?

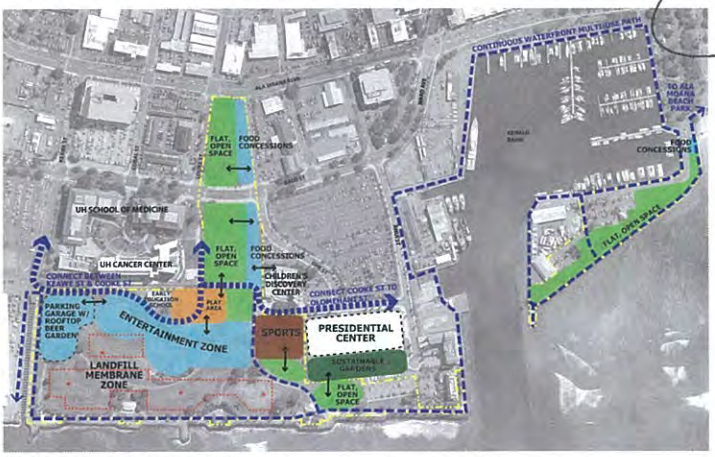
Indoor & outdoor volleyball

HCDA PBR HAWAII & ASSOCIATES, INC.

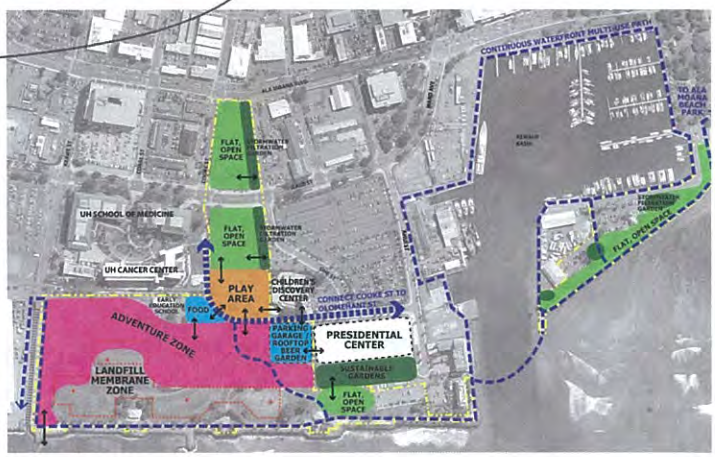
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

B / C

3. Do you have any additional comments?

like the sand volleyball

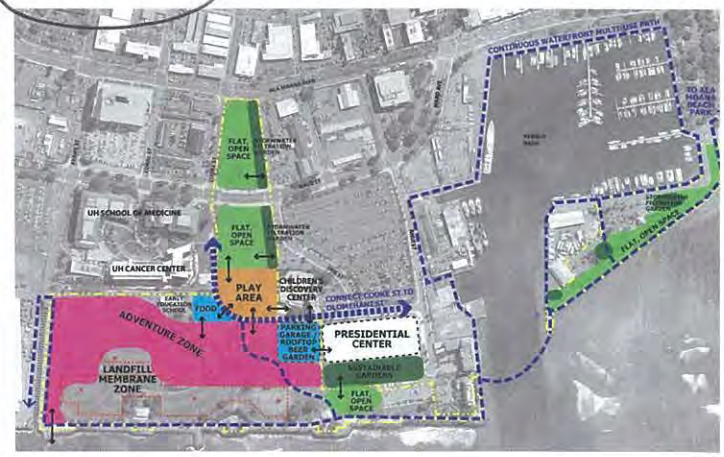
HCDA PBR HAWAII & ASSOCIATES, INC.

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

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HCDA

PBR HAWAII & ASSOCIATES, INC.

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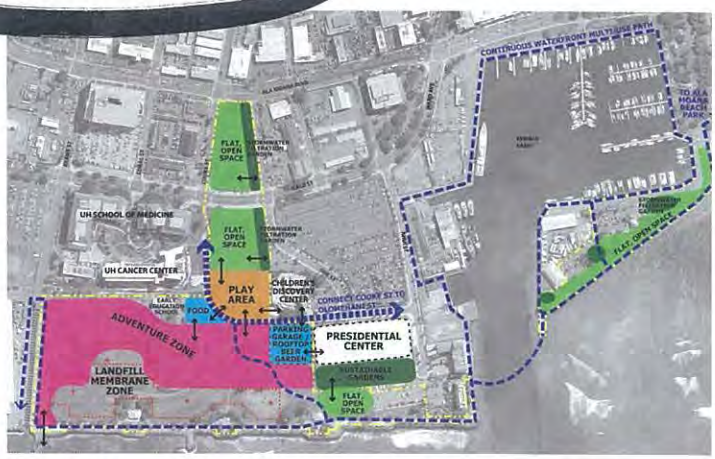

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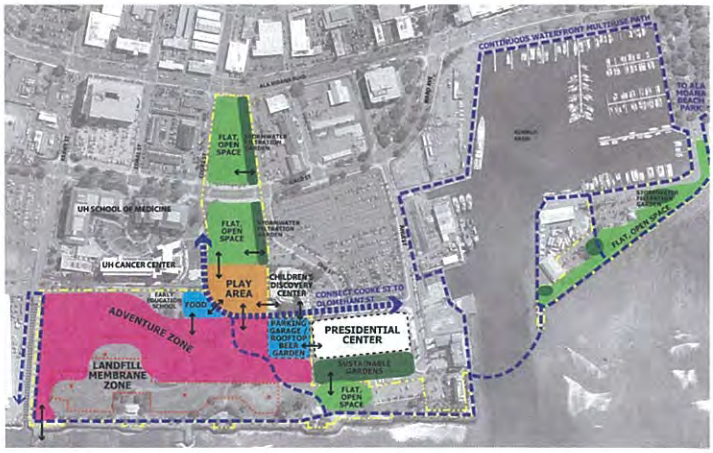
B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

C. seems to provide the best blend of recreation for all ages.

3. Do you have any additional comments?

Programming is super important. I support bringing in / coordinating more concerts (local or touring acts) to draw people to the park.

Parking is also a concern. Hopefully structure will be big enough.

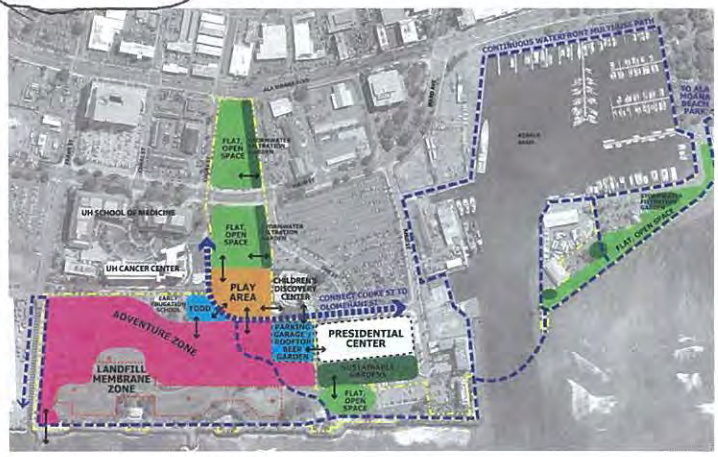
HCDA PBR HAWAII & ASSOCIATES, INC

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

HCDA

PBR HAWAII & ASSOCIATES INC

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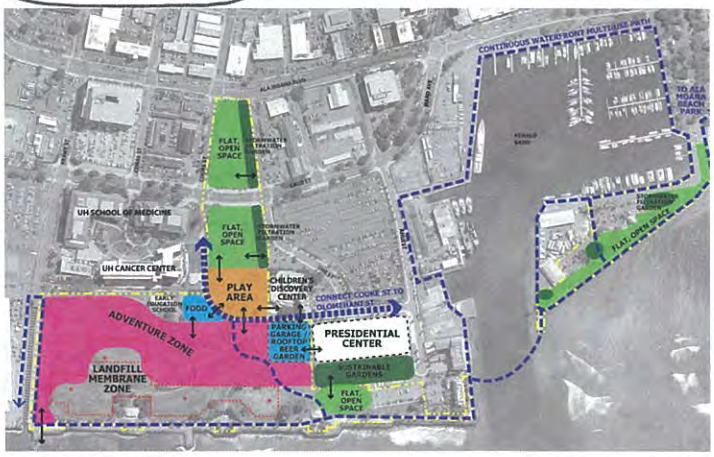
C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

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2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

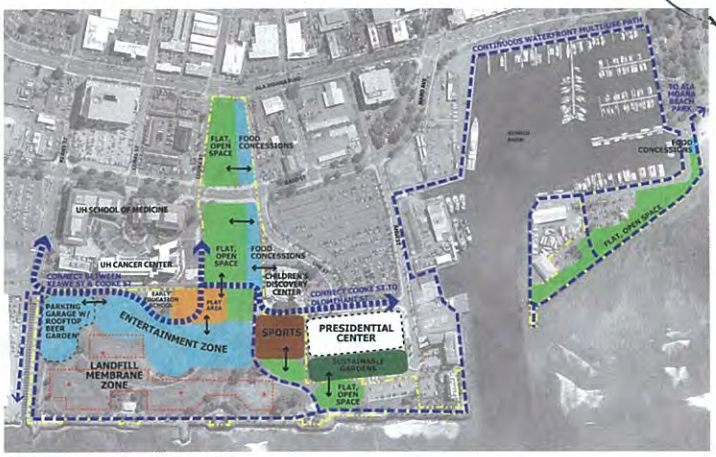
Indoor Volleyball is important. It is highly popular for the young people of Hawaii, and gym place currently is not enough for all the interest.

HCDA PBR HAWAII & ASSOCIATES, INC.

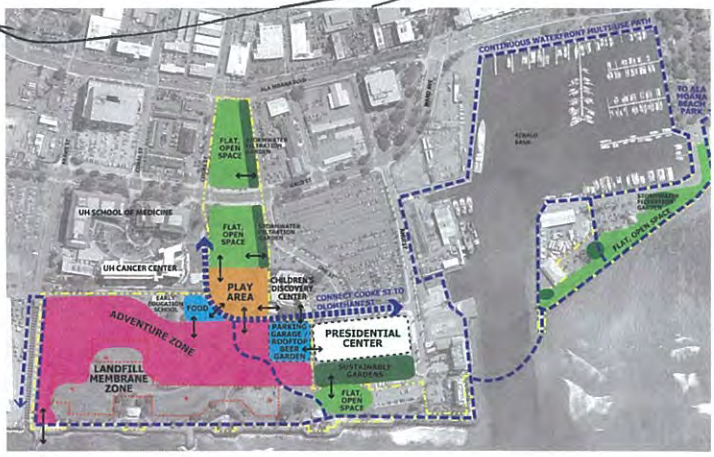
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

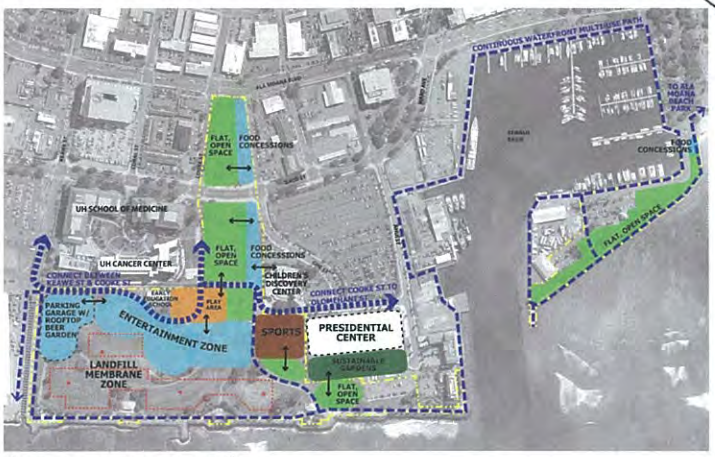
HCDA

PBR HAWAII & ASSOCIATES, INC

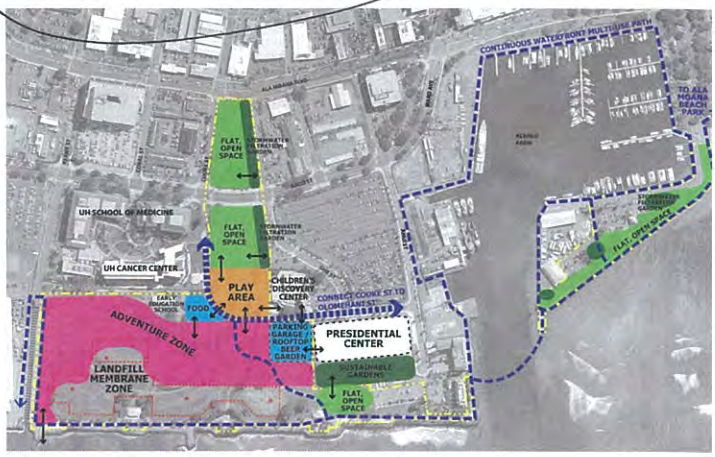
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

HCDA

PBR HAWAII & ASSOCIATES, INC.

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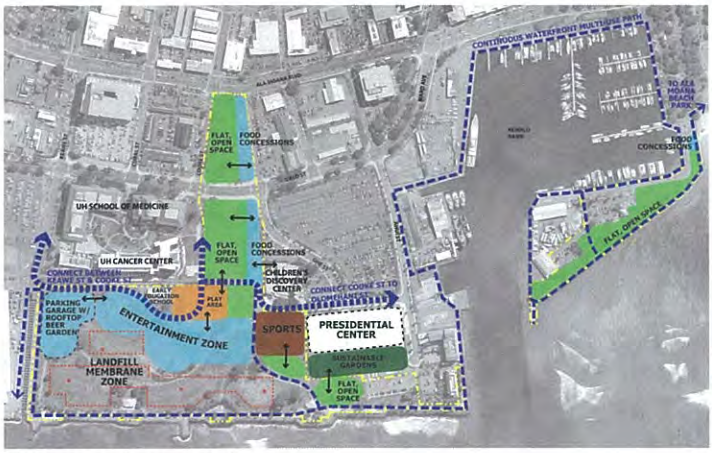
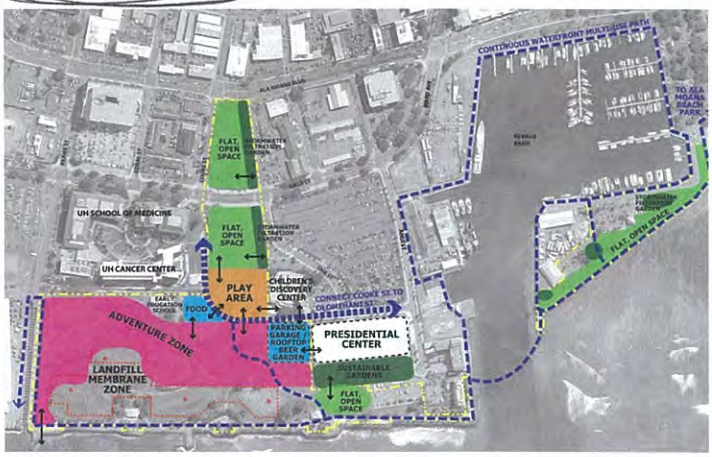
A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

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3. Do you have any additional comments?

HCDA PBR HAWAII & ASSOCIATES, INC

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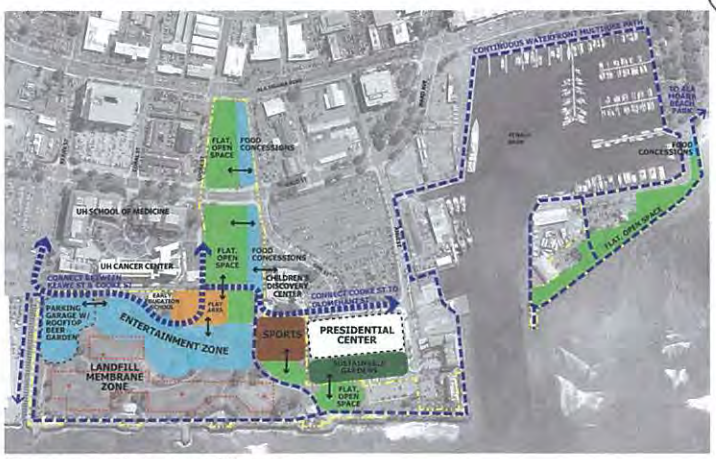
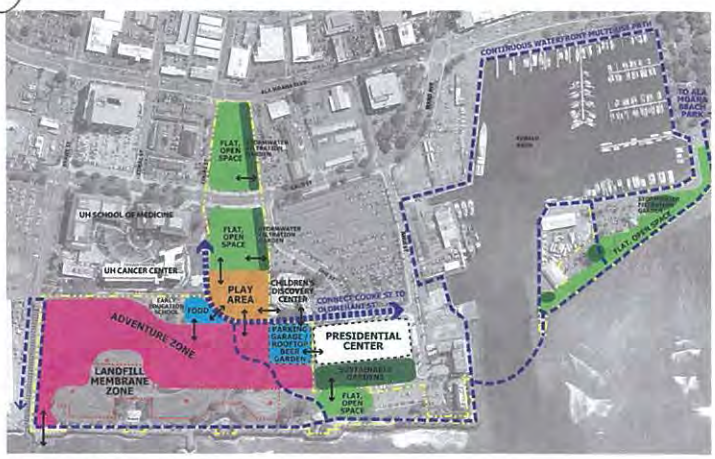
A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

I would prefer the sports theme but I think you could combine the family friendly and entertainment theme with it also.

3. Do you have any additional comments?

NO.

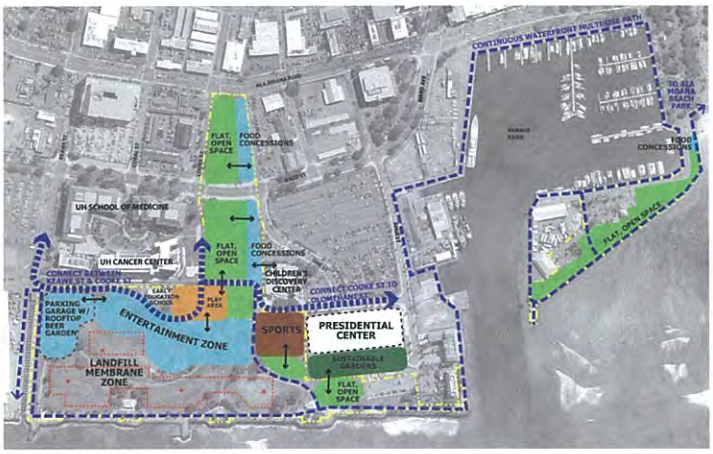
HCDA

PBR HAWAII & ASSOCIATES, INC

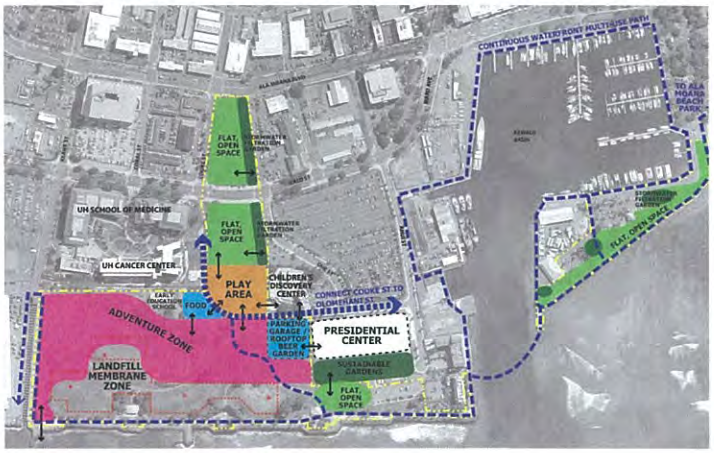
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

I prefer the sports theme, but believe it could be combined w/ family friendly, entertainment & sustainability.

3. Do you have any additional comments?

HCDA

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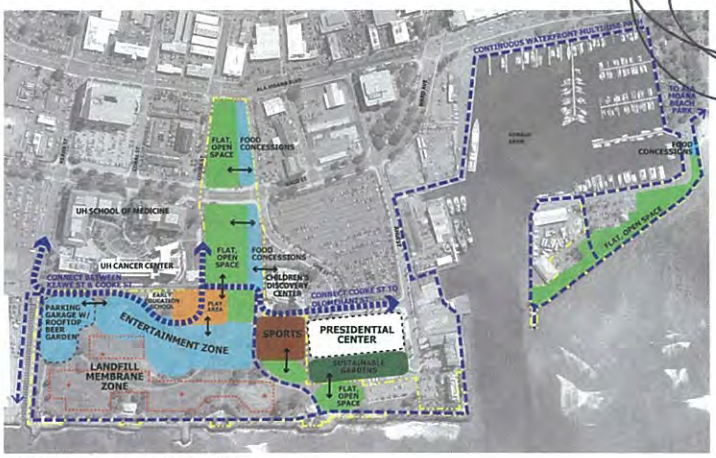
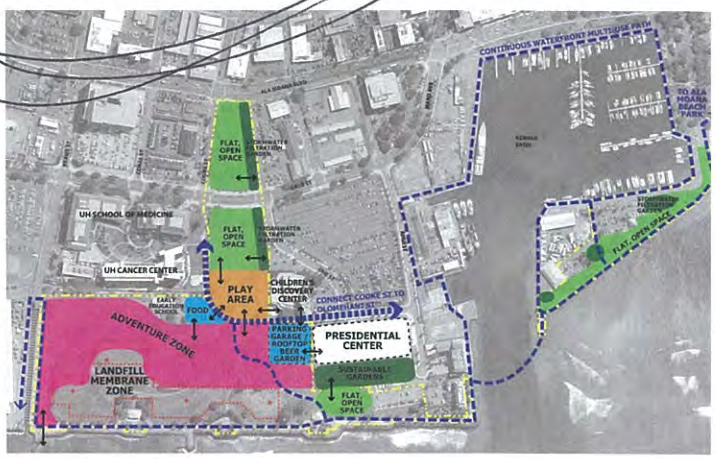
A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

Prefer B. Possibly combine with C

3. Do you have any additional comments?

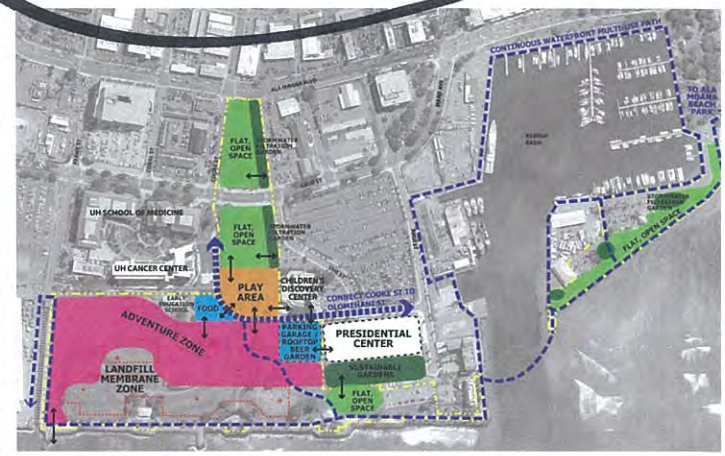
HCDA PBR HAWAII & ASSOCIATES, INC.

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

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3. Do you have any additional comments?

HCDA

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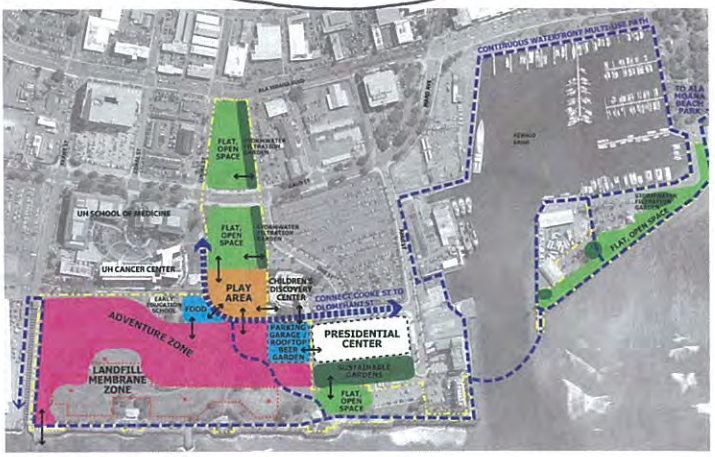

D. Adventure Theme

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3. Do you have any additional comments?

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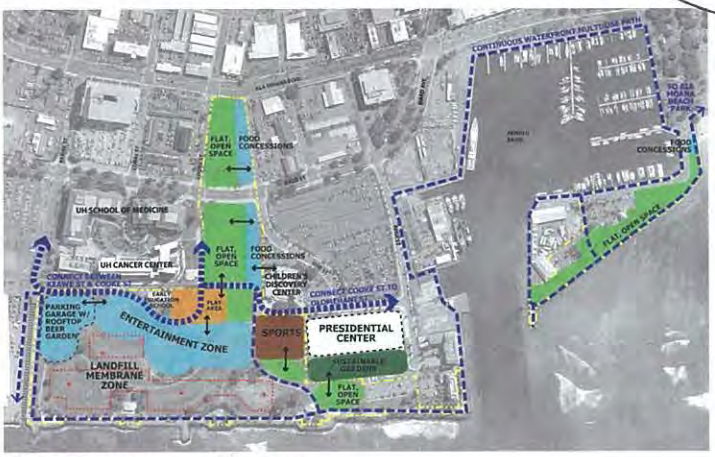


C. Entertainment Theme

D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

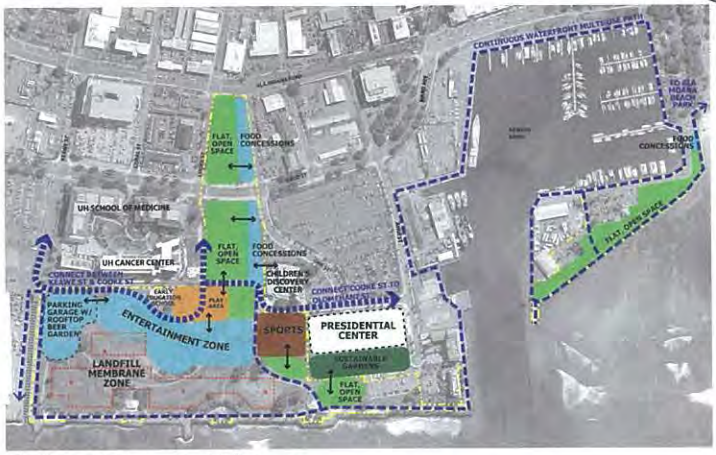
HCDA

PBR HAWAII & ASSOCIATES, INC.

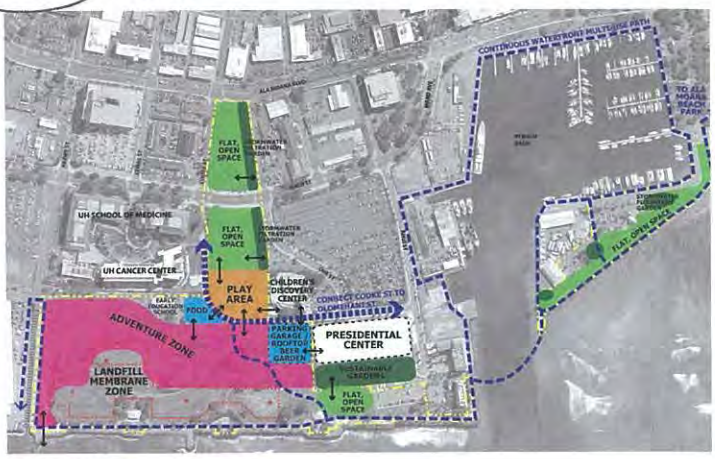
1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme



C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

Mainly B but not part of A - family friendly!

3. Do you have any additional comments?

HCDA

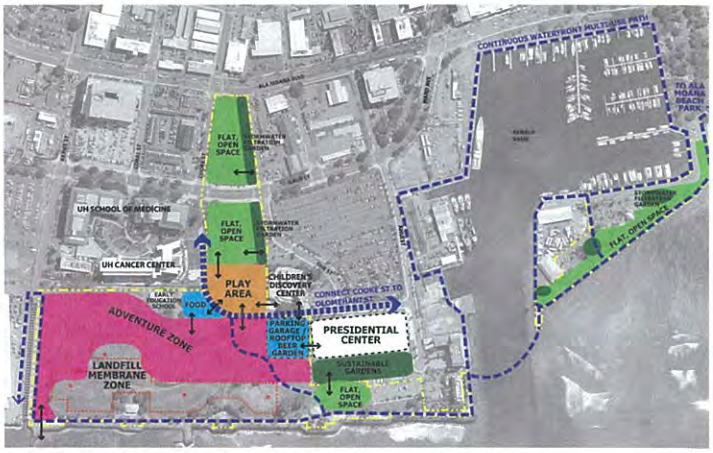
PBR HAWAII & ASSOCIATES, INC.

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

Entertainment + Garden

3. Do you have any additional comments?

A mix of A / C / E

HCDA

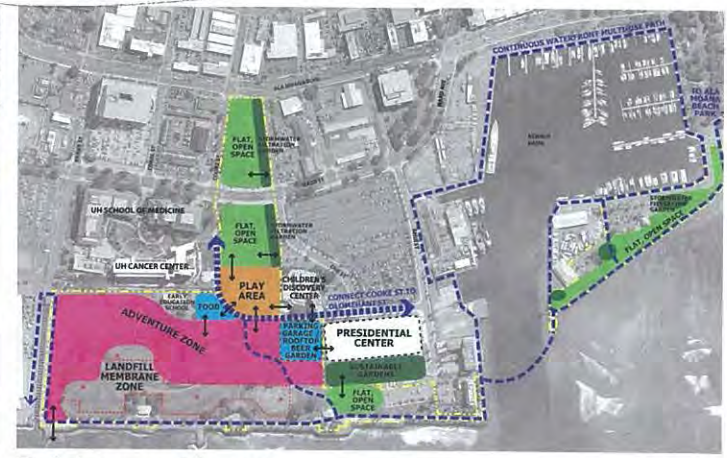
PBR HAWAII & ASSOCIATES, INC

1. Please review the possible use diagrams at this station and circle which you most prefer.

A. Family Friendly Theme

B. Sports Theme

C. Entertainment Theme



D. Adventure Theme

E. Sustainability Theme

2. Are there certain elements from the different use diagrams you would like to see combined?

3. Do you have any additional comments?

HCDA

PBR HAWAII & ASSOCIATES, INC.

KAKAAKO PARKS

Peek

A Sneak Peek at the Future of Kakaako Makai

Saturday, December 6th

10am-4pm

Kakaako Makai Gateway Park

Eat the Street

Music

Games

Entertainment

Demonstrations

Volleyball Tournament

HPD Keiki Fingerprinting

Farmers Market

Art

Community Booths

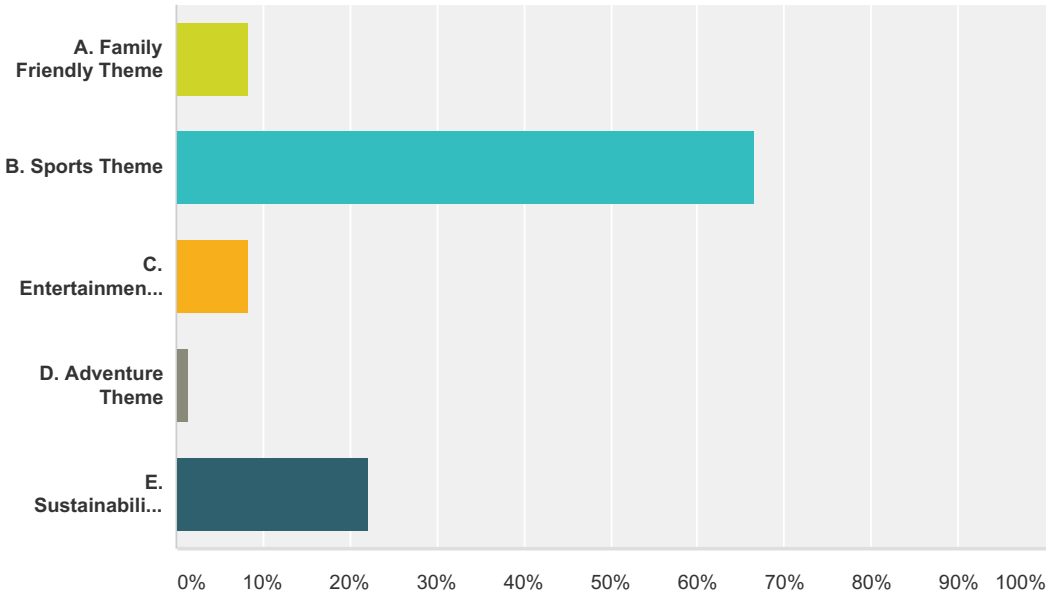
Corner of Ala Moana Blvd
and Cooke St
Next to Kakaako Waterfront Park

HCDA Hawaii Community Development Authority

STREET GRINDZ

Q1 Please review the possible use diagrams at this station and circle which you most prefer.

Answered: 72 Skipped: 4



Answer Choices	Responses	
A. Family Friendly Theme	**8.33%**	6
B. Sports Theme	**66.67%**	48
C. Entertainment Theme	**8.33%**	6
D. Adventure Theme	**1.39%**	1
E. Sustainability Theme	**22.22%**	16
Total Respondents: 72		

Q2 Are there certain elements from the different use diagrams you would like to see combined?

Answered: 35 Skipped: 41

#	Responses	Date
1	The parks need to have the ability to generate funds to support maintaining the park. Run leased to private company.	12/11/2014 10:35 AM
2	The family and sports could be combined.	12/11/2014 10:34 AM
3	B, A	12/11/2014 10:34 AM
4	Should incorporate family friendly zone and convert one open space for sports :)	12/11/2014 10:33 AM

5	I do like the family friendly theme too with the parking garage with rooftop beer garden. Incorporated those with the sustainability theme would be awesome!	12/11/2014 10:19 AM
6	Sports + entertainment	12/11/2014 10:17 AM
7	Play fields (sports), entertainment area, obstacle course	12/11/2014 10:17 AM
8	Family and sports	12/11/2014 10:16 AM
9	E and D	12/11/2014 10:15 AM
10	Add family friendly element to sustainability. Make sure to have enough parking.	12/11/2014 10:14 AM
11	Sus, with sports theme	12/11/2014 10:12 AM
12	Praise and worship retreats/events	12/11/2014 10:09 AM
13	E + stormwater filtration garden and sustainable gardens	12/11/2014 10:09 AM
14	I would like to see the bridge from the adventure theme added to C. entertainment theme.	12/11/2014 10:08 AM
15	Sports + Family + Entertainment	12/11/2014 10:07 AM
16	A, B + C	12/11/2014 10:07 AM
17	Pieces of each combined where multiple things can be done maybe seasonally. Diagram 5.	12/11/2014 10:06 AM
18	There are elements of each one of the diagram that I would love to see combined but mostly a sports/family theme. Thank you!	12/11/2014 10:03 AM
19	Get rid of tents around the Park	12/11/2014 10:02 AM
20	Sports/entertainment themes a transition from day to night from sports to entertainment.	12/11/2014 10:01 AM
21	Sports and family	12/11/2014 9:58 AM
22	Sports and entertainment themes with sustainability (commercial and food trucks, etc.)	12/11/2014 9:57 AM
23	Sustainability and sports	12/11/2014 9:56 AM
24	Sports/family/entertainment	12/11/2014 9:55 AM
25	Entertainment and garden	12/11/2014 9:47 AM
26	Mainly B but add part of A. family friendly	12/11/2014 9:46 AM
27	Prefer B. Possibly combine with C.	12/11/2014 9:45 AM
28	I prefer sports theme but believe it could be combined with family friendly, entertainment and sustainability.	12/11/2014 9:44 AM
29	I would prefer the sports theme but I think you could combine the family friendly and entertainment theme with it also.	12/11/2014 9:42 AM
30	C seems to provide the best blend of recreation for all ages.	12/11/2014 9:39 AM
31	B/C	12/11/2014 9:38 AM
32	B and C	12/11/2014 9:37 AM
33	B and C	12/11/2014 9:33 AM
34	Sports/adventure themes ideal for daytime uses. Entertainment food for evening use.	12/11/2014 9:31 AM
35	A,C,D	12/11/2014 9:31 AM

Q3 Do you have any additional comments?

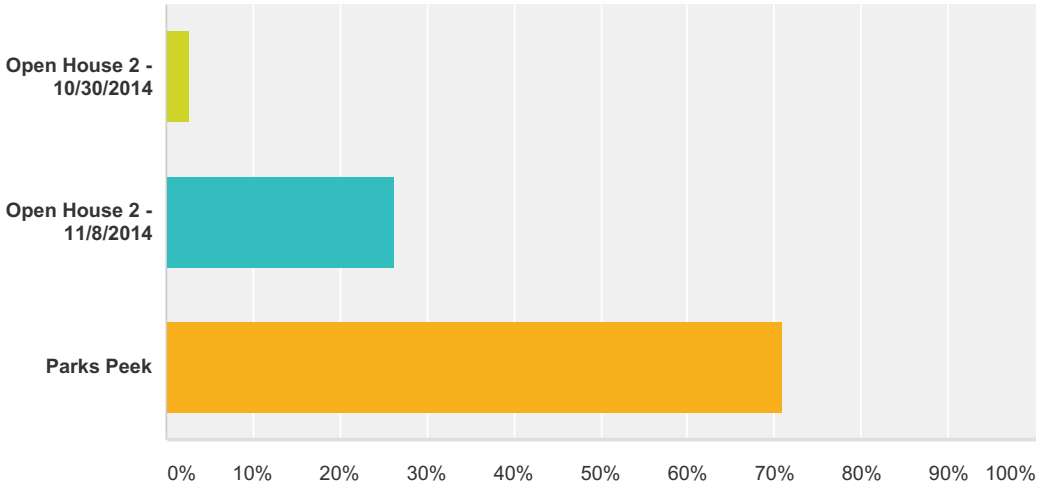
Answered: 27 Skipped: 49

#	Responses	Date

1	Hawaii needs a top notch sports arena where our children can train and compete.	12/11/2014 10:34 AM
2	A big facility with courts (v-ball, b-ball, etc.) to rent would be good.	12/11/2014 10:34 AM
3	A basketball court	12/11/2014 10:32 AM
4	Keep wide open spaces large	12/11/2014 10:18 AM
5	Fun :)	12/11/2014 10:17 AM
6	:)	12/11/2014 10:17 AM
7	Volleyball courts grass/sand	12/11/2014 10:16 AM
8	Thanks for asking	12/11/2014 10:14 AM
9	Needs to be parking closer to the Cancer Center at med school.	12/11/2014 10:12 AM
10	Awesome purpose!	12/11/2014 10:09 AM
11	As Honolulu continues to grow vertically it is vital to balance it by keeping it green horizontally!	12/11/2014 10:08 AM
12	Low impact activities that bring us together with healthy culturally appropriate events and sports.	12/11/2014 10:07 AM
13	I hope this becomes a reality. Great LOCATION VENUE.	12/11/2014 10:07 AM
14	Kaka‘ako Park is a great family location for Beach Volleyball facility.	12/11/2014 10:02 AM
15	The importance of occupying the youth in a constructive organized fashion will help groom the youth to be responsible citizens.	12/11/2014 10:01 AM
16	Get rid of the other "tents" in the area (homeless). The Kakaako Parks Peaks was a great family event! Turned atmosphere into a family, safe area. Volleyball was awesome!	12/11/2014 10:00 AM
17	Many weekends families spend time following sports activities. Let's create another area to accommodate families.	12/11/2014 9:57 AM
18	Grass for outdoor uses and indoor sports facilities	12/11/2014 9:56 AM
19	Volleyball will draw a great crowd and lots of kids	12/11/2014 9:55 AM
20	A mix of A/C/E	12/11/2014 9:47 AM
21	Indoor volleyball is important. It is hugely popular for the young people of Hawaii and not enough gym place currently for all the interest.	12/11/2014 9:40 AM
22	Programming is super important. I support bringing in/coordinating more concerts (local or touring acts) to draw people to the park. Parking is also a concern. Hopefully structure will be big enough.	12/11/2014 9:39 AM
23	Like the sand volleyball	12/11/2014 9:38 AM
24	Indoor and outdoor volleyball	12/11/2014 9:37 AM
25	Indoor and beach volleyball!	12/11/2014 9:33 AM
26	Combination of daytime active uses with nighttime uses allows for maximum potential benefit to various users. Coordinated effort with OHA will allow for cohesion and mutual benefit for both.	12/11/2014 9:31 AM
27	Light park at Kakaako	12/11/2014 9:31 AM

Q4 Source of Comment

Answered: 76 Skipped: 0



Answer Choices	Responses	
Open House 2 - 10/30/2014	**2.63%**	2
Open House 2 - 11/8/2014	**26.32%**	20
Parks Peek	**71.05%**	54
Total		**76**

#	Other (please specify)	Date
	There are no responses.	

Kakaako Makai Parks

Active Use Facilities Master Plan

Environmental Impact Statement (EIS) Scoping Meeting

HCDA will accept public comments on the issues you feel should be disclosed in the EIS.

Where: 547 Queen St
Honolulu, HI 96813

When: April 16th, 2015
5:00 p.m.

For More information please contact:
Lindsey Doi
Compliance Assurance and Community Outreach Officer
lindsey.doi@hcdaweb.org
808.594.0328

A copy of the EIS Preparation Notice can be found on our website at www.hcdaweb.org

HCDA
Hawaii Community Development Authority

SIGN-IN SHEET

KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | EIS SCOPING MEETING

APRIL 16, 2015

NAME	AFFILIATION/AGENCY	PHONE	E-MAIL
Tom McLaughlin	HCDA Board / Ala Moana Kakaako N. Board	294-3370	tjmclaughlin@gmail.com
Bobbie Lau	Howard Hughes Corp.	791-2987	bobbie.lau@howardhughes.com
Marina Nishimura		321-1147	nishimuramarina@gmail.com
Michelle Matson	CPAC	222-3936	MSMatson@hawaii.rr.com
Steve Scott	HCDA Board		
Jackie Scott	↓		
WAYNE TAKAMINE	CPAC	294-4099	Waynetakamine@hawaii.rr.com
Shannon Wood	WAA		
Mike Hamasu	Colliers	523-9792	mike@colliershawaii.com

KAKA'AKO MAKAI PARKS
EIS SCOPING MEETING

4/16/15

- MM: guiding principles include public facilities (to Ilalo St?)
- What do you mean in terms of "safety" concerns?
MM: EIS is basically a disclosure document
Gov't agencies → state, county, or federal?
- Timing for when governor will see EIS?
- Why don't you have CC consultant? Work has been done by SOEST
  ↳ climate change & sea level rise will be included in the EIS
Draft will be out in summer? (July/Aug)

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

public recreational facilities
open to all residents + visitors

volleyball training facility is
an exclusive, restrictive use
consuming public park space

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA PBR HAWAII

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Adhere to the national urban
planning standard for
urban park space:

2 - 2½ acres / 1000 capita
open recreational open space
(Shoreline to Diamond Head)
green recreational open space
public recreational facilities
in a park setting (Diamond Head to Ala Moana)

Think: New York Central Park
Golden Gate Park

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA PBR HAWAII

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Economic + Public Safety Impact —
Relocate homeless to sand Island
"Safe Area" camp.
This is long overdue!

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

www.hcdaweb.org

HCDA

PBR HAWAII

COMMUNITY OPEN HOUSE

Planning Active Use Facilities for the Kaka'ako Makai Parks

OPEN TO THE PUBLIC

Where: **HCDA Office**
547 Queen Street
Honolulu, HI 96813

Attend Either Session
Thursday June 4, 5:30p
Saturday, June 13, 10:00a

You are invited to attend the third series of open house sessions for the planning and revitalization of the Kaka'ako Makai Parks.

The open house will focus on:

- Alternative park concepts
- Environmental Impact Statement process

For more information or questions please contact:

Lindsey Doi
Hawai'i Community Development Authority
Compliance Assurance and
Community Outreach Officer
lindsey.doi@hcdaweb.org
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Join Us Online!

http: //kakaakomakaiparks.mindmixer.com

Hawai'i Community Development Authority

The Hawai'i Community Development Authority (HCDA), a State agency that was established by the State Legislature in 1976, supplements traditional community renewal methods by promoting and coordinating public and private sector community development in urban areas in the State that are in need of timely redevelopment.

In creating the HCDA, the Legislature designated the Kaka'ako area of Honolulu as the Authority's first Community Development District, recognizing the area's potential for increased growth and development and its inherent economic importance to Honolulu as well as the State.

This Legislative vision realizes that mixed use redevelopment of Kaka'ako will offer tremendous opportunities for housing, parks, open areas, and new commercial and industrial space in close proximity to downtown Honolulu.

SIGN-IN SHEET

KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | Community Open House

June 4, 2015

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KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | Community Open House

June 4, 2015

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KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | Community Open House

June 4, 2015

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PBR HAWAII
& ASSOCIATES, INC.

DRAFT OPEN HOUSE SERIES 3 MEETING RECORD

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1787 Wili Pā Loop, Suite 4
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Tel: (808) 242-2878

DATE: June 8, 2015

DATE OF MEETING: June 4, 2015

SPEAKERS: Deepak Neupane/HCDA
Catie Cullison/PBR HAWAII & Associates
Russell Chung/PBR HAWAII & Associates
Tom Schnell/PBR HAWAII & Associates

PREPARED BY: Kristen Oleyte/PBR HAWAII & Associates
Grace Zheng/PBR HAWAII & Associates

SUBJECT: KAKA'AKO MAKAI PARKS OPEN HOUSE SERIES 3

The first of two, Series 3 Open House sessions focused on alternative park concepts and the Environmental Impact Statement process. Public attendees numbered 16 and five comment cards were collected.

- Deepak made opening remarks, introduced PBR HAWAII presenters and an HCDA video that provided potential park utilization concepts and opportunities for collaboration relative to the Master Plan effort.

- Following the video, Catie discussed the planning process being utilized, background for the project, and past efforts including the 2011 Master Plan.
  - She explained how current efforts are informed by previous community engagement of the past as well as two HCDA/PBR HAWAII convened Open House sessions and Park Peek event held in 2014.
  - For the planning process, from August to December 2014 research was conducted, information was gathered, and ideas were generated. In addition to public input solicited during the 2014 Open House sessions Parks Peek event, an on-line tool (http://kakaakomakaiparks.mindmixer.com/) engaged more than 2,000 people.
  - Based on 2014 public input, reported that while the parks were valued for their views and location relative to urban areas, safety concerns were the primary reason the parks were underutilized. Further, prioritizing the guiding principles of the 2011 Master Plan was important and favorable park active uses included volleyball, regular programmed food/entertainment, and family friendly activities.

- Russell spoke to alternative park concepts and notional layouts for parking, green space, art/water features, amphitheater, concession stand, community hale/pavilion, biergarten, and other areas for both active and passive activity use.
  - Emphasized the layouts were conceptual and not set in stone. Slides

illustrate how the parks could be configured and modified based on public prioritized uses.
  - That parking configurations minimize intrusion on existing green space.
  - Acknowledged conceptual lay outs anticipate the City and County of Honolulu Bicycle program and rail development, as well as consider on-going planning relative to Ala Moana Beach Park and the Office of Hawaiian Affairs.

- Tom spoke to next steps in the process and how the feedback received today will inform the preparation of a Draft Environmental Impact Statement (DEIS).
  - Referenced the EIS Preparation Notice (EISPN) meeting held on April 16, 2015, in order to receive comments on setting up the DEIS scope.
  - Noted that the DEIS will be prepared in accordance with Hawai'i laws and rules, serving as the primary environmental document that discusses potential impacts and mitigation measures and includes technical studies/analyses (i.e. archaeological, acoustics, air quality, biological, cultural, transportation, noise impacts and preliminary engineering). Further that the EIS is not a permit, though rather a disclosure document.
  - Once a DEIS is completed it would be reviewed by HCDA and the public could anticipate having a 45-day public comment period. Public comments would be considered in the Final EIS (FEIS) and changes would be highlighted, HCDA would make determination if modifications in the FEIS were sufficient to address comments. Following HCDA review, the FEIS is presented for approval by the Governor, the accepting authority.

Public comments are summarized below and comment cards are attached.

1) **Park Boundaries**—Slide that shows 3D model of built-out Kaka'ako has the wrong park boundaries.
   Clarification: Noted the boundaries for the slide were not accurate.

2) **Lei of Green**—Connection between Ala Moana Beach Park and Kewalo Basin Park is a continuation of the Lei of Green; very important.
   Clarification: Consider the connection "low hanging fruit" that just makes sense for the benefit of both parks and respective users.

3) **Other Planning Efforts**—Given the City & County master planning of Ala Moana Park, are those efforts being considered and would they compete with what is proposed for Kaka'ako?
   Clarification: Do not see concepts for Kaka'ako competing with Ala Moana planning, but rather being complimentary and reiterating the 2011 lei of green, especially if a connector is provided linking both parks.

4) **EIS Process**—Inquiries about if OHA will participate in the EIS process, when the public can comment on the EIS, when the DEIS will be released, what alternatives will be studied, and how to obtain EIS hardcopies.

Clarification:

- It is likely that OHA will provide comments to this EIS, though OHA will have their own planning process for Kaka'ako parcels under their jurisdiction.
- The public can provide input on the DEIS during 45 day comment period. There isn't a formal comment period on the FEIS before it's presented to HCDA and Governor.
- Had hoped the DEIS would be released in July, though now expect release in the Fall.
- Currently it is too early to know what alternatives will be specifically studied, though several alternatives could be presented with a preferred alternative, or a programmatic DEIS could be done to consider a wider scale and scope.
- While the DEIS and FEIS will be available online on HCDA website, a hard copy can be requested.

5) **Parking**—While an adequate amount and close proximity parking for vehicles are needed, parking for bicycles and access by disabled and elderly need to be considered. Not all park users will need parking on site as demonstrated by popular events like fireworks and lantern festival where people park elsewhere and walk ½ mile or more. A few people don't think that more parking will be necessary in the future because of alternative transportation. The whole point of moving the parking structure and tucking it behind JABSOM in the 2011 Conceptual MP was to reduce surface parking and have more green open space. Pripheral parking is good, though soccer moms and surfers will need a drop off area or use of a trolley/circulator. Major concern over the number of surface parking lots, though keeping street parking and some surface parking is key. Can't really use the street parking along Ohe Street now because of the homeless.

   Clarification:

   - Traffic studies and planning consideration relative to City and County bicycle and rail activities will inform parking requirements. We purposely sought to reconfigure parking and phase to minimize disruption during phasing and maintain green spaces. Parking at grade level was purposely chosen as it's the most benign, connects to large turn around with drop off area and in the future parking demand decreases, it's the most economical should it be converted to park space.
   - Though a balance is needed to determine parking use during day/night and weekday/weekends, as one can't always/only plan for highest peak use.
   - The conceptual design included a turn around that could accommodate needs of elderly, disabled, and park users with equipment. Nothing precludes a circulator being used for park access.

6) **Transportation**—It is important to consider a trolley circulator connection to the park and do a loop between the parks. Given growing role and location of planned rail stations a circulator could minimize need for additional parking. More people will be using alternative transportation, not just rail in the future.

   Clarification: If someone rides the rail or bus, a park circulator could provide an alternative means to access the park. It would require integration to enable the different pieces to come together.

7) **Playgrounds**—Positive reactions to photos of playgrounds.

8) **Community Center**—Concern expressed at the location of the community center.

9) **Amphitheater**—Recognition that artists/performers are foregoing O'ahu for larger venues (i.e. Maui) and development of amphitheater comparable in size to Waikiki Shell enable more artists/performers to return to O'ahu. Noise from amphitheater is a concern (i.e. controlling noise level and accounting for winds carrying sound beyond immediate park), especially if located on waterfront. "Ugh" reaction to many photos shown of outdoor amphitheaters: "We're not in Red Rocks." Concern about the design and visual impact of a stage structure along the waterfront promenade (want as minimal as possible).
   Clarification:
   - Assessing noise levels would be addressed in the EIS. There is already an existing amphitheater and have a baseline of noise levels. The slide shows an amphitheater comparable in size to Waikiki Shell, though there are ways that design and location could mitigate noise impacts.
   - Preference may be for designs that are adjustable or semi-permanent so that when not in use it does not obstruct views.

10) **Commercialization**—This Master Plan should not have large commercial uses. Mention that restaurants and bars would be located along waterfront, too much commercialization can clutter park and congest green space. Beyond the concession, can gauge using food trucks during lunch or specific times on a temporary, non-permanent basis to minimize congestion.
   Clarification:
   - Only a concession and biergarten were presented not multiple restaurants. Financial analysis will be conducted to help determine if restaurant uses are feasible.
   - Ideas of concession and biergarten to generate revenue to reinvest into the park. These are ideas that are not set in stone and serve to present potential different uses and layouts.

Do you have comments to the plan components presented tonight? Please share them here.

Reduce the concrete / add more green
need to take seniors, infants and handicapped into account
No light shades
Keep park for public, not foreign developers, no wedding venues
redo your population study - need to include resident numbers
from Downtown and Chinatown which is park poor
The 15,000 plus have no where to go

Do you have comments to the plan components presented tonight? Please share them here.

Pedestrian Bridge from Kewalo Basin over marina entry more appealing than walking along Ala Moana or improving marina parking lot. I like the idea of waterfront restaurants and beer gardens. At the last Eat the Street the central parking lot was not used for parking and hundreds still showed up by walking / biking / busing. No need to keep parking numbers at current levels, automobile use (Personal) is on the decline

Do you have comments to the plan components presented tonight? Please share them here.

Common design standards re: lei of green to connect shoreline pathways?

Integration of transit, bus, bike, multi-modal transportation.

Conservancy + non-profit partners?

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | OPEN HOUSE JUNE, 2015

Do you have comments to the plan components presented tonight? Please share them here.

NO PARKING STRUCTURES MAKAI OF OLOMEHANI ST.!

Grade-level peripheral - best not in park open space

Location of green amphitheater terracing - this works

Do you have comments to the plan components presented tonight? Please share them here.

HCDA needs to coordinate w OHA on parkland to complete the "lei of Green" plan that existed prior to DHA ownership

No 200' structures in the park, please. Keep the open lawn mid rise further back to Ala Moana Blvd Not in the park area!

Put parking closer to Ala Moana Blvd NOT on shoreline

The greening of area from Ala Moana Blvd to Ocean is great concept

Need to connect with bridge Mauka & Makai

Mauka Makai

HCDA

PBR HAWAII

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KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | Community Open House

~~June 4, 2015~~

JUNE 13, 2015

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KAKA'AKO MAKAI ACTIVE USE FACILITIES MASTER PLAN

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK | Community Open House

~~June 4, 2015~~
JUNE 13, 2015

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DRAFT OPEN HOUSE SERIES 3 MEETING RECORD

DATE: June 15, 2015

DATE OF MEETING: June 13, 2015

SPEAKERS: Catie Cullison/PBR HAWAII & Associates
Russell Chung/PBR HAWAII & Associates
Tom Schnell/PBR HAWAII & Associates

PREPARED BY: Kristen Oleyte/PBR HAWAII & Associates

SUBJECT: KAKA'AKO MAKAI PARKS OPEN HOUSE SERIES 3

The second of two, Series 3 Open House sessions focused on alternative park concepts and the Environmental Impact Statement process. Public attendees numbered seven (including KITV affiliated reporter and cameraperson) and zero comment cards were collected. Oral comments focused on a pedestrian median and bridge, use of technology for park users to learn more about park and history of the area, receptivity to inform food truck location.

- Tom made opening remarks, introduced PBR HAWAII presenters and an HCDA video that provided potential park utilization concepts and opportunities for collaboration relative to the Master Plan effort.

- Following the video, Catie discussed the planning process being utilized, background for the project, and past efforts including the 2011 Master Plan.
  - She explained how current efforts are informed by previous community engagement of the past as well as two HCDA/PBR HAWAII convened Open House sessions and Park Peek event held in 2014.
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- Tom spoke to next steps in the process and how the feedback received today will inform the preparation of a Draft Environmental Impact Statement (DEIS).
  - Referenced the EIS Preparation Notice (EISPN) meeting held on April 16, 2015, in order to receive comments on setting up the DEIS scope.
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  - Once a DEIS is completed it would be reviewed by HCDA and the public could anticipate having a 45-day public comment period. Public comments would be considered in the Final EIS (FEIS) and changes would be highlighted, HCDA would make determination if modifications in the FEIS were sufficient to address comments. Following HCDA review, the FEIS is presented for approval by the Governor, the accepting authority.

Public comments are summarized below.

1) **Overall Plan**—Multiple comments expressed overall positive response to plan and presentation by PBR HAWAII in really incorporating community input and reflecting in plan.

2) **Biergarten**—Attendee disliked inclusion of biergarten, as opposed to other park users. A concern about trying to compete with anticipated new commercial ventures elsewhere in Kaka'ako Makai was raised.

3) **Coordination**—Recognized PBR HAWAII does not have control of other parcels, though highlighted the importance of coordination with other Kaka'ako developers (named Kamehameha Schools, Howard Hughes Corporation, City & County, Office of Hawaiian Affairs) so the Parks don't create competing things.
   Clarification: While there is a defined park scope and boundaries, planning is considering what others are pursuing within the larger Kaka'ako area and how people are accessing parks presently and in the future (i.e. City & County Bicycle Program, potential lei of green connector from Ala Moana). Noted intent is not to create competing areas, though compliment and be mindful of other on-going planning efforts.

4) **Connectivity**—Encouraged tie back to neighborhoods, as many vehicles park north of park (Cooke, Pi'ikoi, or Kamake'e St.) so connection to park is important. Identified Ala Moana Blvd. as physical divide to access parks and suggested widening of green space median (similar to what's in front of Ala Moana Shopping Center) to extend West in front of Kaka'ako parks, enabling pedestrians to cross safely and cross half-way at a time as needed. Emphasized this should be done sooner rather than later, as the area is further developed it is less likely to occur. Attendees suggested use of pedestrian bridge that could be designed to be a park feature/extension of the park that was not intrusive to surrounding environment instead of green median, though an attendee countered that one pedestrian bridge at Cooke Street is not enough, multiple bridges needed and focus should be at point of conflict at ground level via a median. Additional comments for a pedestrian bridge that could follow yellow line in presentation, incorporating art or feature that reflect history of the area. The pedestrian bridge should be part of the park experience.
   Clarification: Facilitating park access is important. Discussing green median and pedestrian bridge are good ideas to talk about, glad we had this discussion today.
   - Establishing green median may require more than just modifying lanes on Ala Moana Blvd. Will require significant coordination with Hawai'i Department of Transportation, as it may impact flow of traffic on Pi'ikoi and respective parallel streets, as well as impact and alter access to Waikiki, which is a much larger issue. Attendee acknowledged a dedicated study would be required for green median and Hawaii DOT would need to be involved.
   - Pedestrian bridge(s) could be designed to facilitate park access in a way that isn't over-burdensome to neighboring roadways and draws people into park. One main bridge could be at Cooke St. though it wouldn't be only way to access the park. Good to consider feasibility of green median, though many people that jog/walk along paths, they'll likely continue on path with least interruptions.

5) **Circulation**—Widening of paths is visually important in connecting spaces. The area were boats are currently being serviced are separated from park paths, efforts that can promote circulation among boat area is desirable.
   Clarification: Acknowledge access paths are important for circulation. Highlighted maintaining forward lei of green concept and importance of connecting Ala Moana Park to the Makai Kaka'ako Parks.

6) **Parking**—Shouldn't shy away from having parking structure if it could result in less scattered parking and more green space. Behind the mounds, near UH Medical Center could serve as good place to locate multi-level lot with minimal impact on park views. Proposed purposely design for less vehicle parking so people use alternative transportation (walk, bike). The San Francisco Golden Gate Park is an example of scattered parking, enabling users to access specific portions of park. An attendee expressed concern about establishment of contiguous walk way system like High Line Park in New York as only considers views not the blight that remains under walkway.
   Clarification: Parking locations are notional and sought to open up surface space for other things. Considering not just cars, though bicycle access given the City & County's plans and by having pedestrian path could encourage more to access the park by walking or cycling.

7) **Food Trucks**—Noticed design had only a scattering of areas for food. Would love to see more prominent design. Given experience with "eat-er-tainment" in the last five years, it brings community out and makes connections with commerce/supporting local. Should be more than just lunch wagon, should be an amplified, turned up part of park design. As OHA has frontage on Ohe St. HCDA could develop eateries like those in Bryant Park that don't take up park space through provide food near park.
Clarification: The design depicted where possible areas for food would be located. Would welcome opportunity to talk further with Street Gindz on past experiences and where food trucks could be located as doesn't look like parking could serve as event area.

8) **Multi-Age Activities**—Referenced St. Louis Children's museum as playing an important role in imagery/identity as it's a place where they up-cycle. The Museum has areas not just for young kids (like Discovery Center), though for multiple ages and varied activities where kids can learn and grow along with parents.
Clarification—Seek to provide park activities that appeal to broad range of users of all ages. Value receiving feed-back on adventure area in park and family areas, so again park engages multiple ages (children to adult), in complimenting what area already offers for education/learning.

9) **Technology**—Liked idea of informational signage and suggested use of that infrastructure to implement technology. Could develop digital kiosk with IP for outdoor use, could use small screen (i.e. FM broadcaster) with a connection link code to activate smart devises about what's in the area, history/culture, or upcoming events as physically pass by beacons (used by Apple to communicate promotions with customers). Implementing technology was well received by attendees.
Clarification: Good suggestion for integrating technology to not just support navigating/wayfinding through park, though possibly include information about history, cultural significance of park area, events, or activities..

10) **Revenue Generation**—Having a vision for the park is good and wish list things are awesome. However, what about revenue generation? Revenue generators need to be aligned to service what the community wants and address $1 million maintenance cost.
Clarification: Good point, as plans need to consider ways to generate revenue to re-invest in park. The parks are an amenity and given neighboring residential developments could charge maintenance and association dues. HCDA staff noted that could be pursued though it may require legislation.

11) **Amphitheater**—Positive overall response to amphitheater.

Appendix B:
ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) CONSULTATION

Kakaako Makai Parks Active Use Facilities Master Plan
ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) CONSULTATION

Agencies/Organizations/Individuals	EISPN Consultation	Comment Date
Hawaii Community Development Authority	Yes	
Office of Envrionmental Quality	Yes	
STATE		
Department of Agriculture	Yes	
Department of Accounting and General Services	Yes	4/17/2015
Department of Business, Economic Development & Tourism	Yes	
DBEDT - Research Division Library	Yes	
DBEDT - Office of Planning	Yes	4/6/2015
DBEDT - Energy Division	Yes	
Department of Defense	Yes	Not dated
Department of Hawaiian Home Lands	Yes	
Department of Health	Yes	
Department of Health, Environmental Planning Office	Yes	3/24/2015
Department of Health, Clean Water Branch	Yes	4/1/2015
Department of Education	Yes	4/21/2015
Department of Land and Natural Resources	Yes	4/22/2015
DLNR - SHPD	Yes	6/3/2015
DLNR - Commission on Water Resource Management	Yes	4/23/2015
DLNR - Office of Conservation and Coastal Lands	Yes	4/10/2015
Department of Transportation	Yes	
Office of Hawaiian Affairs	Yes	4/21/2015
Legislative Reference Bureau Library	Yes	
UNIVERSITY OF HAWAII		
UH Water Resources Research Center	Yes	
UH Environmental Center	Yes	
UH Marine Option Program	Yes	
UH Thomas H. Hamilton Library	Yes	
UH Edwin H. Mookini Library	Yes	
UH Maui College Library	Yes	
UH Kaua'i Community College Library	Yes	
LIBRARIES		
Hawaii State Library - Hawaii Documents Center	Yes	
Kaimuki Regional Library	Yes	
Kaneohe Regional Library	Yes	
Pearl City Regional Library	Yes	
Hawaii Kai Regional Library	Yes	
Hilo Regional Library	Yes	
Kahului Regional Library	Yes	
Lihue Regional Library	Yes	
NEWS MEDIA		
Honolulu Star Advertiser	Yes	
Hawaii Tribune Herald	Yes	
West Hawaii Today	Yes	
The Garden Island	Yes	
Maui News	Yes	
Moloka'i Dispatch	Yes	
Honolulu Civil Beat	Yes	

FEDERAL		
U.S. Army Corps of Engineers, Honolulu District	Yes	
U.S. Geological Survey	Yes	4/9/2015
U.S. Fish and Wildlife Service	Yes	
National Marine Fisheries Service	Yes	
Federal Highways Administration	Yes	
Department of the Interior USGS Pacific Islands Water Science Center	Yes	
Department of the Interior National Park Service	Yes	
Department of Agriculture NRCS	Yes	
Department of the Navy	Yes	
Federal Aviation Administration	Yes	
Federal Transit Administration	Yes	
Coast Guard	Yes	
Environmental Protection Agency	Yes	
CITY & COUNTY OF HONOLULU		
Board of Water Supply	Yes	5/26/2015
Department of Customer Services, Municipal Library	Yes	
Department of Design and Construction	Yes	4/24/2015
Department of Environmental Services	Yes	4/17/2015
Department of Facility Maintenance	Yes	4/16/2015
Fire Department	Yes	4/9/2015
Department of Community Services	Yes	
Department of Planning and Permitting	Yes	4/22/2015
Department of Parks and Recreation	Yes	4/8/2015
Police Department	Yes	4/10/2015
Department of Transportation Services	Yes	4/21/2015
ELECTED OFFICIALS		
Senator Brickwood Galuteria	Yes	
Representative Tom Brower	Yes	
Coucnilmember Ernest Martin	Yes	
Councilmember Ikaika Anderson	Yes	
Councilmember Kymberly Marcos Pine	Yes	
Councilmember Trevor Ozawa	Yes	
Coucilmember Ann Kobayashi	Yes	
Coucnilmember Carol Fukunaga	Yes	
Councilmember Joey Manahan	Yes	
Councilmember Brandon Elefante	Yes	
Coucnilmember Ron Menor	Yes	
ELECTED OFFICIALS		
Mayor Kirk Cardwell	Yes	
U.S. Senator Brian Schatz	Yes	
U.S. Senator Mazie Hirono	Yes	
U.S. Representative Tusli Gabbard	Yes	
OTHER ORGANIZATIONS AND INDIVIDUALS		
Hawaiian Electric Company	Yes	
Friends of Kewalos	Yes	4/22/2015
Kewalo Keiki Fishing Conservancy	Yes	
Howard Hughes Corporation	Yes	
Kewalo Harbor Master	Yes	
Michelle Matson, Kakaako Makai Community Planning Advisory Council	Yes	
EISPN Public Scoping Meeting Comment 1	Yes	4/16/2015
EISPN Public Scoping Meeting Comment 1 b	Yes	4/16/2015

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

APR 17 2015

(P)1078.5

Mr. Tom Schnell, AICP, Principal
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813

Dear Mr. Schnell:

Subject: Environmental Impact Statement Preparation Notice
Kaka'ako Makai Parks Active Use Facilities Master Plan
Honolulu, Island of Oahu
TMK: Various

This is in response to your letter dated March 23, 2015 regarding 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 there are any questions, your staff may call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

JAMES K. KURATA
Public Works Administrator

DD:lnn
c: Mr. Anthony Ching, HCDA

PBR HAWAII
& ASSOCIATES, INC.

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Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED®AP
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DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

James K. Kurata, Public Works Administrator
State of Hawai‘i
Department of Accounting and General Services
P.O. Box 119
Honolulu, HI 96810-0119

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Kurata,

Thank you for the Department of Accounting and General Services’ (DAGS) letter ((P)1078.5) dated April 17, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we acknowledge that the proposed project does not impact any of the DAGS’ projects or existing facilities and that you have no comments to offer at this time.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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1001 Bishop Street, Suite 650
Honolulu, Hawai‘i 96813-3484
Tel: (808) 521-5631
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E-mail: sysadmin@pbrhawaii.com

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1719 Haleloke Street
Hilo, Hawai‘i 96720-1553
Tel/Cel: (808) 315-6878

O:\Job26\2654.11 HCDA-Kakaako Makai MP-EIS\EIS\EISPN\Comments & Responses\Responses\DAGS.docx

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-14707

April 6, 2015

To: Anthony J.H. Ching, Executive Director
Hawaii Community Development Authority

From: Leo R. Asuncion, Acting Director

Subject: Environmental Impact Statement Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan, Honolulu, Oahu, Hawaii

Thank you for the opportunity to provide comments on the subject Environmental Impact Statement Preparation Notice (EISPN).

According to the subject EISPN, the Kaka'ako Makai Parks Active Use Facilities Master Plan will be prepared to propose a range of park improvements for sustainable, re-energized active uses and enhanced gathering places within the Kaka'ako Makai Parks, including Kaka'ako Waterfront Park, Kaka'ako Gateway Park, and Kewalo Basin Park. The triggers for Hawaii Revised Statutes (HRS) Chapter 343 requirements for the proposed Park Improvements Master Plan include the use of State land and any proposed use within the shoreline area as defined in HRS § 205A-41.

The Office of Planning (OP) has reviewed the subject EISPN and has the following comments to offer.

1. OP provides technical assistance to state and county agencies in administering the statewide planning system in HRS Chapter 226, the Hawaii State Plan. The Hawaii State Plan presents the goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources through the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

   The subject EIS should include an analysis on the Hawaii State Plan, HRS Chapter 226, that addresses how the proposed Makai Parks Active Use Facilities Master Plan conforms with state and county plans, policies and controls. The analysis should include a discussion on the ability of the proposed Makai Parks Active Use Facilities

Master Plan to meet the objectives and policies, and priority guidelines listed in HRS Chapter 226.

2. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

   HRS Chapter 205A requires all state and county agencies to enforce the coastal zone management area (CZM) objectives and policies. The assessment on compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343.

   The subject EIS should include an assessment as to how the proposed action conforms to CZM objectives and its supporting policies set forth in HRS § 205A-2. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection and marine resources.

3. We note that several projects have been proposed within the Kaka'ako Makai Area. The EIS should assess cumulative impact which may result from the incremental impact of the subject proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

4. The proposed park improvements are located within the Makai Area of the Kaka'ako Community Development District. Pursuant to HRS § 206E-8.5, all requests for developments within the SMA and shoreline setback variances for developments within a community development district, for which a community development plan has been developed and approved in accordance with HRS § 206E-5, shall be submitted to and reviewed by OP. Please consult with our office and refer to Hawaii Administrative Rules Chapter 15-150 for the requirements of SMA use.

If you have any questions regarding this comment letter, please contact Shichao Li of our CZM Program at (808) 587-2841.

c: Mr. Tom Schnell, PBR Hawaii & Associates, Inc.

PBR HAWAII
& ASSOCIATES, INC.

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April 26, 2016

Leo R. Asuncion, Acting Director
State of Hawai‘i
Department of Business, Economic Development, and Tourism
Office of Planning
235 South Beretania Street, 6th Floor
Honolulu, HI 96804

Attention: Shichao Li

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Asuncion,

Thank you for the Office of Planning’s letter (P-14707) dated April 6, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. The Draft EIS will include an analysis of the Hawai‘i State Plan, Chapter 226, HRS that addresses how the proposed Kaka‘ako Makai Parks Active Use Facilities Master Plan conforms to state and county plans, policies, and controls.

2. The Draft EIS will include an assessment as to how the proposed Kaka‘ako Makai Parks Active Use Facilities Master Plan conforms to the Coastal Zone Management objectives and supporting policies that are set forth in 205A-2, HRS.

3. The Draft EIS will assess the cumulative impact that may result from the incremental impact of the Kaka‘ako Makai Parks Active Use Facilities Master Plan when added to other past, present, and reasonably foreseeable future actions.

4. Although the EIS for the Kaka‘ako Makai Parks Active Use Facilities Master Plan will be largely programmatic, HCDA anticipates obtaining the necessary SMA and shoreline setback permits prior to construction or site work on any Master Plan element. At the appropriate time consultation will be undertaken with your office regarding SMA requirements under Chapter 15-150, Hawai‘i Administrative Rules.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
BRIGADIER GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
COLONEL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

Mr. Tom Schnell, AICP, Principal
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484

Subject: Environmental Impact Statement Preparation Notice (EISPN) for the Kakaako Makai Parks Active Use Facilities Master Plan, Honolulu, Oahu, Hawaii

Dear Mr. Schnell:

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 project at this time.

Please contact this office upon posting of the Draft Environment Impact Statement in the Office of Environmental Quality Control (OEQC) Environmental Newsletter. Should you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-8441.

Sincerely,

for ARTHUR J. LOGAN
Brigadier General
Hawaii National Guard
Adjutant General

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency
Mr. Anthony Ching, Executive Director, Hawaii Community Development Agency

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& ASSOCIATES, INC.

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DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Brigadier General Arthur J. Logan
State of Hawai‘i
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, HI 96816-4495

Attention: Mr. Lloyd Maki

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Brigadier General Logan,

Thank you for the State of Hawai‘i Department of Defense’s letter regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we acknowledged that you have no comments to offer relative to this project at this time.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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Tel/Cel: (808) 315-6878

DAVID Y. IGE
GOVERNOR OF HAWAII

COPY

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 15-067

March 24, 2015

Mr. Anthony J.H. Ching
Executive Director
Hawaii Community Development Authority
461 Cooke Street
Honolulu, Hawaii 96813

Dear Mr. Ching:

SUBJECT: **EISPN for Kakaako Makai Parks**
TMK: (1) 2-1-058: 131 (por.), (1) 2-1-0059: 023, 024, 025, and 026, ((1) 2-10060: 007, 008, 029 and 030, Honolulu, Oahu

The Department of Health (DOH), Environmental Planning Office (EPO), thanks you for allowing us to review and comment on the proposed **Kakaako Makai Parks EISPN** available on the OEQC website at: http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2015-03-23-OA-5B-EISPN-Kakaako-Makai-Parks-Active-Use-Facilities-Master-Plan.pdf

EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal 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. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: Tom Schnell, PBR HAWAII & Associates, Inc., 1001 Bishop Street, Suite 650, Honolulu, HI 96813
CWB, TSP {via email only}

PBR HAWAII
& ASSOCIATES, INC.

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April 26, 2016

Laura Leialoha Phillips McIntyre, Program Manager
Environmental Planning Office
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Ms. McIntyre,

Thank you for the Department of Health Environmental Planning Office's (DOH-EPO) letter (EPO 15-067) dated March 24, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. We have reviewed the standard comments and available strategies to support sustainable and healthy design, and we acknowledge that the Master Plan is required to adhere to these comments.
2. We will review the Hawai'i Environmental Health Portal and the Water Quality Standards Maps for information relevant to the Kaka'ako Makai Parks Active Use Facilities Master Plan. The Draft EIS will include any relevant information from these two sources.
3. We appreciate the references to the many sources available on strategies to support the sustainable design of buildings and communities. The Kaka'ako Makai Parks Active Use Facilities Master Plan will include elements of sustainability.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

O:\Job26\2654.11 HCDA-Kakaako Makai MP-EIS\EIS\EISPN\Comments & Responses\Responses\DOH-EPO.docx

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:

03038PCTM.15

April 1, 2015

Mr. Tom Schnell, AICP
Principal
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

SUBJECT: Comments on the Environmental Impact Statement (EIS) for Kakaako Makai Parks Active Use Facilities Master Plan Honolulu, Island of Oahu, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated March 10, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's 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.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological

bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at:http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

CTM:ay

c: Water Division (WTR-5), CWA Standards and Permits Office, EPA, Region 9
[via e-mail sablad.elizabeth@epamail.epa.gov only]

PBR HAWAII
& ASSOCIATES, INC.

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April 26, 2016

Alec Wong, Chief
Clean Water Branch
Department of Health
State of Hawai'i
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Wong,

Thank you for the Department of Health Clean Water Branch's letter (03038PCTM.15**)** dated April 1, 2015 regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. Any improvements implemented as part of the Kaka'ako Makai Parks Active Use Facilities Master Plan will be in compliance with the following:
    a. Anti-degradation policy (Chapter 11-54-1.1, Hawaii Administrative Rules (HAR));
    b. Designated uses (Chapter 11-54-3, HAR); and
    c. Water quality criteria (Chapter 11.54-4 through 11-54-8, HAR).

2. Although the Kaka'ako Makai Parks Active Use Facilities Master Plan is primarily programmatic, HCDA will obtain a National Pollutant Discharge Elimination System (NPDES) where necessary. We appreciate the information about NPDES deadlines, forms, and filing fees.

3. At this time, HCDA does not anticipate doing work in, over, or under waters of the United States. However, should plans change prior to the Draft EIS, HCDA will coordinate with the Army Corps of Engineers, Regulatory Branch regarding their permitting requirements.

4. All discharges related to construction or operation of Master Plan elements will be in compliance with the State's Water Quality Standards contained in HAR, Chapter 11-54 and 11-55. The Draft EIS will include a discussion of measures to ensure compliance.

5. We acknowledge the state’s position that all projects must reduce, reuse and recycle to protect, restore, and sustain water quality and beneficial uses of state waters. HCDA intends to incorporate elements of sustainability into the design of the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

CC: HCDA

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

April 21, 2015

PBR Hawaii & Associates
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Attention: Mr. Tom Schnell

Re: Environmental Impact Statement Preparation Notice for the Kakaako Makai Parks Active Use Facilities Master Plan

Dear Mr. Schnell:

The Department of Education (DOE) appreciates the opportunity to review and comment on the Environmental Impact Statement Preparation Notice (EISPN) for the Kakaako Makai Parks Active Use Facilities Master Plan.

Due to the expectation of very concentrated, high-density population growth within the Kakaako Community Development District, there will be a dire need for open public space in this urban area where large tracks of public land is already scarce. Consistent with the objectives of the master plan, DOE would strongly encourage park improvements that would accommodate organized team sports, recreation and activities. Such unobstructed openness would greatly promote and enhance "play" of a high-density live, work and play neighborhood.

If you have any questions, please contact me at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Anthony Ching, Hawaii Community Development Authority

PBR HAWAII
& ASSOCIATES, INC.

PRINCIPALS

THOMAS S. WITTEN, FASLA
Chairman

R. STAN DUNCAN, ASLA
President

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TOM SCHNELL, AICP
Principal

KIMI MIKAMI YUEN, LEED® AP BD+C
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Chairman Emeritus

ASSOCIATES

RAYMOND T. HIGA, ASLA
Senior Associate

CATIE CULLISON, AICP
Senior Associate

ROY TAKEMOTO
Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED® AP
Associate

DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Kenneth G. Masden II, Public Works Manager
State of Hawai‘i
Department of Education
Planning Section
P.O. Box 2360
Honolulu, HI 96804

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Masden II,

Thank you for the Department of Education’s (DOE) letter dated April 21, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we acknowledge DOE’s encouragement that park improvements accommodate organized team sports, recreation, and activities. Also, we note your comment that unobstructed openness would greatly promote and enhance “play” of a high-density live, work and play neighborhood. This is consistent with an objective of the Master Plan of the Kaka‘ako Community Development District.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai‘i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai‘i 96720-1553
Tel/Cel: (808) 315-6878

O:\Job26\2654.11 HCDA-Kakaako Makai MP-EIS\EIS\EISPN\Comments & Responses\Responses\DOE.docx

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 22, 2015

Hawai`i Community Development Authority
Attn: Anthony Ching, Executive Director
547 Queen Street
Honolulu, HI 96813

via email: tony@hcdaweb.org

PBR HAWAII & Associates, Inc.
Attn: Tom Schnell, Principal
1001 Bishop Street, Suite 650
Honolulu, HI 96813

via email: tschnell@pbrhawaii.com

Dear Mr. Ching and Mr. Schnell,

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Kaka`ako Makai Parks Active Use Facilities Master Plan

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 (1) Land Division – Oahu District; (2) Division of Forestry & Wildlife; (3) Division of Boating & Ocean Recreation; (4) Division of State Parks; (5) Office of Conservation and Coastal Lands; (6) Division of Aquatic Resources; and (7) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X 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 the Kaka'ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka'ako Waterfront Park, Kaka'ako Gateway Park, Kewalo Basin Park, Honolulu, O'ahu; for TMK(s), please see table on applicant's letter
APPLICANT: Hawai'i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at the Office of Environmental Quality Control's website: http://oeqc.doh.hawaii.gov/

Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: Chee
Print Name: Jay Chee
Date: 4/2/2015

dist. 4/1/15

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X 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 the Kaka`ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter
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Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

(X) We have no objections.
( ) We have no comments.
( ) Comments are attached.

Signed: Randy Kennedy
Print Name: Randy Kennedy
Date: 4/2/15

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

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DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X 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 the Kaka`ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter
APPLICANT: Hawai`i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

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Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed:
Print Name: Edward R. Underwood
Date: 4/6/15

APR 2'15AM 6:39BOR ADM

56543

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
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W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X 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 the Kaka`ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter
APPLICANT: Hawai`i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

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Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]
Print Name: CURT COTTRELL
Date: 4.7.15

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

COR: OCCL: AJR

COR: OA-15-154

APR 10 2015

Tom Schnell, AICP
1001 Bishop St., Ste. 650
Honolulu, HI 96813

SUBJECT: **ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) FOR THE KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN**
Honolulu District, Island of Oahu
TMKs: (1) 2-1-060:008, 029-030 and (1) 2-1-058:131

Dear Mr. Schnell,

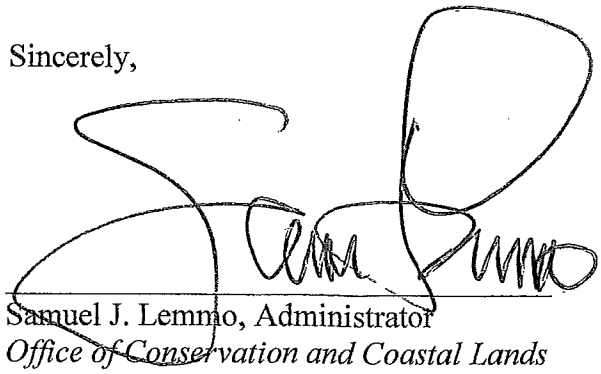
We are in receipt of your request for comments dated *April 1, 2015*, regarding the Environmental Impact Statement Preparation Notice (EISPN) for the proposed *Kaka'ako Makai Parks Active use Facilities Master Plan*; more specifically the *Kaka'ako Waterfront Park* and *Kewalo Basin Park* located on the subject parcels.

The Office of Conservation and Coastal Lands (OCCL) would like to remind the applicant that lands located *makai* (seaward) of the shoreline are considered to be within the State Land Use Conservation District *Resource* Subzone. Any work proposed makai of the shoreline may require some type of authorization or approval from this office. For information regarding a *Shoreline Certification*, please visit http://ags.hawaii.gov/survey/shoreline/ for details on how to apply, and the procedures for determining the location of the shoreline.

Act 83 (*HB 1714*), or the *Hawaii Climate Adaptation Initiative Act*, aims to address the potential effects of Global Climate Change and Sea Level Rise on Hawaii's existing and future infrastructure, environmental resource management, and development. At this time the OCCL and the Office of Planning (OP) are coordinating the development of a State-wide *Sea Level Rise Vulnerability and Adaptation* report that will provide guidance for future development projects. The OCCL would like to recommend that the applicant address, in the Environmental Impact Statement (EIS), any potential long- and short-term influences on the proposed project with regards to Global Climate Change and subsequent Sea Level Rise. This is especially relevant for the development of low-lying areas such as Kaka'ako.

If you have any questions regarding this correspondence please contact Alex J. Roy, M.Sc. of our Office of Conservation and Coastal Lands staff at 808-587-0316.

Sincerely,



Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

CC: *Chairperson*
ODLO
Hawai'i Community Development Agency

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

RECEIVED
APR 01 2015
AQUATIC RESOURCES

DAR #5094

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

JK
AT

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Environmental Impact Statement Preparation Notice ((EISPN) for the Kaka`ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter
APPLICANT: Hawai`i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at the Office of Environmental Quality Control's website: http://oeqc.doh.hawaii.gov/

Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Alton Miyasaka
Print Name: Alton Miyasaka
Date: 4-9-15

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: April 9, 2015`
DAR # 5094

MEMORANDUM 4-9-15

TO: Alton Miyasaka, Acting Administrator
FROM: Annette Tagawa, Aquatic Biologist AT
SUBJECT: Environmental Impact Statement Preparation Notice

Comment	Date Request	Receipt	Referral	Due Date
	Apr. 1, 2015	Apr. 1, 2015	Apr. 1, 2015	Apr. 21, 2015

Requested by: Russell Y. Tsuji, Land Administrator

Summary of Proposed Project

Title: Environmental Impact Statement Preparation Notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan

Project by: Hawaii Community Development Authority (HCDA), by its consultant, PBR HAWAII & Associates, Inc.

Location: Kaka'ako Waterfront Park, Kaka'ako Gateway Park, Kewalo Basin Park, Honolulu, Oahu TMK: (1) 2-1-060:008, (1) 2-1-060:029, (1) 2-1-060:030, (1) 2-1-060:007, (1) 2-1-059:023, (1) 2-1-059:024, (1) 2-1-059:025, (1) 2-1-059:026, (1) 2-1-058:131 (por.)

Brief Description: An active use facilities master plan will be prepared for proposed improvements to the Kaka'ako Makai Parks (Kaka'ako Waterfront Park, Kaka'ako Gateway Park and Kewalo Basin Park). The purpose of the Kaka'ako Makai Parks Active Use Facilities Master Plan is to propose a broad range of park improvements that will serve as the backdrop for sustainable, re-energized, active uses and enhanced gathering places within the Kaka'ako Makai Parks. The primary objective of the master plan is to set forth a viable plan for park improvements that will encourage and support active uses such as gathering with family and friends, recreation, water sports, physical activity, quiet contemplation, cultural practice or expression, experiential learning, nature viewing and free expression.

(over)

Under the provisions of Act 172 (2012), HCDA has determined at the outset that and Environmental Impact Statement is required for the master plan improvements for the Kaka'ako Makai Parks and is providing notification of the intent to do so.

Comments: The proposed project area is situated in a highly developed area and the Division has no objection to the proposed project to develop the Kaka'ako Makai Parks. However, being that the proposed project area is situated adjacent to the shoreline, the Division is concerned with the short and long term effects of construction activities to the aquatic environment. We highly suggest that Best Management Practices such as preventing any siltation, debris and chemicals due to construction activities from entering the aquatic environment along with other mitigative measures be included in the EIS to specifically address potential aquatic environmental impacts.

Thank you for providing DAR the opportunity to review and comment on the proposed project. We request the opportunity to review and comment on the prepared EIS for this project when it becomes available.

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DANIEL S. QUINN
INTERIM FIRST DEPUTY

W. ROY HARDY
ACTING DEPUTY DIRECTOR - WATER

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

'15 APR 1 AM 10:38 ENGINEERING

MEMORANDUM

TO: FR:

DLNR Agencies:
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: TO:
Russell Y. Tsuji, Land Administrator

SUBJECT: Environmental Impact Statement Preparation Notice ((EISPN) for the Kaka`ako Makai Parks Active Use Facilities Master Plan

LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter

APPLICANT: Hawai`i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at the Office of Environmental Quality Control's website: http://oeqc.doh.hawaii.gov/

Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Carty Takashige
Print Name: for Carty S. Chang, Chief Engineer
Date: 4/20/15

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: EISPN for Kaka'ako Makai Parks Active Use Facilities Master Plan
Oahu.023

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zones AE and X. The National Flood Insurance Program regulates developments within Zone AE as indicated in bold letters below, but not in Zone X.**

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is also located in Zone ____.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) **Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.**

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) **Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.**

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

( ) Ms. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

(X) **The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.**

(X) **The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.**

( ) Additional Comments: _____

_____

( ) Other: _____

_____

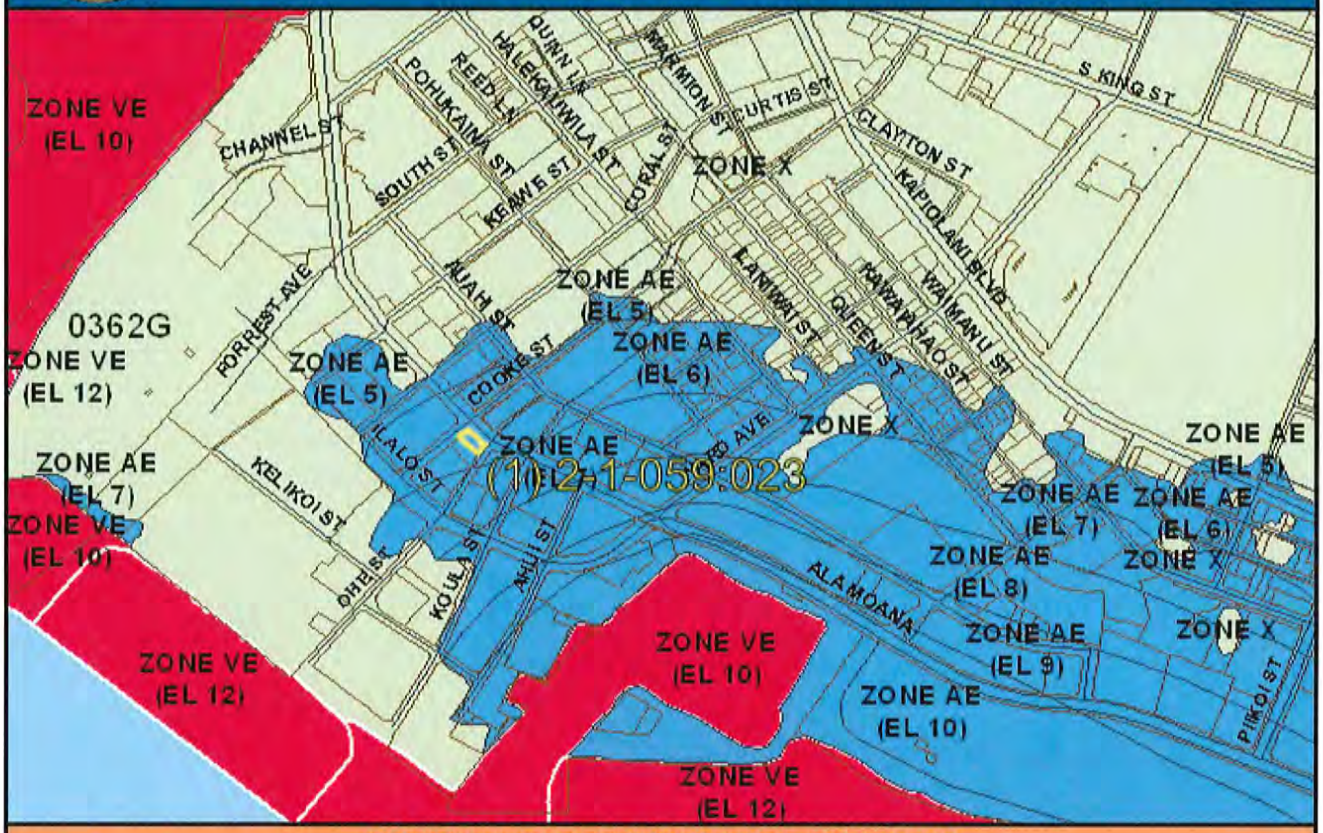
Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
for CARTY S. CHANG, CHIEF ENGINEER

Date: 4/20/15

State of Hawaii

FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HONOLULU
TMK NO:	(1) 2-1-059-023
PARCEL ADDRESS:	
FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	15003C0362G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

PARCEL DATA FROM:	APRIL 2014
IMAGERY DATA FROM:	MAY 2006

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
City and County of Honolulu	
Mario Siu-Li, CFM	(808) 768-8098
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

PBR HAWAII
& ASSOCIATES, INC.

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Senior Associate

ROY TAKEMOTO
Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED® AP
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DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
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E-mail: sysadmin@pbrhawaii.com

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

printed on recycled paper

April 26, 2016

Russell Y. Tsuji, Land Administrator
Department of Land and Natural Resources
State of Hawai‘i
P.O. Box 621
Honolulu, HI 96809

Attention: Mr. Steve Molmen

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Tsuji,

Thank you for your Department’s letter dated April 22, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. **Land Division, O‘ahu District.** We acknowledge that the Division has no comments at this time.

2. **Division of Forestry and Wildlife.** We acknowledge that the Division has no objections at this time.

3. **Division of Boating and Ocean Recreation.** We acknowledge that the Division has no comments at this time.

4. **Division of State Parks.** We acknowledge the Division has no comments at this time.

5. **Office of Conservation and Coastal Lands (COR: OA-15-154).** We have reviewed the information you suggested regarding a shoreline certification. Where necessary, HCDA anticipates obtaining a shoreline certification. We appreciate the information on global climate change and sea level rise. The Draft EIS will include a discussion of the short- and long-term impacts on the proposed elements of the Kaka‘ako Makai Parks Active Use Facilities Master Plan from global climate change and sea level rise.

6. **Division of Aquatic Resources (#5094).** We acknowledge that the Division has no objections to the Kaka‘ako Makai Parks Active Use Facilities Master Plan. The Draft EIS will include a discussion of best management practices that will be used to prevent any siltation, debris, or chemicals from entering the aquatic environment during construction.

7. **Engineering Division.** We appreciate the information that the Kaka‘ako Makai Parks are located in Zones AE and X according to the Flood Insurance Rate Map. Where applicable, the elements proposed in the Kaka‘ako Makai Parks Active Use Facilities Master Plan will comply with the rules and regulations of the National Flood Insurance Program presented in Title 44 of the Code of Federal Regulations. The Draft EIS will include estimated water demands and calculations and a discussion of the infrastructure needed to meet these demands.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

May 14, 2015

Russell Y. Tsuji, Administrator
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, HI 96809

LOG NO: 2015.01166
DOC NO: 1505GC15
Archaeology, Architecture

Dear Mr. Tsuji:

SUBJECT: **Chapter 6E-8 Historic Preservation Review**
Environmental Impact Statement Preparation Notice (EISPN) for
Kaka‘ako Makai Parks Active Use Facilities Master Plan
Kaka‘ako Waterfront Park, Kaka‘ako Gateway Park, and Kewalo Basin
Kaka‘ako Ahupuaa, Kona District, Island of O‘ahu
TMK: (1) 2-1-058, 059, 060 various

Thank you for the opportunity to review and comment on the Kaka‘ako Makai Parks Active Use Facilities Master Plan and EISPN. The applicant, Hawaii Community Development Agency (HCDA), proposes to set forth a viable plan for park improvements that will encourage and support active uses.

SHPD requests the opportunity to review and comment on any proposed development related to the Kaka‘ako Makai Parks Active Use Facilities Master Plan involving potential historic architectural resources, any ground disturbing activities, and/or any federal permits.

Please contact Jessica Puff at (808) 692-8023 or at Jessica.L.Puff@hawaii.gov if you have any questions or concerns regarding architectural resources. Please me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding archaeological resources or this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD.
O‘ahu Lead Archaeologist
Acting Archaeological Branch Chief

cc: Anthony Ching, Executive Director, HCDA (tony@hcdaweb.org)
Tom Schnell, AICP, Principal, PBR Hawaii (tschnell@pbrhawaii.com)

PBR HAWAII
& ASSOCIATES, INC.

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ROY TAKEMOTO
Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED®AP
Associate

DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Susan A. Lebo, PhD, O‘ahu Lead Archaeologist
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawai‘i
601 Kamokila Boulevard, Suite 555
Kapolei, HI 96707

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Dr. Lebo:

Thank you for the State Historic Preservation Division's (SHPD) letter (*LOG NO: 2015.01166, DOC NO: 150GC15)* dated May 14, 2015 regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comments and provide the following response.

HCDA acknowledges that Section 6E-8 HRS is applicable to proposed development in the park. Therefore, prior to design of Park elements, HCDA will provide SHPD with an opportunity for review of the effect of the Park elements on any historic property, ground disturbing activities, and/or any federal permits, consistent, with section 6E-43, HRS.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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E-mail: sysadmin@pbrhawaii.com

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

O:\Job26\2654.11 HCDA-Kakaako Makai MP-EIS\EIS\EISPN\Comments & Responses\Responses\SHPD.docx

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

W. ROY HARDY
ACTING 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
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 23, 2015

Hawai'i Community Development Authority
Attn: Anthony Ching, Executive Director
547 Queen Street
Honolulu, HI 96813

via email: tony@hcdaweb.org

PBR HAWAII & Associates, Inc.
Attn: Tom Schnell, Principal
1001 Bishop Street, Suite 650
Honolulu, HI 96813

via email: tschnell@pbrhawaii.com

Dear Mr. Ching and Mr. Schnell,

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments sent to you dated April 22, 2015, enclosed are additional comments from the Commission of Water Resource Management on the subject matter. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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ACTING DEPUTY DIRECTOR - WATER

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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 31, 2015

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X 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 the Kaka`ako Makai Parks Active Use Facilities Master Plan
LOCATION: Kaka`ako Waterfront Park, Kaka`ako Gateway Park, Kewalo Basin Park, Honolulu, O`ahu; for TMK(s), please see table on applicant's letter
APPLICANT: Hawai`i Community Development Agency by its consultant PBR HAWAII & Associates, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at the Office of Environmental Quality Control's website: http://oeqc.doh.hawaii.gov/

Please submit any comments by April 21, 2015. 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 Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(x) Comments are attached.

Signed: /s/ W. Roy Hardy
Print Name: Acting Deputy Director
Date: April 21, 2015

FILE ID: RPD 4161.3
DOC ID: 12705

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

April 21, 2015

REF: RFD.4161.3

TO: Russell Tsuji, Administrator
Land Division

FROM: W. Roy Hardy, Acting Deputy Director
Commission on Water Resource Management

SUBJECT: EISPN for the Kakaako Makai Parks Active Use Facilities Master Plan

FILE NO.:
TMK NO.: (1) 2-1-060:008, (1) 2-1-060:029, (1) 2-1-060:030 (por.), (1) 2-1-060:007, (1) 2-1-059:023, (1) 2-1-059:024, (1) 2-1-059:025, (1) 2-1-059:026, (1) 2-1-060:030 (por.), (1) 2-1-058:131 (por.)

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

Our comments related to water resources are checked off below.

☐ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/.

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☐ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program

☐ 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/info_permits.htm.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) required before any well construction work begins.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:
The master plan should describe potable and non-potable water requirements associated with proposed activities; the calculations used to derive the demand estimates; the source(s) of water supply, including any alternative sources, and water conservation measures that are proposed to be implemented.

If there are any questions, please contact Lenore Ohye of the Planning Branch at 587-0216.

PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

W. Roy Hardy, Acting Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawai‘i
P.O. Box 621
Honolulu, HI 96809

Attention: Ms. Lenore Ohye

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Hardy,

Thank you for the Department of Land and Natural Resources Commission on Water Resource Management’s letter (REF: RFD.4161.3) dated April 21, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comments and provide the following response.

Wilson Okamoto Corporation is preparing a preliminary engineering report for the park improvements which will include calculations of projected water demand. Conclusions and recommendations of the report regarding sources of water supply, any alternative sources, and proposed water conservation measures will be summarized in the Draft EIS and the complete report will be included as an appendix to the Draft EIS.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

O:\Job26\2654.11 HCDA-Kakaako Makai MP-EIS\EIS\EISPN\Comments & Responses\Responses\DLNR CWRM.docx

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CARTY S. CHANG
INTERIM CHAIRPERSON
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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

COR: OCCL: AJR

COR: OA-15-154

APR 10 2015

Tom Schnell, AICP
1001 Bishop St., Ste. 650
Honolulu, HI 96813

SUBJECT: **ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) FOR THE KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN**
Honolulu District, Island of Oahu
TMKs: (1) 2-1-060:008, 029-030 and (1) 2-1-058:131

Dear Mr. Schnell,

We are in receipt of your request for comments dated *April 1, 2015*, regarding the Environmental Impact Statement Preparation Notice (EISPN) for the proposed *Kaka'ako Makai Parks Active use Facilities Master Plan*; more specifically the *Kaka'ako Waterfront Park* and *Kewalo Basin Park* located on the subject parcels.

The Office of Conservation and Coastal Lands (OCCL) would like to remind the applicant that lands located *makai* (seaward) of the shoreline are considered to be within the State Land Use Conservation District *Resource* Subzone. Any work proposed makai of the shoreline may require some type of authorization or approval from this office. For information regarding a *Shoreline Certification*, please visit http://ags.hawaii.gov/survey/shoreline/ for details on how to apply, and the procedures for determining the location of the shoreline.

Act 83 (*HB 1714*), or the *Hawaii Climate Adaptation Initiative Act*, aims to address the potential effects of Global Climate Change and Sea Level Rise on Hawaii's existing and future infrastructure, environmental resource management, and development. At this time the OCCL and the Office of Planning (OP) are coordinating the development of a State-wide *Sea Level Rise Vulnerability and Adaptation* report that will provide guidance for future development projects. The OCCL would like to recommend that the applicant address, in the Environmental Impact Statement (EIS), any potential long- and short-term influences on the proposed project with regards to Global Climate Change and subsequent Sea Level Rise. This is especially relevant for the development of low-lying areas such as Kaka'ako.

If you have any questions regarding this correspondence please contact Alex J. Roy, M.Sc. of our Office of Conservation and Coastal Lands staff at 808-587-0316.

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

CC: *Chairperson*
ODLO
Hawai'i Community Development Agency

PBR HAWAII
& ASSOCIATES, INC.

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SCOTT MURAKAMI, ASLA, LEED®AP
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DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
State of Hawai‘i
P.O. Box 621
Honolulu, HI 96809

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Lemmo,

Thank you for the Department of Land and Natural Resources Office of Conservation and Coastal Lands' (OCCL) letter (COR: OA-15-154) dated April 10, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comments and provide the following response.

The proposed project will comply with the requirements of the Special Management Area use under Chapter 15-150, Hawai‘i Administrative Rules. HCDA anticipates obtaining the necessary SMA and shoreline setback permits prior to construction or site work on any Master Plan element. Further, we note that should work located makai of the shoreline occur then authorization or approval from OCCL, including shoreline certifications may be required.

Thank you for your participation in the environmental review process. We will inform you when the Draft EIS is available.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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1001 Bishop Street, Suite 650
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STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD15/7434

April 21, 2015

Anthony Ching, Executive Director
Hawai'i Community Development Authority
547 Queen Street
Honolulu, Hawai'i 96813

Re: Comments on Environmental Impact Statement Preparation Notice
Kaka'ako Makai Parks Active Use Facilities Master Plan
TMKs: (1) 2-1-058:131 (por.); (1) 2-1-059:023, 024, 025, 026; (1) 2-1-060:007, 008, 029, 030 (por.)

Aloha Mr. Ching:

The Office of Hawaiian Affairs (OHA) is in receipt of your March 23, 2015 letter inviting comments on the environmental impact statement preparation notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan (*hereinafter* "Kaka'ako Makai Parks Plan"). The Kaka'ako Makai Parks Plan seeks to design active-use park improvements that financially sustain themselves and overall park operations, while creating a family-friendly recreational environment for an increasing urban population. The Kaka'ako Makai Parks Plan will cover the Kaka'ako Makai Waterfront Park (39 acres), the Kaka'ako Gateway Park (7.8 acres), and the Kewalo Basin Park (5.8 acres), all of which are currently used as passive parks.

As stated in the Kaka'ako Makai Parks Plan EISPN, OHA holds an ownership interest in several parcels located in Kaka'ako Makai, through Act 15 from the 2012 Hawai'i legislative session. OHA is currently developing a master plan for our Kaka'ako Makai parcels. We are generally concerned with the short-term construction impacts and long-term impacts of the proposed active park uses on our Kaka'ako Makai properties, but we expect these impacts to be addressed in a standard environmental impact statement (EIS). Accordingly, we look forward to the opportunity to review the draft EIS, once completed.

Mahalo for the opportunity to comment on the Kaka'ako Makai Parks Plan EISPN. Should you have any questions, please contact me or have your staff contact Everett Ohta, OHA Lead Compliance Specialist, at (808) 594-0231 or everetto@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:eo

C: Tom Schnell, AICP, Principal, PBR HAWAII & Associates, Inc.

PBR HAWAII
& ASSOCIATES, INC.

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Principal

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DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Kamana‘opono M. Crabbe
Ka Pouhana, Chief Executive Officer
Office of Hawaiian Affairs
State of Hawai‘i
560 N. Nimitz Hwy., Suite 200
Honolulu, HI 96817

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Crabbe,

Thank you for the Office of Hawaiian Affairs' (OHA) letter (HRD15/7434) dated April 21, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka‘ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comments and provide the following response.

We recognize that OHA holds an ownership interest in several parcels located in Kaka‘ako Makai and is currently developing a master plan for those parcels. The Draft EIS will identify existing conditions, potential impacts, and discussion of proposed mitigation to address issues like short-term construction and proposed active uses of the Kaka‘ako Makai Parks.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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United States Department of the Interior
U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
1845 Wasp Boulevard, Building 176
Honolulu, Hawaii 96818

Phone: (808) 690-9600/Fax: (808) 690-9599

April 9, 2015

Mr. Tom Schnell, AICP, Principal
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813

Dear Mr. Schnell:

Subject: Environmental Impact Statement Preparation Notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan

Thank you for forwarding the subject EISPN for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Stephen S. Anthony
Center Director

cc: Mr. Anthony Ching, Executive Director
Hawai'i Community Development Agency
547 Queen Street
Honolulu, Hawai'i 96813

PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

Stephen Anthony, Center Director
Pacific Islands Water Science Center
U.S. Geological Survey
United States Department of the Interior
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Anthony,

Thank you for your letter dated April 9, 2015, regarding the above referenced Environmental Impact Statement Preparation Notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge that your staff was unable to review the EISPN at this time. We will inform your office when the Draft Environmental Impact Statement (EIS) is available for review.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

May 26, 2015

Mr. Tom Schnell, AICP, Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Your Letter Dated March 23, 2015 Requesting Comments on the Environmental Impact Statement Preparation Notice for Kakaako Makai Parks Active Use Facilities Master Plan

Thank you for the opportunity to comment on the Kakaako Makai Parks Active Use Facilities Master Plan.

The adequacy of the existing water system to accommodate the proposed improvements will be determined when the Draft Environmental Impact Statement is submitted for our review. 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 daily storage.

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

cc: Anthony Ching, HCDA

PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

Ernest Y.W. Lau, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96843

Attention: Mr. Robert Chun

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Lau,

Thank you for the Board of Water Supply's (BWS) letter dated May 26, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

We acknowledge that BWS will determine the adequacy of the existing water system to accommodate the proposed improvements, following your review of the Draft EIS. We concur that the availability of water will be determined during the building permit process. When water is made available, HCDA will be prepared to pay the Water System Facilities Charge for resource development, transmission, and daily storage.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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E-mail: sysadmin@pbrhawaii.com

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Tel/Cel: (808) 315-6878

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

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

April 24, 2015

PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Attn: Tom Schnell

Dear Mr. Schnell:

Subject: Kakaako Makai Parks Active Use Facilities Master Plan

The Department of Design and Construction does not have comments to offer on the environmental impact statement preparation notice.

Thank you for the opportunity to review and comment. Should there be any questions, please contact me at 768-8480.

Sincerely,

for M. Yonamine

Robert J. Kroning, P.E.
Director

RJK: cf (603880)

cc: Hawaii Community Development Agency – Mr. Anthony Ching

PBR HAWAII
& ASSOCIATES, INC.

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Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Robert J. Kroning, P.E., Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, HI 96813

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Kroning,

Thank you for the Department of Design and Construction's (DDC) letter dated April 24, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge that you have no comments to offer about the EIS Preparation Notice.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 768-3486 • FAX: (808) 768-3487 • WEBSITE: http://envhonolulu.org

KIRK CALDWELL
MAYOR

LORI M.K. KAHIKINA, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO
PRO 15-059

April 17, 2015

Mr. Tom Schnell, AICP, Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Mr. Anthony Ching, Executive Director
Hawaii Community Development Authority
547 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Schnell and Mr. Ching:

SUBJECT: Environmental Impact Statement Preparation Notice for the Kakaako Makai Parks Active Use Facilities Master Plan, March 2015

We have reviewed the subject document as transmitted to us by your letter received by our office on March 30, 2015. We have the following comments on the subject document:

1. We understand that the proposed project will involve secondary impacts, such as population changes or effects on public facilities. An appropriate level of evaluation of the resulting effects to the City's wastewater system and solid waste services should be included in the study. The possible changes that may occur due to anticipated Transit Oriented Development should be included.

2. We understand that the proposed project is not anticipated to detrimentally affect air or water quality or ambient noise levels. Should you have any questions for our department regarding storm water quality issues, please call Randall Wakumoto of our Environmental Quality Division, Storm Water Quality Branch, at 768-3242.

Should you have any questions regarding our comments, please call Lisa Kimura, Civil Engineer, at 768-3455.

Sincerely,

Lori M.K. Kahikina, P.E.
Director

cc: Department of Planning and Permitting, SDD, WWB
Department of Environmental Services, EQ, SWQ
Department of Environmental Services, RD
Department of Design and Construction, WD

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

Lori M.K. Kahikina, Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Ste. 308
Kapolei, HI 96707

Attention: Ms. Lisa Kimura

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Ms. Kahikina,

Thank you for the Department of Environmental Service's (DES) letter dated April 17, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. The Draft EIS will include analysis and discussion of the project's potential impact and mitigation on infrastructure and utilities, including waste water and solid waste. We note your recommendation that possible changes resulting from the anticipated Transit Oriented Development should be included.

2. The Draft EIS will also discuss potential effects to air or water quality and ambient noise levels. Should we have questions regarding storm water quality issues we will follow-up with the point of contact provided for DES Environmental Quality Division, Storm Water Quality Branch.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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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
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KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 15-281

April 16, 2014

Mr. Tom Schnell, AICP
Principal
PBR Hawaii and Associates, Inc
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Schnell:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN)
Kakaako Makai Parks Active Use Facilities Master Plan
TMKS: (1) 2-1-060: 008, 029, 030 (por.), and 007;
TMKS: (1) 2-1-059: 023, 024, 025, and 026;
TMK: (1) 2-1-058: 131 (por.).
Honolulu, Oahu

Thank you for the opportunity to review the PDF File and to provide our input regarding your letter dated May 25, 2015, on the above-subject project.

We have no comments at this time, since Hawaii Community Development Agency's (HCDA's) recommendations in the Draft TOD Overlay Plan are proposed improvements. Please keep us updated as this project progresses.

The following are general comments for any of the recommended improvements that are approved:

- Provide necessary Best Management Practices for the project site, including catch basin protection located along abutting streets (City, State DOT Highways, State HCDA, and Private).

- All work to be performed within City-owned streets right-of-way, which abuts the subject project, shall require the proper City permits (Street Usage Permit, Grading/Trenching Permit, etc.).

- All work within the City streets right-of-way shall be to City Standards.

- All damages to existing City's infrastructure(s) shall be repaired or replaced in-kind using the same or alternate City approved material(s), with all work to be accepted by the City, and at the cost to the contractor.

- Please prepare as part of HCDA's study, annual maintenance costs of the surrounding infrastructures that are recommended to be constructed as part of this project. This information will be essential to the various government or private agencies in their short- and long-range maintenance budget planning, to assure a minimal impact on the environment and public safety.

If you have any questions, please contact Mr. Dexter Akamine of the Division of Road Maintenance at 768-3696.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

cc: Anthony Chin
Executive Director
Hawaii Community Development Agency

PBR HAWAII
& ASSOCIATES, INC.

PRINCIPALS

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DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Ross S. Sasamura, P.E, Director and Chief Engineer
City and County of Honolulu
Department of Facility Maintenance
1000 Uluohia Street, Suite 215
Kapolei, HI 96707

Attention: Mr. Dexter Akamine

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Sasamura,

Thank you for your Department's letter (DRM 15-281) dated April 16, 2015, regarding Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge that you have no comments to offer about the Kaka'ako Makai Parks Active Use Facilities Master Plan at this time. Given your general comments for any recommended improvements that are approved, we will act in accordance with City and County of Honolulu code to ensure work within any city rights of way are to City Standards.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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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

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

April 9, 2015

Mr. Tom Schnell, AICP, Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Environmental Impact Statement Preparation Notice
Kakaako Makai Parks Active Use Facilities Master Plan
Tax Map Keys: 2-1-058: 131 (portion)
2-1-059: 023, 024, 025, and 026
2-1-060: 008, 029, 030 (portion), and 007

In response to your letter dated March 23, 2015, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) 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]™, 2006 Edition, Section 18.2.3.2.2.)

   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 provides access to the interior of the building. (NFPA 1, UFC™, 2006 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™, 2006 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™, 2006 Edition, Section 18.2.3.4.1.1, as amended.)

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

cc: Anthony Ching, Executive Director
Hawaii Community Development Agency

PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

Socrates Bratakos, Assistant Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, HI 96813-5007

Attention: Battalion Chief Terry Seelig

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Assistant Chief Bratakos,

Thank you for the Honolulu Fire Department's letter dated April 9, 2015 regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

Regarding comments 1 to 3, improvements proposed the Kaka'ako Makai Parks Active Use Facilities Master Plan will comply with the National Fire Protection Association [NFPA] 1, Uniform Fire Code [UFC]™, 2006 Edition, including Sections 18.2.3.2.2; 18.2.3.2.1; 18.3.1, and 18.2.3.4.1.1, as amended. Relative to comment 4, HCDA will submit any civil drawings prepared for project to the Honolulu Fire Department for review.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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CITY AND COUNTY OF HONOLULU
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PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2015/ELOG-580(as)

April 22, 2015

PBR HAWAII & Associates, Inc.
ATTN: Tom Schnell, AICP, Principal
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

We have received the Environmental Impact Statement Preparation Notice (EISPN) for the Kaka'ako Makai Parks Active Use Facilities Master Plan and offer the following comments:

1. The Environmental Impact Statement (EIS) should include discussion on how the proposed project is consistent with the City and County of Honolulu's General Plan and the Primary Urban Center Development Plan.

2. The EIS should include a discussion comparing how much recreational space is proposed and how many housing units are expected at full build out and assess the extent that the proposed park space would meet City park dedication standards.

3. The EIS should include an analysis of the possible impact of sea level rise on the project. If it is likely that sea level rise will increase the risk of flooding during the life of the structure, the Draft Environmental Assessment should discuss how the design and operation of the project will address that risk and provide resilience in recovering from any flooding.

   The Army Corps of Engineers (COE) has issued an Engineering Circular (EC 1165-2-212) which provides guidance on likely ranges of sea level rise through 2100 which they require to be used in evaluating projects in shoreline areas subject to COE review.

   More recently they have provided online tools which can be used to adapt the circular's guidance to reflect historic sea level rise conditions measured at the closest local tidal gauge.

Using the circular as adapted to reflect the local sea level rise rate, the elevation above sea level at the project site, and the estimated life of the structures involved in the project, a determination of whether sea level rise is likely to increase the risk of flooding at the project site during the life of the project structures can be made.

A practical example of how the COE circular and the tidal gauge adjustments can be incorporated into a Honolulu area study is provided by the COE Ala Wai Canal Study.

For further details on how the Engineering Circular and local tidal gauge information could be used to assess sea level rise risk for a local project, contact Mr. Michael Wong, Chief, Engineering and Construction Technical Branch, Army Corps of Engineers, Honolulu District (808-835-4138).

4. If the project drains into the City drainage facilities, then the project may need to comply with the Department of Planning and Permitting's prevailing storm water quality requirements, which includes providing a narrative in the EIS explaining the project's water quality management strategy.

5. The Applicant should work with the City to develop a multi-modal circulation plan connecting the parks through and across the existing street network and to the future residential areas mauka of Ala Moana Boulevard.

Thank you for the opportunity to comment on this EISPN.

Should you have any questions, please contact Adrian Siu-Li at 768-8031.

Very truly yours,

George I. Atta, FAICP
Director

GIA:bkg
1236262

cc: Anthony Ching, Hawaii Community Development Authority

PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

George I. Atta, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, HI 96813

Attention: Adrian Siu-Li

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Atta,

Thank you for the Department of Planning and Permitting's (DPP) letter (2015/ELOG-580(as)) dated April 22, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comment letter and have the following responses.

1. The Draft EIS will include discussion on how the proposed project is consistent with the City and Count of Honolulu's General Plan and Primary Urban Center Development Plan.

2. The Draft EIS will include discussion of the proposed park space, projected population in Kakaako, and projected range of park space per 1,000 persons.

3. The Draft EIS will analyze the possible impact of sea level rise on the project and discuss how design and operation will enhance resiliency to any increased flooding. We acknowledge your reference to the U.S. Army Corps of Engineers Circular (EC 1165-2-212) guidance on ranges of sea level rise and their sea level rise condition online tools.

4. The Draft EIS will include discussion of the project's drainage system, addressing potential impacts and mitigation. All discharges related to construction or operation of Master Plan elements will be in compliance with the State's Water Quality Standards contained in HAR, Chapter 11-54 and 11-55. The Draft EIS will include a discussion of measures to ensure compliance.

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5. The applicant is working with the City and County of Honolulu to address multi-modal circulation needs that support efforts to connect the parks through and across existing street networks, including planned residential areas that are mauka of Ala Moana Boulevard.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

April 8, 2015

Mr. Tom Schnell, AICP, Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Mr. Anthony Ching, Executive Director
Hawaii Community Development Agency
547 Queen Street
Honolulu, Hawaii 96813

Dear Mr. Schnell and Mr. Ching:

SUBJECT: Environmental Impact Statement Preparation Notice
Kakaako Makai Parks Active Use Facilities Master Plan

Thank you for the opportunity to comment on the Environmental Impact Statement (EIS) Preparation Notice for the Kakaako Makai Parks Active Use Facilities Master Plan.

The Department of Parks and Recreation has no comment at this time and looks forward to continued participation in the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner at 768-3017.

Sincerely,

Michele K. Nekota
Director

MKN:jr
(603863)

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& ASSOCIATES, INC.

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DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Michele K. Nekota, Director
City and County of Honolulu
Department of Parks and Recreation
1000 Uluohia Street, Suite 309
Kapolei, HI 96707

Attention: Mr. John Reid

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Ms. Nekota,

Thank you for the Department of Parks and Recreation's letter dated April 8, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge that you have no comment at this time and you look forward to continued participation in the EIS process.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

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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

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

April 10, 2015

Mr. Tom Schnell, AICP, Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

This is in response to your letter dated March 23, 2015 requesting comments on an Environmental Impact Statement Preparation Notice (EISPN) for the Kakaako Makai Parks Active Use Facilities Master Plan.

Upon reviewing the online EISPN, we have determined that additional information is needed before we can provide comments on this multiphase project.

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,

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA
Management Analyst VI
Office of the Chief

cc: Mr. Anthony Ching, Executive Director
Hawaii Community Development Agency

PBR HAWAII
& ASSOCIATES, INC.

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Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED® AP
Associate

DACHENG DONG, LEED® AP
Associate

MARC SHIMATSU, ASLA
Associate

April 26, 2016

Louis M. Kealoha, Chief
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, HI 96813

Attention: Major Roy Sugimoto

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Chief Kealoha,

Thank you for the Honolulu Police Department's (HPD) letter (MT-DK) dated April 10, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge HPD's comment that additional information is needed before comments on this project can be provided.

Thank you for your participation in the environmental review process. Additional information will be available when the Draft EIS is published. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

cc: HCDA

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP3/15-603921R

April 21, 2015

Mr. Tom Schnell, AICP
Principal
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Schnell:

SUBJECT: Environmental Impact Statement Preparation Notice Kakaako Makai Parks Active Use Facilities Master Plan; Tax Map Keys: Kakaako Waterfront Park: (1) 2-1-060:008, (1) 2-1-060:029, (1) 2-1-060:030; Kakaako Gateway Park: (1) 2-1-060:007, (1) 2-1-059:023, (1) 2-1-059:024, (1) 2-1-059:025, (1) 2-1-059:026, (1) 2-1-060:030 (por.); Kewalo Basin Park: (1) 2-1-058:131 (por.); Kakaako, Honolulu, Oahu, Hawaii

In response to your letter dated March 23, 2015, we have the following comments:

1. The Environmental Impact Statement (EIS) should contain a traffic assessment study to evaluate future traffic conditions on the surrounding roadways and recommend viable mitigative measures, if necessary, to address any traffic and pedestrian issues.

2. Bicycle facilities should be anticipated and accommodated. Bike racks/parking should be provided on-site.

3. The Ala Moana/Kakaako Neighborhood Board No. 11, as well as the area residents, businesses, etc., should be kept apprised of the details of the proposed project and the impacts, particularly during construction, the project may have on the adjoining local street area network.

PBR HAWAII
& ASSOCIATES, INC.

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April 26, 2016

Michael D. Formby, Director
City and County of Honolulu
Department of Transportation Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

Attention: Mr. Michael Murphy

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Formby,

Thank you for the Department of Transportation Services' (DTS) letter (TP3/15-603921R) dated April 21, 2015, regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comments and provide the following response.

1. The Draft EIS will include a traffic assessment study that will evaluate future traffic conditions on the surrounding roadways and describe potential impact and mitigation to address any traffic and pedestrian issues.

2. The Draft EIS will include discussion about efforts to enhance connectivity and access to the Kaka'ako Makai Parks, through the use of multimodal transportation that account for facilities needed by pedestrians, vehicles, public transportation users, and cyclists. The Draft EIS is informed by the Transit-Oriented Development (TOD) Plan for the KCDD that seeks to promote multimodal transportation and complete streets, as well as the City and County of Honolulu Bicycle program and Honolulu Authority for Rapid Transit's Rail development.

3. The Ala Moana Kaka'ako Neighborhood Board No. 11, area residents, organizations, businesses, and individuals will be kept apprised of the: 1) details of any proposed project and the impacts associated with improvements implemented as a result of the Kaka'ako Makai Parks Active Use Facilities Master Plan, particularly during construction; and 2) impact any improvements may have to the adjoining street network.

4. Should construction-related work for the proposed project require the temporary closure of any traffic lanes on a city street, a street usage permit from the DTS will be obtained.

5. To minimize the disruption to traffic on local streets, efforts will be made to transfer construction materials and equipment to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.).

Thank you for your participation in the environmental review process. We will inform you when the Draft EIS is available.

Sincerely,

Tom Schnell, AICP
Principal

CC: HCDA

4. A street usage permit from the City's Department of Transportation Services shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

5. Any 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 traffic on the local streets.

We reserve further comment pending submission of the Draft EIS.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

cc: Mr. Anthony Ching, Executive Director,
Hawaii Community Development Agency

FRIENDS OF KEWALOS
PROTECT, PRESERVE, MALAMA

April 7, 2015

To: Tom Schnell, AICP, Principal
PBR Hawaii $ Associates, Inc.

From: Ron Iwami, President, Friends of Kewalos

Re: Comments for the Environmental Impact Statement Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan

Aloha Mr. Schnell,

Friends of Kewalos would like to provide input with inclusion in all phases of this EIS process.

Mahalo for this opportunity to provide comment.

Malama pono,

Ronald T. Iwami
President, Friends of Kewalos

PBR HAWAII
& ASSOCIATES, INC.

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Vice-President

TOM SCHNELL, AICP
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KIMI MIKAMI YUEN, LEED® AP BD+C
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W. FRANK BRANDT, FASLA
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April 26, 2016

Ron Iwami, President
Friends of Kewalos
ronald@kewalo.org

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

Dear Mr. Iwami,

Thank you for your letter dated April 7, 2015 regarding the Environmental Impact Statement (EIS) Preparation Notice for the Kaka'ako Makai Parks Active Use Facilities Master Plan. As the planning consultant for the Hawai'i Community Development Authority (HCDA), we acknowledge that Friends of Kewalos would like to provide input during all phases of the EIS process. We will inform you when the Draft EIS is available.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

Cc: HCDA

HONOLULU OFFICE
1001 Bishop Street, Suite 650
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What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Economic + Public Safety Impact —
Relocate homeless to sand Island
"Safe Area" camp.
This is long overdue!

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

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HCDA

PBR HAWAII

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& ASSOCIATES, INC.

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April 26, 2016

Public Comment_1

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA‘AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

To Whom It May Concern:

Thank you for providing your comment at the Environmental Impact Statement (EIS) Preparation Notice Scoping Meeting on April 16, 2015 for the Kaka‘ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai‘i Community Development Authority (HCDA), we have reviewed your comment suggesting that relocating homeless individuals to Sand Island “safe area” camp would have impacts to the community’s economics and public safety.

In recent years, the Kaka‘ako Makai Area has experienced an influx of homeless individuals and families. Public comments provided through the planning process indicated that the growing homeless population within the Parks is a deterrent for recreational park users. An objective of the Master Plan is to activate the Parks with family-friendly outdoor recreational activities that draw people to the park without fear for personal safety.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

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What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

public recreational facilities
open to all residents + visitors

volleyball training facility is
an exclusive, restrictive use
consuming public park space

Your comment card must be postmarked by April 22, 2015

KAKA'AKO WATERFRONT PARK | GATEWAY PARK | KEWALO BASIN PARK

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HCDA PBR HAWAII

What issues or concerns should be addressed in the Kaka'ako Makai Parks Active Use Facilities Master Plan Environmental Impact Statement?

Adhere to the national urban
planning standard for
urban park space:

2 - 2½ acres / 1000 capita
open recreational open space
(Shoreline to Diamond Head)
green recreational open space
public recreational facilities
in a park setting (Diamond Head to Ala Moana)

Think: New York Central Park
Golden Gate Park

Your comment card must be postmarked by April 22, 2015

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PBR HAWAII
& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

April 26, 2016

Public Comment_1b

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE, KAKA'AKO MAKAI PARKS ACTIVE USE FACILITIES MASTER PLAN – TMKs 2-1-058:131 (POR.); 2-1-059:023, 024, 026; 2-1-060:008, 029, 030 (POR.), 007

To Whom It May Concern:

Thank you for providing your comment at the Environmental Impact Statement (EIS) Preparation Notice Scoping Meeting on April 16, 2015 for the Kaka'ako Makai Parks Active Use Facilities Master Plan.

As the planning consultant for the Hawai'i Community Development Authority (HCDA), we have reviewed your comments and have the following responses:

1. The Master Plan as proposed does not dictate any uses that would be exclusive or restricted to the public.
2. The Master Plan as proposed does not decrease the amount of parks and open space in Kaka'ako. As planned, a small addition to the parks are planned at Kewalo Basin Park to facilitate connection of the waterfront promenade to Ala Moana Regional Park.
3. The proposed Master Plan improvements anticipate the addition of active recreational uses for fitness, entertainment, cultural uses and quiet contemplation in a park setting.

We value your participation in the environmental review process. Your letter will be included in the Draft EIS.

Sincerely,

Tom Schnell, AICP
Principal

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Appendix C:
KAKAAKO ASH LANDFILL ASSESSMENT

element environmental llc
environmental · engineering · water resources

March 10, 2016

Ms. Catie Cullison
PBR Hawaii
1001 Bishop Street Suite 650
Honolulu, HI 96813

Via email: ccullison@pbrhawaii.com

Subject: **Revised Draft Letter Report**
Kakaako Waterfront Park Ash Landfill Assessment
Honolulu, Hawaii, Hawaii

Dear Ms. Cullison:

Element Environmental LLC (E2) is pleased to submit this letter report, which provides a summary of the findings of our assessment of the Kakaako Waterfront Park Ash Landfill (*the subject property, site, landfill*) in support of Master Plan and Environmental Impact Statement (EIS) development activities for the Honolulu Community Development Authority (HCDA) Kakaako Makai Parks, located in Honolulu, Hawaii. The Kakaako Waterfront Park Ash Landfill (also known as the Kewalo Incinerator Landfill) is located within the Kakaako Community Development District of Honolulu, between the downtown central business district and Waikiki.

Our assessment focused on development activities currently under consideration for the west half of the Kakaako Waterfront Park (*the affected area*), shown in Figure 1, attached. Development activities currently under consideration include a preferred alternative that involves completely removing one of the landfill mounds and re-contouring the other to make it more conducive for amphitheater seating.

1.0 DOCUMENT REVIEW

1.1 Document Review

Information included in this letter report was obtained from review of the following files/documents:

- "*Kewalo Incinerator Ash Dump*" and "*Kewalo Incinerator Landfill*" files maintained by the Hawaii Department of Health (HDOH), Hazard Evaluation and Emergency Response (HEER) Office, which included preliminary and remedial investigations, a feasibility study, air and dust monitoring plans/reports, and correspondence.
- Review of "*Kakaako Area"* files maintained by the HCDA, which included environmental investigations on adjacent properties, as-built drawings for the ash landfill, and correspondence.
- Environmental reports for adjacent and/or nearby properties and other miscellaneous documents.

- Site surveys, current and historical maps, and aerial photographs.

Relevant documents are listed in the reference section of this letter report.

1.3 Site History

A brief summary of the site history is provided below; a more detailed discussion is provided as an attachment to this report.

The subject property was once a part of the Kewalo Landfill, which was established on a low-lying coastal area with nearshore reef and intertidal deposits along the southern coastline of Honolulu. From 1930 until operations ceased in 1977, ash from the burning of municipal refuse was deposited at the landfill. During the mid-1960s, excess unburned municipal refuse was disposed on the site without burning, and pesticides and/or rodenticides were applied to the refuse site for vector control. Other wastes suspected to have been deposited include: construction and household debris, drums of unknown liquids, automobile batteries, and cans of paint thinner. In 1977, the site was covered with a cap consisting of soil and construction debris. From 1975 to 1990, the landfill site was used by Richard H.S. Lee to sieve, sort, and stockpile imported soil for reuse and as a disposal area for construction debris (primarily concrete, rocks, and soil). Kakaako Waterfront Park was constructed over the landfill in 1992.

On April 26, 1989, the U.S. Environmental Protection Agency (EPA) recommended No Further Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action for the landfill. In 1997, the HDOH, Hazard Evaluation and Emergency Response (HEER) Office designated the landfill site as a low priority through their site screening procedures listed in the Hawaii Administrative Rules Title 11 Chapter 451 Subchapter 3 (HDOH 1997).

1.4 Previous Environmental Studies

Several environmental investigations were conducted on the southern portion of the Kewalo Incinerator Landfill site from 1986 through 1990 (see Figure 2). In August 1986, the University of Hawaii (UH) completed a development plan and environmental assessment for the Kakaako Waterfront. In 1989, Woodward-Clyde Consultants (WCC) and Ecology and Environment, Inc. (E&E) completed preliminary assessments to evaluate the environmental condition of the landfill and to determine if the site qualified for inclusion on the National Priorities List as a *Superfund* site under the CERCLA. In 1990, Harding Lawson Associates (HLA) completed a remedial investigation (RI), risk assessment (RA), and feasibility study (FS) for the Kewalo Incinerator Landfill. Findings relevant to the proposed work within the affected area are briefly summarized below. More detailed discussions of the relevant investigations are included as an attachment.

Because landfill operations ceased in 1977 and the Resource Conservation Recovery Act (RCRA) became effective in 1980, the landfill is not subject to hazardous waste regulations (no closure requirements) (HDOH 1989). State Solid Waste regulations are also not applicable (HDOH 1989). If soil, refuse, or cap material is moved (graded, re-located, etc.), the landfill may be subject to existing federal or state hazardous waste disposal laws (HDOH 1989).

Prior to the development of the Kakaako Waterfront Park in the early 1990s, the surface of the landfill rose steeply on all sides to an uneven top surface with an average height of 40 feet above mean sea level (amsl) (WCC 1989) with mounds to a maximum elevation of 54 feet amsl (HLA 1990). The current maximum elevation of the mounds at the park is 40 feet amsl, with the exception of Observation point 6, which has an elevation of 50 feet amsl (HCDA 1990).

In 1989 and 1990, the investigated area of the landfill footprint was estimated to be approximately 15.3 acres and the landfill volume to be approximately 815,000 to 940,000 cubic yards; however, this only included the southern portion of the Kewalo Incinerator Landfill; the ash landfill actually extended further to the north (see Figure 2, attached). There is no documentation indicating that the north section of the ash landfill was characterized.

The soil cover overlying the ash was observed to be very thin in places and varied with respect to geographic location, ranging in thickness from 12 to 25 feet below ground surface (bgs). The cap was composed of dry to moist, loose to stiff, silty-clayey-sandy-gravelly fill with some cobbles and boulders (WCC 1989).

The refuse/ash layer ranged from 14 to 45 feet thick and consisted of ash, wood, concrete blocks, glass, scrap metal, wire, plastic, and household debris, which was occasionally mixed with soil and coral boulders. Burned material was also observed in the refuse horizon. The volume of ash, soil, and refuse was estimated to be 686,000 cubic yards (WCC 1989).

Soil/ash and groundwater samples were collected during both investigations (WCC 1989 and HLA 1990); however, contaminant concentrations were compared to environmental actions levels in use in 1989-1990. E2 identified contaminants of potential concern (COPCs[1]) for the landfill by comparing historical analytical data to current HDOH Residential Environmental Action Levels (REALs) for sites where groundwater is not a current or potential source of drinking water, and the site is less than 150 meters from a surface water body (HDOH Fall 2011, revised January 2012). Note that COPC levels observed in groundwater in 1989-1990 may not be representative of current contaminant levels.

Polychlorinated biphenyls (PCBs), cyanide (CN^-) and the metals, arsenic (As), cadmium (Cd), copper (Cu), lead (Pb), nickel (Ni), and zinc (Zn) were detected in soil samples collected from the cap material at concentrations exceeding REALs. Cyanide and the metals, As, barium (Ba), Cd, Cu, Pb, Ni, and Zn were detected in the refuse material at concentrations exceeding REALs.

Soil/ash samples were also analyzed for the four hazardous waste characteristics: ignitability, reactivity, corrosivity, and toxicity. None of the samples tested positive for these hazardous waste characteristics.

During well installation and sampling, elevated temperatures were observed within the well bases (WCC 1989 and HLA 1990). Petroleum hydrocarbon odors were observed in the groundwater, which was very turbid (black) (UH 1986). PCBs, CN^-, and the metals antimony (Sb), As, Ba, beryllium (Be), Cd, chromium, cobalt (Co), Cu, Pb, mercury (Hg), selenium (Se), silver (Ag), vanadium (V), and Zn were detected in the groundwater at concentrations exceeding REALs.

Soil vapor samples were collected during both investigations (WCC 1989 and HLA 1990). The highest gas concentrations were detected near the center of the landfill. Potential gas/vapor hazards were identified as methane (CH_4), benzene, and hydrogen sulfide (H_2S) (HLA 1990). H_2S was detected at a concentration of 30 parts per million (ppm) in the breathing zone during the development of one monitoring well (WCC 1989) and in soil vapor at concentrations ranging from 10 and 40 ppm (HLA 1990). CH_4 gas, a common byproduct of decomposition of organic

[1] Chemicals associated with a release that have been detected in the environment and may adversely impact human or ecological receptors.

material, was detected at elevated concentrations in soil vapor samples, ranging from 0.0006 percent (%) (near ambient) to a high of 29%. CH_4 concentrations in several wells were within the flammable range[2], and in one well, the CH_4 concentration was higher than the upper explosive limit (UEL[3]) (HLA 1990).

HLA completed a RA to characterize potential health risks associated with exposure to six indicator chemicals[4], including PCBs, the organochlorine pesticide chlordane, and the metals As, Cd, Cu, and Pb, present in the landfill material. The RA identified one exposure pathway, the inhalation of dust as a potential health risk, and concluded that construction activities must consider mitigative measures to reduce potential risks. The risk assessment also resulted in the identification of ingestion of potentially contaminated fish as a migration and exposure pathway that may be of concern with respect to PCBs.

HLA completed FS in 1990 to identify, screen, and evaluate alternatives that would reduce the potential risks to human health and the environment associated with the development of the Kewalo Incinerator Landfill into a public park. A brief discussion of their findings is presented in *Section 2.1 Kakaako Waterfront Park Construction*.

HLA completed a Marine Bioaccumulation Study in 1990 to characterize potential health risks to marine biota and seawater and concluded that there are no significant effects to the near-shore environment from contaminants of the landfill.

2.0 ASH LANDFILL EVALUATION AND LANDFILL GAS MONITORING

2.1 Kakaako Waterfront Park Construction

The RI and FS completed by HLA (1990), confirmed that contaminated media and the generation of landfill gas at the Kewalo Incinerator Landfill posed a potential risk to human health and the environment during proposed construction of the first development phase of the Kakaako Waterfront Park. Based on their findings and conclusions, HLA recommended that the design of the redevelopment project include mitigative measures to reduce potential risks, as follows:

- Installation of a 2-foot foundation layer and an impermeable synthetic membrane covered by two feet of imported fill (vegetative layer) over existing incinerated materials to prevent dermal and inhalation exposures to toxic elements;
- A gas collection system to remediate buildup of landfill gasses and leachate; and
- Periodic monitoring after the installation of the gas collection system to assess its effectiveness.

HCDA (1993) completed the first phase of Kakaako Waterfront Park construction in late 1992, which included 30 acres of passive recreational park space with contoured, rolling landscaped mounds, a scenic pedestrian promenade at the shoreline spanning the length of the park, comfort stations, picnic areas, five oceanfront observation areas, a community amphitheater, and two protected water access points.

[2] The range between the lower explosive limit (LEL) and UEL is known as the flammable range for that gas or vapor.
[3] The maximum concentration of a gas or vapor that will burn in air is defined as the UEL. Above this level, the mixture is too "rich" to burn.
[4] The chemicals of greatest concern selected to simplify the process of data interpretation.

As-built drawings for the *Kakaako Waterfront Park Phase I, Construction of Promenade and Site Improvements* project (HCDA 1990) confirm that mitigative measures were included as part of the park construction. The landfill was contoured to include rolling hills and walkways; it is not known if material was removed from the site to facilitate park construction.

Over 23,000 square yards of 30 mil flexible synthetic membrane liner (liner) were installed over a five-acre portion of the landfill. The liner, in conjunction with a passive collecting and venting system, was installed to collect and vent CH_4 gas to the atmosphere via Vents 1 through 4, as shown in Figure 2, attached.

Fill material covers the liner, which is underlain by a foundation layer and a subbase for the foundation layer. The criteria for the fill material used for the landfill cover system was an earth and gravel mixture that passed a ½-inch mesh screen and contained no more than 20% by volume rock particles and achieved 95% compaction.

It is not known if the landfill cover material consisted of "*clean*" imported material or if the soil cap material already present on the landfill was used. Additional details (i.e., removal/disposal of the landfill cap, landfill cover material source, and cover thickness) were not provided in the drawings. A landfill closure plan, if completed, was not available for review.

Periodic monitoring of the gas collection system, a recommended mitigative measure, is not conducted.

Health and safety notes included in the as-built drawings (HCDA 1990) warned that part of the project site was formerly a municipal landfill that received incinerator ash, refuse, and debris and that during construction, unusual health hazards, due to certain materials and conditions at the site may exist. Health and safety provisions to protect construction workers, visitors, and the general public in the surrounding area from the unusual health hazards were provided in the specifications. The contractor was required to:

- Prepare a Health and Safety Plan (HASP) and provide health and safety training for the construction workers and regular visitors at the site.
- Provide and use equipment and materials suitable for protection against excessive exposure to contaminants in accordance with the HASP.
- Provide medical examinations to measure the effects of possible exposure to contaminants and to determine personnel fitness to wear a respirator under the project work conditions in accordance with the HASP.
- Control access to the project site and maintain a log of all personnel and visitors.
- Monitor personnel exposure to air contaminants, using the procedures specified in the HASP.
- Establish a decontamination area with facilities for decontamination of equipment and personnel in accordance with the HASP.

2.2 Affected Area Description

Kakaako Waterfront Park has an area of approximately 39 acres; however only the west portion of the park (approximately 14.8 acres), hereinafter referred to as the *affected area* (shown in Figure 2, attached), is currently under consideration for redevelopment activities. The affected

area is bordered by the Pacific Ocean to the south, the UH, John A. Burns School of Medicine to the north, a drainage channel to the west, and the remainder of the park to the east.

The affected area currently consists of two complete ash mounds (mounds)/CH_4 vent systems and a portion of a third me CH_4 vent system (Engineers Surveyors Hawaii, Inc. [ESH] 2005), as follows:

- The northern and largest mound is elongated in an east to west direction and has a maximum elevation of 50 feet amsl at Observatory 6; however, the majority of the top of the mound is at an elevation of approximately 40 feet amsl. This mound slopes south to the walkway, present at elevations ranging from approximately 20 to 35 feet amsl and north to the mauka (mountainside) end of the park at elevations ranging from approximately 6 to 10 feet amsl.

  According to as-built plans for Phase I of the Kakaako Makai Park (HCDA 1990), CH_4 vent number 2 (Vent 2) is located at the 40-foot elevation on this mound. The CH_4 collection system that feeds Vent 2 is somewhat centered on the top of the mound and lies beneath a synthetic membrane, which covers an area of 34,800 square feet.

- The southwestern and smallest mound is somewhat triangular in shape and has a maximum elevation of approximately 40 feet amsl. This mound slopes northeast to the walkway, present at elevations ranging from approximately 20 to 35 feet amsl and southwest to the walkway and south to the promenade on the makai (ocean-side) end of the park at an elevation of approximately 15 feet amsl.

  CH_4 vent number 1 (Vent 1) is located on the southeast corner at the 40-foot elevation of this mound. The CH_4 collection system that feeds Vent 1 is located on the southern slope of the mound and lies beneath a synthetic membrane, which covers an area of 29,600 square feet.

- The southeastern mound portion located within the affected area is part of a smaller mound, which is elongated in a southeast to northwest direction and also has a maximum elevation of 40 feet amsl. This mound slopes northwest to the walkway, present at elevations ranging from approximately 20 to 35 feet amsl and southeast to the promenade on the makai end of the park at an elevation of approximately 15 feet amsl.

  CH_4 vent number 3 (Vent 3) is located on the east end at the 40-foot elevation of this mound. The majority of the CH_4 collection system that feeds Vent 3 is located on the southern slope of the mound and lies beneath a, which covers an area of 25,000 square feet.

2.3 Site Reconnaissance

Site visits were conducted by E2 on February 8 and March 2, 2016, to evaluate the current landfill features, CH_4 vent system, and cover condition. E2 noted that the cover over the liner appeared to be intact and undamaged; however, the sprinklers do not reach the grass on the top of the mounds, and the grass was dry to non-existent in some areas. Photographs of the site and the CH_4 vents are attached.

The four CH_4 vents are constructed of 10-inch inside diameter (I.D.) steel pipe riser with a 10-inch I.D. steel pipe U-bend. The vent opening is covered with a ¼-inch opening steel mesh bird-screen. The vents are mounted on a 4-inch thick concrete slab. None of the vents have are equipped with landfill gas monitoring valves.

Visual and olfactory surveys were conducted early in the morning when atmospheric conditions were stable (very little wind was present) to identify indications of subsurface oxidation/combustion. On February 8th, E2 observed a "combustion" odor on the walkway between Vents 3 and 4. On March 2nd, no odor was observed.

2.4 Landfill Gas Monitoring

Landfill gas monitoring was conducted by E2 on February 12 and March 2, 2016, to evaluate the types of landfill gasses generated by the landfill; to verify whether subsurface combustion/oxidation is occurring at the site, and to evaluate the level of microbial degradation occurring at the site.

Using a LANDTEC GEM™ 2000 Plus meter (GEM), CH_4 Vents 1 through 4 were monitored for temperature, carbon monoxide (CO), oxygen (O_2), CH_4, the lower explosive limit (LEL[5]) as a function of CH_4, carbon dioxide (CO_2), hydrogen sulfide (H_2S), hydrogen gas (H_2), and the remaining "balance gas", which is primarily nitrogen. The GEM was calibrated prior to each sampling event; however, during the February 12th event, the equipment rental facility couldn't calibrate the instrument for H_2S. As a result, the landfill gas was monitored again on March 1, 2016.

E2 used plastic sheathing to seal the vents from ambient conditions. The air was purged using a pneumatic vacuum pump to evacuate air from the vent until steady readings were observed on the GEM monitor (see Photographs, attached).

Landfill gas concentrations have historically been shown to vary throughout the characterized portion of the landfill, and recent monitoring results may not be representative of current site conditions. The gas levels measured during the monitoring events are summarized in Table 1, below. The accuracy of the results is somewhat questionable (perhaps erring on the low side) because of the large diameter of the vent pipe and the absence of proper monitoring valves.

Table 1: Landfill Gas Monitoring Data

Sampling Point	Date	Temp. °F	CO ppm	O_2 % Vol.	CH_4 % Vol.	LEL %	CO_2 % Vol.	H_2S ppm	H_2
Vent 1	2/12/16	85	1	7.0	1.5	30	7.9	0	---
Vent 2		85	0	0.8	10.1	>100	2.1	0	---
Vent 3		87	0	9.1	1.7	34	5.7	0	---
Vent 4		84	0	8.3	0	0	7.4	0	---
Vent 1	3/1/16	N/A	40*	10.7	0.6	12	6	0	Low
Vent 2		N/A	55*	1.6	9.1	>100	1.9	0	Low
Vent 3		N/A	28*	18.4	0.1	2	0	0	Low
Vent 4		N/A	10*	11.2	0.1	2	4.7	0	Low

Notes: Background concentrations of CO were 16 ppm and field technician suspects that measurements may not be reliable.
--- Not monitored.

2.4.1 Subsurface Landfill Combustion/Oxidation

Visual and olfactory indications of a subsurface combustion include collapsed features at the landfill surface, such as sinkholes, fissures, and other depressions; black staining or a fire

[5] The minimum concentration of a particular combustible gas or vapor necessary to support its combustion in air is defined as the LEL for that gas. Below this level, the mixture is too "lean" to burn.

breaking out at the ground surface; dead or blackened vegetation; colored smoke; and distinct odors.

Visual and olfactory surveys were conducted by E2 to identify indications of subsurface oxidation/combustion.

- E2 did not observe ***visual indications*** of subsurface combustion during the February and March site visits. The cover over the liners appeared to be intact and undamaged; however, the grass on the top of the mounds was dry to non-existent in some areas, likely because the sprinklers don't reach the tops of the mounds.
- E2 observes ***olfactory indication*** of subsurface combustion during the February 8th site visits. An ephemeral "combustion" odor may have been observed on the walkway between Vents 3 and 4.

Internal landfill temperatures, landfill gas concentrations, and visual and olfactory evidence are all used to evaluate the presence of a subsurface combustion at landfills. Indications of a subsurface combustion include temperatures greater than 140 degrees Fahrenheit (ºF) and CO concentrations greater than 100 ppm measured in gas probes.

- ***Temperatures*** measured in the vents ranged from 84 to 87ºF. The site does not have permanent temperature probes, so the temperature measurements that were collected were of the gasses within the vents.
- ***CO*** was only detected at a very low level at Vent 1 during the first monitoring event, and at all four vents during the second monitoring event; however, the field technician stated that the GEM meter may have had a faulty CO probe. CO levels should be confirmed by laboratory analysis prior to initiation of redevelopment activities to evaluate the presence/absence of oxidation/combustion in the landfill. Subsurface oxidation/combustion poses a serious health and safety risk to construction workers.

CH_4 gas concentrations provide valuable information on the potential for a subsurface combustion to occur. CH_4, a highly flammable gas, is generated in landfills as waste decomposes anaerobically (e.g., in an oxygen depleted environment). A dramatic decrease in CH_4 concentrations could indicate that O_2 is infiltrating into the landfill and that anaerobic decay of landfill material has decreased. CH_4 concentrations of more than or equal to 5% by volume, which is 100% of the LEL, are a concern in the presence of O_2 in excess of 4% by volume. The combination of CH_4 at or above the LEL and an O_2 rich environment could lead to a highly combustible setting, especially in the presence of a known subsurface landfill combustion.

- CH_4 was detected in all of the vents; however it was detected at Vent 2 at a concentration above the LEL of 5% volume, which may pose an explosion/fire hazard under certain conditions.
- Methane gas was also detected at Vents 1 and 3 at concentrations greater than 10% of the LEL, which is commonly used as an "action level" above which mitigative measures are recommended (Department of Toxic Substances Control, State of California [DTSC] 2005).

O_2 concentrations in the landfill in excess of 4% by volume are also indicative of potential problems with subsurface landfill combustion. O_2 concentrations above 4% indicate that O_2 is infiltrating into the landfill. Not only can high oxygen levels "feed" existing subsurface

combustion, but they can also increase the temperature of the landfill and create an environment where spontaneous combustion may occur. Concentrations as low as 2% can be indicative of O_2 infiltration. The best way to prevent a subsurface combustion from breaking out is to limit the O_2 concentrations by limiting air infiltration into the landfill.

- *O_2* levels were detected in Vents 1, 3, and 4 above 4% by volume and; therefore, could support oxidation/combustion within the waste mass. The presence of elevated levels of O_2 in the vents may be due to inadequate or damaged landfill cover.

H_2S was not detected in any of the four landfill gas vents; however, it is possible that pockets of H_2S gas are present within the landfill that may pose a risk to construction workers during proposed site redevelopment.

Ammonia (NH_3) gas was not monitored (the GEM meter is not equipped to measure NH_3), but may be present within the landfill at concentrations that pose a risk to construction workers during proposed site redevelopment.

2.4.2 Microbial Degradation at the Landfill

CH_4 gas is generated at landfills as waste decomposes anaerobically (i.e., in an O_2 depleted environment). Production of landfill gasses reach a peak within five to seven years of landfilling; however, a landfill can continue to produce gasses for more than 50 years depending on the types of wastes disposed of at the site.

CH_4 concentrations measured at the landfill were relatively low with the exception of CH_4, which was detected above the LEL at Vent 2. Based on the age of the Kakaako Waterfront Park Ash Landfill, it is likely that landfill gas production peaked many years ago and will continue to decrease.

3.0 ASH LANDFILL MATERIAL MANAGEMENT AND DISPOSAL OPTIONS

3.1 Environmental Hazard Evaluation

E2 conducted an Environmental Hazard Evaluation (EHE) to evaluate potential environmental hazards associated with contaminated media identified at the site at concentrations that may pose a risk to human health and the environment during proposed redevelopment activities. Potential environmental hazards include direct exposure, vapor intrusion, leaching, impacts on terrestrial and aquatic habitats, gross contamination, and drinking water toxicity.

The EHE was completed by using soil and groundwater sample data generated during previous environmental investigations conducted by WCC (1989) and HLA (1990). The EHE is included as an attachment to this letter report. The EHE findings are summarized below.

The site is currently a public park, and future use of the site will not change; therefore, COPCs were identified by comparing site analytical data to HDOH REALs for sites where groundwater is not a current or potential source of drinking water, and the site is less than 150 meters from a surface water body (HDOH Fall 2011, revised January 2012).

The following potential environmental hazards were identified during the EHE:

- Cap Soil/Ash:

Direct exposure: PCBs and four metals (Cd, Cu, Pb, and Ni) are present at concentrations that pose direct exposure risks;

Gross contamination: Five metals (Ba, Cu, Pb, Ni, and Zn) are present at concentrations that characterize the material as grossly contaminated (free product, odors, etc.); and

Leaching hazard: PCBs are present at concentrations that pose a leaching hazard.

- Groundwater:

Aquatic ecotoxicity risks: CN^- and 14 metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, V, and Zn) are present at concentrations that pose a risk to marine organisms; however, based on conclusions of the HLA (1990) Bioaccumulation Study, discussed in Section 1.0, contaminats from the landfill does not pose a significant effects on the near-shore environment; and

Gross contamination: The metal Ba is present at concentrations that characterize the material as grossly contaminated.

The EHE is limited by the following:

- The previous environmental investigations (WCC 1989 and HLA 1990) were completed prior to site redevelopment in 1992; therefore, the site is not considered to be characterized.
- Landfill material is highly variable and is not considered to be fully characterized.
- The north portion of the park was not included in the previous environmental investigations and remains uncharacterized. Areas of the site that were not characterized are shown in Figure 2, attached.
- The landfill material was not analyzed for dioxins/furans, which can be present in incinerator ash.

4.0 ASH LANDFILL MATERIAL MANAGEMENT / DISPOSAL OPTIONS

The affected area is not currently subject to hazardous waste regulations under RCRA because landfill operations ended prior to the effective date of 1980. However, if soil, refuse, or cap material is moved off-site, the waste generated from the construction and demolition activities of the proposed project will be evaluated as a new waste and could become hazardous wastes depending on results of analysis required by the landfill.

Prior to selecting an option, the landfill material in the affected area should be characterized in accordance with the HDOH 2009 *Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan* (TGM). Data generated from the characterization may be required for temporary and permanent landfill materials management planning as well as mitigating risk to human health and the environment throughout redevelopment activities.

E2 reviewed a number of options for managing landfill material that may be excavated to accommodate proposed removal and recontouring activities at the project site.

4.1 Viable Options

On-site reinternment of landfill material is considered to be the best option when considering regulatory approval, potential impacts to human health and the environment, logistics, and costs.

Re-contouring and removal of the ash mounds and reuse of the landfill material on-site (i.e., to raise the elevation of the parking lot) will require, but not be limited to the following tasks:

- Environmental permitting (see Section 5.0);
- Preparation of construction, grading, and drainage plans (may require HDOH review and approval);
- Preparation of an Exposure Hazard Management Plan (EHMP) and inclusion of the EHMP into construction specifications (will require HDOH approval). The purpose of the EHMP is to provide guidance on the proper management of impacted media and environmental hazards that may be encountered during redevelopment activities at the site.
- Implementation of the EHMP;
- Additional studies (e.g., water quality, aquatic toxicity, bioaccumulation in marine fish and invertebrates) (may be required by HDOH);
- Redesign and replacement of the methane vent system (will be required by HDOH);
- Preparation of a landfill gas monitoring plan (may be required by HDOH);
- Preparation of a soil management plan for material to be reinterred on-site (will be required by HDOH); and
- Preparation and approval of a final landfill grading plan (will be required by HDOH).

4.1.2 Disposal at a Local Permitted Landfill

While disposal at a local permitted landfill may be a viable option for the landfill material, HDOH approval may be required.

PVT Land Company, Ltd. Landfill (PVT) accepts waste generated from construction and demolition (C&D) activities. The waste generated from the proposed project would likely qualify as C&D waste and could be accepted by PVT based on their evaluation of the waste. PVT has specific acceptance criteria for wastes and soils that will require generator knowledge and sampling and analysis. The soils and ash on-site will require sampling as outlined in PVT's Petroleum Contaminated Soil Agreement and Soil Profile Sheet, attached.

The following are PVT's current disposal rates for Non-CERCLA sites:

- C&D Wastes to the Landfill - $48 per ton (minimum charge $240)
- Mixed loads of concrete $48 per ton (minimum charge $240)
- Special Waste Disposal $97 per ton plus $97 per load handling ($194 min)

Due to the variability of the wastes that were previously disposed of at the Kakaako Waterfront Park Ash Landfill, there may be items encountered during the proposed project that PVT would

not accept for disposal (e.g., municipal solid waste, metal, containers, batteries, etc.). These materials would require segregation and proper recycling/disposal at permitted/licensed facilities.

Some of the drawbacks to this option include the following:

- This will not be HDOH's preferred option.
- There will be additional costs to characterize the landfill material for disposal. Characterization and acceptance by the landfill should be conducted prior to selecting an option. There is a good chance that the material might not be accepted by the landfill.
- There is additional risk posed to human health and the environment as a result of increased handling (loading and unloading) and transport of contaminated material.
- The cost to transport and dispose of the material may be prohibitive.

4.2 Non-viable Options

4.2.1 Disposal at a Hazardous Waste Facility

Disposal of the landfill material as a hazardous waste is not considered to be a viable option for the following reasons:

- This will not be HDOH's preferred option.
- It can be assumed that the landfill material is a hazardous waste; therefore, characterization should not be required; thus saving on sampling and analysis.
- The costs to excavate, handle/package, transport, ship (to the mainland), and dispose of hazardous waste is prohibitive.
- There is additional risk posed to human health and the environment as a result of increased handling (packaging, loading, and unloading) and transport of contaminated material.

4.2.2 Off-site Reuse as Fill

Off-site reuse as fill is not a viable option for the landfill material because contaminant concentrations exceed the HDOH action levels. The HDOH fill determination process is used to determine if a proposed fill material meets the HDOH HEER Office definition of acceptable fill material for off-site reuse. Determination of the presence or absence of contamination above action levels in proposed fill material ensures that using the fill material will not adversely impact human health or the environment.

4.2.3 Reuse in Concrete and/or Pavement

Reuse of the landfill material in concrete and/or asphalt is not considered a viable option. Incinerator ash typically requires pretreatment to remove/stabilize contaminants prior to use as an aggregate in concrete production and road pavement. Pretreatment methods for the utilization of ash include separation processes, solidification/stabilization, and thermal processes, most of which are still undergoing pilot testing for viability.

5.0 ENVIRONMENTAL PERMITS AND AGENCY INVOLVEMENT

Environmental permits required to complete the proposed project will depend largely on the details of final project plans. The following lists permits that may be required to complete the proposed project:

- Clean Water Act (CWA), Section 404 Permit and Permit for Activities in Waterways – U.S. Army Corps of Engineers (USACE). Entities planning to perform work within the waters of the U.S. must obtain a permit from the USACE. The USACE requires submittal of a Department of the Army (DA) permit application and authorization of Section 10 of the Rivers and Harbors Act.
- Section 401 Water Quality Certification (WQC) – HDOH Clean Water Branch (CWB). A 401 WQC is required for in-water work. Typically when a CWA Section 404 permit is not required, then a Section 401 permit is also not required. However, a Section 401 permit may be required when a DA Permit from the USACE is required and if the HDOH believes that the project may result in a discharge into navigable waters. A Section 401 WQC must comply with state water quality standards and other aquatic resource protection requirements.
- Clean Water Act Section 402 - National Pollutant Discharge Elimination System (NPDES) Permit – HDOH, CWB. A NPDES General Permit is typically required for construction activities that discharge storm water from a total disturbed area greater than one acre. The disturbed area for the project is assumed to include the park, construction staging area, and stockpiling areas.
- Special Management Area Use Permit (SMA) – City and County of Honolulu (CCH) Department of Planning and Permitting (DPP). Typically, any uses, activities or operations that are defined as "development" within the Special Management Area require an SMA Use Permit.
- Community Noise Permit – HDOH, Environmental Health Services Division (EHSD). The Noise, Radiation and Indoor Air Quality Branch of the EHSD is responsible for reviewing and issuing a variance. Any variance application is subject to public participation requirements which include public notices, comment periods, and public hearings. The community noise permit application can be submitted as soon as the date of construction is determined. The current fee schedule for a community noise permit application is $50 plus applicable costs for the public participation requirements. The minimum processing time is one month.
- Street Usage Permit –CCH Department of Transportation Services (DTS). A Street Usage Permit is required for all work performed on CCH streets, highways, roads, lanes, paths, alleyways, driveways, and/or sidewalks. It is also required for parking on CCH roads and street closures in conjunction with construction.
- Temporary Use Approval – CCH DPP. A Temporary Use Approval is required for construction activities and structures of a temporary nature which will have a significant impact on the surrounding area. This may include the construction staging area(s) that will be set up for this project. There is an exemption clause for public uses and structures; however, DPP needs to be contacted by the construction contractor to determine if this project qualifies for such an exemption.

6.0 CONCLUSIONS AND RECOMMENDATIONS

1. *Based on our assessment of the Kakaako Waterfront Park Ash Landfill, we conclude the following:*

   The Kewalo Ash Landfill was partially characterized in 1990; however, when the Kakaako Waterfront Park was constructed on the site in 1992, the environmental conditions at the site were altered. The HDOH does not have a landfill closure plan on file; therefore, there are no details available regarding a) how the final configuration of the landfill was achieved, b) the nature of landfill materials left in place and those that were removed from the site, and c) landfill monitoring requirements (if any). Prior to construction, the landfill elevation ranged from 40 to 54 feet amsl. Construction activities included sculpting and grading landfilled materials into several mounds and valleys, with a final topography ranging from approximately 10 to 15 feet amsl at the promenade to 50 feet amsl at Observation 6. There is a passive methane vent system in place at the park; however, landfill gas monitoring does not appear to be required.

   Contaminants of potential concern were identified in soil/ash and groundwater at concentrations that exceed current HDOH environmental action levels; however, public exposure is limited by the presence of the landfill cap.

   According to recent landfill gas monitoring measurements, landfill gases, particularly methane, are still being generated by the landfill, and are present within the vents at concentrations that are potentially explosive and/or exceed the action level. Methane gas was detected within Vent 2 at a concentration above the LEL of 5% by volume, which may pose an explosion/fire hazard under certain conditions. Methane gas was also detected within Vents 1 and 3 at concentrations greater than 10% of the LEL, which is commonly used as an "action level" above which mitigative measures are recommended.

   The following is recommended:

   - *Landfill gas monitoring/testing* should be conducted to evaluate the presence/absence of potentially toxic/explosive gases emitting from the vents, in ambient air, at topographically low areas, onsite buildings, underground structures, including storm sewer manholes and other utility vaults, etc.
   - *An EHE should be performed* to evaluate current potential risks to human health and the environment associated with ongoing oxidation/combustion of waste materials in the landfill. The EHE should include, but not be limited to consideration of the following: exposure to landfill gas emissions from the passive vent system and the landfill cap; potential movement of landfill gas into onsite/adjacent buildings and topographically low areas; and other potential hazardous conditions associated with oxidation/ combustion of waste materials (explosion, subsidence, formation of sinkholes and cracks).
   - *An EHMP should be prepared* and approved by the HDOH HEER office to notify onsite workers and the public of the presence of current potential environmental hazards and to provide guidance to onsite workers regarding proper management of impacted media and potential environmental hazards that may be encountered while working both at the surface and within the subsurface of the site. At a minimum the EHMP should include notifications of risk/exposure (if required), a site safety and health plan

for onsite workers, a landfill gas monitoring plan, soil and groundwater management plans, and an emergency response plan.

2. *Regarding proposed redevelopment of the site, we conclude the following:*

During park construction in 1992, landfill materials were moved around and new site features were formed (e.g. mounds and valleys), changing the environmental condition and the nature of the site. We do not know if waste materials (unburned/partially burned) were removed from the landfill and/or relocated/buried during construction of the park. The environmental condition of the landfill, in its current configuration, has not been characterized; therefore, current and future risks cannot be adequately evaluated.

The following actions are recommended prior to the design phase of the site redevelopment planning process:

- A remedial investigation should be completed to delineate the nature, extent, and magnitude of contaminated soil/ash, groundwater, and soil vapor beneath the park. A work plan for the proposed investigation should be developed and approved by the HDOH HEER office. The investigation should include analysis of soil/ash and groundwater for hazardous waste characteristics in case waste disposal/dewatering is required during redevelopment of the site. The investigation should also include an assessment of risk associated with potential exposures.
- Based on the findings of the remedial investigation, a feasibility study should be conducted to evaluate, at a minimum 1) the proposed redevelopment of the landfill and future use of the site as a public park and 2) the cost/benefit of redevelopment and future use of the site.

7.0 REFERENCES

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oOo

Please feel free to contact me at (808) 551-9552 if you have any questions regarding the information presented in this letter report.

Sincerely,

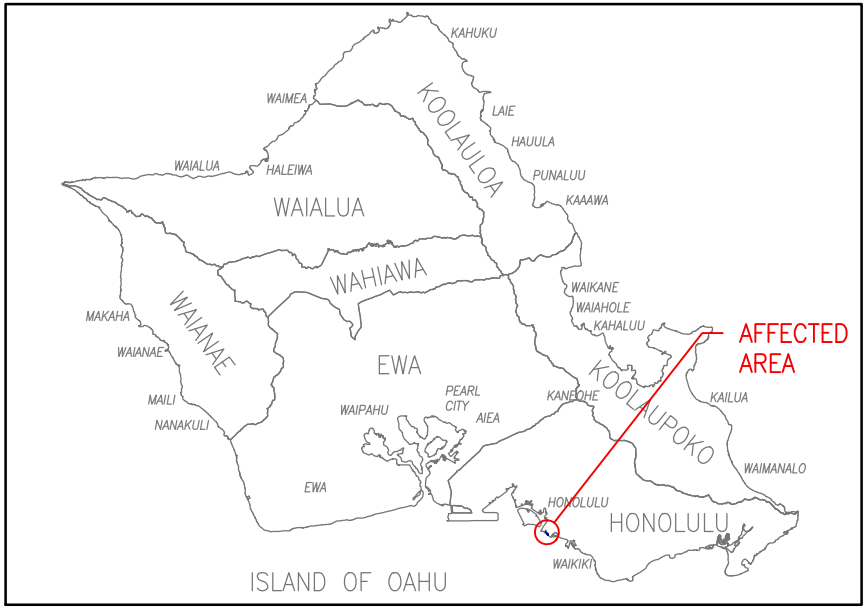
Arlene H. Campbell

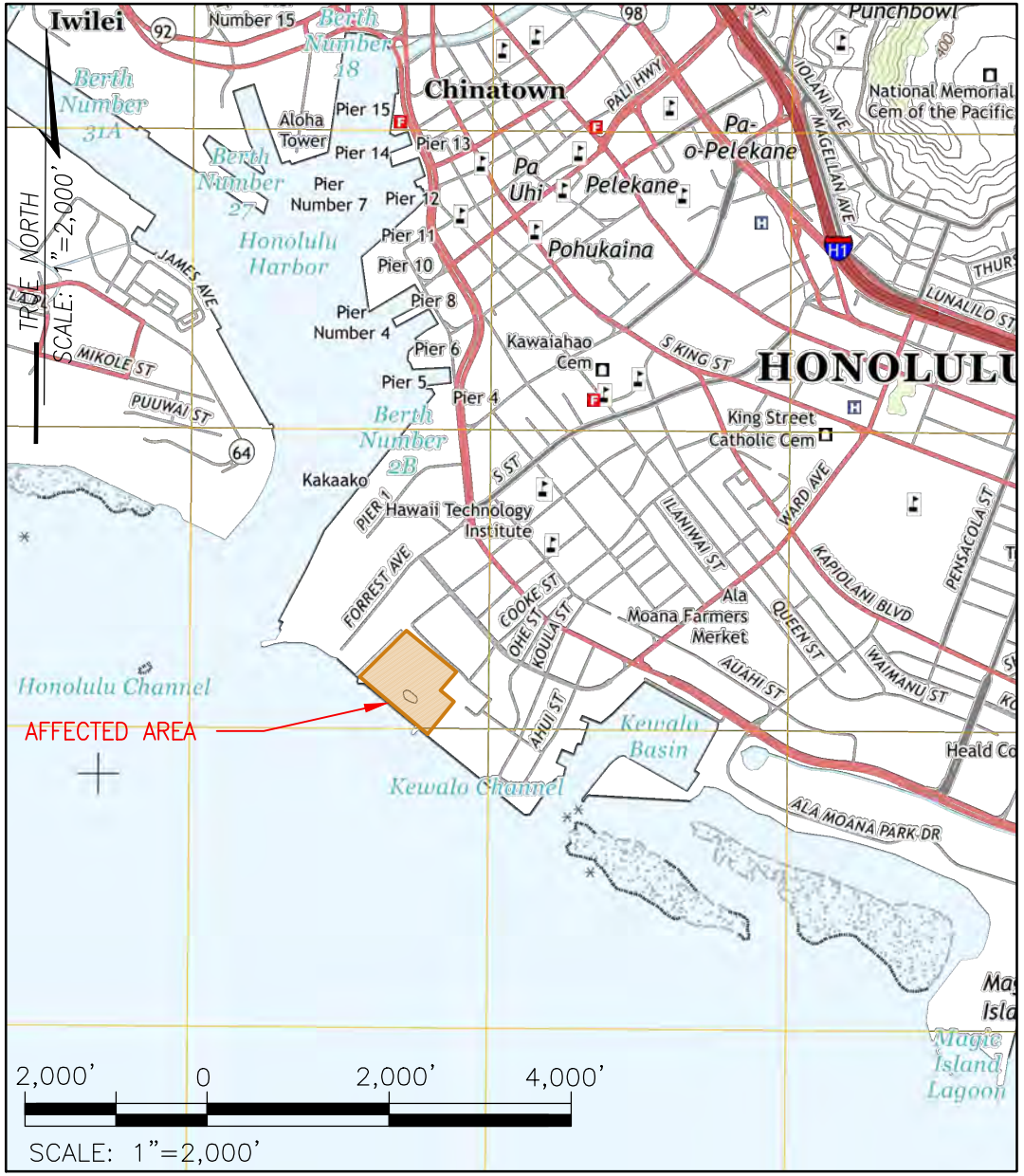
Arlene H. Campbell, L.G.
Element Environmental LLC

Attachments:

Figures: Figure 1 – Site Vicinity and Location Map
Figure 2 – Site Plan
Photo Plates
Site History
Summary of Environmental Studies
Environmental Hazard Evaluation
PVT Petroleum Contaminated Soil Agreement
PVT Soil Profile Sheet

ATTACHMENTS





	DATE: MAR 2016	PROJECT TITLE: KAKAAKO MAKAI PARK ASH LANDFILL ASSESSMENT HONOLULU, OAHU, HAWAII
	FIGURE TITLE: SITE LOCATION AND VICINITY MAP	FIGURE NO.: 1

REFERENCES: STATE OF HAWAII 2016, GOOGLE EARTH 2016, AND USGS 2013.

TRUE NORTH
SCALE: 3/32"=1'

FORMER KEWALO INCINERATOR

KAKAAKO PARK SUBDIVISION (DPP 2003/SUB-257)

KEWALO BASIN

OLOMEHANI STREET

PARK SUBDIVISION

VENT NO. 1

VENT NO. 2

VENT NO. 3

VENT NO. 4

OBSERVATION POINT 6

SEWER OUTFALL

TRUE NORTH
SCALE: 1"=160'

LEGEND:

- LANDFILL GAS COLLECTION LINES
- 30-MIL FLEXIBLE SYNTHETIC MEMBRANE LINER
- AFFECTED AREA (14.4 ACRES)
- APPROXIMATE LIMITS OF CHARACTERIZED PORTIONS OF LANDFILL (15.5 ACRES)
- APPROXIMATE UNCHARACTERIZED AREA (12.3 ACRES)

160' 0 160' 320'

SCALE: 1"=160'

element environmental llc
environmental · engineering · water resources

PROJECT TITLE:
KAKAAKO MAKAI PARK ASH LANDFILL ASSESSMENT
HONOLULU, OAHU, HAWAII

FIGURE TITLE:
SITE LAYOUT

DATE:
MARCH 2016

FIGURE NO.:
2

Site History

The original southern coastline of Honolulu generally followed the present location of Ala Moana Boulevard and the Kakaako Makai District was previously situated at or below sea level. The site once occupied by a low-lying coastal area with nearshore reef and intertidal deposits.

According to a 2002 Historical American Building Survey, prepared for Incinerator Number 1 by the National Park Service (NPS), in 1898, the U.S. Army built a sea wall and filled a submerged coral reef on the ewa (western) side of Kaakaukukui for a gun emplacement at Fort Armstrong to protect the mouth of Honolulu Harbor. This sea wall served as a barrier between Fort Armstrong and the ocean prior to the beginning of landfill operations. The Fort Armstrong Sea Wall is located on the adjacent JABSOM property, approximately 60 feet north of the Kakaako Waterfront Park boundary.

By the early 1900s, the stretch of coast between Fort Armstrong and Waikiki was the site of the Honolulu garbage dump, which burned almost continually. After the Fort Armstrong Seawall was constructed, artificial "fill" materials were deposited behind the seawall, which moved the coastline south, establishing new land for development in the Kakaako Makai District. The "fill" materials consisted of ash from the open burning of municipal refuse, unburned refuse, construction debris, household debris, automobile batteries, and other miscellaneous refuse items.

The reclaimed land began receiving incinerator ash shortly after the Kewalo Incinerator was built on Ahui Street in 1930. The second incinerator (Kapalama Incinerator) was built on Ohe Street in 1936, and burned municipal refuse until 1974. Ash and slag (the unburnable remains, also known as bottom ash) from both incinerators were deposited at the site from approximately 1930 to 1974).

In 1944, Executive Order 1051 set aside 11.31 acres of tidelands adjoining the Kapalama Incinerator site for additional ash disposal space. The mauka ("toward the mountains") boundary of this site was a 1,200 foot long seawall adjoining Fort Armstrong.

In August 1948, work began on the dump for the noncombustible material from the Kapalama Incinerator. The huge seawall was constructed 500 feet seaward of the old shoreline (the Fort Armstrong Sea Wall), where the southern edge of the subject property now lies. The wall was 10 feet high, 10 feet wide on top and 30 feet wide at the base. From its outer extremity, along the edge of the Kewalo Channel, the wall continued parallel to the coast toward Fort Armstrong. The large boulders laid in the wall lining Kewalo Channel and around the point came from Punchbowl Crater during the initial development of the National Memorial Cemetery of the Pacific by James W. Glover, Ltd. (NPS 2002).

With the completion of the seawall in 1949, filling operations began and by the mid-1950's the shallow reef of Kaakaukukui was completely covered over. By 1956, twenty-nine acres of new land was added to the old shoreline (NPS 2002).

From the late 1950s to the early 1960s, refuse exceeding incinerator capacities was reportedly open-burned on landfill (VPE 2002).

In 1959, City and County of Honolulu (CCH) and State officials met to discuss the completion of the fill behind the seawall. The State Land Commissioner said that the area could be filled another six feet above the top of the seawall. With this permission, the CCH continued filling. As the height increased, the State expressed concern over the mountain of ash that was growing so rapidly.

In the early 1960s both incinerators were renovated, during which time, refuse was diverted to a new landfill at the Koko Head Firing Range. A feature of this landfill was the use of water pumped from the ocean to aid in compaction of the refuse. Refuse was also diverted to the Navy landfill at Pearl City (NPS 2002).

During the mid-1960s, excess refuse was disposed on the site without burning, and pesticides and/or rodenticides were applied to the refuse site for vector control. This practice was curtailed in 1970, and the site received only incinerator ash and slag until 1977 (VPE 2015) when the outdated incinerators were shut down. Parts of the Kewalo ash pile were then 25 feet above the top of the seawall.

From 1974 to 1977, the landfill was used as a transfer station. After 1977, the site was covered with a cap consisting of soil and construction debris.

From 1975 to 1990, the landfill site was used by Richard H.S. Lee (Richard Lee) as a disposal area for construction debris (primarily concrete, rocks, and soil) and as a separation and stockpiling area for the reuse of impacted excavation soils. There was evidence of uncontrolled dumping of household waste (e.g., large appliances, furniture, bed springs, car parts, etc.) which Mr. Lee's operators moved to an edge of the fill on a daily basis. (Woodward-Clyde Consultants [WCC] 1989 and Harding Lawson Associates [HLA] 1990).

On April 26, 1989, the U.S. Environmental Protection Agency (EPA) recommended No Further Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action (VPE 2015).

In November 1992, the State completed construction of the first phase of the Kakaako Waterfront Park, which included 30 acres of passive recreational park space with contoured, rolling landscaped mounds, and at the shoreline, a pedestrian promenade with comfort stations and picnic areas (Honolulu Community Development Authority [HCDA] 1993). The most distinctive and enjoyable parts of the park are the steep hills of grass covered incinerator ash, where the young and the young-at-heart slide down on cardboard sleds (NPS 2002).

In 1997, the Hawaii Department of Health (HDOH), Hazard Evaluation and Emergency Response (HEER) Office designated the Kakaako Waterfront Park landfill site as a low priority through their site screening procedures (in accordance with criteria listed in the Hawaii Administrative Rules Title 11 Chapter 451 Subchapter 3 Section 9).

Summary of Environmental Studies

A summary of the environmental studies conducted for the ash landfill is provided below.

Kakaako Waterfront Development Plan and Environmental Assessment (EA) - University of Hawaii (UH), August 1986

UH completed an EA in August 1986 to survey groundwater quality and estimate soil contaminant levels within the boundary of the proposed 55-acre Kakaako Waterfront Park. Groundwater quality was evaluated by sampling four monitoring wells installed just north of the area to be investigated by WCC in 1988-89. Petroleum hydrocarbon odors from the well groundwater samples were observed, and the samples were very turbid (black).

Soil samples were collected during groundwater well installation from depths of less than 10 feet below grade (likely from the cover, not the ash) and were analyzed for metals, including cadmium (Cd), copper (Cu), chromium (Cr), iron (Fe), lead (Pb), nickel (Ni), silver (Ag), and zinc (Zn), following extraction using the EPA extraction procedure toxicity test. Heavy metal concentrations, for the most part, did not exceed test method limits of detection. The only metal identified in the samples was Pb.

Water samples collected from the groundwater wells, the shoreline, and from offshore were analyzed for dissolved metals, including those listed above, water quality parameters, organochlorine (OCl) pesticides, and halogenated hydrocarbons. Heavy metals were generally not detected in the water samples and OCl pesticides and halogenated hydrocarbons were not detected above analytical detection limits (generally less than 1 micrograms per liter [µg/L]).

Groundwater sample results indicated a virtual absence of dissolved metals, alkaline pH, moderate turbidity, elevated total dissolved solids and chloride, trace amounts of reactive and total phosphate, variable concentrations of biological and chemical oxygen demands, and carbon chloroform extract concentrations less than 9.0 milligrams per kilogram (mg/kg). OCl pesticides and selected halogenated hydrocarbons were not observed at concentrations exceeding test method limits of detectability.

Preliminary Investigation of Kewalo Incinerator Landfill, Oahu, Hawaii –WCC, January 1989

WCC conducted a preliminary investigation of the Kewalo Incinerator Landfill from November 27 to December 12, 1988, to evaluate the presence/absence of hazardous materials/waste in the landfill, which if present, could affect future site planning. During WCC's preliminary investigation the Kewalo Incinerator Landfill was active and was receiving construction rubble, excavated soils, and some office remodels refuse. WCC personnel observed three metal drums of unknown material partially buried in the landfill cover in the central portion of the landfill. The drums were "bung-type" and are typically used for liquids; an oily sheen was observed on top of one drum. Other potentially hazardous materials observed on site included cans of paint and thinner and automobile batteries. Wrecked cars were often illegally dumped on the site.

WCC installed a total of five soil borings (B1 through B5); shown in Figure 2, attached. Cap material encountered in the borings ranged in thickness from 12 to 25 feet and was composed of dry to moist, loose to stiff, silty-clayey-sandy-gravelly fill with some cobbles and boulders. Refuse material encountered in the borings ranged from 14 to 45 feet thick and consisted of ash, wood, concrete blocks, glass, scrap metal, wire, plastic, and household debris, which was occasionally mixed with soil and coral boulders. Burned material was identified in the refuse horizon in borings B-1, B-2, and B-5. WCC estimated the total volume of ash, soil, and refuse in the landfill was 686,000 cubic yards.

Three of the five soil borings (B-1, B-2, and B-3) were converted to groundwater monitoring wells. Hydrogen sulfide (H_2S) was observed in the breathing zone at monitoring well B-1 (MW B-1) at a concentration of 30 parts per million (ppm) during well development. MW B-3 had anomalously high water temperatures, but the heat source was unknown. Free product was not observed in any of the monitoring wells.

WCC collected and analyzed samples of soil/ash from the cap/refuse horizons from four of the five soil borings, and groundwater from the three wells. Solid and liquid samples were analyzed for the following:

- Volatile Organic Compounds (VOCs) using EPA Method 8240;
- Semi-volatile Organic Compounds (SVOCs) using EPA Method 8270;
- Polychlorinated biphenyls (PCBs) using EPA Method 8080;
- OCl Pesticides using EPA Method 8080;
- Total Cyanide (CN^-)using EPA Method 9010; and
- Total Metals, including aluminum (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), Cd, calcium (Ca), Cr, cobalt (Co), Cu, Fe, Pb, magnesium (Mg), manganese (Mn), mercury (Hg), Ni, potassium (K), selenium (Se), Ag, sodium (Na), thallium (Tl), selenium (Sn), vanadium (V), and Zn.

Soil vapor samples were collected from three soil vapor wells, two of which were nested in soil boring B-4 (B-4 shallow and B-4 deep) and one in soil boring B-5. Solid vapor well samples were analyzed for the following:

- H_2S (ppm);
- Ammonia (NH_4) (ppm);
- Carbon dioxide ($C0_2$) (percent [%] by volume);
- Oxygen (0_2) (% by volume);
- Volatile Organics (ppm); and
- Unknown Hydrocarbons (ppm).

The current and future land use for the site will remain a public park; therefore, sample results are compared to the current Hawaii Department of Health (HDOH) Environmental Action Levels (EALs) for Unrestricted (Residential) land use (referred to as REALs) for sites where groundwater is not a current or potential source of drinking water and the site is less than 150 meter from a surface water body (HDOH Fall 2011, revised January 2012). Table A-1 shows the soil/ash, and groundwater sample results, and Table A-2 shows the soil vapor sample results.

Master Table A-1: WWC 1989 Solid and Liquid Matrix Sample Results

Analytes	Solid Matrix (soil and ash) mg/kg				Liquid Matrix (groundwater) µg/l			HDOH Soil REALs mg/kg	HDOH Water REALs µg/l
Sample Number (depth in feet) Cap Sample Number (depth in feet) Refuse	B1-3 (15-16) B1-5 (25-26)	B2-2 (10-11) B2-4 (20-21)	B3-2 (10-11) B3-9 (45-46)	B4-3 (15-16) B4-6 (30-31)	MW B-1	MW B-2	MW B-3		
Volatile Organic Compounds (VOCs)									
Vinyl chloride	ND > 1				ND	ND	ND	0.072	62
Benzene	ND ND	ND ND	ND 0.560	ND ND	ND	ND	ND	0.67	46
1,2-Dibromomethane	ND ND	ND ND	ND ND	ND ND	ND	ND	ND	NS	NS
1,2-Dichloroethane	ND ND	ND ND	ND ND	ND ND	ND	ND	ND	NS	NS
Tetrachloroethylene	ND > 0.5				ND	ND	ND	0.088	120
Carbon tetrachloride	ND > 0.5				ND	ND	ND	0.087	9.8
1,1,1-Trichloromethane	ND ND	ND ND	ND ND	ND ND	ND	ND	ND	NS	NS
Trichloroethylene	ND > 0.5				ND	ND	ND	0.26	360
Methylene Chloride	ND > 2.5				ND	ND	ND	1.1	2,200
Carbon Disulfide	ND ND	ND ND	ND ND	ND ND	ND	ND	ND	NS	NS
Semi-Volatile Organic Compounds (SVOCs)									
Butyl Benzyl Phthalate	ND ND	ND ND	0.370 ND	ND ND	ND	ND	ND	NS	NS
Naphthalene	ND ND	ND ND	ND 0.380	ND ND	ND	ND	ND	4.5	24
Organochlorine (OCl) Pesticides									
DDE	0.029 ND	ND ND	ND 0.066	ND ND	ND > 0.2			1.4	0.001
DDD	ND ND	ND ND	ND 0.065	ND ND	ND > 0.6			2	0.001
Chlordane	0.260 0.150	ND ND	0.180 1.300	ND ND	ND > 1			16	0.004
Dieldrin	ND ND	ND ND	0.340 ND	ND ND	ND > 0.2			1.5	0.0019
Polychlorinated Biphenyls (PCBs)									
Total PCBs	ND ND	ND ND	ND ND	ND ND	ND > 2			1.1	0.014

Analytes	Solid Matrix (soil and ash) mg/kg				Liquid Matrix (groundwater) µg/l			HDOH Soil REALs mg/kg	HDOH Water REALs µg/l
Sample Number (depth in feet) Cap Sample Number (depth in feet) Refuse	B1-3 (15-16) B1-5 (25-26)	B2-2 (10-11) B2-4 (20-21)	B3-2 (10-11) B3-9 (45-46)	B4-3 (15-16) B4-6 (30-31)	MW B-1	MW B-2	MW B-3		
Total Cyanide									
Total Cyanide	ND > 0.5				80	80	ND > 10	0.01	1
Metals									
Aluminum	8,860 12,700	13,200 11,800	26,500 13,500	6,830 7,770	630	72,000	80,000	NS	NS
Antimony	ND > 5 13	ND > 5 6	ND > 5 ND > 5	ND > 5 ND > 5	ND > 50	70	ND > 50	2.4	30
Arsenic	7.1 10	9 18	3 8	7.5 7.8	7	120	83	24	36
Barium	123 926	178 1,640	319 467	31 78	380	1,500	3,600	1,000	200
Beryllium	0.6 1.1	1 0.8	1.9 0.9	0.5 0.6	ND	6	7	31	2.7
Cadmium	ND 0.6	ND 2	0.9 1.3	ND ND	ND > 5	58	14	14	3
Calcium	140,000 32,700	143,000 58,200	100,000 75,900	250,000 204,000	65,000	1,870,000	550,000	NS	NS
Chromium	32 66	32 70	67 69	44 41	20	430	480	1,100	74
Cobalt·	11 20	15 29	35 15	12 12	ND > 10	100	130	80	3
Copper	138 286	62 1,930	63 462	21 102	64	5,800	3,200	630	2.9
Iron	30,900 150,000	33,800 82,700	48,200 55,400	14,300 23,900	3,900	337,000	401,000	NS	NS
Lead	380 740	300 2,020	109 720	7.8 136	44	11,000	5,800	200	5.6
Magnesium	11,200 5,680	17,100 4,820	23,300 8,860	9,210 14,000	404,000	1,230,000	73,000	NS	NS
Manganese	344 894	439 647	899 574	229 328	150	3,400	3,900	NS	NS
Mercury	0.2 0.5	0.1 ND	0.1 0.1	0.3 0.1	ND > 0.2	2	1.7	4.7	0.025
Nickel	51 62	64 2,330	139 99	30 46	ND > 40	630	560	760	5
Potassium	820 2,520	1,910 2,920	3,930 2,030	ND 1,270	271,000	423,000	198,000	NS	NS
Selenium	ND	0.2	ND	ND	ND	ND	ND	78	5

Analytes	Solid Matrix (soil and ash) mg/kg				Liquid Matrix (groundwater) µg/l			HDOH Soil REALs mg/kg	HDOH Water REALs µg/l
Sample Number (depth in feet) Cap Sample Number (depth in feet) Refuse	B1-3 (15-16) B1-5 (25-26)	B2-2 (10-11) B2-4 (20-21)	B3-2 (10-11) B3-9 (45-46)	B4-3 (15-16) B4-6 (30-31)	MW B-1	MW B-2	MW B-3		
	ND	0.3	ND	ND					
Silver	2.1 6.9	ND 3.8	ND 3.6	ND 0.9	**ND > 5**	**49**	**37**	78	1
Sodium	2,900 2,700	4,050 3,900	4,410 5,140	2,240 4,530	5,960,000	8,990,000	4,060,000	NS	NS
Thallium	ND ND	ND ND	ND ND	ND ND	**ND > 40**			0.78	20
Tin	80 518	15 236	ND 194	ND 42	ND	1,700	2,500	NS	NS
Vanadium	46 24	59 32	84 42	47 37	**40**	**40**	**390**	770	19
Zinc	448 **1,680**	215 **4,550**	259 827	34 136	**290**	**16,000**	**8,100**	1,000	22

Reference: HDOH REALs for sites where groundwater is not a current or potential source of drinking water and the site is less than 150 meter from a surface water body (HDOH Fall 2011, revised January 2012).

ND indicates that the analyte was not detected above laboratory reporting limits (LRL), and ND indicates the LRL exceeds the HDOH REALs.

Red font indicates that HDOH REALs exceeded

Table A-2: WWC 1989 Solid Vapor Matrix Sample Results

Analytes	Solid Vapor Matrix (soil vapor)		
	MW B-4 Shallow	B-4 Deep	B-5
Landfill Gases			
Hydrogen sulfide (H_2S) (ppm)	< 1.0	< 1.0	< 1.0
Ammonia (NH_4) (ppm)	< 2.0	< 2.0	< 2.0
Carbon dioxide ($C0_2$) (% by volume)	2.9	3.3	3.6
Oxygen (0_2) (% by volume)	16	14	12
Volatile Organics (ppm)	< 0.5	< 0.5	< 0.5
Unknown Hydrocarbons (ppm)	4.4	22	ND

Based on our review of the WCC preliminary investigation report, E2 concludes the following:

- Contaminants of potential concern (COPCs) were identified in soil/ash samples at concentrations exceeding REALs, including the metal Pb in the cap material and the metals Ba, Cu, Pb, Ni, and Zn in the refuse material.
- COPCs were identified in groundwater samples at concentrations exceeding REALs, including CN^-, and the metals Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, V, and Zn.
- Vapor monitoring wells included unknown volatile hydrocarbons. CO_2, O_2, and unknown hydrocarbons were identified in the MW B-4 and B-4 Deep vapor monitoring wells, and CO_2 and O_2 were identified in B-5 vapor monitoring wells. The percent oxygen and carbon dioxide and lack of methane (CH_4) concentrations from the vapor wells suggest that the refuse in the landfill is undergoing degradation.

Based on their findings and conclusions, WCC recommended the following:

- Determine the regulatory status of the landfill with respect to State of Hawaii and Federal laws so they can be incorporated into the plans for the potential redevelopment of the Kewalo Incinerator Landfill.
- Restrict access to the Kewalo Incinerator Landfill. Sources of materials coming to the landfill are not always identified; the landfill should not accept any materials which could be considered hazardous under state or federal law. If hazardous materials are allowed to enter the landfill, they could create a greater problem by affecting clean fill on site. Non-hazardous materials delivered to the landfill should be stockpiled in a designated "clean" area so that they do not become contaminated from existing contaminated materials.
- A quantitative risk assessment may be required to help determine safeguards appropriate for the proposed redevelopment plan for the site. The information required to perform the quantitative risk assessment should be site specific and would likely require further investigation and chemical analysis.
- For grading operations to be conducted on site, several important factors should be considered. Since potentially hazardous materials/waste have been identified on the cap and refuse material, an appropriate site-specific health and safety plan should be formulated and instituted to protect on-site workers. This plan should adhere to appropriate State and Federal OSHA requirements and allow for employee training and certification. A trained hazardous materials specialist and testing laboratory should be available to identify arid quantify any potentially hazardous materials uncovered during grading operations. A designated area for the temporary storage of potentially hazardous materials should be identified so that the materials can be stored until a hazardous determination and disposal option is implemented.
- The preliminary investigation identified the cap material as having a variable thickness with respect to geographic location. ·According to Hawaii Solid Waste Control Regulations, a cap of at least two feet of acceptable material must be maintained. Therefore, more information should be collected to focus on the thickness of the cap material as a function of geographic location.
- Prior to the initiation of any grading activities, all man-made objects (such as car bodies) should be cleared from the site. Any of the objects which could be

hazardous, such as the identified drums, should be tested and disposed of in an appropriate fashion.

- The use of the excess cap material as fill elsewhere in the redevelopment area may be permissible if the material is non-hazardous. Any material classified as hazardous should not be removed from the landfill site.

Ecology and Environment, Inc. (E&E) Preliminary Assessment, Kewalo Incinerator Landfill, Oahu, Hawaii - WCC, March 1989

E&E conducted a preliminary assessment of the Kewalo Incinerator Landfill for the EPA to determine if the site should be included in the National Priorities List (NPL) of action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund"). E&E concluded that the Kewalo Incinerator Landfill site should not be included on the CERCLA NPL for the following reasons:

- The contaminated groundwater did not appear to be connected to a confined aquifer used for drinking water supplies;
- The surface water migration pathway (the Pacific Ocean) has no drinking water targets, low impact on endangered migratory species, and no major commercial fishing area impacts; and
- A release of landfill gasses from Kewalo Incinerator Landfill is possible but unlikely because of the thick engineered soil cap over the refuse.

Additional issues mentioned in the E&E report include the following:

- The landfill is not subject to hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA) because landfill operations ceased in 1977 and RCRA became effective in 1980;
- If soil, refuse, or cap material is moved off-site, the landfill may be subject to existing federal or state hazardous waste disposal laws; and
- EAs are required in other areas of the park project.

Remedial Investigation (RI), Kewalo Municipal Incinerator Landfill, Honolulu, Oahu, Hawaii (with Addendum 1) – HLA, October 1989 and January 1990

The *Honolulu Waterfront Master Plan* proposed converting the landfill site to a park, seaside promenade, and amphitheater. The conversion process called for a lower site elevation and re-contouring to create the amphitheater. HLA conducted the RI to characterize the site and evaluate the potential risks to public health and the environment from materials at the landfill. Specifically, the RI evaluated the following:

- Are hazardous materials or hazardous concentrations of waste constituents present in the landfill cap, incinerator ash, or groundwater at the site;
- Do landfill materials pose imminent or long-term health hazards; and
- Will redevelopment of the landfill cause unacceptable levels of exposure to hazardous materials or wastes?

HLA field activities were conducted from July 5 to September 29, 1989, and included excavation and sampling of 25 test pits, drilling and sampling of 10 soil borings, conversion of

the 10 soil borings to groundwater/gas monitoring wells, sampling of the 10 new groundwater/gas wells, and sampling of the three groundwater and three soil vapor wells previously installed by WCC. Only one of the UH wells was located, and it was damaged; therefore, none of the UH wells were sampled.

During field activities, HLA noted that the landfill was mounded to a maximum elevation of 54 feet amsl and the cap overlying the ash was very thin in places. HLA estimated the area of the landfill footprint at approximately 15.3 acres and the landfill volume to be approximately 815,000 to 940,000 cubic yards.

HLA excavated 25 test pits to maximum depths of 15 feet below ground surface (bgs). Relevant samples (excludes asbestos testing of surface materials) included:

- Chemical Samples: to characterize near-surface soil chemistry. Samples were analyzed for constituents on the EPA Hazardous Substance List (HSL). Only soil that exhibited organic vapor concentrations above background were designated for chemical analysis. A total of eight samples were selected for chemical analysis from the 25 test pits.
- Physical Samples: to characterize the suitability of the existing landfill cap for environmental protection (remolded permeability, Atterberg limits, and grain size distribution). A total of six samples were selected for physical analysis from the 25 test pits.

HLA drilled 10 soil borings and collected samples from two depths in each boring; one from the cap material and one from the ash material. Soil and waste materials encountered during drilling and test pit excavation throughout the site were mixed in various proportions; however, they could be grouped into four types of materials:

- Soils from excavations at construction sites;
- Construction debris, chiefly fragmented concrete, wood, tile, brick, rebar, and gravel;
- Garbage, rubber, paper products, wood, plastic, glass, scrap metal, and other unburned combustible material; and
- Ash consisting of dark colored silt with glass, metal, and partially burned garbage, often found with gravel and sand.

Soil samples were analyzed for:

- VOCs using EPA Method 8240;
- SVOCs using EPA Method 8270;
- OCl Pesticides and PCBs using EPA Method 8080;
- CN^- using EPA Method 9012;
- Total Metals, including Al, As, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Hg, Mg, Mn, Ni, K, Se, Ag, Tl, V, Zn; and
- RCRA Hazardous Waste Toxicity Characteristics.

Results of the chemical analysis of soil and ash samples indicated:

- Soils appear to be predominantly calcium carbonates and iron oxides, which are not considered health risks.

- For the most part, the landfill material is comprised of metals, including calcium, iron, aluminum, magnesium, sodium, and potassium. Other metals detected in the soil and ash included As, Ba, Cd, Cr, Co, Cu, Pb, Mn, V, and Zn. As and Cu concentrations are fairly uniformly distributed within the landfill. (Note: organo-Hg, As, Cd, and/or As compounds were primary ingredients in the pesticides used in Hawaii.)
    - As concentrations were fairly uniformly distributed within the landfill with an average concentration of approximately 40 mg/kg, which exceeds the REAL of 24 mg/kg. As was not detected in any of the soil samples at concentrations exceeding the RCRA Hazardous Waste Toxicity Characteristic level of 5.0 milligrams per liter (mg/L).
    - Cd concentrations ranged from 6.7 to 49.6 mg/kg in the cap soils, 11.4 to 51.2 between the depths of 11 and 25 feet bgs, and 7.8 to 38.9 mg/kg in the deepest samples, exceeding the REAL of 14 mg/kg. Cd was not detected in any of the soil samples at concentrations exceeding the RCRA Hazardous Waste Toxicity Characteristic level of 1.0 mg/L.
    - Cu concentrations ranged from 33.7 to 14,500 mg/kg in shallow cap soil samples (less than 10 feet bgs), 52.5 to 10,200 between the depths of 11 and 25 feet bgs, and 114 to 2,860 mg/kg in the deepest samples (over 25 feet deep), exceeding the REAL of 630 mg/kg. There is no RCRA Hazardous Waste Toxicity Characteristic level for Cu.
    - Pb was detected in significant quantities throughout landfill soils. Concentrations ranged from 40.0 to 15,800 mg/kg in the top 10 to 15 feet bgs of cap soil, 29.7 to 2,610 mg/kg between the depths of 11 and 25 feet bgs, and 147 to 3,840 mg/kg in the deepest samples, exceeding the REAL of 200 mg/kg. Pb was not detected in any of the soil samples at concentrations exceeding the RCRA Hazardous Waste Toxicity Characteristic level of 5.0 mg/L.
    - Ni was detected in all of the near-surface samples at concentrations ranging from 40.9 to 2,590 mg/kg, exceeding the REAL of 760 mg/kg.
    - CN^- was detected in several landfill soils at levels up to 1 mg/kg, exceeding the REAL of 0.01 mg/kg. CN^- is present in a relatively mobile state in landfill soils with a high proportion of the CN^- in leachable form.
    - Co was detected in all of the near-surface samples at concentrations ranging from 9.9 to 54.3 mg/kg, less than the REAL of 80 mg/kg.
    - Chromium was detected in all of the near-surface samples at concentrations ranging from 29.7 to 92.8 mg/kg, less than the REAL of 1,100 mg/kg.
    - Hg was detected in the top soil layer at an average concentration of 2.3 mg/kg, less than the REAL of 4.7 mg/kg.
    - Se was not detected in any of the soil samples at concentrations exceeding the RCRA Hazardous Waste Toxicity Characteristic level of 1.0 mg/L.
- Soil/ash samples were analyzed for the four hazardous waste characteristics: ignitability, reactivity, corrosivity, and toxicity. None of the samples tested positive for any of the characteristics.
- Very few organic compounds were commonly detected in the soil samples. Mean and median values for all detected organic compounds were below detection limits. Most other organic compounds were only detected in 1 or 2 of the 48 samples; thus, their distribution within the landfill is limited.

- The pesticides chlordane and dieldrin were detected in 19 and 16 of a total of 48 samples, respectively and were detected more often in the shallow soils than in the deeper soils or ash. Chlordane and PCBs were primarily detected near the top of the landfill.
  - Chlordane was detected in concentrations ranging from 0.96 to 4.0 mg/kg in the top 10 to 15 feet bgs of cap soil, 0.2 to 1.3 mg/kg between the depths of 11 and 25 feet bgs, and at a detectable level in deeper soil (one sample), less than the HDOH REAL of 16 mg/kg.
  - PCBs were detected in concentrations ranging from 0.02 to 12.5 mg/kg in the top 10 to 15 feet bgs of cap soil, 0.014 and 8.1 mg/kg between the depths of 10 and 15 feet bgs, and 0.014 and 8.1 mg/kg in soil below 25 feet bgs, exceeding the REAL of 1.1 mg/kg.
- Petroleum hydrocarbons and related compounds were detected in four soil samples at very low concentrations.

HLA converted 10 soil borings to groundwater/gas monitoring wells that utilized two casing strings in a single borehole: 2-inch PVC casing for groundwater monitoring and 1-inch PVC casing for landfill gas monitoring. HLA collected 10 samples from the 20 groundwater/gas wells; four from groundwater wells and six from soil gas wells. Wells selected for sampling exhibited both high and low organic vapor concentrations, were producing hydrogen sulfide, and/or had high subsurface temperatures.

Groundwater samples were analyzed for:

- VOCs using EPA Method 8240;
- SVOCs using EPA Method 8270;
- OCl Pesticides and PCBs using EPA Method 8080;
- CN^- using EPA Method 9012; and
- Dissolved Metals, including Al, As, Sb, Ba, Be, Cd, Cr, Co, Cu, Fe, Hg, Mg, Mn, Ni, K, Se, Ag, Tl, V, and Zn.

Results of the chemical analysis of groundwater samples indicated:

- Constituents were detected in the groundwater samples at concentrations that appeared elevated with respect to ocean water, including alkalinity and the metals As, Ba, Fe, Cd, Cr, Cu, CN^-, Pb, Se, and V. Although the basic characteristic of the groundwater is derived from ocean water, geochemical reactions and processes within the landfill are increasing concentrations of trace constituents to the groundwater.
  - As was detected in groundwater at concentrations ranging from 40 to 190 µg/L, exceeding the REAL of 36 µg/L.
  - Cd was detected in groundwater at concentrations ranging from < 5 to 9 µg/L, exceeding the REAL of 3 µg/L.
  - Cu was detected in one groundwater sample at a concentration of 20 µg/L, exceeding the REAL of 2.9 µg/L.
  - Pb was not detected in any of the groundwater samples at concentrations exceeding detection limits ranging from 20 to 80 µg/L; however, the detection limits exceeded REAL of 5.6 µg/L.

  - Se was detected in at a mean concentration of 40 µg/L, exceeding the REAL of 5 µg/L.
  - Cr, V, and Zn were infrequently detected at concentrations considered to be background.
  - Tl, Sb, Ni, Co, Be, Al, Ag, and Hg were not detected at concentrations above detection limits.

- Few organic compounds were detected in the groundwater; those that were detected were related to petroleum hydrocarbons, mostly diesel fuel.
  - Chlordane was not detected in any of the groundwater samples at concentrations exceeding detection limits.
  - PCBs (Arochlor 1242) were detected in one groundwater sample at a concentration of 0.99 µg/L, exceeding the REAL of 0.014 µg/L for total PCBs.
  - A variety of organic compounds were detected in groundwater, most of which were indicative of the presence of diesel fuels.
- The occurrence of molecular sulfur was attributed to reducing conditions present within the landfill environment.

Results of the chemical analysis of landfill gas samples indicated:

- The highest gas concentrations were detected near the center of the landfill.
- H_2S concentrations, where detected, ranged between 10 and 40 ppm. H_2S concentrations generally correlate with the occurrence of organic vapors.
- Every landfill gas sample result indicated reduced O_2 and increased CH_4/CO_2 levels, indicating the CH_4 is being produced to varying degrees in the landfill. CH_4 gas, a common byproduct of decomposition of organic material, was detected at elevated concentrations in several wells and ranged from 0.0006% (near ambient) to a high of 29%. CH_4 concentrations in several of the wells were within explosive limits, and in one well (HG-6), concentrations were higher than the upper explosive limit (UEL). Between 5.3 to 15% in air, CH_4 is explosive.
- Volatile organics were predominantly petroleum products, many of which appeared to be associated with diesel fuel. Elevated temperatures within the well bases enhance the volatility of these compounds.
- Potential gas/vapor hazards were identified as CH_4, benzene, and H_2S.

In addition to the findings discussed above, HLA concluded the following:

- Based on HLA's baseline risk assessment:
  - No adverse, non-carcinogenic health effects are expected to result from exposure (dermal, ingestion, inhalation) to landfill materials, and carcinogenic health risks are within ranges acceptable to the EPA; however, they exceed the 10^{-6} value most commonly targeted.
  - No adverse, non-carcinogenic health effects are expected as a result of ingestion of fish contaminated with chemicals from the landfill; however, carcinogenic health risks associated with ingestion of fish contaminated with PCBs are of potential concern.

Feasibility Study, Kewalo Municipal Incinerator Landfill, Honolulu, Oahu, Hawaii – HLA, October 1990

HLA completed a feasibility study (FS) in 1990 to identify, screen and evaluate alternatives that would reduce the potential risks to human health and the environment associated with the development of the Kewalo Ash Landfill into a public park. The FS confirmed that contaminated media and the generation of landfill gas at the Kewalo Ash Landfill posed a potential risk to human health and the environment during proposed construction of the first development phase of the Kakaako Waterfront Park. Based on their findings and conclusions, HLA recommended that the design of the redevelopment project include mitigative measures to reduce potential risks, as follows:

- Installation of a 2-foot foundation layer and an impermeable synthetic membrane covered by 2 feet of imported fill (vegetative layer) over existing incinerated materials to prevent dermal and inhalation exposures to toxic elements;
- A gas collection system to remediate buildup of landfill gasses and leachate, and
- Periodic monitoring after the installation of the gas collection system to assess its effectiveness.

Marine Bioaccumulation Study, Kewalo Municipal Incinerator Landfill, Honolulu, Hawaii – HLA, April 1990

On January 29, 1990, Brewer/Brandman Associates surveyed marine biota and on February 8 to March 8, 1990, AECOS, Inc. collected seawater samples and biota samples in the area in front of the landfill. The concentrations of analytes detected in this bioaccumulation study are comparable to concentrations reported in other studies and do not exceed regulatory or recommended levels.

Based on the results of the surveys it was concluded that there are no significant effects on the near-shore environment from contaminants of the landfill.

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Environmental Hazard Evaluation

E2 conducted an Environmental Hazard Evaluation (EHE) to evaluate potential environmental hazards associated with contaminated media at the site, which includes direct exposure, vapor intrusion, leaching, impacts on terrestrial and aquatic habitats, gross contamination, and drinking water toxicity. Both current and future potential hazards were considered.

The potential environmental hazards listed above were screened for their applicability to the site and those determined to be of no concern were eliminated from further evaluation. This screening of potential environmental hazards assumes conservatively that no remediation will be performed, and no institutional or engineering controls will be implemented.

The screening is based on the following current site conditions:

- The site is currently used as a public park;
- A lined drainage culvert is adjacent to the west side of the site and discharges into the Pacific Ocean;
- Chlordane, PCBs, CN^-, and metals (As, Ba, Cd, Cr, Co, Cu, Pb, Hg, Ni, and Zn) were detected in soil at concentrations above REALs (10 to 46' bgs);
- PCBs, CN^-, and metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, Se, V, and Zn) were detected in groundwater at concentrations above REALs; and
- During proposed redevelopment activities, the site could be excavated to the depth of soil contamination (10 to 46' bgs) and/or groundwater contamination (approximately 10' bgs), thus increasing the potential for exposure.

Retained Potential Environmental Hazards

Based on the screening, two of the five potential environmental hazards for the soil/ash and two of the four potential environmental hazards for the groundwater were retained for further evaluation. The potential environmental hazards retained for further evaluation are summarized in Table B-1.

Table B-1: Retained Potential Environmental Hazards

Media	Risk	Environmental Hazard	Retained Potential Environmental Hazard
Contaminated Soil/Ash	Human Health	Direct Exposure	✓
		Vapor Intrusion	
	Groundwater	Leaching	
	Ecological	Impacts on Terrestrial Habitats	
	Physical Condition	Gross Contamination	✓
Contaminated Groundwater	Human Health	Vapor Intrusion	
		Drinking Water Toxicity	
	Ecological	Impacts to Aquatic Habitats	✓
	Physical Condition	Gross Contamination	✓

Note: ✓ Contaminated medium poses a potential hazard.

Evaluation of Human Health and Physical Conditions Risks

This section presents a more site-specific evaluation of potential toxicological hazards posed to human and ecological populations. Potential human and ecological populations were evaluated

with regards to current site conditions and anticipated future conditions for the planned use of the site. These potentially affected populations could be exposed to contamination through contact with contaminated media during site reconstruction.

One potential exposure pathway (direct exposure) to human populations was retained for further evaluation. The potential exposure pathway retained for further evaluation is summarized in Table B-2.

Table B-2: Retained Potential Exposure Pathways to Human Populations

Potential Pathway	On-site Occupational and Construction Workers	
	Current	Future
Direct Exposure		
-Incidental Ingestion		✓
-Inhalation of Vapors		✓
-Dermal Absorption		✓
Vapor Intrusion Into Buildings		
Drinking Water Toxicity		

Note: ✓ Exposure pathways potentially complete.

The gross contamination pathway was retained for further evaluation. The potential exposure pathways retained for further evaluation are summarized in Table B-3.

Table B-3: Retained Potential Exposure Pathways to Physical Risks

Potential Pathway	On-site Occupational and Construction Workers	
	Current	Future
Gross Contamination		✓

Note: ✓ Exposure pathways potentially complete.

The aquatic ecotoxicity pathway was retained for further evaluation. The potential exposure pathway retained for further evaluation is summarized in Table B-4.

Table B-4: Retained Potential Exposure Pathways to Ecotoxicity Risks

Potential Pathway	On-site Occupational and Construction Workers	
	Current	Future
Terrestrial Ecotoxicity		
Aquatic Ecotoxicity	✓	✓

Note: ✓ Exposure pathways potentially complete.

Contaminants of Potential Concern

COPCs were identified by comparing site analytical data to REALs for sites where groundwater is not a current or potential source of drinking water, and the site is less than 150 meters from a surface water body (HDOH Fall 2011, revised January 2012c).

Table B-5 shows that total PCBs and the metals As, Ba, Cd, Cu, Pb, Ni, and Zn are present in soil/ash at concentrations that exceed REALs; and Table B-6 shows that CN^- and the total metals Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Se, Ag, V, and Zn are present in groundwater at concentrations that exceed REALs.

Table B-5: Soil/Ash Sample Exceedances

Sample Type (Depth feet bgs)	Total PCBs (mg/kg)	Metals (mg/kg)						
		As	Ba	Cd	Cu	Pb	Ni	Zn
Cap (10-16)	12.5	40	319	49.6	14,500	15,800	2,590	448
Refuse (20-46)	8.1	40	1,640	38.9	2,860	3,840	2,330	4,550
REALs	1.1	24	1,000	14	630	200	760	1,000

Note: Red font indicates the REAL is exceeded.

Table B-6: Groundwater Sample Exceedances

Sample Type	Total CN^- (µg/L)	Metals (µg/L)												
		Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Ni	Ag	V	Zn
Ground-water	80	70	190	3,600	7	58	480	130	5,800	11,000	2	630	49	390	16,000
REALs	1	30	36	200	2.7	3	74	3	2.9	5.6	0.025	5	1	19	22

Notes: Red font indicates the REAL is exceeded.

Table B-7: Soil/Ash COPC Concentrations Exceeding Environmental Hazard Action Levels

Sample ID (Depth)	Total PCBs (mg/kg)	Direct Exp.	Gross Cont.	Leaching	Metals (mg/kg)																	
					Ba	Direct Exp.	Gross Cont.	Cd	Direct Exp.	Gross Cont.	Cu	Direct Exp.	Gross Cont.	Pb	Direct Exp.	Gross Cont.	Ni	Direct Exp.	Gross Cont.	Zn	Direct Exp.	Gross Cont.
Cap (10-16)	12.5	✓		✓	319			49.6	✓		14,500	✓	✓	15,800	✓	✓	2,590	✓	✓	448		
Refuse (20-46)	8.1	✓		✓	1,640		✓	38.9	✓		2,860	✓	✓	3,840	✓	✓	2,330	✓	✓	4,550		✓
REALs / Final Action Levels	1.1	1.1	500	6.3	1,000	3,100	1,000	14	14	1,000	630	630	1,000	200	200	1,000	760	760	1,000	1,000	4,700	1,000

Notes: REALs - For a site where groundwater is not a current or potential source of drinking water and the site is less than 150 meters from a surface water body (HDOH Fall 2011, revised January 2012a c).
Red font indicates the REAL is exceeded.
Direct Exp. – Direct exposure hazard final action level (mg/kg).
Gross Cont. – Gross contamination hazard final action level (mg/kg).
✓ = Potential soil/ash environmental hazard for Residential land use.

Table B-8: Groundwater COPC Concentrations Exceeding Environmental Hazard Action Levels

Sample ID (Depth)	Total Cyanide (µg/L)			Metals (µg/L)													
	Total Cyanide	Aquatic Eco.	Gross Cont.	**Sb**	Aquatic Eco.	Gross Cont.	**As**	Aquatic Eco.	Gross Cont.	**Ba**	Aquatic Eco.	Gross Cont.	**Be**	Aquatic Eco.	Gross Cont.	**Cd**	Aquatic Eco.	Gross Cont.
Groundwater	80	✓		70	✓		190	✓		3,600	✓	✓	7	✓		58	✓	
REALs / Final Action Levels	1	1	1,700	30	30	50,000	36	36	50,000	200	200	500	2.7	2.7	50,000	3	3	50,000

Sample ID (Depth)	Metals (µg/L)																
	Cr	Aquatic Eco.	Gross Cont.	**Co**	Aquatic Eco.	Gross Cont.	**Cu**	Aquatic Eco.	Gross Cont.	**Pb**	Aquatic Eco.	Gross Cont.	**Hg**	Aquatic Eco.	Gross Cont.	**Ni**	Aquatic Eco.	Gross Cont.
Groundwater	480	✓		130	✓		5,800	✓		11,000	✓		2	✓		630	✓	
REALs / Final Action Levels	7.4	7.4	50,000	3	3	50,000	2.9	2.9	50,000	5.6	5.6	50,000	0.025	0.025	30	5	5	50,000

Sample ID (Depth)	Metals (µg/L)								
	Ag	Aquatic Eco.	Gross Cont.	**V**	Aquatic Eco.	Gross Cont.	**Zn**	Aquatic Eco.	Gross Cont.
Groundwater	49	✓		390	✓		16,000	✓	
REALs / Final Action Levels	1	1	50,000	19	19	50,000	22	22	50,000

Notes: REALs - For a site where groundwater is not a current or potential source of drinking water and the site is less than 150 meters from a surface water body (HDOH Fall 2011, revised January 2012a c).
Red font indicates the REAL is exceeded.
Aquatic Eco. – Aquatic ecotoxicity exposure hazard final action level (µg/L).
Gross Cont. – Gross contamination hazard final action level (µg/L).
✓ = Potential soil/ash environmental hazard for Residential land use.

Summary of Potential Environmental Hazards

The four environmental hazards are further evaluated (direct exposure and gross contamination for soil/ash and aquatic ecotoxicity and gross contamination for groundwater) with respect to potentially affected human and ecological populations under (1) current site conditions and (2) anticipated future use for the site for the following reasons:

- It was determined that hazards associated with groundwater and vapor emissions to indoor air (vapor intrusion) associated with soil/ash are not applicable to the site and would not be further addressed.
- Additionally, terrestrial ecotoxicity was not identified as an environmental hazard for any of the COPCs at their reported levels, and; therefore, will not be further addressed (see Surfer Summary Reports in Appendix C).

Further evaluation of the remaining environmental hazards as potentially complete pathways for identified receptors was performed by comparing COPC concentrations to final action levels using HDOH EAL Surfer (see Surfer Summary Reports in Appendix C). Tables B-7 and B-8 summarizes COPC concentrations that exceed environmental hazard final action levels.

Table B-9: Summary of Environmental Hazards and COPCs – Residential Land Use

Matrix	Environmental Hazard	COPCs
Cap Soils/Ash (10 to 16 feet bgs)	Direct Exposure Gross Contamination Leaching	PCBs, Ba, Cd, Cu, Pb, Ni, Zn PCBs, Ba, Cd, Cu, Pb, Ni, Zn PCBs
Refuse Soils/Ash (20 to 46 feet bgs)	Direct Exposure Gross Contamination Leaching	PCBs, Ba, Cd, Cu, Pb, Ni, Zn PCBs, Ba, Cd, Cu, Pb, Ni, Zn PCBs
Groundwater	Aquatic Habitats Gross Contamination	CN^-, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, V, Zn CN^-, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, V, Zn

Note: Grey font indicates that environmental hazard was eliminated during the evaluation phases.

Magnitude and Extent of the Remaining Contamination

Environmental hazards were identified from previous investigations for residual contamination at the site as follows:

- Cap Soil/Ash (10 to 16' bgs): Cap soil/ash are impacted by PCBs, Cd, Cu, Pb, and Ni at concentrations resulting in direct exposure risks; by the metals Cu, Pb, and Ni at concentrations resulting in the risk of exposure to gross contamination; and PCBs at concentrations resulting in a leaching hazard.
- Refuse Soil/Ash (20 to 46' bgs): Refuse soil/ash is impacted by PCBs, Cd, Cu, Pb, and Ni at concentrations resulting in direct exposure risks; by the metals Ba, Cu, Pb, Ni, and Zn at concentrations resulting in the risk of exposure to gross contamination; and PCBs at concentrations resulting in a leaching hazard.
- Groundwater: Groundwater is impacted by CN^-, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Ag, V, and Zn at concentrations resulting in aquatic ecotoxicity risks and by the metal Ba at a concentration resulting in the risk of exposure to gross contamination.

References

Department of Health, State of Hawaii 2012. *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater, Volume 2: Background Documentation for the Development of Tier 1 Environmental Action Levels, Appendices 2-9*. Prepared by HDOH Environmental Management Division. Fall 2011 (Revised January 2012).

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Woodward-Clyde Consultants and Ecology and Environment, Inc. 1989. *Preliminary investigation Kewalo Incinerator Landfill, Honolulu, Hawaii, WCC Project No. 8810213A.* 22 November.

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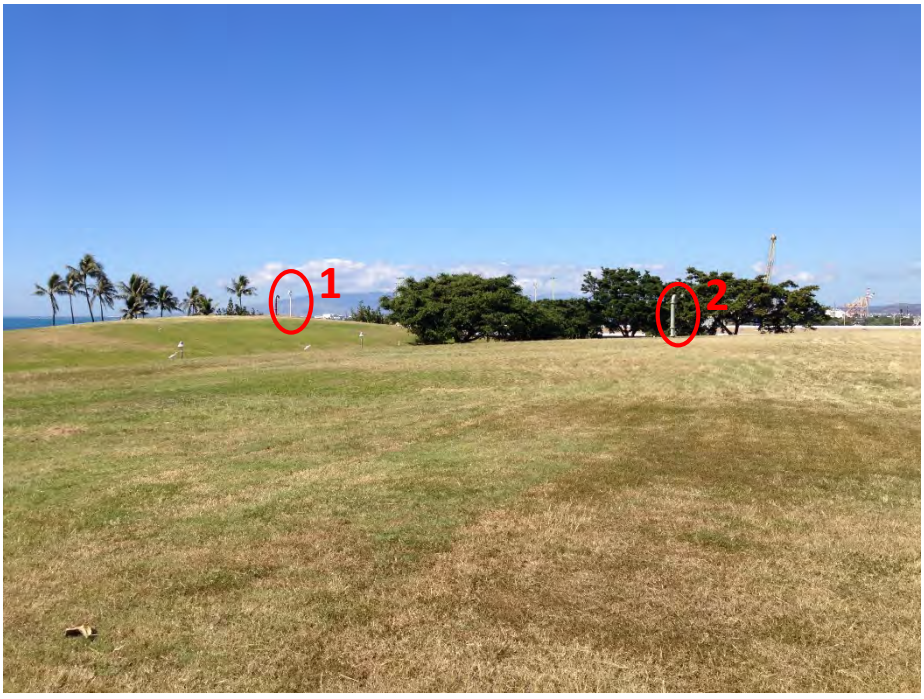
E2 Project No.: 150069	Description	Interior of warehouse view is looking east.	Photo 1
	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	



E2 Project No.: 150069	Description	Vents 1 and 2, view looking north-northwest.	Photo 2
	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent 3, view looking north-northwest.	Photo 3
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent 4, view looking west.	Photo 4
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent sampling set-up.	Photo 5
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent sampling.	Photo 6
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent sampling.	Photo 7
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

E2 Project No.:	Description	Vent sampling.	Photo 8
150069	Site Name	Kakaako Makai Park Ash Landfill Assessment Honolulu, Oahu, Hawaii	Photo Date 03/01/2016
	Client	PBR Hawaii	

PVT LAND COMPANY LTD.
87-2020 Farrington Hwy, Waianae, Hawaii 96792
Tel: (808) 668-4561 Fax: (808) 668-1368

PETROLEUM CONTAMINATED SOIL AGREEMENT

This Agreement dated _____, by and between PVT LAND COMPANY LTD. ("PVT") and _____, ("User"), whose principal business address is _____, business telephone number is _(_____)_____, and business fax number is _(_____)_____will allow User to dispose acceptable Petroleum Contaminated Soil (PCS) material in PVT Landfill ("landfill") in accordance with the terms and conditions of this Agreement.

1. **PCS HOURS**. Subject to change without notice, the landfill will only accept Petroleum Contaminated Soil loads Mondays through Fridays from 7:00 a.m. to 3:00 p.m., unless canceled due to rain. All Petroleum Contaminated Soil loads must be scheduled twenty-four (24) hours before delivery. PVT has the right to turn away any load that is not scheduled. Unless otherwise notified, landfill hours shall not include Saturdays, Sundays, federal holidays and state holidays. Further, PVT reserves the right to close and deny disposing at the landfill at any time for any purpose, including but not limited to the purposes of repair, maintenance and renovation of the landfill.

2. **RATES**. The rates and charges for disposing of Petroleum Contaminated Soil material at the landfill are available for inspection at PVT's office or may be requested by contacting PVT. User acknowledges that these rates and charges are subject to change by PVT without notice.

3. **MINIMUM ANALYTICAL REQUIREMENT FOR INCOMING PETROLEUM-CONTAMINATED SOIL.**

(a) In accordance with the Department of Health (DOH) Office of Solid Waste Management (OSWM) permit RM-0029-95, only petroleum contaminated soil from known sources can be accepted for treatment. Generators must provide reliable documentation describing the nature and source of the contamination. Allowable petroleum contaminants are limited to the following petroleum products: gasoline, diesel or heavier oils. Soils containing other petroleum derived contaminants cannot be accepted into the facility. Soils containing greater than 1.0 ppm polychlorinated biphenyl's (PCB's) cannot be accepted for treatment.

(b) All incoming petroleum contaminated soil must be tested prior to acceptance for treatment. The primary purpose of this testing is to screen for potential constituents, such as metals, which could preclude acceptance for treatment. The secondary purpose of this testing is to provide an indication of the approximate magnitude of the contamination which is used by the facility for internal handling process treatment purposes. The testing protocol outlined below is not intended for use determining "clean" versus "contaminated" material. All soil which has been impacted by petroleum or has otherwise been generated as a result of a remedial activity for petroleum contamination will be considered contaminated and subject to applicable treatment and disposal fees prior to acceptance at the facility. The minimum requirements for sampling and chemical testing of incoming soil are as follows:

(i) **Sampling Frequency and Procedures**:

Samples for chemical testing must be collected and preserved in accordance with the DOH UST Technical Guidance Manual (August 1992) and EPA SE-846. Persons conducting the sampling must be qualified (experienced) environmental professionals. Sampling locations should generally be randomly selected to be representative of the soil, but should include any suspected "hot spots". Samples of stockpiled soil should be collected from interior portions of the stockpile as opposed to near the surface. Potential problems during our review of sampling procedures and laboratory test data may be minimized by discussing the sampling and testing procedures in advance with the environmental consultant for the treatment facility.

Representatives of the PVT Treatment Facility and the environmental consultant for the treatment facility shall be permitted to inspect prospective soil at the site of origin prior to delivery to the treatment facility.

Sampling frequency for quantity of less than 200 tons. At least one discreet representative soil sample per 25 tons shall be collected. Samples may be composited by the laboratory (not in the field) for testing at not less than one set of tests per 100 tons of soil (up to four samples per composite).

Sampling frequency for quantity of 200 or more tons. At least one discreet representative soil sample per 50 tons shall be collected. Samples may be composited by the laboratory (not in the field) for testing at no less than one set of test per 200 tons of soil.

Note: Overestimating tonnage for determining frequency of sampling and testing is recommended. All incoming soil is weighed upon arrival at the facility.

(ii) **Laboratory Testing Protocol:**

Samples must be delivered in a chilled state within 24 hours to a chemical testing laboratory. The chemical testing laboratory must be approved for use by the environmental consultant for the treatment facility. If the environmental consultant for the treatment facility is unfamiliar with the testing laboratory, a statement of qualifications and/or quality assurance documents may be required to be submitted from the laboratory for review.

The following chemical testing is required:

* Toxicity Characteristic Leaching Procedure (TCLP) metals including
  -TCLP cadmium (EPA method 1311 / 7130 or 6010),

-TCLP chromium (EPA method 1311 / 7190 or 6010), and
-TCLP lead (EPA method 1311 / 7420 or 6010;

* Ignitability;

* Total metals including
-Total cadmium (EPA 3050 / 6010 or 7130), and
-Total lead (EPA 3050 / 6010 or 7420;

* Total petroleum hydrocarbons (TPH) appropriate to the contaminant(s):
-TPH as gasoline (EPA method 5030 / 8015),and/or
-TPH as diesel (EPA method 3550 / 8015), and/or
-TPH as oil (EPA method 418.1 or 503E);

* Benzene, toluene, ethylbenzene, xylenes (BTEX;EPA method 5030 / 8020 or 8240);

* Polynuclear aromatic hydrocarbons (PAHs; EPA method 3550 / 8270 or 8310)
[not applicable to soil solely contaminated with gasoline]:

*Polychlorinated biphenyl's (PCBs; EPA method 3550 / 8080)
[not applicable to soil solely contaminated with gasoline or diesel fuel];

* Halogenated volatile organic compounds (HVOCs; EPA method 5030 / 8010)
[not applicable to soil solely contaminated with gasoline or diesel fuel].

Additional testing and/or supplemental information on the soil may be requested on a case-by case basis.

(c) Laboratory test report should be submitted to the PVT Soil Reclamation facility for review along with a completed soil Profile Sheet prior to acceptance or rejection of soil for treatment. Laboratory test reports must be signed by a representative of the testing laboratory and include copies of chain-of-custody records. A description of the sampling procedures and site plot plan showing where the soil originated, and where samples were collected is also required. All test data for the material must be submitted, including any analytical data for constituents not listed above.
Discussions regarding suitability of soil for acceptance are made by the PVT Soil Reclamation facility and their environmental consultant based on the laboratory test data submitted and review of sampling procedures. PVT soil Reclamation facility reserves the right to accept or reject any soil for any reason. Conducting sampling and laboratory testing in accordance with the above requirements confers no rights to the person or persons undertaking the effort.

Questions regarding the above requirements may be directed to Mr. Steve Joseph of the PVT Soil Reclamation Facility at (808) 668-4561.

In addition, all other applicable State and Federal Regulations concerning disposal of Petroleum Contaminated Soil material must be met prior to acceptance of this material for disposal. It is the responsibility of the User to know and comply with these regulations.

(d) User shall not dispose any materials prohibited under any federal, state or local laws, ordinances or regulations, as they may be amended. Also, User shall not dispose at the landfill household debris, petroleum-contained materials, tires and all car parts, paper waste, appliances, barrels-drums, paints/solvents, sealers, adhesives, polychlorinated biphenyls ("PCB"), flammable explosives, radioactive materials, chemicals known to cause cancer or reproductive toxicity, pollutants, contaminants, hazardous wastes, toxic substances or related materials, including but not limited to, any substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "extremely hazardous wastes," "hazardous materials," or "toxic substances," under any federal, state or local laws, ordinances or regulations, now or hereafter in effect, relating to environmental conditions, industrial hygiene or Hazardous Substances, including but not limited to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq., the Hazardous Materials Transportation Act, 49 U.S.C. Section 7401, et seq., the Toxic Substances Control Act, 15 U.S.C. Sections 2601 through 2629, the Safe Drinking Water Act, 42 U.S.C. Sections 300f through 300j, the Clean Air Act, 42 U.S.C. Sections 7401 through 7626; and any similar federal, state and local laws, ordinances and regulations now or hereafter adopted, published and/or promulgated pursuant thereto ("Hazardous Substance Laws"). User hereby accepts all responsibilities for screening, examining and inspecting all of User's loads to verify, ensure and guaranty that no load contains any aforementioned restricted and prohibited materials. User hereby acknowledges that PVT shall assume no responsibility for screening, examining or inspecting any or all loads delivered by User, except that User shall permit, and hereby gives its consent, to allow PVT to examine, screen and/or inspect any or all loads at any time at User's expense. User agrees that if any load contains any restricted or prohibited materials, User shall be responsible for the payment of any such loads, at regular PVT rates, and shall also be responsible for any additional fees for the processing/return of such loads, as determined from time to time by PVT.

4. **INSURANCE.** As a condition to the approval of this Agreement by PVT, User hereby agrees to provide PVT with a Certificate of Insurance which demonstrates that PVT has been named as an additional insured on User's insurance policy. Also, User, or User's insurance company must notify PVT of any and all changes made to such policy.

5. **INDEMNIFICATION**. As an integral part of this Agreement and as partial consideration for using the landfill, User hereby agrees to indemnify, exonerate, defend and hold PVT, its parent and affiliate companies as well as any and all directors, officers, employees, attorneys and agents thereof, harmless against and from and will reimburse PVT in respect of:

(a) Any and all liabilities, obligations, claims, demands, actions, losses, damages, injuries, deaths, costs and expenses (including, but not limited to, attorney's fees and costs) made against PVT which arise as a result of User's negligence, breach of contract, misconduct, acts or omissions in connection with User's use of the landfill.

(b) Any and all damage or deficiency resulting from any misrepresentation, breach or nonfulfillment of any term or provision of the Agreement, or from any misrepresentation in or omission from any form, document or other instrument furnished or to be furnished to PVT.

(c) Any and all claims, losses, damages, liabilities, fines, penalties, charges, administrative and judicial proceedings and orders, judgments, remedial action requirements, enforcement actions of any kind, and any and all costs and expenses incurred in connection therewith (including, but not limited to, attorney's fees and costs), arising directly or indirectly, in whole or in part, out of any disposing in the landfill of any restricted or prohibited materials stated in paragraph 3 above.

(d) Any and all actions, suits, proceedings, demands, claims, judgments and orders, including, but not limited to, attorney's fees and costs incident to this Agreement.

This Indemnification clause shall be enforceable and remain in force and effect during the duration of this Agreement and shall continue and remain in force and effect after the termination of this Agreement. At all times during the duration of and after the termination of this Agreement, the terms of this Indemnification clause shall be subject to all Hazardous Substance Laws now or hereafter in effect.

USER HEREBY CERTIFIES THAT IT HAS READ, REVIEWED AND UNDERSTANDS THE SPECIFIC TERMS AND CONDITIONS OF THIS INDEMNIFICATION CLAUSE AND ALSO HEREBY EXPRESSLY AND SPECIFICALLY ACKNOWLEDGES, AGREES AND ACCEPTS THE TERMS AND CONDITIONS OF THIS INDEMNIFICATION CLAUSE AS INDICATED BY THE FOLLOWING INITIALS OF USER OR USER'S AUTHORIZED AGENT(S).

INITIALS:_____ DATED:_____

INITIALS:_____ DATED:_____

This section needs to be initialed by the homeowner or and officer of the company.

6. **ACCESS CONTROL.** The landfill will accept Petroleum Contaminated Soil on a pre-arranged basis only. All loads must be scheduled twenty-four (24) hours before delivery and accompanied by a properly executed Uniform Solid Waste Manifest. No dumping will be allowed without the Uniform Solid Waste Manifest.

7. **COMPLIANCE WITH LANDFILL POLICIES AND PROCEDURES**. User agrees to comply with PVT's landfill policies and procedures which are available for inspection at PVT's office or which may be requested by contacting PVT. User acknowledges that these policies and procedures may be changed by PVT without notice. Failure to comply with these policies and procedures may result in the denial of disposing at the landfill.

8. **PAYMENTS**. The terms of payment shall be governed by the Credit Agreement between PVT and User, the terms and conditions of which are incorporated herein by reference.

9. **DEFAULT**. Any default of any provision of this Agreement by User may result in the immediate suspension or termination, without notice, of this Agreement at the election of PVT. Further, in the event PVT is forced to hire a collection agency or attorney to collect any monies owed to PVT under this Agreement, PVT shall also be entitled to recover from User PVT's collection expenses, including, but not limited to, its attorney's fees and costs. Any suspension or termination, however, shall not relieve User of any and all outstanding obligations, responsibilities or duties under this Agreement, including, but not limited to, those obligations relating to indemnification and payments.

10. **TERMINATION**. This Agreement may be terminated by either party at any time for any reason. Any termination, however, shall not relieve User of any or all outstanding obligations, responsibilities or duties under this Agreement, including but not limited to those obligations relating to indemnification and payments.

11. **PVT'S RIGHT OF REJECTION**. PVT retains the right to reject any load where PVT has cause, for any reason, to believe said load may contain restricted or prohibited materials as stated in paragraph 3 above. Further, PVT reserves the right to reject any load which would be violative of any laws, ordinances or regulations (federal, state or local) now or hereafter in effect, or any load which would adversely impact the landfill.

12. **DELIVERY OF EXECUTED AGREEMENT VIA ELECTRONIC TRANSMISSION**. This Agreement, executed in whole or in counterparts, may be delivered through a facsimile machine or other electronic transmission and, if delivered in such manner, shall constitute the valid delivery of such executed Agreement and shall be legally binding upon the parties as if such executed Agreement were delivered in person.

THE UNDERSIGNED HEREBY CERTIFIES THAT IT HAS REVIEWED AND READ THE FOREGOING TERMS, CONDITIONS AND PROVISIONS AND REPRESENTS THAT THE FOLLOWING SIGNATURE(S) ARE AUTHORIZED TO BIND USER AS TO ALL TERMS, CONDITIONS AND PROVISIONS OF THIS AGREEMENT.

ACKNOWLEDGED AND AGREED:

_____

"USER" (Print your Company's Name)

By _____ (Signature)
Its _____ (Homeowner or Company Officer)

By _____ (Signature)
Its _____ (Homeowner or Company Officer)

PVT Land Co. Ltd.
NANAKULI LANDFILL FACILITY
Soil Profile Sheet

1. Soil Generator Information

a. Generator Name: _____

b. Generator Address: _____ c. Zip Code: _____

d. Address of Soil Generation: _____

e. Address of Soil Storage (if different from source address) _____

f. Type of Facility Soil Has Been Generated From: _____

g. State DOH Facility ID#: _____

h. Contact: _____ i. Phone: (_____) _____

2. Soil Information

a. Name of Contaminant(s): _____

b. Amount of Soil (tons and / or cubic yards) _____

c. Type of Soil: _____

d. Soil Moisture: Wet: _____ Damp: _____ Dry: _____

e. Soil Color (Munsell Color Chart Code if available) _____

f. Strong incidental odor ? No ☐ Yes ☐ Describe: _____

g. pH _____

h. Is the soil ignitable? Yes ☐ No ☐

i. Describe the circumstances by which the soil has been generated.

_____

_____

3. Transportation Information

a. Method of Shipment: Bulk Solid _____ Drum / Box _____ Other _____

b. Transportation Company:

_____

c. Is this a U. S. Department of Transportation (USDOT) Hazardous Material? Yes ☐ No ☐

4. Chemical Contaminants (Attach supplementary sheets if necessary)

	Range(Min-Max)
a. _____	_____ - _____ ppm.
b. _____	_____ - _____ ppm.
c. _____	_____ - _____ ppm.
d. _____	_____ - _____ ppm.
e. _____	_____ - _____ ppm.
f. _____	_____ - _____ ppm.
g. _____	_____ - _____ ppm.
h. _____	_____ - _____ ppm.
i. _____	_____ - _____ ppm.

Attach copies of analytical reports and chain of custody documentation.

Attach a description of the soil sampling procedures.

Attach a site plan showing where the soil originated, and where samples were collected.

Continued

j. Does the soil contain any of the following (provide concentration if known)

PCBs	Yes ☐	No ☐	_____ppm
Cyanides	Yes ☐	No ☐	_____ppm
Sulfides	Yes ☐	No ☐	_____ppm
Asbestos	Yes ☐	No ☐	_____%

k. Indicate method used to determine the presence or absence of items listed in section j.

l. Sampling Source(e.g., Drum, Pit, Pile, Insitu, etc.)

m. Does the waste represented by this profile contain any of the carcinogens that require OSHA notification? Yes ☐ No ☐
n. Does the waste represented by this profile contain dioxins? Yes ☐ No ☐ (List in Section 4)
o. Does the waste represented by this profile contain asbestos? Yes ☐ No ☐ If yes, friable ☐ non-friable ☐.
p. Does the waste represented by this profile contain benzene? Yes ☐ No ☐
q. Is the waste subject to RCRA Subpart CC Controls? Yes ☐ No ☐
r. Does the waste contain any Class I or Class II ozone-depleting substances? (Freons) Yes ☐ No ☐
s. Does the waste contain debris? Yes ☐ No ☐ (List, if yes)
t. Personal Protective Equipment Requirements:
u. Is this a state hazardous waste? Yes ☐ No ☐ (List, if yes)
v. Is the Waste from a CERCLA or state mandated clean-up? Yes ☐ No ☐ (if yes, provide relevant documentation.)
w. Does the waste represented by this waste profile contain concentrations of PCBs regulated by 40 CFR ? Yes ☐ No ☐
x. Does the waste represented by waste profile contain radioactive material or disposal regulated by the NRC? Yes ☐ No ☐
y. Does the waste profile and all attachments contain true and accurate descriptions of the waste material, and has all relevant information within the possession of the Generator regarding known or suspected hazards pertaining to the waste been disclosed to the contractor? Yes ☐ No ☐

5. Generator's or Representative's Certification

a. Print Sampler's Name: b. Sample Date:
c. Sampler's Title:
d. Sampler's Employer (if other than Generator):

The sampler's signature certifies that any sample submitted is representative of the soil described above pursuant to the DOH Technical Guidance Manual for Underground Storage Tank Closure and Release Response (August 1992) and EPA SW-846.

e. Sampler's Signature:

Continued

6. Generator Certification

By signing this soil profile sheet, the Generator certifies:

a. This soil is not a "Hazardous Waste" as defined by EPA or the State of Hawaii.

b. This waste does not contain regulated radioactive materials or regulated concentrations of PCBs (Polychlorinated Biphenyls).

c. The statements and attachments contain true and accurate descriptions of the soil. All relevant information regarding known or suspected hazards in the possession of the Generator has been disclosed.

d. The analytical data presented herein or attached hereto were derived from testing representative samples taken in accordance with the DOH Technical Guidance Manual for Underground Storage Tank Closure and Release Response (August 1992 and subsequent amendments / revisions) and EPA SW-846.

e. If any changes occur in the character of the soil, the Generator shall notify a Nanakuli Landfill representative immediately.

f. Signature_____ g. Company_____

h. Name and Title_____ i. Date_____

7. PVT Co. Ltd. Waste Disposal Decision (For PVT Use Only)

a. Waste Disposal Decision _____ Accepted _____ Rejected

b. Disposal Method _____ Landfill _____ Asbestos Pit

c. Precautions, Special Handling Procedures, or Limitations on Approval: _____

_____

d. Clearance No. _____ Date:_____

e. Reviewed by _____ Date:_____

f. Approved by _____ Date:_____

g. Forwarded to DOH:_____ Date:_____

Additional Information for Contaminated Soil Reviews

1. Is this a hazardous waste (RCRA C)? ☐ Yes ☐ No
2. Does this waste contain heavy metals? ☐ Yes ☐ No
   If yes, explain & identify _____
3. Does the waste contain PCBs? ☐ Yes ☐ No
   If yes, explain _____
4. Is the waste a TSCA waste? ☐ Yes ☐ No
   If yes, explain & identify_____
5. Is the waste a CERCLA waste? ☐ Yes ☐ No
   If yes, explain & identify_____
6. Regulatory agency & Contact _____
   _____
7. Generator_____
   _____
8. Type of Contamination_____
9. Consultant Name & Number _____
10. Review report attached ☐

_____

If this certification is made by a broker, the undersigned signs as authorized agent of the generator and has confirmed the information contained in this Sheet and additionally attached sheets from information provided by the generator and additional information as it has determined to be reasonably necessary.

Certification Signature: _____ Title: _____
Name (Type or Print): _____ Company: _____ Date:_____

Submittal Instructions

The following are the items that should be in any review report, in the order noted.

1. List of regulatory agencies and regulations applicable to the project. Include Names and contact information (phone numbers) for all agencies involved for follow up.
2. Contact information: generator, type of contamination, and site history in narrative form.
3. Consultant information (i.e. Names, phone numbers) include the consultant that did the original investigation and subsequent investigations.
4. Report format for technical information.
   A. Background information for site and processes.
   B. Summary of investigative action. Including sampling and testing information pertinent to disposal.
   C. Summary of remedial actions and how material being disposed was generated.
   D. Rational for the determination that material is solid waste this should be based on applicable regulations.
   E. Site location maps and site drawings.
   F. Summary table of test data.
   G. Laboratory data.

Actions Taken

Date _____
Accepted _____ Rejected_____
Reason for rejection_____

Appendix D:
SOUND MODELING & PREDICTION REPORT

CENSEO
AV+Acoustics

SOUND MODELING AND PREDICTION REPORT

HCDA KAKA'AKO MAKAI PARKS (AMPHITHEATER)

HONOLULU, OAHU, HAWAII

March 2016

Prepared For:

PBR Hawaii & Associates

Prepared By:

CENSEO AV+ACOUSTICS LLC

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APPENDICES

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1 Executive Summary

The Hawai'i Community Development Authority (HCDA) has proposed a master plan for the Kaka'ako Makai Parks which includes a new amphitheater. CENSEO AV+Acoustics LLC completed a preliminary environmental impact assessment of the proposed amphitheater on the surrounding community.

The Datakustik CadnaA sound prediction software was used for the sound propagation analyses. Sound contour maps were developed for both the downwind (Kona) conditions and prevailing (Trade) wind conditions. The results from the modeling indicate that sound from the amphitheater will most likely be audible at the residential building facades in the surrounding community during both wind conditions. However, sound levels may be more noticeable during the downwind (Kona) conditions.

Sound mitigation of the amphitheater sound levels could include a canopy/covering over the stage or audience area, a reorientation of the amphitheater, sound system equipment selections, as well as other methods and techniques. Without implementing any sound mitigation methodologies, sound impacts due to the amphitheater may be likely. However, by incorporating reasonable design solutions into the proposed amphitheater, the potential for sound impacts may be greatly reduced.

2 Introduction

The Hawai'i Community Development Authority (HCDA) has proposed a master plan for the Kaka'ako Makai Parks to encourage active uses throughout the parks. One feature that the HCDA is proposing as part of the master plan is an amphitheater. The amphitheater will be located along the waterfront in the Kaka'ako Makai Parks. CENSEO AV+Acoustics LLC (CENSEO) developed a sound propagation model to predict and assess the potential sound impact of the proposed amphitheater on the surrounding community. This report includes the results of the sound propagation model and our assessment of these potential sound impacts. The sound modeling and prediction analyses included several considerations for sound impacts to the surrounding community. These considerations include the following:

- The evaluation of the existing ambient noise environment included locations within the park as well as the surrounding community that were generally representative of the existing ambient environment.
- The sound study included estimated sound source data for a traditional rock concert for other venues of similar type and size to the proposed Kaka'ako Makai Parks amphitheater. It should be noted that depending on the specific music performance and audio volume adjustments by the sound operator, some concerts will likely be quieter than the predicted values, while other concerts could also be louder than the predicted values.
- Sound predictions were calculated using environmental conditions that are the most favorable for sound propagation.
    - Downwind (Kona) and prevailing (Trade) wind sound propagation
    - Fully developed moderate ground based temperature inversion

3 Proposed Amphitheater Location Description

The proposed amphitheater is currently planned to be positioned within the Kaka'ako Makai Parks boundaries. The Kaka'ako Makai Parks, also referred to as Kaka'ako Waterfront Park, is located on the island of O'ahu in Honolulu, Hawaii. The parks stretch between Ala Moana Boulevard and the waterfront between Honolulu Harbor and Kewalo Basin. The current land use between Ala Moana Boulevard and the waterfront is primarily industrial, with the UH School of Medicine, the Children's Discovery Center, and a restaurant located directly adjacent to the parks.

The surrounding area in the vicinity of the park that is mauka of Ala Moana Blvd is a mix of industrial, commercial, and multi-family residential. The sound propagation model considered the potential sound impact to this area based on the various uses. For reference, the direct line-of sight distances between the proposed amphitheater and some of these properties are provided in Table 1 below.

Table 1. Distance to Proposed Amphitheater from Adjacent Noise Sensitive Locations

Residential Area	Distance to Proposed Amphitheater
Children's Discovery Center – 111 Ohe Street	1,200 feet
Six Eighty Residences - 680 Ala Moana Boulevard	1,800 feet
One Waterfront Towers – 425 South Street	2,300 feet
Mother Waldron Park	2,900 feet
860 Halekawila Street Residences – 860 Halekawila Street	3,400 feet
Keola Lai Residences – 600 Queen Street	3,800 feet
Waiea Tower – 1118 Ala Moana Boulevard	4,000 feet

Please refer to Figure 1 below for a vicinity map showing the location of the proposed amphitheater and the surrounding areas.

Figure 1. Vicinity Map of the Proposed Amphitheater Location

3.1 Amphitheater Activities

The proposed amphitheater includes the following functions and features:

- 5,000 to 8,000 person capacity
- Lawn seating facing the waterfront
- Stage with panoramic views of the ocean

A variety of musical acts and performances are currently anticipated for the proposed amphitheater, ranging from small acoustic solo artists to national rock band concerts. In addition to the amphitheater, the proposed project also includes a sports complex, keiki zone, community center, food concession and biergarten, adventure zone, beach hale, an open community space, an extension of the existing promenade, new parking structure, comfort stations and beach showers. The scope of this report is limited to the evaluation of sound impacts from the amphitheater only. Refer to Figure 2 for the master plan proposed layout.

Figure 2. Proposed Kaka'ako Parks Schematic Layout

3.2 Amphitheater Operating Hours

At the time of this report, the specific operating hours for the amphitheater have not yet been determined.

4 Sound Regulations and Guidelines

4.1 State of Hawaii Administrative Rules, Department of Health (DOH)

Hawaii Administrative Rules, Title 11 – Department of Health, Chapter 46 – Community Noise Control regulates environmental noise limits within the state of Hawaii. The table below shows the maximum permissible noise levels for each zoning district.

Table 2. DOH Maximum Permissible Noise Levels

Zone District	Day Noise Limit 7am – 10pm	Night Noise Limit 10pm – 7am
Class A – Residential, conservation, preservation, public space, open space, or similar	55 dBA	45 dBA
Class B – Multi-family dwellings, apartment, business, commercial, hotel, resort, or similar	60 dBA	50 dBA
Class C – Agriculture, country, industrial, or similar	70 dBA	70 dBA

In mixed zoning areas, the primary land use designation is used for determining the zoning district. The maximum permissible sound levels shall not be exceeded (at or beyond the property line) by more than 10% of the time for any 20-minute period. The maximum permissible sound levels for impulsive sounds can be up to 10 dB above the maximum sound levels in the table above.

These sound level limits apply to *"stationary noise sources, and equipment related to agriculture, construction, and industrial activities"*. The noise regulation further defines stationary sources as *"any mechanical source of noise fixed in or on a station, course, or mode within any premises, including but not limited to mechanical air conditioning units, exhaust systems, generators, compressors, pumps, or other similar equipment"*. Therefore, sounds generated by musical instruments, electronic audio reinforcement systems, crowds, etc. are not required to satisfy the noise limits shown in Table 2, since these sources do not qualify as a stationary noise sources (defined by the noise regulation).

4.2 Revised Ordinances of Honolulu (ROH) – Sound Levels for the Waikiki Shell

The existing Waikiki Shell has a similar use and function as the proposed Makai Parks amphitheater. Figure 3 below shows a map of the Waikiki Shell area. Although the following Revised Ordinance of Honolulu specifically and solely applies to the Waikiki Shell, it can be used as a helpful guide in assessing the potential sound impact of the proposed project.

Section 41 of Article 34. Sound Levels for the Waikiki Shell – Revised Ordinances of Honolulu requires that:

a) "Sound levels for events at the Waikiki Shell (whether amplified or not) shall not exceed 68 dBA for more than ten percent (10%) of the time within any 20-minute period as measured at or

near the Kaimana Beach Hotel at the Makai side of Kalakaua Avenue in areas zoned Apartment/Hotel/Business and shall apply from ground level to a perpendicular plane projected above the height of the high-rise buildings

Figure 3. Waikiki Shell Distance to Kaimana Beach Hotel

b) Sound level limits established in subsection (a) shall be applicable between the hours of seven a.m. through 10 p.m. of the same day.

c) Under no circumstances shall a tenant or performer allow events within their control to continue after 10p.m.

The provisions of the article shall not apply to:

a) Occasional events of significant cultural benefit to residents of Oahu, including but not limited to, celebrations commemorating the beginning of a new year, or ethnic and cultural festivals.

b) One-time events designed for the purpose of significantly enhancing the economic well-being of the tourist industry, including but not limited to, events scheduled for live broadcast outside the State of Hawaii."

The Kaimana Beach Hotel referenced in the above ROH regulation is approximately 2,000 feet from the Waikiki Shell. Closer residences near Paki Avenue are within 1,000 feet of the Waikiki Shell.

5 Existing Ambient Sound Environment

5.1 Sound Measurement Equipment and Procedure

In December of 2015, short term existing ambient sound level measurements (approximately 15 minutes in duration) were conducted in four locations in and around the Kaka'ako Makai Parks area. Sound levels were time-averaged over the measurement period. The measurement equipment used for the sound measurements is described in the table below.

Table 3. List of Sound Measurement Equipment

Measurement Equipment	Manufacturer/Model
Type 1 Sound Level Meter (Spectrum) Type 1 Prepolarized Free-Field Microphone (with Random Incidence microphone correction), 1/2-inch Type 1 Microphone Preamplifier	Larson Davis Moel 831 PCB Model 377802 PCB Model PRM831
Acoustic Calibrator	Larson Davis Model CAL200

At each sound measurement location, the sound level meter was mounted on a tripod (approximately 5 feet above grade). The microphone was directly connected to the sound level meter and an open-cell polyurethane foam wind screen covered the microphone. The equipment was checked for calibration before and after the measurement period. All of the sound measurement equipment has been certified by the manufacturer within the recommended calibration period.

Efforts were made to select sound level measurement locations that were generally representative of the existing ambient sound environment in the vicinity of the project location. The sound level measurement results represent a one-night sample of the sound environment during the late evening hours.

5.2 Sound Measurement Locations and Results

The sound level measurements were conducted at four locations, as shown in Figure 4 below.

Figure 4. Existing Ambient Sound Level Measurement Locations

These sound level measurement locations, descriptions of the ambient environments, and measurement results are described in Table 4 below.

Table 4. Description of Sound Measurement Locations and Results

Loc. #	Measurement Time	Location Description	Sound Sources	Sound Level, L_{eq} (dBA)
1	8:45pm – 9:00pm	Middle of Kakaako Gateway Park	**Dominant:** Traffic From Ala Moana Blvd. **Secondary:** Occasional Aircraft	57 dBA
2	9:05pm – 9:20pm	Middle of Waterfront Park Overlooking Ocean	**Dominant:** Occasional Aircraft **Secondary:** Nearby Port Acticivities	51 dBA
3	9:35pm – 9:50pm	Near Basketball Court in Mother Waldron Park	**Dominant:** Wind and Nearby Human Related Activities **Secondary:** Traffic	51 dBA
4	10:00pm – 10:15pm	Public Sidewalk Adjacent to Mixed Use Development	**Dominant:** Traffic Noise **Secondary:** Occasioanl Pedestrian Related Noise	64 dBA

For a subjective reference to common sound levels, a few examples are provided below. A more comprehensive list with a wider range of sound levels can be found in Appendix B.

Common Outdoor Sounds	Sound Pressure Level (dBA)
Gas lawn mower at 4 feet	90 dBA
Car traveling at 55 mph at 150 feet	60 dBA
Small town residential area	50 dBA
Rustling leaves	30 dBA

6 Sound Modeling and Prediction

The primary intent of the Sound Modeling exercise was to predict future sound levels from the proposed Kaka'ako Makai Parks amphitheater to the noise sensitive areas in the surrounding community. Special attention for the sound modeling was focused on the surrounding residential buildings since this type of building tends to be more noise sensitive compared to most industrial and commercial spaces.

6.1 Sound Modeling Procedure, Methodology, and Source Levels

The Datakustik CadnaA noise prediction software was used to predict sound levels from the Kaka'ako Makai Parks amphitheater. The predictions were done according to the methodology of industry standard *ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation.* The ISO standard lays out the methodology to calculate sound levels outdoors in octave bands or frequency spectrum values.

Sound levels experienced by audience members attending a live music performance can vary significantly. The type of music, venue, location of the listener, and preference of the sound operator are all factors that can affect the concert sound levels. However, an overall sound level of approximately 95 dBA is typical for most rock concerts. Therefore, the threshold of 95 dBA was established as the expected sound level at the back row of seats, which for the proposed amphitheater is the furthest rear section of lawn seating. Although the specific layout of the amphitheater is not known, the resulting sound level at the sound "mix position" was estimated to be approximately 105 dBA. Please note that the front rows of seating would be even louder than the sound "mix" position. The mix position is assumed to be in the seating area about 1/3 of the way back from the stage. These concert sound levels are consistent with sound levels experienced at rock concerts for other venues of similar type and size.

Since the sound prediction model analyzes sound propagation at frequency bands in addition to the overall sound level, source levels in octave bands were also estimated for use within the model. These octave band values and the corresponding overall sound level of 95 dBA are shown in Table 5. Again, these values are the estimated values for audience members seated at the rear of the amphitheater. It should be noted that some concerts will likely be quieter than the predicted values while some concerts could also be louder than the predicted values. The variation in sound levels depends on the specific

music performance and audio volume adjustments by the sound operator. However, the predicted sound levels should be representative of most rock concerts that would fill the capacity of the venue.

Table 5. Estimated Source Octave Band Sound Levels (at Rear Seating Section)

Average Un-weighted Sound Pressure Level at Rear Seats (dB)								
Octave Band Center Frequency (Hz)								Overall (dBA)
31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
84	88	91	94	90	90	89	81	95

6.2 Sound Modeling Assumptions

The CadnaA computer model takes into account the distance between the Kaka'ako Makai Parks amphitheater and the sound receiver locations being evaluated, the terrain and topography, shielding by buildings, walls, the directivity of sound from the loudspeakers at the stage, and the atmospheric conditions. The default calculation assumes atmospheric conditions with all of the sound receivers downwind at all times (per ISO 9613-2). In reality this is not possible but provides a conservative worst case condition in all directions at one time. The software also allows us to evaluate sound transmission under user selected wind directions and atmospheric conditions to evaluate local prevailing wind conditions. To evaluate the local wind conditions (i.e., Trade winds and Kona winds), ISO 9613-2 was used (with CadnaA) with CONCAWE meteorological effects *(Reference: CONCAWE Report No. 4/81, "The propagation of noise from petroleum and petrochemical complexes to neighboring communities," 1981)*. Atmospheric conditions have a significant effect on sound transmission to distances over 300 feet. In addition to downwind conditions, the ISO standard also assumes that there is a fully developed moderate ground based temperature inversion that is favorable for sound propagation. For this project, the downwind condition is also the Kona wind condition because the proposed amphitheater is located southwest of most receiver positions.

The terrain and topography were obtained by USGS maps and topographic drawings of the Kaka'ako Makai Parks site provided by PBR Hawaii. A ground factor (G) of 0.5 is used to calculate ground attenuation per ISO 9613-2.

6.2.1 Sound Reinforcement System Assumptions

For the sound prediction model, several assumptions were made regarding the sound reinforcement system used for concert and musical performances. These assumptions are summarized below:

- The loudspeakers include left and right loudspeaker clusters/arrays.
- The center of the loudspeaker cluster is approximately 15 feet above the stage.

- The model assumes that “generic” cabinet type loudspeakers are used. This assumption represents a worst-case scenario because this loudspeaker type has a poor directivity performance.
- The model includes horizontal directivity (in the ground plane), but it does not include vertical directivity of the loudspeakers. This assumption is also a worst-case condition because it does not include any potential reduction by aiming the speakers “down” at the audience. Essentially, the loudspeakers are aimed in the direction of the audience with no angled pitch up or down.

6.3 Sound Modeling and Prediction Results

The resulting output of the CadnaA computer model is a calculated sound contour map, as well as tabulated data for select receiver locations for each of the two (2) wind conditions (downwind/Kona wind and Trade wind). The wind direction can be a significant factor for sound propagation due to the distance between the proposed amphitheater and the surrounding residential buildings. The sound contour maps were developed to illustrate the difference between the worst-case scenario of the Southwest wind condition (Kona) compared to the prevailing Northeast winds (Trades). The sound contour maps assume no mitigation in the forms of berms, barrier walls, canopies, or treatments to the amphitheater. The color-coded sound contour lines are shown in Figures 5 and 6 below. The contour lines represent sound levels at a height of 5 feet above the existing grade. For some of the residential buildings, sound levels at various heights are also indicated.

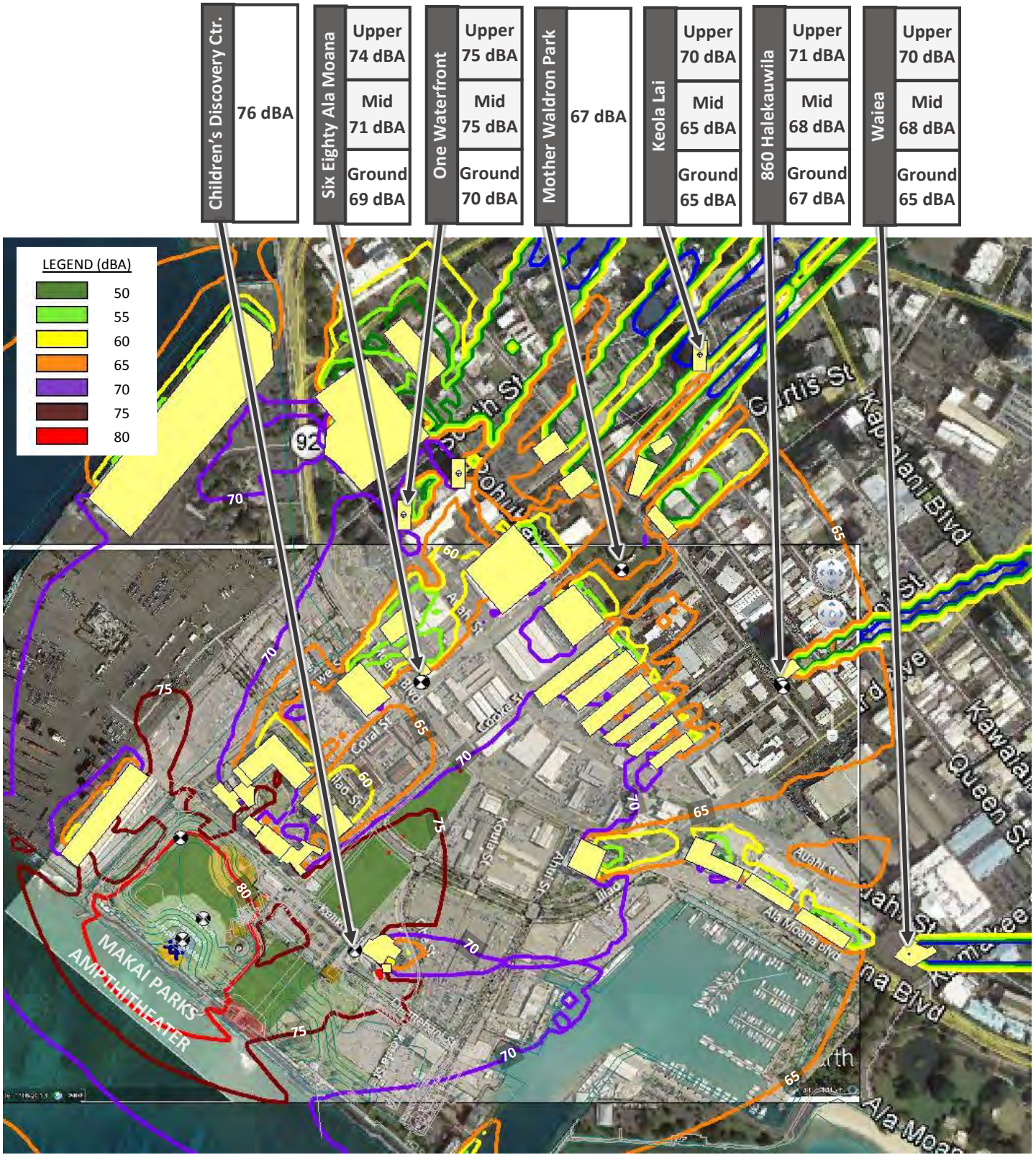

Figure 5. Sound Contour Map - Southwest Wind (Kona)

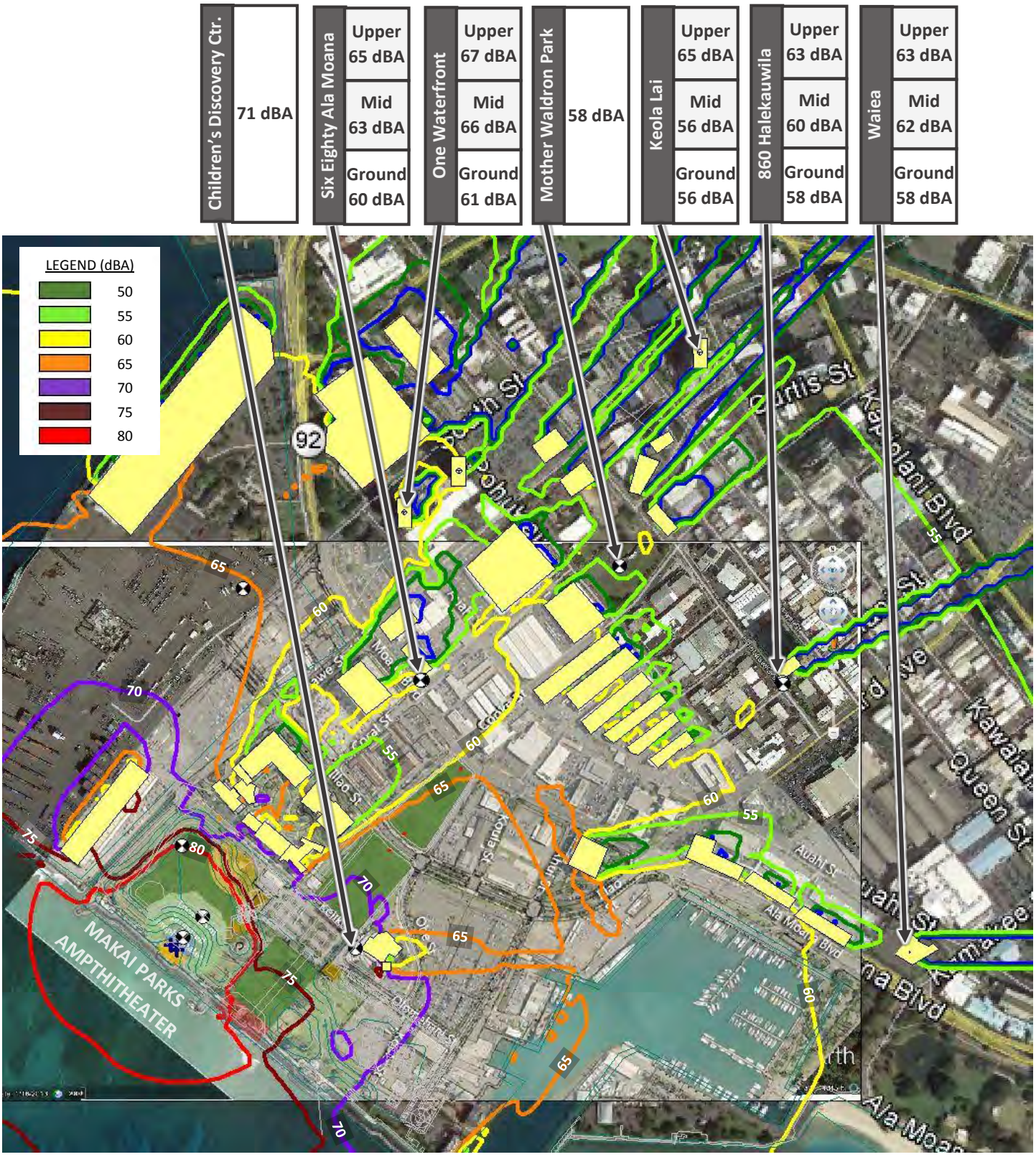

Figure 6. Sound Contour Map - Northeast Wind (Trades)

The resulting sound levels at the sound receiver locations shown above in Figures 5 and 6 are also shown in Table 6 below. The overall sound levels are shown in A-weighted decibels.

Table 6. Predicted Sound Levels at Sound Receiver Locations

Sound Receiver	Elevation	Building Facade	Southwest Wind (Kona)	Northeast Wind (Trades)
Children's Discovery Center	5' Above Grade	W	76 dBA	71 dBA
Six Eighty Ala Moana Residences	5' Above Grade	SW	69 dBA	60 dBA
	Middle Floor		71 dBA	63 dBA
	Upper Floor		74 dBA	65 dBA
One Waterfront Towers	5' Above Grade	S	70 dBA	61 dBA
	Middle Floor		75 dBA	66 dBA
	Upper Floor		75 dBA	67 dBA
Mother Waldron Park	5' Above Grade	N/A	67 dBA	58 dBA
Keola Lai Residences	5' Above Grade	S	65 dBA	56 dBA
	Middle Floor		65 dBA	56 dBA
	Upper Floor		70 dBA	61 dBA
860 Halekawila Street Residences	5' Above Grade	SW	67 dBA	58 dBA
	Middle Floor		68 dBA	60 dBA
	Upper Floor		71 dBA	63 dBA
Waiea Tower	5' Above Grade	W	65 dBA	58 dBA
	Middle Floor		68 dBA	62 dBA
	Upper Floor		70 dBA	63 dBA

As shown above in Table 6, sound levels from the Kaka'ako Makai Parks amphitheater generally tend to increase in level along with the increasing height of the listener. The increase in noise levels at upper floors is due to the line- of-sight to the amphitheater stage. Essentially, the upper floors of a building will have a more direct view of the amphitheater, with few other objects (i.e., other buildings) blocking the line-of-sight. To better understand how the sound levels vary at different building heights, the facades of several buildings were included with our model. Sound levels were calculated for the entire building façade using a similar color-coded mapping feature. These 3D images are shown in the following figures. Figure 7 shows the sound levels on the south façade of One Waterfront Towers, Figure 8 shows the sound levels on the south façade of Keola Lai, and Figure 9 shows the sound levels on the west façade of the new Waiea building. For each building sound levels are indicated for both the Kona wind and Trade wind conditions.

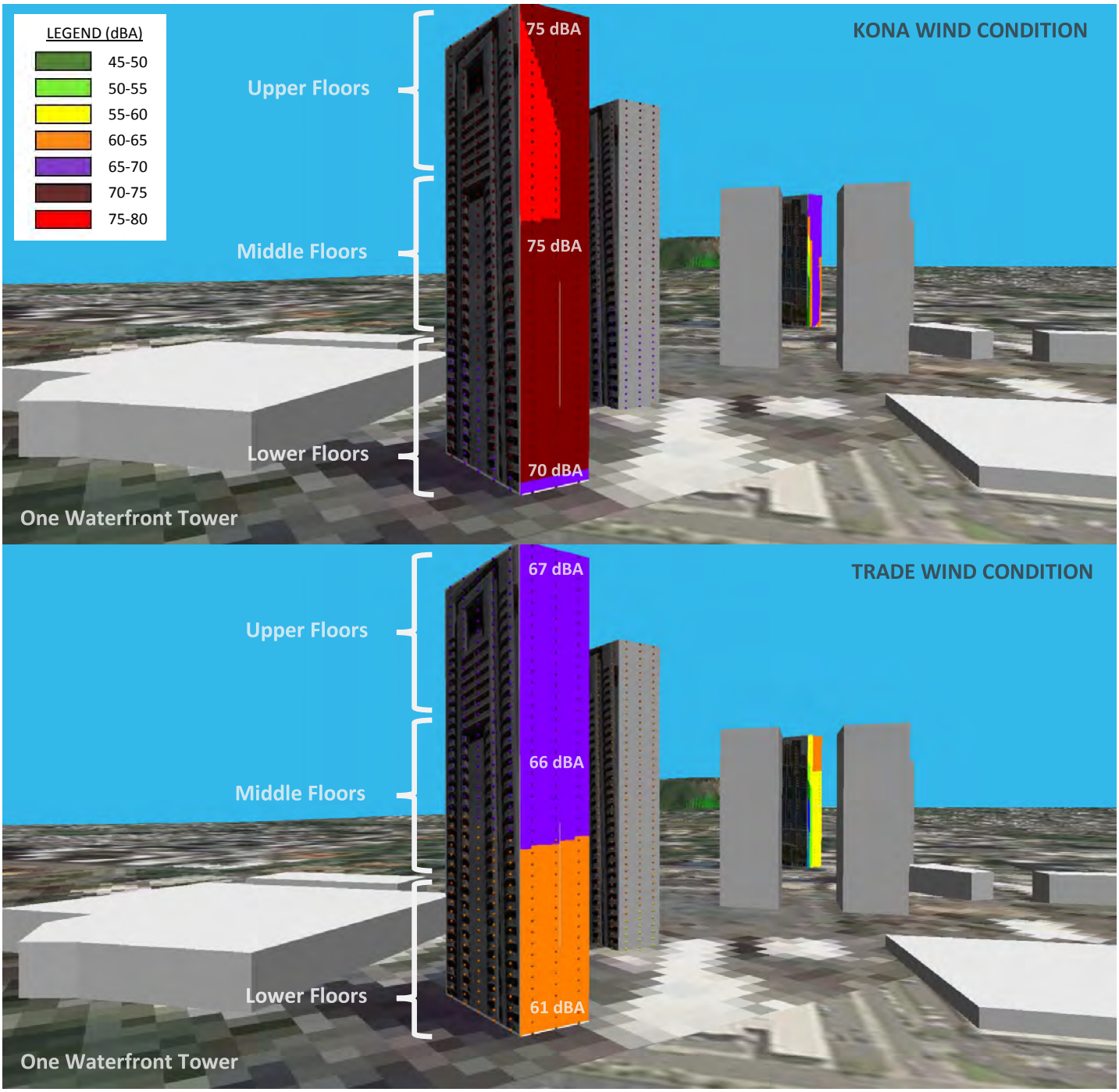

Figure 7. Sound Levels on South Building Facade – One Waterfront Tower

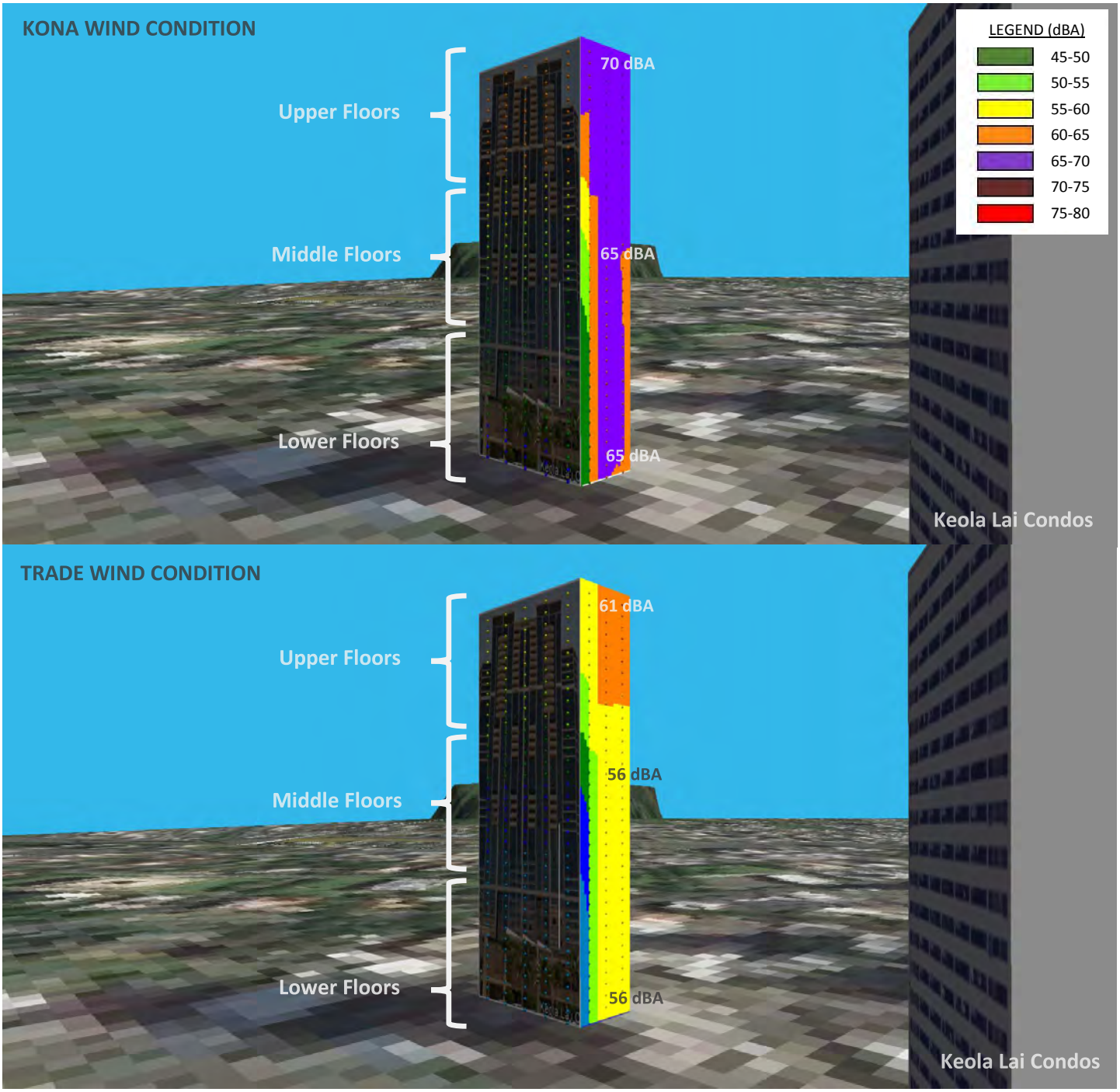

Figure 8. Sound Levels on South Building Facade – Keola Lai

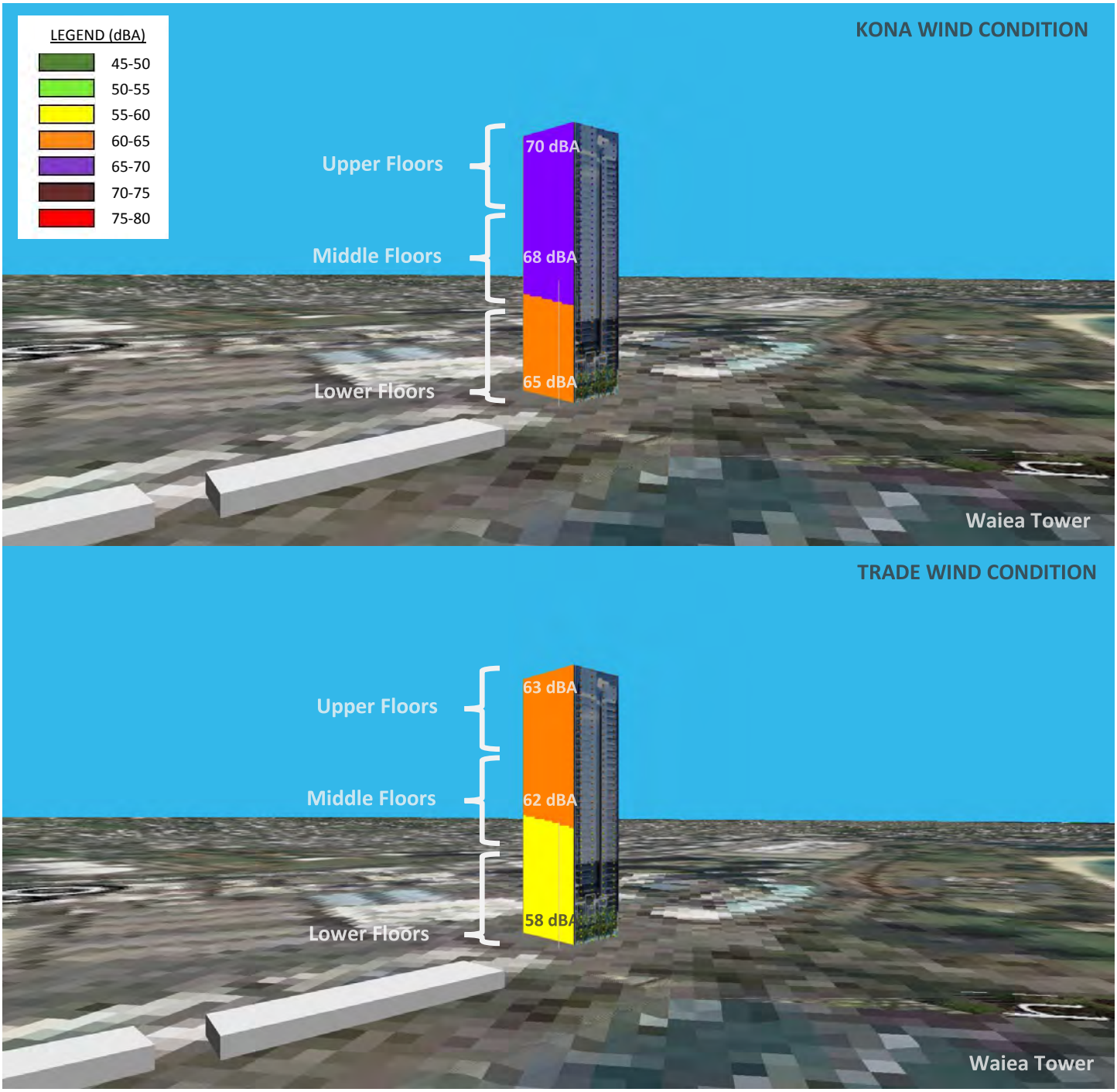

Figure 9. Sound Levels on West Building Façade – Waiea Tower

Table 6 shows sound levels for the façade of the building that faces in the direction of the amphitheater. Sound levels for the remaining sides of the building will likely be lower than the values shown in Table 6, because the building itself may function like a sound barrier for the residential units on the "far" side of the building. An example of how the sound levels change with the façade direction is shown below in Figure 10, which is a schematic view from the top level of the Waiea Tower residential building.

Figure 10. Amphitheater Sound Levels at the Waiea Tower Building Facades (Kona Winds)

The building shape and location play a critical role in determining the sound levels on the various sides of the building. In general, sound levels on the "far" side of a building are typically around 15 dB quieter compared to the "near" side of the building. For our analyses, we evaluated sound levels for the "near" side as a worst-case condition.

7 Potential Sound Impact of the Amphitheater

7.1 Compliance with the State of Hawaii Administrative Rules, Department of Health (DOH), Noise Regulation

Although the State of Hawaii Administrative Rules establish maximum permissible noise levels (at the property line), the noise regulation is only enforceable for stationary mechanical equipment and other similar devices. The noise regulation is not applicable to amplified music, crowd noise, or other typical

noises that may be radiating from the proposed amphitheater. Currently, there are no plans to install heavy mechanical equipment, such as generators, air-handling equipment, etc. However, if such equipment is included with the project, it must not exceed the maximum permissible noise limits, as addressed in the Administrative Rules.

7.2 Comparison of Amphitheater Sound Levels to the Existing Ambient Sound Environment

Although this study did not include a comprehensive evaluation of the existing ambient sound environment, sound level measurements were conducted during the late evening hours on a typical night. The quietest sections of the study area are, predictably, the parks because these locations are at grade level and they are the furthest from noise sources. In the parks, the late evening sound level can be in the low 50's to upper 50's (dBA). A sound level of 51 dBA was recorded in the quietest section of the park, and a sound level of 57 dBA was recorded for the middle of Gateway Park, which is closer to Ala Moana Boulevard. Sound levels at the residential buildings are likely higher than the park sound levels. A sound level of 64 dBA was recorded at a location in close proximity to One Waterfront Towers. The measurement was taken at an elevation of 5 feet above the existing grade and therefore, does not consider the potential difference in ambient sound level that may vary with increasing building elevation.

The wind direction will play a major role in the potential impact of amphitheater sound levels for listeners in (or near) the residential buildings. The primary reason why the wind direction plays such a significant role is because of the large distance between the amphitheater and residential buildings. On average, the wind direction can change the sound levels at the residential buildings by 8 to 9 dB. For reference, a 10 dB difference is considered to be "half as loud" for most listeners. Kona winds are more favorable than Trade winds for the amphitheater sound propagation to the residential buildings.

Two of the closet residential buildings to the proposed amphitheater include the Six Eighty Residences (1,800 ft) and One Waterfront Towers (2,300 ft). During Kona wind conditions, it is expected that the amphitheater sounds will be easily audible over the existing ambient sound levels. During Trade wind conditions, sounds from the amphitheater may still be audible (especially at the upper floors of the building), but the predicted sound levels will begin to approach the existing ambient sound levels. It's important to note that amphitheater sounds can still be audible even if the projected sound level is slightly less than the existing ambient environment. However, in these conditions, the potential sound impact is significantly reduced.

As described in this report, the predicted sound levels do not include any sound mitigation methods and design techniques. Sound mitigation options are discussed within Section 8 of this report.

7.3 Comparison to Waikiki Shell ROH

As previously discussed in Section 4.2 of this report, the existing Waikiki Shell has a similar use and function as the proposed Kaka'ako Makai Parks amphitheater. The Waikiki Shell also has similar sound-related concerns by its neighbors. Therefore, *Section 41 of Article 34. Sound Levels for the Waikiki Shell*

– *Revised Ordinances of Honolulu (ROH)* can be used as a helpful guide in assessing the potential sound impact of the Kaka'ako Makai Parks amphitheater.

Section 41 of Article 34 Part A states that "Sound levels for events at the Waikiki Shell (whether amplified or not) shall not exceed 68 dBA for more than ten percent (10%) of the time within any 20-minute period as measured at or near the Kaimana Beach Hotel at the Makai side of the Kalakaua Avenue in areas zoned Apartment/Hotel/Business and shall apply from ground level to a perpendicular plane projected above the height of the high-rise buildings." The geodesic distance from the Waikiki Shell to the Kaimana Beach Hotel is approximately 2,000 ft. Although not mentioned in the ROH, the nearest residences (along Paki Avenue) are approximately 700 feet from the Waikiki Shell, as shown in Figure 3.

In order to compare the Kaka'ako Makai Parks amphitheater to the Waikiki Shell ROH, it is important to consider both the sound levels and distances between the amphitheater and the neighbors. Based on the site location, the Waikiki Shell is considerably closer to its nearest residential neighbors compared to the proposed HCDA Makai Parks Amphitheater. However, other residences are at similar distances for both projects. For example, the Kaimana Beach Hotel is approximately 2,000 feet from the Waikiki Shell, and they One Waterfront Tower is approximately 2,300 feet from the proposed HCDA Makai Parks Amphitheater.

The sound modeling and prediction results indicate that sound levels at the upper levels of the One Waterfront tower due to the proposed amphitheater would be approximately 75 dBA during Kona wind conditions and 67 dBA during Trade wind conditions. Therefore, without implementing any sound mitigation methods, sound levels from the proposed amphitheater (during Kona winds) could exceed the 68 dBA limit imposed for the Waikiki Shell. For the prevailing Trade wind conditions, the modeling results indicate that the amphitheater sound levels may not exceed the 68 dBA level at the One Waterfront Tower building façade. The modeling results are similar for the Six Eighty Ala Moana residential building. At this location, sound levels due to the proposed amphitheater would be 74 dBA during Kona winds and 65 dBA during Trade winds.

7.4 Summary

The potential sound impacts of the proposed Kaka'ako Makai parks amphitheater depend significantly on the location of the listener and the wind conditions, among other factors. Residential units that are closest to the proposed amphitheater and have a direct line-of-sight with the amphitheater have the highest risk of a sound impact. The results also indicate that sounds from the proposed amphitheater may exceed the acceptable sound levels established for a similar venue (the Waikiki Shell). These potential impacts are more likely for Kona wind conditions and less likely during Trade wind conditions. These sound level predictions do not include the benefit gained by implementing any sound mitigation techniques, which are described below. Reducing sound levels from the amphitheater to a level that significantly reduces the potential sound impact, even during Kona winds, is certainly feasible.

Recommendations for reducing the impact on the surrounding buildings/community are outlined below.

8 Sound Mitigation Methods and Techniques, and Future Sound Studies

There are a variety of sound mitigation methods and techniques that can be integrated within the design of the proposed outdoor amphitheater. Sound mitigation options can be divided into two main categories, including 1) electronic or sound system mitigation techniques and 2) physical structure sound mitigation techniques. These sound mitigation methods and techniques are discussed below.

8.1 Audience and Stage Canopy / Covering

Although sound waves will naturally diffract around objects and barriers, directing/aiming/reflecting sound to the audience areas can help reduce sound energy that may otherwise radiate to the surrounding area. Incorporating a canopy structure that covers the stage, and possibly a portion of the front seating section, will help reflect sound from the stage to the seating area. This type of structure can not only improve the acoustics for audience members, but can also help reduce sound levels to the surrounding community. The amount of reduction achieved will depend on the specifics of the canopy design. However, sound level reductions in the range of 2 to 5 dB, or more, are possible. One example of a canopy structure that covers the stage is shown in Figure 11 below.

Figure 11. Example of a Stage Canopy

8.2 Aiming Direction and Directivity of the Loudspeakers

In order to evaluate the worst-case condition, the sound prediction model assumed that a "generic" cabinet type loudspeaker cluster was used for both the right and left sides of the stage. These loudspeakers are considered the "worst case" for the sound modeling purposes because they are less directional compared to line-array loudspeaker clusters, or other similar loudspeakers. It is important to note that the sound model included horizontal directivity of the loudspeakers, but it did not include

vertical directivity, which is another worst-case condition. Essentially, the sound model assumed that the loudspeakers were aimed at zero degrees in the horizontal direction (aimed straight out). The model did not include the benefit gained by using loudspeakers that are "aimed down" at the audience or directional loudspeakers that can better control the audio coverage. Selecting the right type of loudspeakers using the best methods to properly aim the loudspeakers can possibly reduce sound levels to the neighboring residential towers by approximately 3 to 6 dB.

8.3 Orientation and Layout of the Amphitheater

The orientation of the amphitheater relative to the residential buildings can be an important factor regarding sound energy transmitted to the buildings. Sound levels from the proposed amphitheater can be reduced by adjusting the orientation of the proposed amphitheater such that the loudspeakers aim away from the residential buildings. Reorienting the stage and seating area may or may not be feasible for this project. However, if the orientation could be adjusted, sound level reductions of 10 dB or more are possible.

8.4 Restriction of Hours for Events

As described in Section 3.2, the specific operating hours for the amphitheater have not yet been determined. However, it may be possible to reduce the number of complaints regarding sound from the amphitheater by limiting the operating hours for the amphitheater. Limiting the operating hours for events at the amphitheater may reduce potential sound complaints, since sound-related complaints tend to be more common during nighttime hours. Restricting the hours for events will not reduce the sound *level,* however, it may help to reduce the potential for sound complaints.

8.5 Use of Trees, Shrubs, or other Vegetation for Sound Mitigation

The addition of trees, plants, shrubs, or other vegetation is typically not an effective sound mitigation technique. Unless the vegetation is several hundred feet thick, the sound reduction by vegetation is often negligible. Therefore, incorporating vegetation as a method to reduce sound levels from the proposed amphitheater is not recommended.

8.6 Future Sound Study

At the time of this report, the design of the amphitheater had not yet been complete. Therefore, the sound model predictions summarized in this report were estimated using a conceptual plan of the amphitheater as well as general source sound levels from traditional rock music in other similar sized venues. During the design of the amphitheater, a detailed sound propagation model could be developed using the specific design elements of amphitheater. The various sound mitigation methods and techniques could also be evaluated in more depth at that time.

The current sound study contained in this report included a small sample of ambient sound level measurements during a typical evening. However, ambient sound levels may differ from day-to-day and

they may also likely change throughout the day. Therefore, additional studies and sound level measurements of the existing ambient sound environment can be helpful for further evaluation of potential sound impacts.

9 Conclusions and Future Sound Studies

The predictions for sound levels from the proposed Kaka'ako Makai Parks amphitheater vary significantly depending on the wind direction and location of the listener. In fact, the sound model indicates that sound levels observed during Kona winds can be 8 to 9 dB louder than during Trade wind conditions.

Sound levels observed at the residential buildings, due to the amphitheater also depend significantly on the design and layout of the proposed amphitheater, the sound system equipment used at the amphitheater, and ultimately, the volume setting used by the sound operator of the event. Without implementing any sound mitigation techniques, sound impacts due to the project are possible, especially during Kona wind conditions. Sound impacts due to the project are significantly less likely during Trade wind conditions.

If the design of the proposed amphitheater is completed without the consideration of sound propagation to the surrounding residential areas, sound impacts due to the project are probable. However, if the proposed amphitheater includes reasonable design practices and sound mitigation techniques, the potential sound impact due to the amphitheater can be greatly reduced, even to a level that is acceptable for most people.

APPENDIX A

REFERENCES

1. Revised Ordinances of Honolulu, Article 34, Section 41, Sound Levels for the Waikiki Shell - ROH 11/2015

2. State of Hawaii, Department of Health, Chapter 46, *Community Noise Control*, Administrative Rules, Title 11, September 23, 1996 - HDOH 9/23/1996

APPENDIX B

ACOUSTIC TERMINOLOGY

Sound Pressure Level

Sound pressure level (SPL) is a logarithmic measure of the sound pressure relative to a reference value, as defined by the follow equation:

$$SPL = 10Log_{10}\left(\frac{{p_{rms}}^2}{{p_o}^2}\right) = 20Log_{10}\left(\frac{p_{rms}}{p_o}\right) \text{ [dB]}$$

Where, prms is the room mean square sound pressure, measured in Pa, and po is the reference sound pressure, measured in Pa. Typically, po is defined as being 20 µPa, the smallest sound pressure detectable by the human ear.

It is common that a 1 to 2 dB increase or decrease of sound is too difficult for most listeners to discern. A 3 dB change in sound level is often considered to be the "just noticeable difference". A 6 dB change in sound level is significant to most listeners, and a 10 dB change in sound level is often considered to be twice (or half) as loud.

A-Weighted Sound Level (re: dBA)

A-weighting is applied measured sound levels in effort to account for the relative loudness perceived by the human ear. The typical human ear is less sensitive to low frequency sounds and high frequency sounds. Individual weighting values (applied for either octave bands or one-third octave bands) are determined by the A-weighting curve as an international standard.

Equivalent Sound Level, L_{eq}

The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual instantaneous noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise.

Exceedance/Statistical Sound Level, LN

The Exceedance/Statistical Sound Level is the A-weighted sound levels equaled or exceeded by a fluctuating sound level for "N" percent of the time. In other words an L_{90} equal to 63 dBA means that the sound levels equal 63 dBA, or higher, for 90% of the measurement period. The L_{10} level is commonly called the 'intrusive sound level', and the L_{90} is commonly called the 'residual sound level'. The L_{90} is often used in environmental measurements and assessments.

Common Sound Levels in dBA

Common Outdoor Sounds	Sound Pressure Level (dBA)	Common Indoor Sounds	Subjective Evaluation
Auto horn at 10 ft Jackhammer at 50 ft	**100**	Printing plant	Deafening
Gas lawn mower at 4 ft Pneumatic drill at 50 ft	**90**	Auditorium during applause Food blender at 3 ft	Very Loud
Concrete mixer at 50 ft Jet flyover at 5000 ft	**80**	Telephone ringing at 8 ft Vacuum cleaner at 5 ft	
Large dog barking at 50 ft Large transformer at 50 ft	**70**	Electric shaver at 1 ft	Loud
Automobile at 55 mph at 150 ft Urban residential	**60**	Normal conversation at 3 ft	
Small town residence	**50**	Office noise Dishwasher in adjacent room	Moderate
	40	Soft stereo music in residence Library	
Rustling leaves	**30**	Average bedroom at night Soft whisper at 3 ft	
Quiet rural nighttime	**20**	Broadcast and recording studio	Faint
	10	Human breathing	Very Faint
	0	Threshold of hearing (audibility)	

Appendix E:
PRELIMINARY ENGINEERING REPORT

DRAFT
Preliminary Engineering Report
Civil Infrastructure

Makai Area Parks Master Plan

Honolulu, O'ahu, Hawai'i
Tax Map Key(s): 2-1-058:131 (por.)
2-1-059:023, 024, 025, & 026
2-1-060:007, 008, 029, & 030

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March 2016

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EXECUTIVE SUMMARY

The Hawaii Community Development Authority (HCDA) is proposing to redevelop the parks in the Makai area of the Kaka'ako Community Development District (KCDD) in Honolulu on the Island of O'ahu. Three parks: Kewalo Basin Park, Kaka'ako Gateway Park, and Kaka'ako Waterfront Park are part of the proposed redevelopment. A Master Plan is being created for the parks in the Makai area of the KCDD to facilitate the redevelopment of the area. This preliminary engineering assessment for the Makai Area Parks Master Plan was conducted to review the site infrastructure and utility systems, identify possible opportunities and constraints, and to describe proposed improvements to roadway and parking layout, site grading, storm drainage, sanitary sewer and water supply.

Roadway, Parking, and Access: Roads within the KCDD Makai Area are two-way, two-lane collector streets, majority of which are maintained by the City and County of Honolulu (CCH). Ilalo, Ahui, Ohe, and Olomehani Streets are owned and maintained by CCH. Keawe, and Cooke Streets, from Ilalo to Kelikoi Streets, are owned by HCDA and maintained by CCH. Kelikoi Street is also owned by HCDA and maintained by CCH.

Driveways, access roads, and parking lot layouts for the proposed Master Plan will be designed to meet applicable state or city requirements. Perimeter walkway and parking lot layout, dimensions, longitudinal and cross slopes shall comply with ADA Accessibility Guidelines to the maximum extent practicable.

Evaluation of the traffic impacts associated with the proposed redevelopment are documented in the "Traffic Assessment Report for the Makai Area Parks Master Plan."

Site Grading and Flood Hazard: The underlying soil within the vicinity of the Makai Area parks consists of material dredged from the ocean or hauled from nearby areas, landfill garbage, and general material from other sources.

Proposed site grading will follow the Soils Engineer's recommendations. All grading and construction work shall comply with *Rules Relating to Soil Erosion Standards and*

Guidelines, Department of Planning and Permitting, City and County of Honolulu, dated April 1999.

A landfill gas containment and collection plan was implemented during construction of the Kaka'ako Waterfront Park to mitigate the potential hazards associated with the incinerated ash, refuse, and debris that was disposed of on-site. An environmental consultant should be contacted to review the proposed grading improvements and determine whether a revised landfill gas containment and collection plan is required.

The Makai Area Parks are located with Zone X, Zone AE, and Zone VE. Flood zone elevations have been established for Zone AE and are discussed in this report. New structures will be required to be constructed above the appropriate flood elevation. It should also be noted that the City and County of Honolulu will require any new building that straddles more than one flood zone be developed to comply with the most conservative zone. All of the Makai Area Parks are located within the tsunami evacuation zone as established by the O'ahu Civil Defense.

Storm Drainage System: HCDA incrementally constructed the roadway storm drain system within KCDD Makai Area. Record information for the KCDD Makai area indicates that the majority of the subject parks discharge into the adjacent roadway drainage system or directly into the ocean. Drain pipe stub-outs to most of the parcels are provided, and the amount of runoff that can be discharged is specified.

Drainage improvements and runoff rates for the proposed condition need to be determined based on City standards. Increase in runoff due to the proposed improvements will be retained on-site to ensure that the project will not have any adverse effects on downstream properties. City storm water quality standards must also be taken into consideration for the proposed development.

Sanitary Sewer System: The City and County's sewer system collects and transports sewage flows generated from the KCDD Makai area to the Ala Moana pump station and eventually treated at the City and County's Sand Island Wastewater Treatment Plant.

According to the 2004 Kaka'ako Community Development District Makai Area Sewer Master Plan, the three developed Makai Area Parks would generate an estimated average daily flow of 33,810 gpd. DPP Wastewater Branch (WWB) indicated that the sewers in the KCDD area were constructed in accordance with the 2004 Sewer Master Plan.

The proposed redevelopment for Kewalo Basin Park and Kaka'ako Gateway Park does not generate increases in sewer quantities and on-site sewer system improvements are not anticipated. Proposed facilities at Kaka'ako Waterfront Park will require on-site sanitary sewer collection system improvements. The proposed sanitary sewer system will consist of gravity sewer lines, clean-out-to-grade, and sewer manholes. The proposed system will be connected to the City sewer system.

Preliminary calculations indicate that the sewer generation for the proposed park Master Plan is approximately 23.820 gpd. This quantity is less than the sewer generation quantity estimated in the 2004 Sewer Master Plan (33,810 gpd). A preliminary sewer connection application based on the current program information has been approved by WWB, indicating that the existing City sewer system is adequate to support the proposed park improvement. WWB shall be consulted during the design phase for final approval of the proposed sanitary sewer connections.

Water System: Potable water service to the Makai Area Parks is provided through the municipal water system of CCH's Board of Water Supply (BWS) which was constructed by HCDA under previous improvement projects.

Based on the current Master Plan, minimal on-site water system improvements are anticipated for Kewalo Basin Park and Kaka'ako Gateway Park. The on-site water system for the improvements at Kaka'ako Waterfront Park will consist of water lines, backflow preventers, and valves upstream of the water meter. New fire hydrants shall be provided as required to ensure adequate fire protection for the adjacent buildings

Potable water demands were derived from the project's program requirements and the domestic consumption guidelines and fire flow requirements provided in the City and County of Honolulu Board of Water Supply *Water System Standards* dated 2002.

A preliminary water availability request letter for the proposed project has been approved by BWS indicating that existing water system is adequate to accommodate the proposed redevelopment of the Makai Area Parks. Based on calculated water demands from the proposed project, it shall be determined during the design phase whether the existing water meter(s) and lateral(s) servicing each park can be reused or if a new meter and lateral will be required.

1. INTRODUCTION

1.1 Purpose

This Preliminary Engineering Report presents an assessment of the civil infrastructure and utility systems for the proposed project. The objective of the report is to review the existing infrastructure systems, determine project requirements, and identify possible opportunities and constraints based on the requirements. This assessment includes the existing conditions and proposed improvements as follows:

- roadway and parking layout,
- site grading and flood hazard,
- storm drainage system,
- sanitary sewer system,
- water system

The proposed improvements are conceptual and subject to change based on further development of plans and availability of more information.

1.2 Project Information

The Hawaii Community Development Authority (HCDA) is proposing to redevelop the parks in the makai area of the Kaka'ako Community Development District (KCDD) in Honolulu on the Island of O'ahu as part of the Makai Area Parks Master Plan. Three parks: Kewalo Basin Park, Kaka'ako Gateway Park, and Kaka'ako Waterfront Park have been identified for the proposed redevelopment. The Look Lab Lot will also be included as part of the redevelopment of Kaka'ako Waterfront Park. The project area is generally bounded by Ala Moana Boulevard to the north, the Pacific Ocean to the south, Ala Moana Beach Park to the east and Keawe Street to the west (See Figures 1-1 and 1-2). TMKs are provided on Figures 1-3 to 1-5.

<u>Kewalo Basin Park:</u>

Kewalo Basin Park is located along a revetment makai of Kewalo Basin Harbor and is bordered by Ala Moana Beach Park to the east and by the Kewalo Basin along its north, west, and south borders. The park is approximately five (5) acres and was created from dredged material from the harbor in 1955.

Kaka'ako Gateway Park:

Kaka'ako Gateway Park is located between Ala Moana Boulevard and Kelikoi Street and is bound by Cooke Street to the west and Ohe Street to the east. The park is bisected by Ilalo Street. The park was established in the late 1990's by HCDA as part of its Improvement District 5 development.

Kaka'ako Waterfront Park:

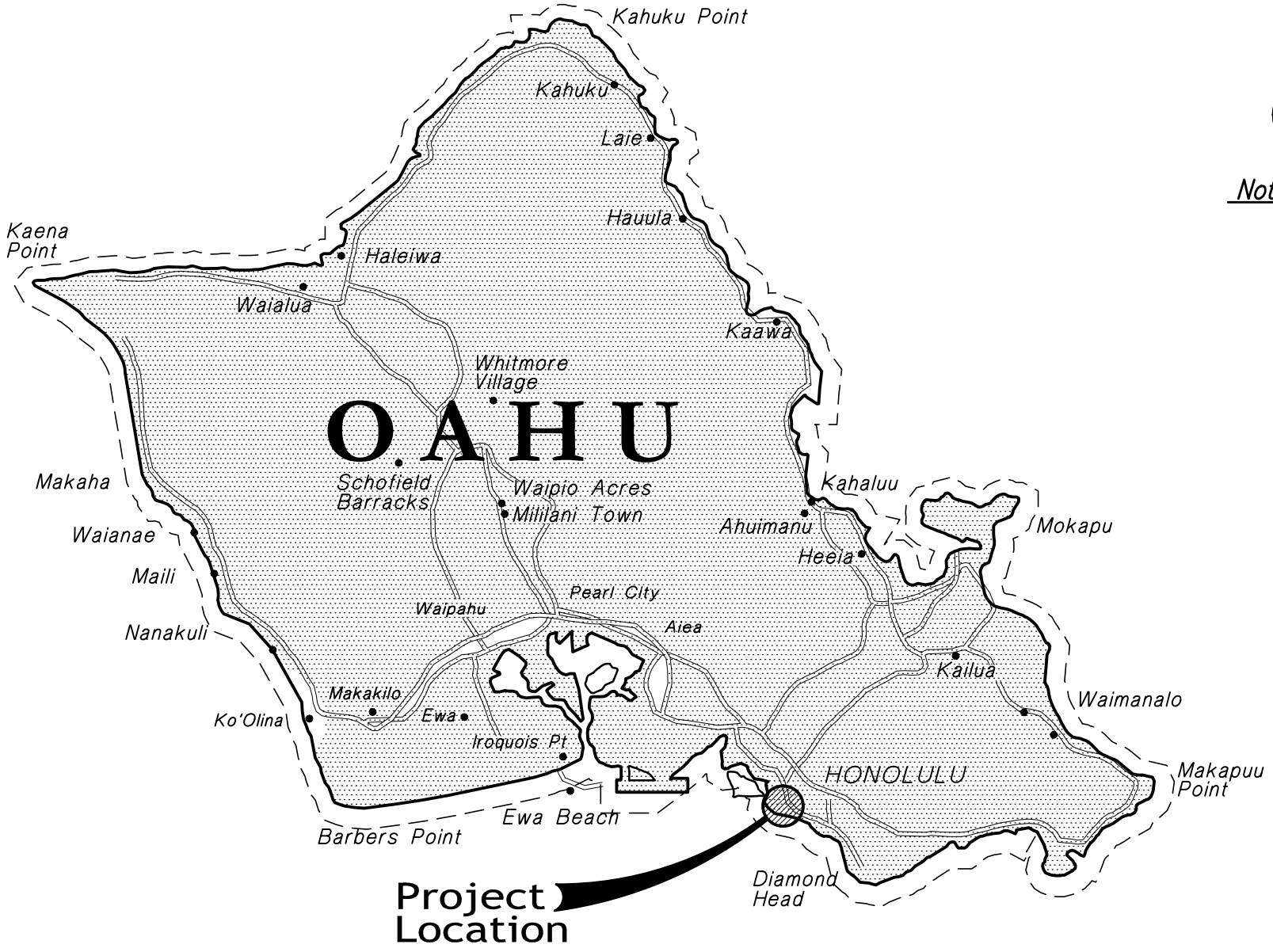
Kaka'ako Waterfront Park is located at the end of Cooke Street, makai of the John A Burns School of Medicine and Kaka'ako Gateway Park. The 35-acre park was built in 1992 on the site of a former municipal landfill. The park is known for its grass-covered rolling hills which were created from artificial fill material, including ash from burned municipal refuse. While there is no sandy beach at this location, the park provides access to two popular surf spots, "Point Panic" and "Flies." Concrete stairs provide park users access to the ocean. The park also has an amphitheater and paved jogging paths for park users.

Look Lab Lot:

The Look Lab Lot is bordered by Olomehani Street to the north, Ahui Street to the east, and the Kaka'ako Waterfront Park parking lot to the south and west. The parcel is occupied by a warehouse building, gravel open storage areas, and the Point Panic parking lot.

Existing land use zoning for the HCDA parks include mixed-use and park as indicated in the table below.

Location	TMK	Area (acres)	Zoned Land Use
Kewalo Basin Park	2-1-058:131 (por.)	5.8	Park
Kaka'ako Gateway Park	2-1-059:023	0.209	Park
	2-1-059:024	0.290	Park
	2-1-059:025	0.892	Park
	2-1-059:026	0.586	Park
	2-1-060:007	3.955	Park
Kaka'ako Waterfront Park	2-1-060:008	21.408	Park / Mixed-Use Zone
	2-1-060:030	4.051	Park / Mixed-Use Zone
Look Lab Lot	2-1-060:029	9.573	Park / Mixed-Use Zone



WILSON OKAMOTO CORPORATION

MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

VICINITY MAP

Figure
1-1

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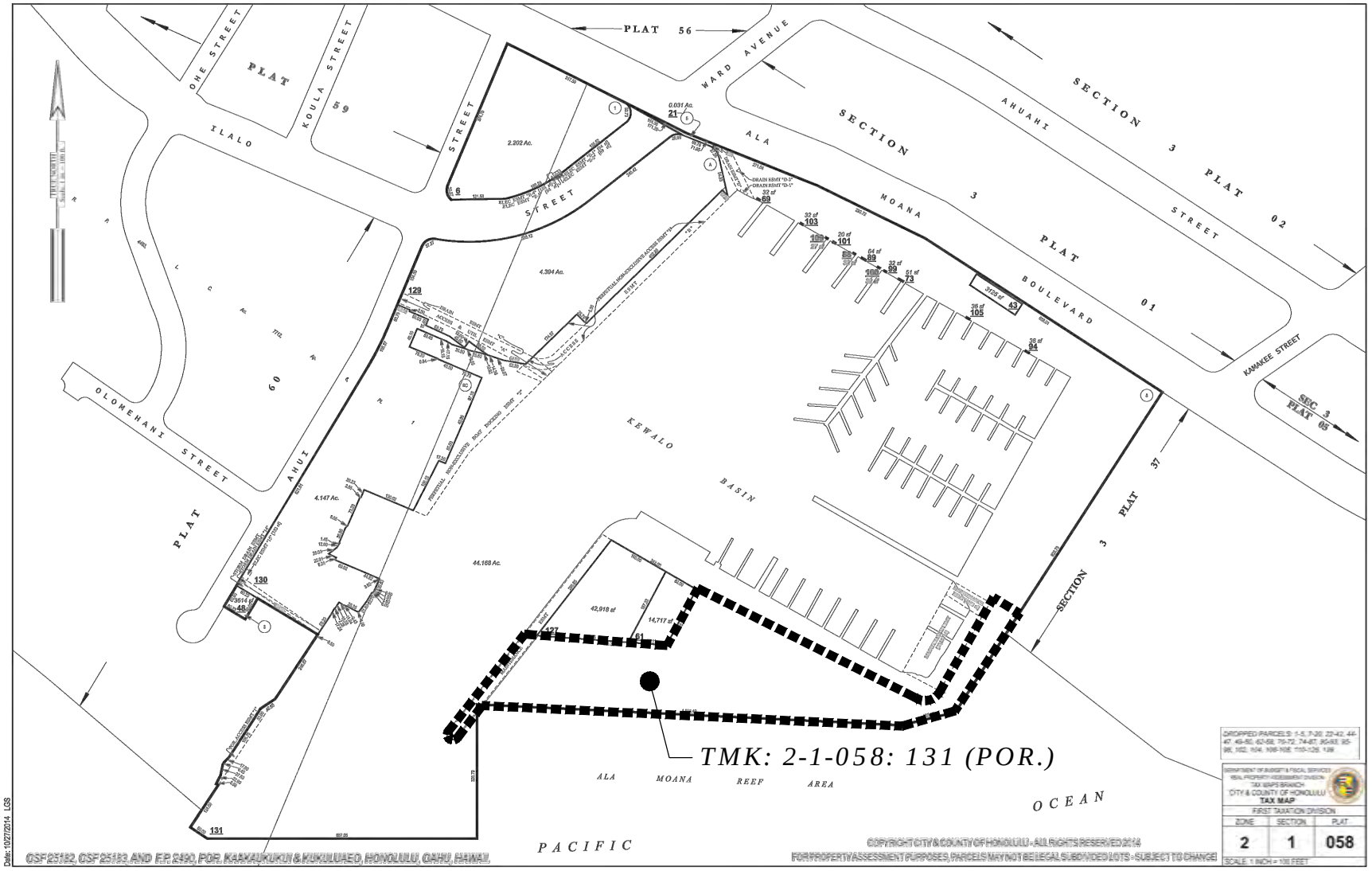
MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

LOCATION MAP

Figure 1-2



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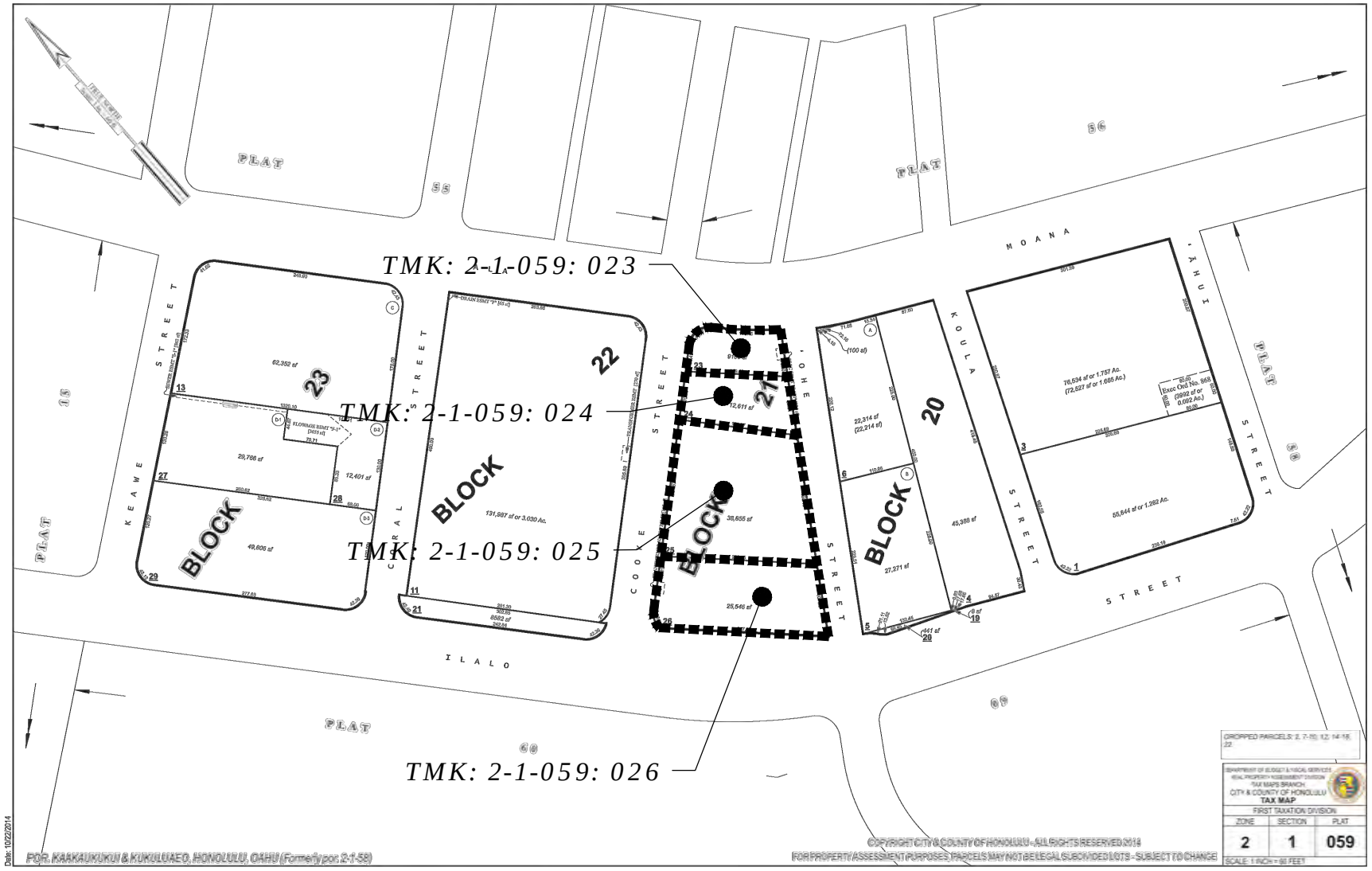
MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

TMK: 2-1-058:131 (POR.)

Figure
1-3



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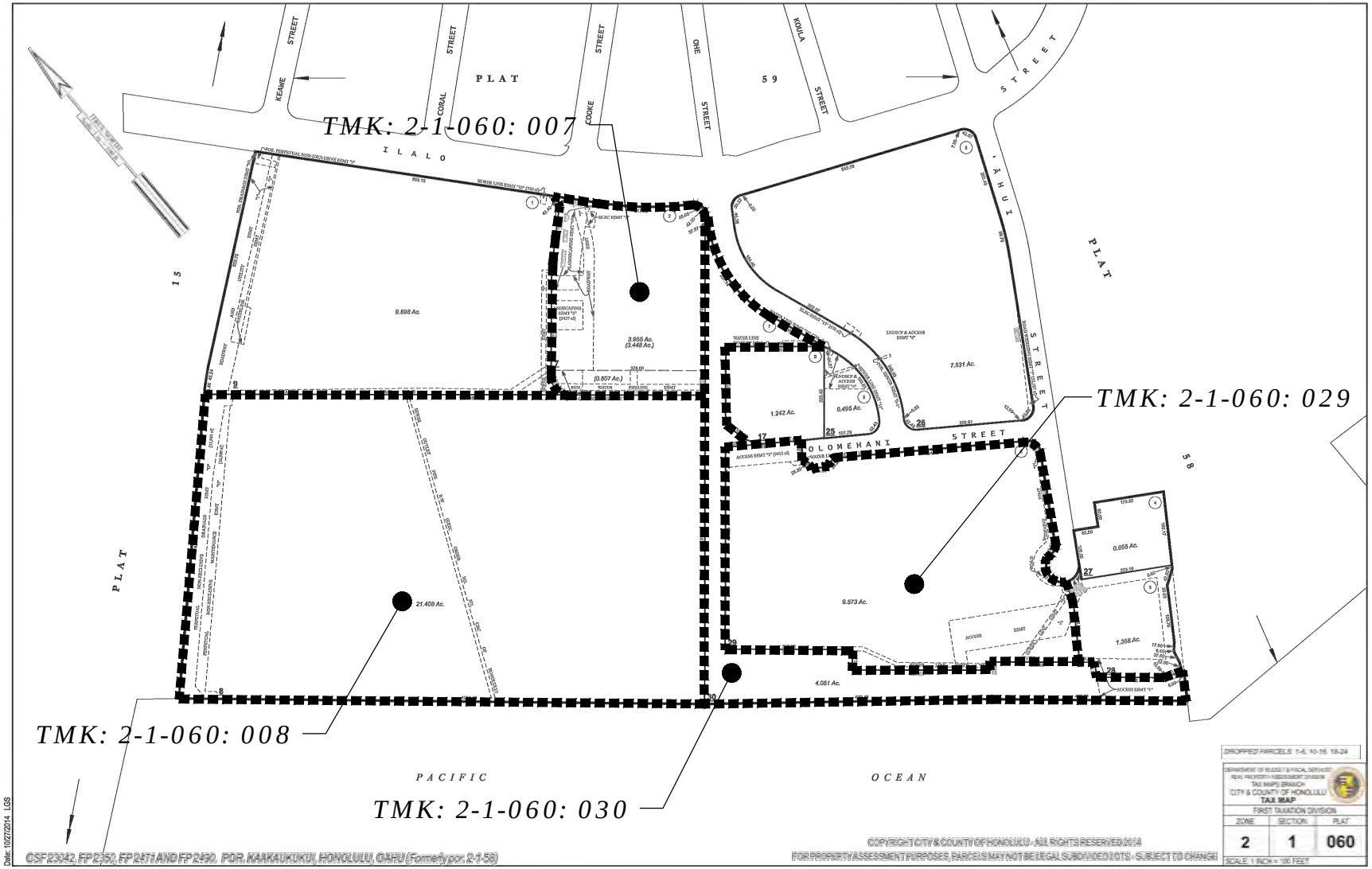
MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

TMK: 2-1-059: 023, 024, 025, and 026

Figure 1-4



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

TMK: 2-1-060: 007, 008, 029 and 030

Figure
1-5

The Makai Area Parks Master Plan is expected to be implemented in four phases over the next 20 years. The Master Plan primarily involves improvements to Kaka'ako Waterfront Park with minor improvements planned for Kewalo Basin Park and Kaka'ako Gateway Park. See Phasing Plan for proposed improvements below.

Phase I (Do Immediately & Complete in 1-3 Years)	
Park Element	Supporting Infrastructure
Initiate regular programming of Gateway Parks	- Upgrade electrical as necessary to accommodate food trucks
Lei of Green connection between Kewalo Basin Park and Ala Moana Beach Park	- Adjust grades as necessary to ensure storm water from promenade sections sheet-flow to lawn for infiltration
Regrade contours in Kewalo Basin Park to reduce mounds and improve drainage at showers	- Grading as appropriate.
Refresh landscape in Kewalo Basin Park with coastal native plants	
Open a park entry at Keawe Street	- Grading as appropriate.
Lei of Green connection at Keawe Street	-
Phase II (3-5 Years)	
Park Element	Supporting Infrastructure
Construct Beach Hale & comfort station at Point Panic	- Connect to water and wastewater lines in Ahui Street
New surface parking area at Point Panic and makai of Olomehani Street	- Grading as appropriate; parking lot storm water to be captured in depressed rain gardens
Once additional parking is available, reconfigure central parking area and replace majority with lawn	- Construct bioswales in downsized parking lot to accommodate storm water
Begin first phase of sports complex	
Phase III (5-10 Years)	
Park Element	Supporting Infrastructure
Regrade central mound in Waterfront Park to create clear visual access from Ala Moana Boulevard to Ocean	- Grading as appropriate.
Construct Accessible Keiki play area makai of Children's Discovery Center	
Fill mound areas on 'Ewa side of Waterfront park to create additional open green space with expansive views	- Grading as appropriate.
Install splashpad and plaza 'Ewa of Children's Discovery Center (former parking lot)	- Connect to water lines in Kelikoi Street
Complete Kelikoi Street connection to Keawe Street	- Grading as appropriate.
Complete sports complex	

Phase IV (10-20 Years)	
Park Element	Supporting Infrastructure
Community Center adjacent to Great Lawn and accessible keiki play area	- Connect to water and wastewater lines in Olomehani Street
Relocate amphitheater	- Grading as appropriate.
Install slides and play apparatus on mauka-side of amphitheater mound (site of old amphitheater)	-
Food concessions and comfort station associated with slides and play area	- Provide necessary water and wastewater connections. Provide grease interceptor for food preparation facilities.
Add Biergarten at top of mound overlooking amphitheater, great lawn, slides and splashpad	- Provide necessary water and wastewater connections. Provide grease interceptor for food preparation facilities.

2. ROADWAY, PARKING, AND ACCESS

2.1 Background

The review of the parking and roadway system is based on the review of record information and site reconnaissance.

Roads within the vicinity of the project site are two-way, two-lane collector streets, majority of which are maintained by CCH. Ilalo, Ahui, Ohe, and Olomehani Streets are owned and maintained by CCH. Keawe, and Cooke Streets, from Ilalo to Kelikoi Streets, are owned by HCDA and maintained by CCH. Kelikoi Street is also owned by HCDA and maintained by CCH.

Ahui Street provides access to the oceanfront promenade area. The Kaka'ako Waterfront Park can be accessed via Ohe Street and Cooke Street. Ilalo Street and Olomehani Streets are the only collector streets in the east-west direction. Ala Moana Boulevard is the major thoroughfare that runs through Kaka'ako. Ala Moana Boulevard has six through lanes, left turn storage lanes at each intersection and concrete sidewalks and gutters. Ilalo Street is the major collector road that runs through the Kaka'ako Makai area. Ilalo Street has two through lanes with metered parking on both sides and concrete sidewalks and gutters.

A summary of ownership and responsibility of maintenance of the existing streets providing access to the Makai Area Parks is shown in the table below:

Street	Owned By	Maintained By
Ala Moana Boulevard	HDOT	HDOT
Ilalo Street	CCH	CCH
Ahui Street	CCH	CCH
Olomehani Street	CCH	CCH
Ohe Street	CCH	CCH
Cooke Street	HCDA	CCH
Keawe Street	HCDA	CCH
Kelikoi Street	HCDA	CCH
Forrest Avenue	HDOT	HDOT

It is recommended that appropriate due diligence such as title searches and surveys be done to determine any easements or encumbrances for each parcel.

City bus service is available along Ala Moana Boulevard in both directions. Pedestrian walkways are in-place on Cooke, Ahui and Ilalo Streets. However, Ohe and Koula Streets between Ala Moana Boulevard and Ilalo Street do not have paved walkways for pedestrian access. The KCDD Makai vicinity contains walkway access throughout the area including curb ramps with most containing crosswalks.

Evaluation of the traffic impacts associated with the proposed redevelopment are documented in the "Traffic Assessment Report for the Makai Area Parks Master Plan."

2.2 Existing Conditions

The existing roadway system within the project vicinity is described below and shown on Figure 2-1.

Kewalo Basin Park:

Vehicular access to Kewalo Basin Park is provided at Ala Moana Boulevard via an asphalt concrete roadway that runs along Kewalo Basin Harbor. Two parking lots within the park provide a total of 119 parking stalls. Currently there is no pedestrian walkway that connects Kewalo Basin Park and the harbor. Furthermore, there is no paved pedestrian access that connects the Kewalo Basin Park and Ala Moana Beach Park.

Kaka'ako Gateway Park:

Kaka'ako Gateway Park is located between Ala Moana Boulevard and Kelikoi Street and is bound by Cooke Street to the west and Ohe Street to the east. The park is bisected by Ilalo Street. Twenty-one (21) parking stalls are provided at the parking lot along Kelikoi Street and twelve (12) on-street parking stalls are provided along Cooke Street, mauka of Ilalo Street. The unimproved dirt/gravel shoulder along Ohe Street between Ilalo Street and Ala Moana Boulevard is also used as parking for park users. Pedestrian walkways are provided along Cooke Street, Ilalo Street, Kelikoi Street, and Ohe Street, makai of Ilalo Street.

Kaka'ako Waterfront Park:

Four-hundred twenty-one (421) parking stalls are provided at an AC parking lot which can be accessed by Cooke Street or Olomehani Street. Pedestrian walkways run from the parking lot to the ocean between the grassy mounds and along the entire waterfront. An additional forty-eight (48) parking stalls are available at the Point Panic parking lot at the south east corner of the park.

Look Lab Lot:

The Look Lab Lot is bordered by Olomehani Street to the north, Ahui Street to the east, and the Kaka'ako Waterfront Park parking lot to the south and west. The parcel is occupied by a warehouse building and gravel open storage areas.

Concrete drop driveways at Ahui Street and Olomehani Street provide vehicular access to the parcel. No on-street parking is allowed on Ahui Street in the lot vicinity.

A summary of existing driveway access to the project vicinity is listed in the table below:

Location	**Existing Driveway Access**
Kewalo Basin Park	Ala Moana Boulevard
Kaka'ako Gateway Park	N/A
Kaka'ako Waterfront Park	Olomehani Street Cooke Street
Look Lab	Ahui Street Olomehani Street

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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

EXISTING ROADWAY SYSTEM

Figure 2-1

2.3 Project Requirements

Driveways, access roads, and parking lot layouts for the proposed Master Plan will be designed to meet applicable state or city requirements. Geometrics and pavement for proposed driveways, fire lanes and parking lots will need to be designed based on the appropriate design vehicles. The proposed pavement structure will follow the Soils Engineer's recommendations. Perimeter walkway and parking lot layout, dimensions, longitudinal and cross slopes shall comply with ADA Accessibility Guidelines to the maximum extent practicable.

2.4 Proposed Improvements

Proposed improvements included in Makai Area Parks Master Plan are described below and illustrated in Figure 2-2.

Kewalo Basin Park:

In accordance with HCDA's Lei of Green concept, a new pedestrian walkway is planned to provide connectivity between Kewalo Basin Park and Ala Moana Beach Park. No major roadway or parking improvements are planned at Kewalo Basin Park.

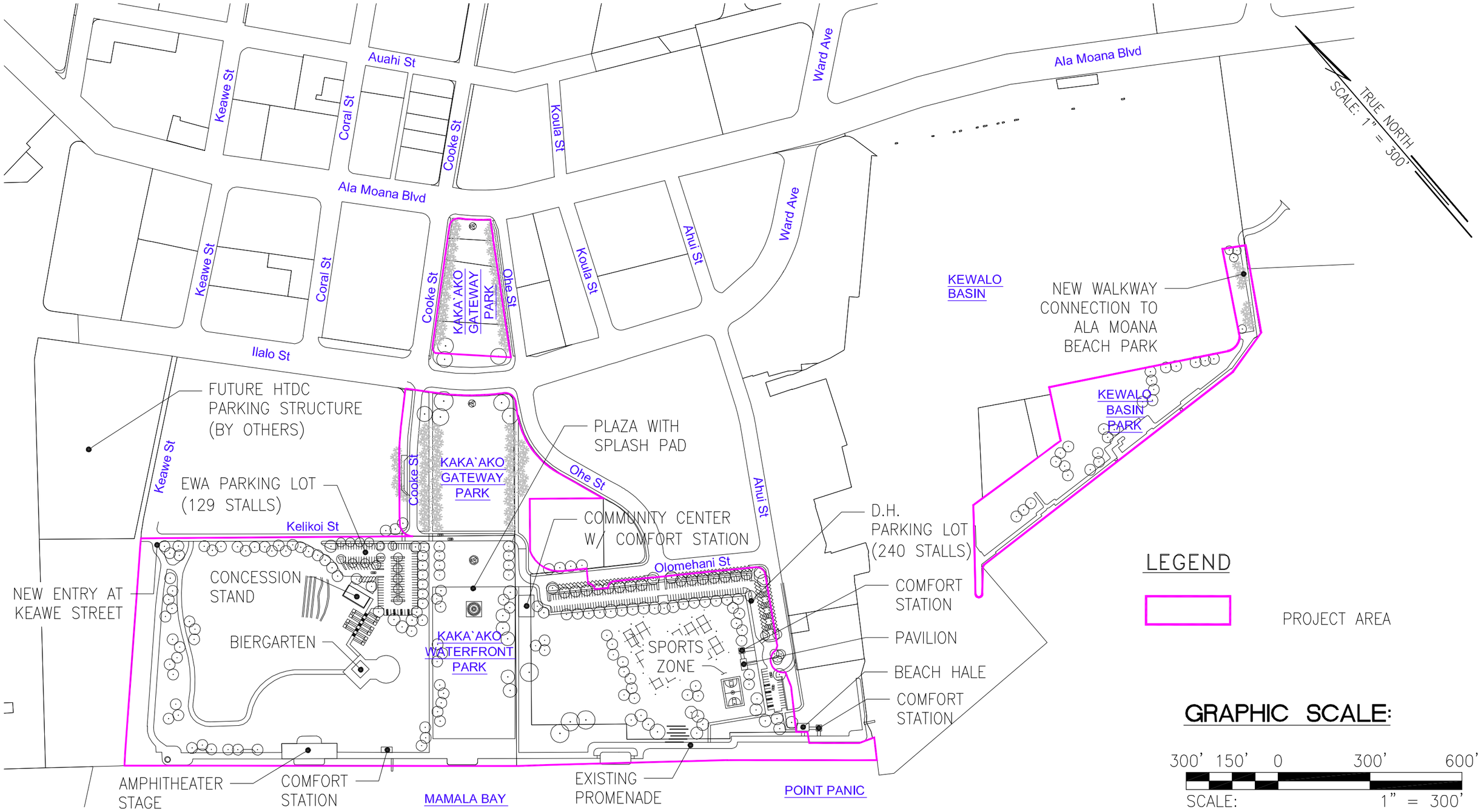
Kaka'ako Gateway Park:

Roadway and parking improvements at Kaka'ako Gateway Park are integrated with redevelopment of Kaka'ako Waterfront Park and are discussed in the following section.

Kaka'ako Waterfront Park:

The existing at-grade parking lots at Kaka'ako Gateway Park and Kaka'ako Waterfront Park will be reconfigured in association with the realigning of Kelikoi Street such that it connects with Keawe Street. New Ewa and Diamond Head parking lots will be constructed to provide 129 and 224 parking stalls respectively. Additional parking for park users will be available at a new parking structure south west of the park which will be constructed as part of HCDA's High Technology Development Corporation project. Pedestrian walkways will be reconfigured to provide park entry at Keawe Street.

As the redevelopment progresses and site plans are being developed, consultation with the appropriate jurisdictions is recommended to coordinate and determine vehicular driveway locations, crosswalk locations, pedestrian sidewalk widths, bicycle facilities, and emergency vehicle access lanes.



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

PROPOSED IMPROVEMENTS

Figure
2-2

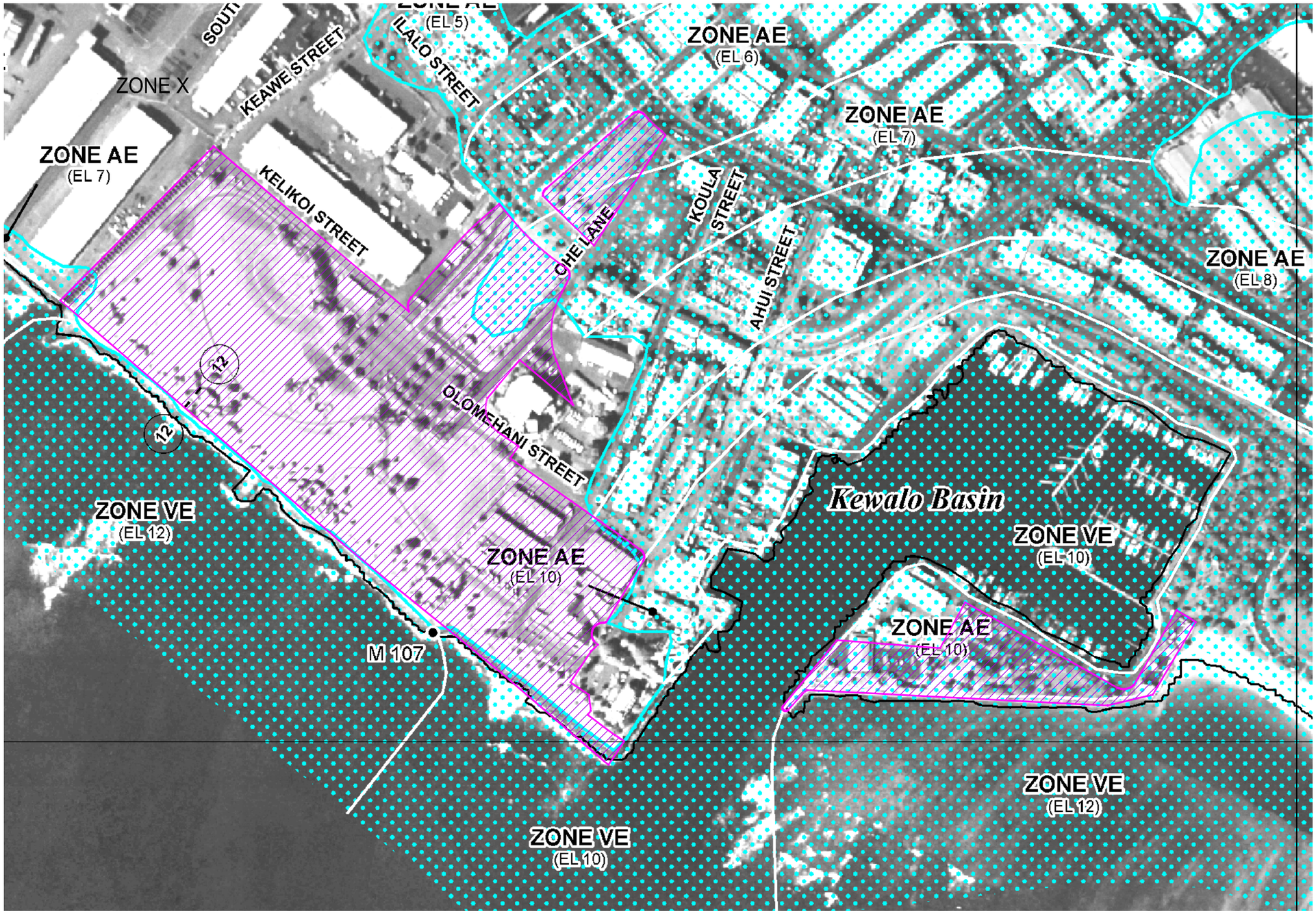
3. SITE GRADING AND FLOOD HAZARD

3.1 Background

The site grading assessment was based on review of topographic survey information from record drawings of previous projects within the project vicinity, and site reconnaissance.

Flood hazard assessment was based on The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel No: 15003C0362G dated January 19, 2011 (See Figure 3-1).

The project vicinity generally consists of areas filled with material dredged from the ocean or hauled from nearby areas, landfill garbage, and general material from other sources.



N

Not to Scale

LEGEND

PROJECT SITE

ZONE AE– SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATIONS DETERMINED.

ZONE VE– COASTAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD WITH ADDITIONAL HAZARDS ASSOCIATED WITH STORM WAVES; BASE FLOOD ELEVATIONS DETERMINED.

ZONE X– AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD. NO BASE FLOOD ELEVATIONS OR DEPTHS ARE SHOWN WITHIN THIS ZONE.

HONOLULU 150001 0362 G	COMMUNITY, NUMBER, PANEL, SUFFIX
15003C0362G	MAP NUMBER
JANUARY 19, 2011	MAP REVISED DATE

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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

FLOOD INSURANCE RATE MAP

Figure 3-1

3.2 Existing Conditions

Kewalo Basin Park:

Kewalo Basin Park is relatively flat with elevations ranging from 0 feet at the base of the revetment to 8 feet mean sea level (MSL). The project site generally slopes in the northerly direction from the top of the revetment towards Kewalo Basin Harbor. Storm runoff from the parcel drains into sidewalk culverts and trench drains which are directly connected to the harbor.

The FEMA FIRM map indicates that Kewalo Basin Park is primarily located within Zone AE Elevation 10 with small portions along Zone VE elevation 10 and 12. The parcel is located in the tsunami evacuation zone as established by the O'ahu Civil Defense.

Kaka'ako Gateway Park:

Kaka'ako Gateway Park is comprised of two flat grassy lawns bisected by Ilalo Street. Elevations within the park range from approximately 3.5 feet to 9.5 feet MSL. Grassy lawns are graded such that runoff flows towards the storm drainage systems within Cooke Street and Kelikoi Street.

The FEMA FIRM map indicates that Kaka'ako Gateway Park is located within Zone AE elevations 6 and 7 as well as Zone X The parcel is located in the tsunami evacuation zone as established by the O'ahu Civil Defense.

Kaka'ako Waterfront Park:

Kaka'ako Waterfront Park is defined by man-made grassed mounds that overlook the Pacific Ocean. Elevations within the park range from 0-feet at the base of the sea wall to 45 feet MSL at the peaks of the man-made mounds.

Based on record information, a landfill gas containment and collection plan was implemented during park construction to mitigate the potential hazards associated with the incinerated ash, refuse, and debris that was disposed of on-site. Two containment areas were designated and protected with a synthetic membrane.

The FEMA FIRM map indicates that the park is primarily located within Zone AE elevation 10 and a small portion within Zone VE elevations 10 and 12. The parcel is located in the tsunami evacuation zone as established by the O'ahu Civil Defense.

Look Lab Lot:

The Look Lab Lot is partially paved and relatively flat. In general, runoff flows south-east toward Kewalo Basin and the Pacific Ocean.

The FEMA FIRM map indicates that the Look Lab Lot is located primarily within Zone X with small portions within Zone AE elevations 8, 9, and 10. The parcel is located in the tsunami evacuation zone as established by the O'ahu Civil Defense.

A summary of the flood zones associated with each parcel is provided in the table below:

Project Location	FEMA Flood Zone
Kewalo Basin Park	Zone AE (Elev. 10); Zone VE (Elev. 10 &12)
Kaka'ako Gateway Park	Zone X; Zone AE (Elev. 6 & 7)
Kaka'ako Waterfront Park	Zone X; Zone VE (Elev. 10 & 12);
Look Lab	Zone AE (Elev. 8, 9, 10)

3.3 Project Requirements

Site grading will follow and conform to the intent of the redevelopment, any recommendations from the Soils Engineer, and Chapter 14, Article 15 of the Revised Ordinances of Honolulu as amended. All grading and construction work will comply with *Rules Relating to Soil Erosion Standards and Guidelines*, Department of Planning and Permitting, City and County of Honolulu, dated April 1999, to control soil erosion and ensure that the discharge of pollutants from the construction site will be reduced to the maximum extent practicable.

Temporary erosion control measures will be installed prior to any demolition and/or construction activities. Structural BMPs will include silt fence, filter sock, stabilized construction ingress/egress, concrete wash-out area, and sediment control filters at drain inlets and catch basins.

A topographic survey to include flood zone mapping will be required to determine the flood zone locations. New structures will be required to be constructed above the appropriate flood elevation. It should also be noted that the City and County of Honolulu will require any new building that straddles more than one flood zone be developed to comply with the most conservative zone. It is recommended the project architect discuss these requirements with the appropriate City agencies early on.

On-site grading and new building finish floor elevations will need to consider the storm drainage patterns with reference to the existing drainage system as well as flood hazard district elevations as shown in the Flood Hazards Map. All storm water in excess of that provided for under the existing condition will need to be retained, reused, or disposed of by percolation on site.

3.4 Proposed Improvements

At Kewalo Basin Park and Kaka'ako Gateway Park minor grading or earthwork shaping improvements are anticipated to improve the drainage pattern.

At the center of Kaka'ako Waterfront Park substantial grading improvements will be required to create a clear visual corridor between Ala Moana Beach Park and the ocean. Proposed grading improvements will strive to maintain existing drainage flow patterns and provide positive drainage for storm water runoff to be directed away from any proposed structures.

An environmental specialist should be consulted to review the proposed grading improvements and determine whether a revised landfill gas containment and collection plan is required.

4. STORM DRAINAGE SYSTEM

4.1 Background

Evaluation of the existing storm drainage system servicing the KCDD Makai area was based on review of available record topographic survey drawings of previous projects within the KCDD Makai vicinity, and on-site reconnaissance.

CCH owns and maintains the roadways and storm drainage systems at Ahui, Ohe, and Olomehani Streets. Runoff within the area is collected in catch basins or in piped connections from the individual parcels, and discharged into Kewalo Basin Harbor. The storm drainage system along Keawe Street is owned by HCDA. The two 9-foot by 11.5-foot box culverts and the 30-foot wide concrete channel discharge to Mamala Bay at the southern end of Keawe Street.

Drainage reports for the KCDD Makai area networks indicate that the majority of the subject parcels discharge into the adjacent roadway drainage systems. Drain pipe stub-outs to most of the parcels are provided, and the allowable runoff quantities that can be discharged are specified. The runoff flow quantities were based on business/industrial land use, with some landscape areas. The available capacity of the drainage system is therefore based on the designated land use.

4.2 Existing Conditions

The existing storm drainage system within the KCDD Makai Area is described below and shown on Figure 4-1.

<u>Kewalo Basin Park:</u>

Trench drains collect runoff from the paved parking lots and access roads and discharge via piped connections to Kewalo Basin Harbor. Runoff on landscaped areas and concrete walkways along the makai portion of the park sheet-flows to the ocean.

<u>Kaka'ako Gateway Park:</u>

Rainfall runoff on the mauka portion of Kaka'ako Gateway Park sheet-flows to the catch basins along Cooke Street. The makai portion of the park sheet-flows to the four (4) on-site drain inlets connected to the City storm drainage system at Cooke Street and Ohe Street.

Kaka'ako Waterfront Park:

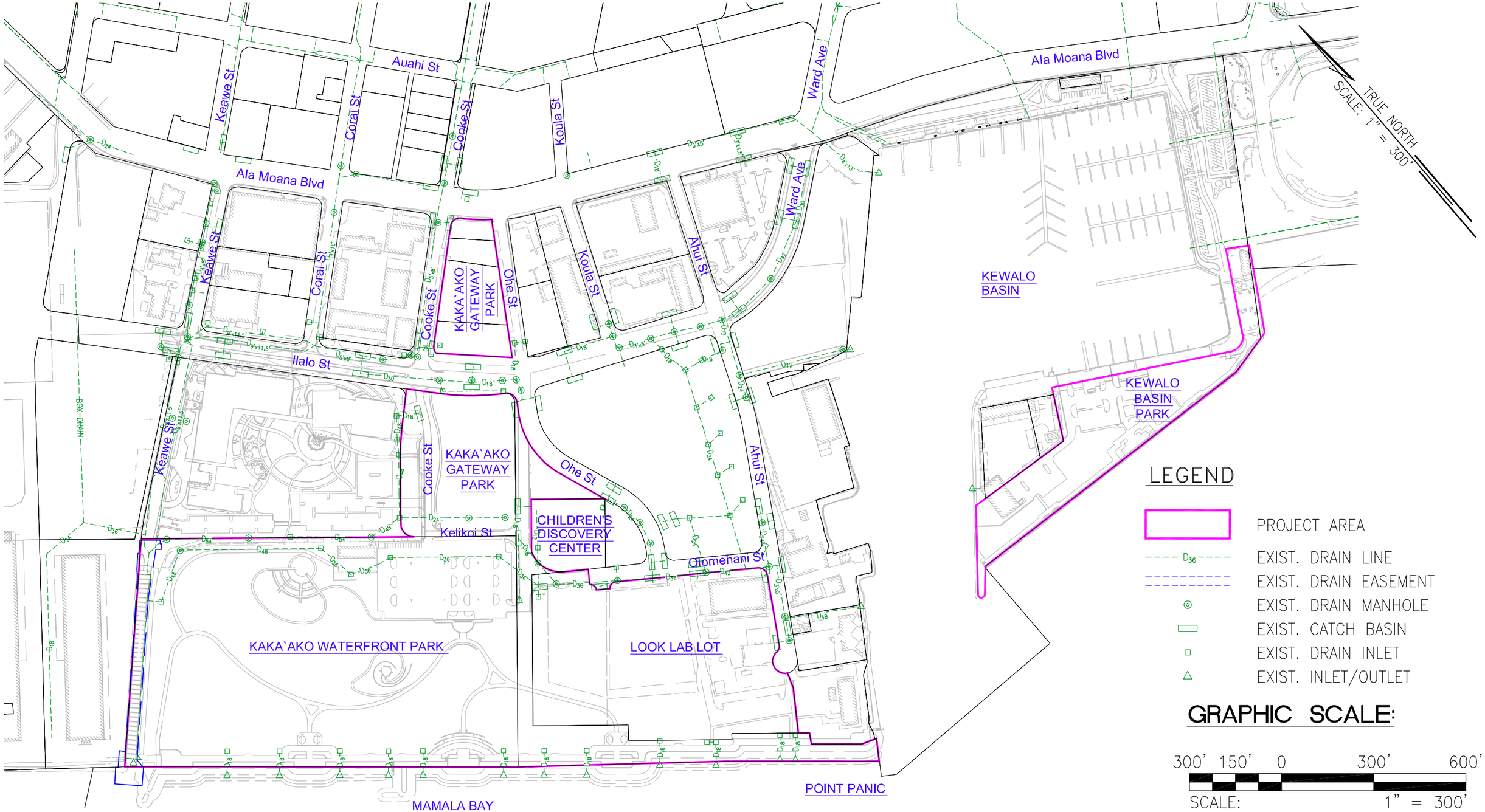
Rainfall runoff sheet-flows to inlets along the mauka and makai borders of the park. Drainage inlets within the parking lot and along the mauka portion of the property collect runoff and discharge into the 30-foot wide drainage canal at the end of Keawe Street via a 48-inch drainage outlet. A 40-foot wide HCDA drainage easement was established for the open drain channel and box culvert. Drainage inlets within the grassed areas along the makai portion of the property discharge to Mamala Bay.

Look Lab Lot:

Four 18-inch drain stub-outs are provided to the property from catch basins along the Olomehani and Ahui Street frontages (2 stub-outs along each street).

A summary of the existing roadway storm drainage systems fronting the parcels are in the table below:

Location	Existing Adjacent Drainage System
Kewalo Basin Park	18-inch drain outlet at west side of park.
Kaka'ako Gateway Park	5'x8' Box Drain along west boundary; 18-inch and 30-inch drain along Ilalo Street; 18-inch drain at Ohe Street and Ilalo Street intersection.
Kaka'ako Waterfront Park	36 and 48-inch drain along mauka boundary; Drain Inlets along makai boundary; 30-foot open drain channel outside west boundary.
Look Lab	36-inch and 42-inch drain along Olomehani St.; 3'x5' box drain along Ahui St.



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

EXISTING STORM DRAINAGE SYSTEM

Figure 4-1

4.3 Project Requirements

Drainage improvements and runoff rates for the proposed condition will be determined based on the *Rules Relating to Storm Drainage Standards*, Department of Planning and Permitting, City and County of Honolulu, dated January 2000. Increase in runoff due to the proposed improvements will be retained on-site to ensure that the project will not have any adverse effects on downstream properties.

In addition, the redevelopment will also be required to comply with the CCH's Section II - Standards for Storm Water Quality of the Drainage Standards, amended June 1 2013. Under the storm water quality standards, redevelopment projects that disturb over 1 acre of land are classified as Priority A projects.

Priority A1 projects (greater than 5 acres) are required (unless determined to be infeasible) to:

- Incorporate appropriate Low Impact Development (LID) site design strategies to the "maximum extent practicable" (MEP).
- Incorporate appropriate Source Control Best Management Practices (BMPs) to the MEP.
- Retain on-site by infiltration or evapotranspiration, the water quality volume (WQV).
- Biofilter any portion of the WQV that is not retained on-site with appropriate LID Biofiltration Post-Construction Treatment Control BMPs.

Priority A2 projects (between 1 and 5 acres) are required (unless determined to be infeasible) to:

- Incorporate appropriate LID site design strategies to the MEP.
- Incorporate appropriate BMPs to the MEP.
- Either retain on-site by infiltration or evapotranspiration, the WQV or biofilter any portion of the WQV that is not retained on-site with appropriate LID Biofiltration Post-Construction Treatment Control BMPs.

If it is determined to be infeasible to retain and/or biofilter the Water Quality Volume, the City will require:

- Either harvest/reuse, or treat (by detention, filtration, settling, or vortex separation) and discharge with appropriate Other Post-Construction Treatment Control BMPs, any portion of the WQV that is not retained on-site or biofiltered.
- Retain or biofilter at an offsite location, the volume of runoff equivalent to the difference between the project's WQV and the amount retained on-site or biofiltered.

Appropriate BMP measures include: infiltration basins and trenches, subsurface infiltration systems, dry wells, bioretention basins, permeable pavement, green roofs, vegetated bio-filters, enhanced swales, detention basins, sand filters, vegetated swales and buffer strips.

It is recommended that the redevelopment take the City's storm water quality standards into account early when developing the site plan as appropriate space must be allocated to implement storm water quality treatment facilities.

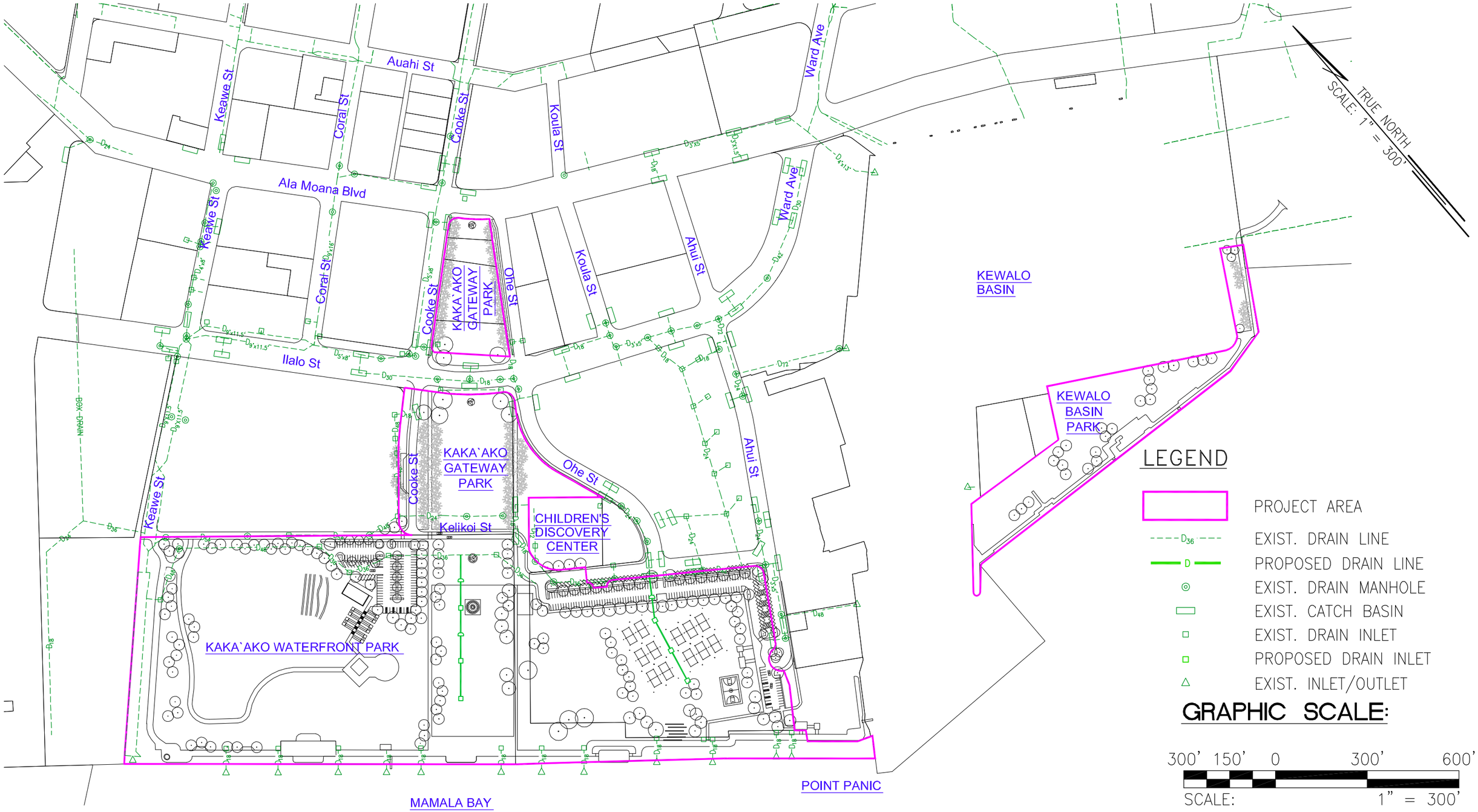
Future development and construction projects will require compliance with the associated Storm Water Management Program Plans (SWMPP). The SWMPP for Kewalo Basin Harbor and for Kaka'ako Community Development District outline procedures and directives for the existing development area and also dictate the post-construction storm water management of areas that are new or redeveloped which would discharge into the municipal separate storm sewer system (MS4).

4.4 Proposed Improvements

Minor on-site drainage system improvements are anticipated for Kewalo Basin Park and Kaka'ako Gateway Park. For Kaka'ako Waterfront Park, the proposed on-site storm drainage system will consist of a system of drain inlets, drain manholes, and underground piping (See Figure 4-2). Trenching for the underground storm drain piping shall follow the Soils Engineer's recommendations.

Line sizes, inlet locations, and storm water treatment requirements will be finalized during the design phase of the project. New site connections will be made to the existing drain system within the park. On-site storm water retention will be required if the proposed development results in an increase in storm water runoff. On-site retention and/or biofiltration will also be required to comply with the City Storm Water Quality

guidelines. Possible treatment options include vegetated swales and/or sand filters. Storm water quality measures shall be strategically located and take into consideration the subsurface incinerated ash and landfill materials.



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

CONCEPTUAL STORM DRAINAGE SYSTEM

Figure
4-2

5. SANITARY SEWER SYSTEM

5.1 Background

The sanitary sewer system within the KCDD Makai area is operated and maintained by the City and County of Honolulu's (CCH) Department of Environmental Services (ENV). The Department of Planning and Permitting's (DPP) Wastewater Branch (WWB) reviews and authorizes sewer connection applications.

The City and County's sewer system collects and transports sewage flows generated from each parcel to the Ala Moana pump station and eventually treated at the City and County's Sand Island Wastewater Treatment Plant.

5.2 Existing Conditions

The 2004 Kaka'ako Community Development District Makai Area Sewer Master Plan prepared by ParEn, Inc. for HCDA estimated that the three developed Makai Area Parks would generate an average daily flow of approximately 33,810 gpd. DPP Wastewater Branch (WWB) indicated that the sewers in the KCDD area were constructed in accordance with the 2004 Sewer Master Plan. See Figure 5-1 for the sanitary sewer system within the Kaka'ako Makai vicinity.

Kewalo Basin Park:

Park facilities are served by a 6-inch sewer lateral connected to a lift station and 4-inch sewer force main which discharges into an 8-inch sewer line and eventually the 36-inch sewer main in Ala Moana Boulevard.

Kaka'ako Gateway Park:

Sanitary sewer service is provided to the comfort station at the makai end of the park via a 4-inch sewer lateral which is connected to the 15-inch vitrified clay (VC) sewer main in Cooke Street. Record drawings also indicate two 6-inch VC lateral connections to the Ilalo street sewer main. These laterals appear to be inactive.

Kaka'ako Waterfront Park:

Sanitary sewer service is provided to the two comfort stations along the waterfront via a 6-inch sewer lateral which is connected to the to the 8-inch VC sewer line in Ahui Street.

The maintenance building is served by a 6-inch VC sewer lateral which is connected to the 15-inch sewer line in Cooke Street.

Look Lab Lot

Sanitary sewer service to the Look Lab Lot is provided via an 8-inch VC sewer lateral at the north portion of the parcel which is connected to the 12-inch sewer line in Olomehani Street.

A summary of the existing sewer mains serving the parks are in the table below:

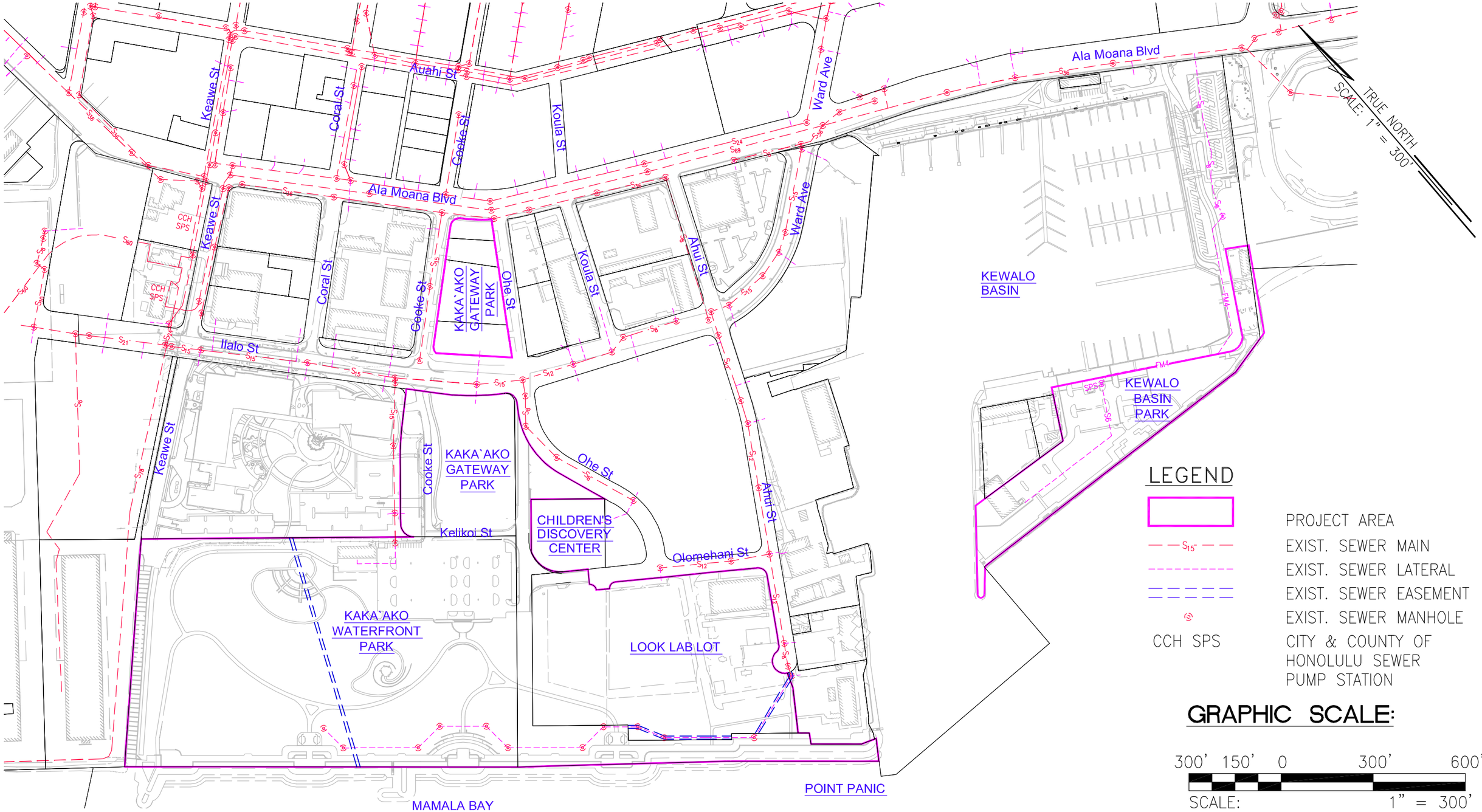
Location	Existing Adjacent City Sewer Mains
Kewalo Basin Park	36-inch sewer along Ala Moana Blvd.
Kaka'ako Gateway Park	15-inch sewer along Ilalo St.; 15-inch sewer west of Cooke St.
Kaka'ako Waterfront Park	8-inch sewer along Ahui St.; 15-inch west of Cooke St.
Look Lab	12-inch sewer along Olomehani St.; 12-inch sewer along Ahui St.

A summary of the existing sewer laterals serving the parks are in the table below:

Location	Existing Sewer Laterals
Kewalo Basin Park	6-inch gravity sewer and 4-inch sewer force main
Kaka'ako Gateway Park	(2) 6-inch sewer along Ilalo St. 4-inch sewer along Cooke Street
Kaka'ako Waterfront Park	8-inch sewer along Ahui St.; 6-inch sewer at Kelikoi St.
Look Lab	8-inch sewer along Olomehani

A summary of the existing sewer easements within the parks are in the table below:

Location	TMK	Existing Sewer Easements
Kaka'ako Waterfront Park	2-1-060: 008	10-foot wide sewer easement for abandoned 48-inch outlet pipe.
Look Lab	2-1-060: 029	10-foot wide sewer easement at southern boundary for 8-inch sewer lateral
		10-foot wide sewer easement at Ahui Street cul-de-sac for 8-inch sewer lateral



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

EXISTING SANITARY SEWER SYSTEM

Figure 5-1

5.3 Projected Flow Quantities

Proposed improvements at Kewalo Basin Park and Kaka'ako Gateway Park are not expected to generate any increase sewer in sewer quantities. Therefore, no sewer infrastructure improvements are anticipated.

Based on the conceptual program information provided by PBR and sewer generation rates from DOH, the estimated average daily flow for the proposed redevelopment at Kaka'ako Waterfront Park is summarized below:

Facility	**Projected Sewer Flows (gpd)**
Community Center	1,000
Comfort Station	500
Concession Stand	8,160
Pavilion (Point Panic)	800
Pavilion (Sports Complex)	1,000
Biergarten	7,200
Total=	**18,660**

Supporting calculations for the above are included in Appendix A.

Preliminary calculations indicate that the proposed sewer generation for the Master Plan redevelopment is less than the sewer generation quantity used in the 2004 Sewer Master Plan (33,810 gpd). As a result, downstream sewer lines appear to be adequate to accommodate the proposed project.

A preliminary sewer connection application based the current program information has been approved by WWB, indicating that the existing City sewer system is adequate to support the proposed project (See Appendix A).

Once an updated proposed program is developed and design plans are finalized, it is recommended that detailed sewage flow quantities be estimated and revised sewer connection applications for the parks be submitted to WWB.

Adequacy of the existing sewer lateral(s) serving each park will be verified during the design phase. Upon City approvals of the Sewer Connection Application(s), and

construction plans, along with payment of the sewer facilities charges, the proposed system can be connected to the City sewer system.

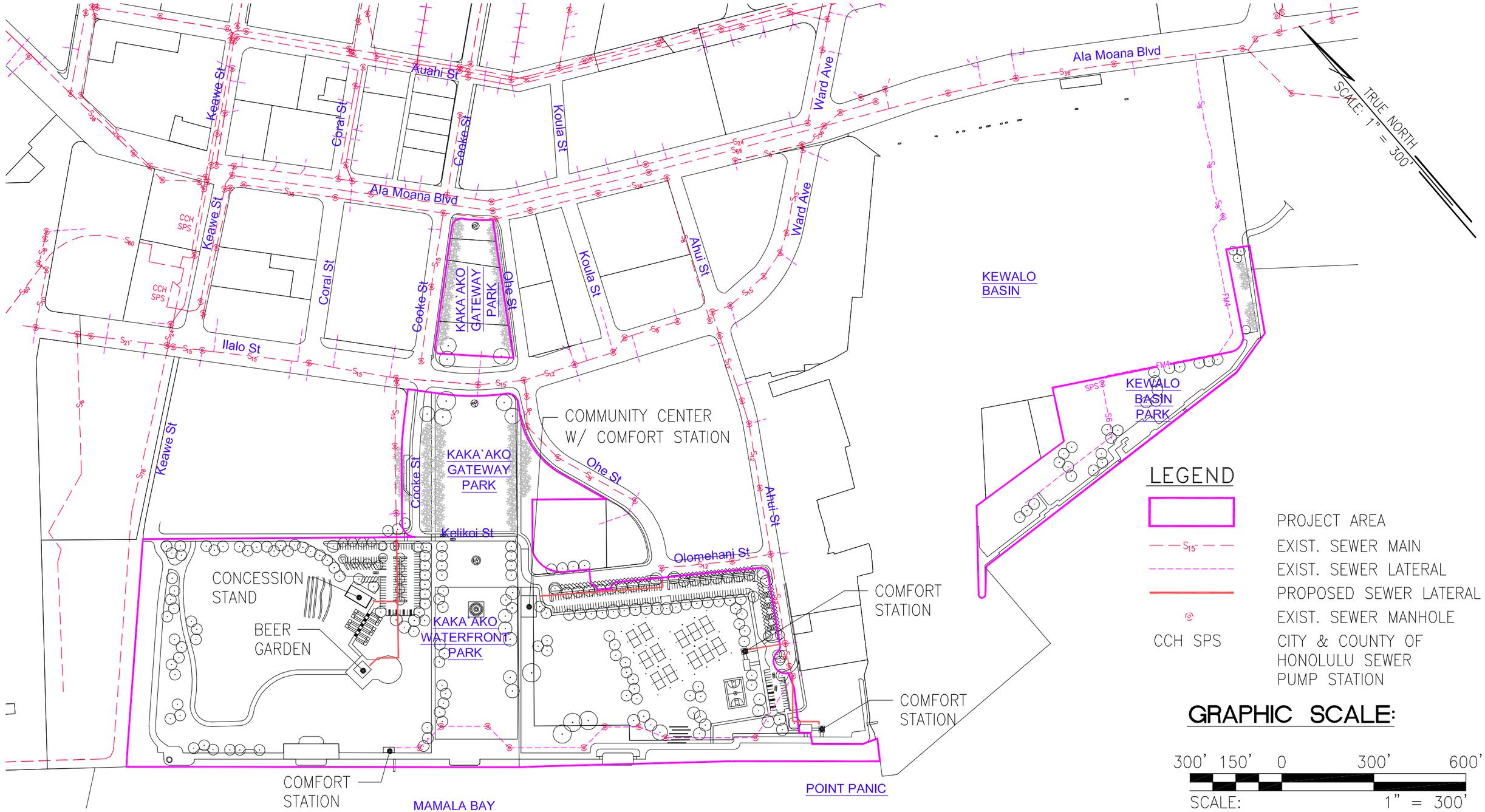
5.4 Proposed Improvements

Given that increases in sewer quantities are not expected for Kewalo Basin Park and Kaka'ako Gateway Park, minor on-site sewer system improvements are expected. The new on-site sanitary sewer collection system for the improvements at Kaka'ako Waterfront Park will consist of gravity sewer lines, clean-out-to-grade, and sewer manholes. Grease interceptors as specified by a mechanical consultant shall be provided for any proposed food preparation facilities. The proposed system will be connected to the City sewer system. Figure 5-2 shows the Conceptual Sanitary Sewer System Layout.

Generally, the existing sanitary sewer alignments can be maintained for the proposed improvements. Trenching for proposed underground piping shall follow the Soils Engineer's recommendations. The City and County will need to be consulted during the design phase for approval of any proposed sanitary sewer realignments and connections.

Jet Grouted Columns

Based on experience and information from nearby projects, the poor subsurface soil conditions within the Kaka`ako area, may require new sewer lines to be supported on jet grouted columns to avoid settlement of the sewer line. Requirements of jet grouted columns will have a significant cost impact on installation of new sewer lines. A geotechnical engineer will need to be consulted to determine the requirements for jet grouted columns.



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MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

CONCEPTUAL SANITARY SEWER SYSTEM

Figure 5-2

6. WATER SYSTEMS

6.1 Background

Potable water service to the project area is provided through the municipal water system of CCH's Board of Water Supply (BWS). Record information indicates that the existing water supply system was designed for industrial use, which has the highest fire flow demand of any land use at 4,000 gallons per minute (See Appendix B).

A table summarizing the existing BWS water mains within the Makai Area Parks vicinity is below:

Location	Existing Adjacent BWS Waterline
Kewalo Basin Park	12-inch water along Ala Moana Blvd.
Kaka'ako Gateway Park	12-inch water along Ala Moana Blvd.; 8-inch water along Cooke St.; 12-inch water along Ilalo St.; 8-inch water along Kelikoi St.
Kaka'ako Waterfront Park	12-inch water along Ahui St.; 8-inch water along Kelikoi St.
Look Lab Lot	12-inch water along Ahui St.; 12-inch water along Ohe St.; 12-inch water along Olomehani St.

6.2 Existing Conditions

The on-site water systems for the Makai Area Parks are described below. See Figure 6-1 for the existing water system within the project vicinity.

Kewalo Basin Park:

An 8-inch water lateral connected to the 12-inch BWS water main in Ala Moana Boulevard provides water to Kewalo Basin Park. BWS records indicate that a 2-inch meter (Premise ID# 2869649264) is in use by HCDA for water service.

Kaka'ako Gateway Park:

Two water connections provide water service to Kaka'ako Gateway Park. Irrigation for the grassy lawn mauka of Ilalo Street is served by a Type E water lateral connected to the 8-inch water main within Cooke Street. BWS records indicate that a 2-inch meter (Premise ID #5945065846) is assigned to HCDA for the irrigation connection. The comfort station at the makai end of the park is served by a Type E lateral connection

from the 8-inch water main within Kelikoi Street. Record drawings indicate that a 2-inch meter serves the existing comfort station. No Premise ID information was provided by BWS for the 2-inch meter.

Kaka'ako Waterfront Park:

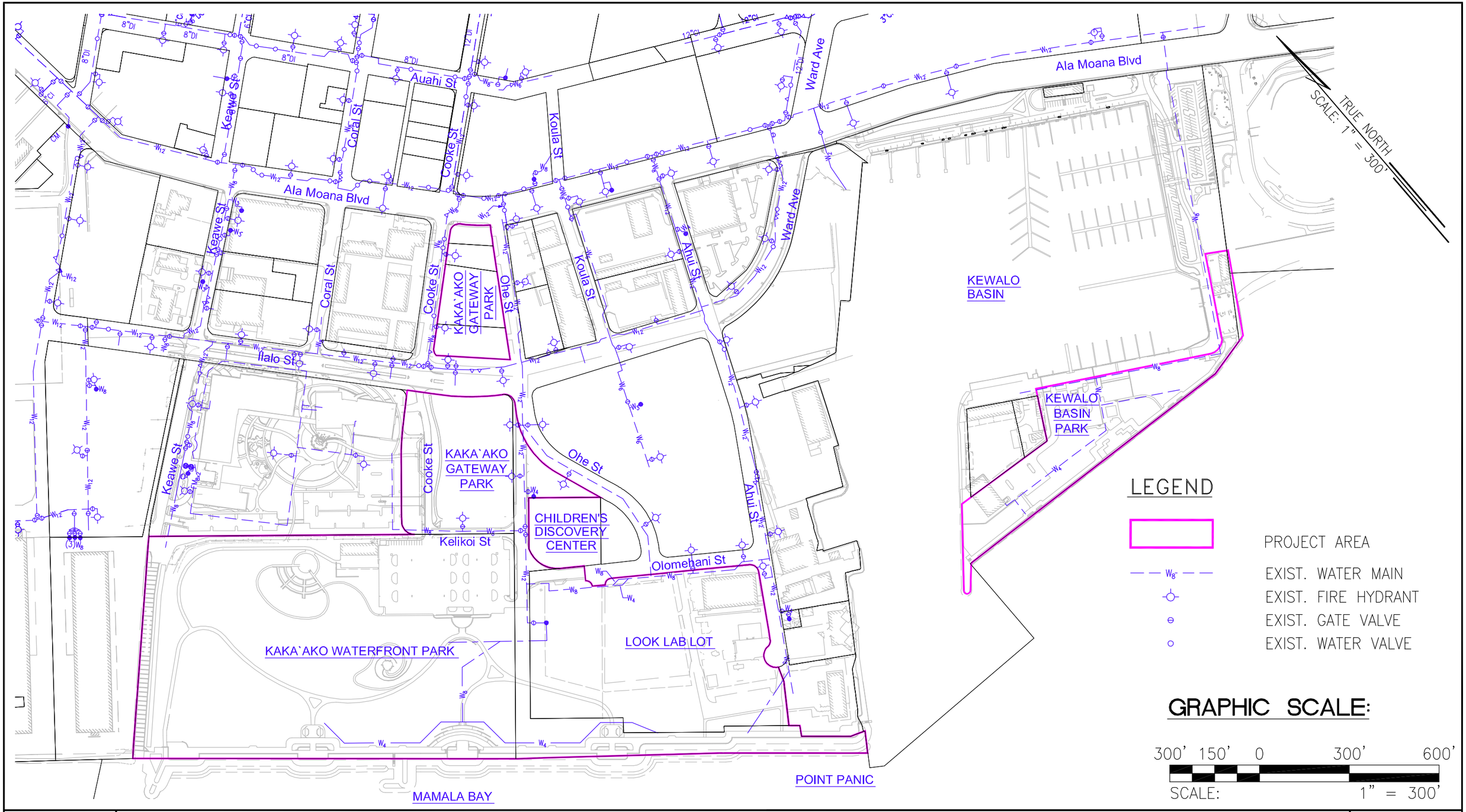
Three water connections provide water service to Kaka'ako Waterfront Park. The maintenance building is served by a 1-1/2-inch water lateral connected to the 8-inch BWS water main at the end of Cooke Street. A 1-inch water meter (Premise ID# 3169752593) is assigned to HCDA for the maintenance building water connection. The showers at Point Panic are served by a 1-1/2 inch water lateral connected to the 12-inch BWS water main at the end of Ahui Street. A 2-inch water meter (Premise ID# 3785610712) is assigned to HCDA for the showers at Point Panic. Water service for the comfort stations along the makai portion of the park is provided by the 8-inch FM meter within the Look Lab Lot.

Look Lab Lot

The BWS water system in the vicinity of the Look Lab Lot consists of 12-inch and 8-inch mains running along Olomehani Street and Ahui Street. BWS records indicate that an active 8-inch FM meter (Premise ID# 1318308628) at Olomehani Street is assigned to HCDA for water service. Record drawings show 4-inch and 8-inch water connections to the property. The FM meter also provides water to the comfort stations at Kaka'ako Waterfront Park.

A table summarizing the existing water meters serving the parks is below:

Location	Existing BWS Water Meter Size(s)
Kewalo Basin Park	2"
Kaka'ako Gateway Park	2"
Kaka'ako Waterfront Park	1" 2"
Look Lab Lot	8" FM



WILSON OKAMOTO CORPORATION

MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

EXISTING WATER SYSTEM

Figure
6-1

6.3 Projected Demands

Potable water demands were derived from the project's program requirements and the domestic consumption guidelines and fire flow requirements provided in the City and County of Honolulu Board of Water Supply *Water System Standards* dated 2002. Domestic consumption and fire flow were based on the proposed commercial areas and an industrial land use, respectively.

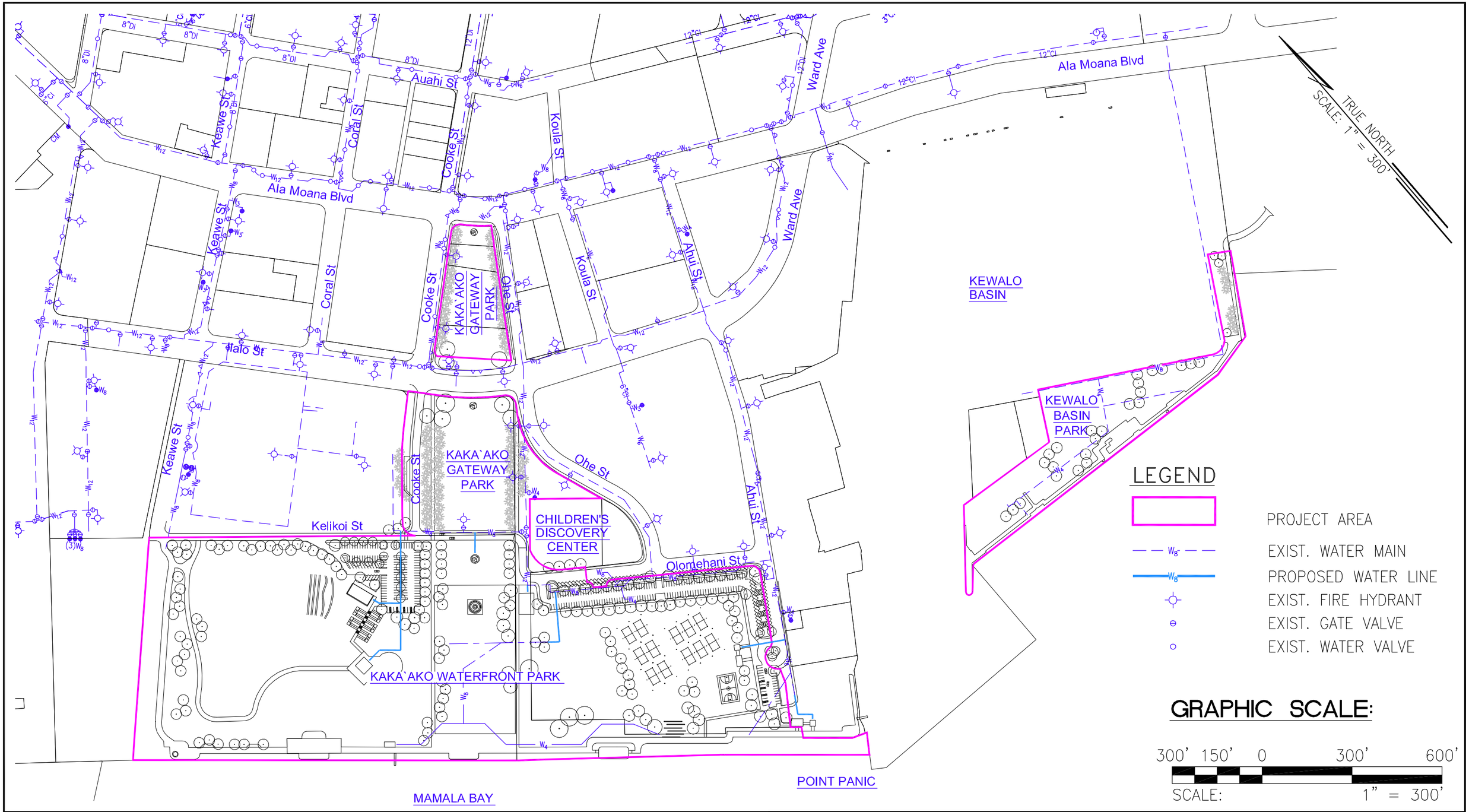
Based on the information from the proposed program provided by PBR, there will be no anticipated increase in the domestic maximum daily demand for Kewalo Basin Park and Kaka'ako Gateway Park. The estimated additional domestic maximum daily demand for the redevelopment of Kaka'ako Waterfront Park is 21,160 gal/day. The supporting calculations are included in Appendix B.

6.4 Proposed Improvements

Minor on-site water system improvements are anticipated for Kewalo Basin Park and Kaka'ako Gateway Park. Water system improvements at Kaka'ako Waterfront Park will consist of water lines, backflow preventers, and valves upstream of the water meter. Trenching and backfilling of proposed water lines shall follow the Soils Engineers recommendations. During the design phase, the calculated water demands from the proposed project will determine whether the existing water meter(s) and lateral(s) servicing each park can be reused or if a new meter and lateral will be required. New building connections will be made to the existing water mains. New fire hydrants and fire access roads will be provided as required to ensure adequate fire protection for the adjacent buildings. Figure 6-2 shows the Conceptual Water System Layout.

A preliminary water availability request letter for the proposed project has been approved by BWS confirming that the existing water system is adequate to accommodate the proposed project (See Appendix B).

Once an updated proposed program is developed and design plans are finalized, it is recommended that revised water availability request letter(s) be submitted to BWS for review and approval. The final decision on the availability of water will be confirmed when the building permit application(s) is submitted for approval.



WILSON OKAMOTO CORPORATION

MAKAI AREA PARKS MASTER PLAN
HONOLULU, HAWAI`I

CONCEPTUAL WATER SYSTEM

Figure 6-2

7. REFERENCES

1. "Flood Insurance Rate Map, City and County of Honolulu, Hawaii, Community Panel Number 150003 C0362 G," Federal Emergency Management Agency, Federal Insurance Administration, January 19, 2011.

2. "Rules Relating to Storm Drainage Standards", Department of Planning and Permitting, City and County of Honolulu, January 2000.

3. "Water System Standards", Board of Water Supply, City and County of Honolulu, 2000.

4. "Design Standards of the Department of Wastewater Management, Volume 1", Department of Wastewater Management, City and County of Honolulu, July 1993.

5. "Due Diligence Investigation of Kaka'ako Makai Parcels, Appendix 13," Belt Collins Hawaii, LLC., February 2012.

6. "Kaka'ako Community Development District Makai Area Sewer Master Plan," ParEn, Inc. September 2004.

APPENDICES

Appendix A

Sewer

PRELIMINARY ENGINEERING REPORT
MAKAI AREA PARKS MASTER PLAN
WASTEWATER FLOW CALCULATIONS
MARCH 2016

EXISTING SEWER DEMAND BASED ON 2004 MASTER PLAN

SEWER LOCATION			AREA	Trib. Equivalent Population	Average Daily Flow
LOCATION	Type of Use / Unit	Contribution Gal/Unit/Day	(Acres)	(Capita/Zone)	(gpd)
KEWALO BASIN PARK	Park	80	5.80	58	4,640
KAKAAKO GATEWAY PARK	Park	5	5.58	104	520
KAKAAKO WATERFRONT PARK	Park	5	10.28	3,330	16,650
LOOK LAB	Park	5	11.30	2,400	12,000

Total Flow Existing = 33,810

Reference:

Design Standards of the Department of Wastewater Management, Volume I, July 1993,
Department of Wastewater Management, City and County of Honolulu

Kakaako Community Development District Makai Area Sewer Master Plan," ParEn, Inc., September 2004.

PRELIMINARY ENGINEERING REPORT
MAKAI AREA PARKS MASTER PLAN
SEWER DEMAND CALCULATIONS
MARCH 2016

PROPOSED CONDITIONS

SEWER LOCATION			AREA	Trib. Equivalent Population	Average Daily Flow
LOCATION	Type of Use / Unit	Contribution Gal/Unit/Day	(Acres)	(Capita/Zone)	(gpd)
KEWALO BASIN PARK	Park	80	5.80	58	4,640
KAKAAKO GATEWAY PARK	Park	5	5.58	104	520

Subotal = 5,160

KAKAAKO WATERFRONT PARK - PROPOSED IMPROVEMENTS

Type of Use / Unit	Area (sf)	Trib. Equivalent Population (Capita/Zone)	Contribution Gal/Unit/Day	Average Daily Flow (gpd)
Community Center	3,500	200	5	1,000
Comfort Station	650	100	5	500
Concession Stand	3,400	102	80	8,160
Pavilion (Point Panic)	1,000	80	10	800
Pavilion (Sports Complex)	720	100	10	1,000
Biergarten	3,000	90	80	7,200

Subotal = 18,660

Total Proposed Flow= 23,820 gpd

Reference:
Appendix F, Table 1 - HAR, Title 11 Chapter 62, April 1997, Department of Health, State of Hawaii

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 768-8209 * Fax: (808) 768-4210

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2016/SCA-0021** STATUS: **Approved**
DATE RECEIVED: **01/05/2016** IWDP APP. NO.:
PROJECT NAME: **2016/SCA-0021 Makai Parks Master Plan**

LOCATION:

Zone	Section	Plat	Parcel		
2	1	060	029	751 OLOMEHANI ST Honolulu / Do\	417,000 Sq. Ft.
2	1	060	030		176,462 Sq. Ft.
2	1	060	008		914,760 Sq. Ft.

SPECIFIC LOCATION: **102 Ohe St.**

APPLICANT: **Wilson Okamoto Corporation**
ATTN. Mason M. M. Suga
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

DEVELOPMENT TYPE: **Commercial (Misc.)**
SEWER CONNECTION WORK DESIRED:

OTHER USES: **Concession Stand and Beer Garden**
Community Center
Pavilion

NON-RESIDENTIAL AREA: s.f.
APPROXIMATE DATE OF CONNECTION:

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **0**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios:	Studios:	Studios:
1-Bedroom:	1-Bedroom:	1-Bedroom:
2-Bedroom:	2-Bedroom:	2-Bedroom:
3-Bedroom:	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Wastewater System Facility Charges may apply pending water meter installation or size increase. An IWDP may be required.**

APPROVAL DATE: **01/25/2016**

EXPIRATION DATE: **01/24/2018**

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
** Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.*

REVIEWED BY: ***Keith Miyashiro***

Site Development Division, Wastewater Branch

ExternalID: **056597226-001** JobId: **56597226**

Initial Print Date: Monday January 25, 2016 1:27 pm

Appendix B

Water

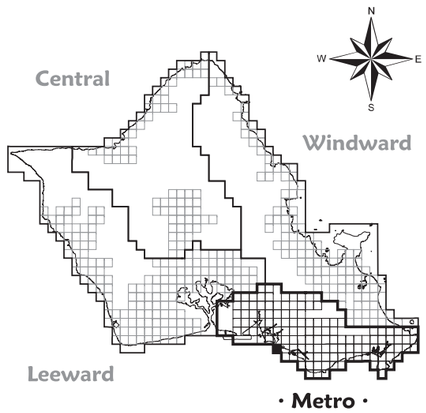
PRELIMINARY ENGINEERING REPORT
MAKAI AREA PARKS MASTER PLAN
EXISTING HYDRANT WATER PRESSURE AND FLOW
MARCH 2016

Location	Hydrant No.	Static Pressure (psi)	Residual Pressure (psi)	Fire-Flow Demand (gpm)
Ala Moana Boulevard	M00147	76	54	4,000.00
Ilalo Street	M00148	76	54	4,000.00
Ala Moana Boulevard	M00149	76	54	4,000.00
Ahui Street	M00150	76	51	4,000.00
Ilalo Street	M00151	76	48	4,000.00
Ala Moana Boulevard	M00152	76	54	4,000.00
Ala Moana Boulevard	M00153	76	57	4,000.00
Ala Moana Boulevard	M00154	76	54	4,000.00
Ala Moana Boulevard	M00155	76	58	4,000.00
Ala Moana Boulevard	M00156	76	58	4,000.00
Channel Street	M00157	76	54	4,000.00
Channel Street	M00158	76	56	4,000.00
Ala Moana Boulevard	M01725	76	54	4,000.00
Ala Moana Boulevard	M01726	76	58	4,000.00
Ala Moana Boulevard	M01765	76	51	4,000.00
Ala Moana Boulevard	M01766	76	47	4,000.00
Ahui Street	M02257	76	53	4,000.00
Ohe Street	M02258	76	51	4,000.00
Ala Moana Boulevard	M03416	76	58	4,000.00
Channel Street	M03417	76	53	4,000.00
Channel Street	M03418	76	54	4,000.00
Channel Street	M03419	76	54	4,000.00
Channel Street	M03420	76	56	4,000.00
Ilalo Street	M03840	76	54	4,000.00
Ilalo Street	M03841	76	54	4,000.00
Ohe Street	M03842	76	54	4,000.00
Ilalo Street	M04071	75	53	4,000.00
Ilalo Street	M04072	76	53	4,000.00
Ilalo Street	M04073	76	53	4,000.00
Ilalo Street	M04074	76	53	4,000.00
Keawe Street	M04075	76	49	4,000.00
Keawe Street	M04076	76	46	4,000.00
Forrest Avenue	M04300	76	53	4,000.00
Forrest Avenue	M04301	76	53	4,000.00
Forrest Avenue	M04302	76	53	4,000.00
Forrest Avenue	M04303	76	52	4,000.00
Cooke Street	M04683	76	46	4,000.00
Cooke Street	M04684	76	47	4,000.00
Forrest Avenue	M04866	76	51	4,000.00
Forrest Avenue	M04867	76	51	4,000.00
Forrest Avenue	M04868	76	51	4,000.00
Halo Street	M05032	76	54	4,000.00

PRELIMINARY ENGINEERING REPORT
MAKAI AREA PARKS MASTER PLAN
EXISTING HYDRANT WATER PRESSURE AND FLOW
MARCH 2016

Location	Hydrant No.	Static Pressure (psi)	Residual Pressure (psi)	Fire-Flow Demand (gpm)
Ahui Street	M05033	76	53	4,000.00
Ahui Street	M05034	76	52	4,000.00
Channel Street	M05375	76	54	4,000.00
Channel Street	M5376	76	54	4,000.00
Channel Street	M05377	76	55	4,000.00
Ohe Street	M06152	75	52	4,000.00
Ohe Street	M06153	76	51	4,000.00
Olomehana Street	M06154	76	48	4,000.00
Ahui Street	M06728	76	49	4,000.00
Ala Moana Boulevard	M07340	76	54	4,000.00
Ala Moana Boulevard	M07358	76	54	4,000.00
Ala Moana Boulevard	M07359	76	55	4,000.00
Ohe Street	M07360	76	54	4,000.00
Koula Stret	M07361	76	48	4,000.00
Ahui Street	M07362	76	53	4,000.00
Ala Moana Boulevard	M07363	76	54	4,000.00
Ala Moana Boulevard	M07364	76	58	4,000.00
Ilalo Street	M07562	76	54	4,000.00
Ilalo Street	M07563	76	54	4,000.00
Ilalo Street	M07633	76	53	4,000.00
Coral Street	M07634	76	44	4,000.00

Tile: R37C43 (Metro)



LEGEND

WATER MAIN TYPES
- Service
- Bypass
- Distribution
- Lateral
- Maintenance
- Transmission
- Private
- Non-Potable

PIPE CASINGS
- Concrete Jacket over DI pipe
- Pipeline Tunnel

MISCELLANEOUS
- Building Footprint
- Facility
- Inset Frame
- Stream Centerline

MATERIALS

AC	ASBESTOS CEMENT
AC-JM	AC-JOHNS MANSVILLE
AC-KM	AC-KEASBEY MATTISON
CC	CONCRETE CYLINDER
CC-A	CC-AMERICAN
CC-H	CC-HAWAII
CC-S	CC-SOUTHERN
CI	CAST IRON
CU	COPPER
DI	DUCTILE IRON
GI	GALVANIZED IRON
PVC	POLYVINYL CHLORIDE
STL	STEEL
CP	CATHODIC PROTECTION
NP	NON-POTABLE

BILLING METERS
- CM Compound
- DC Detector Check
- FM FM
- Unknown

FITTINGS
- Cut & Plug
- Emergency Connection
- Flow Tube
- Reducer
- Transition Coupling

FIRE HYDRANT
- Fire Hydrant
- 99 No Fire Hydrant Number

OPERATIONAL METERS
- FL Flow
- MS Master
- TUR Turbine
- Unknown
- Venturi

PUMPS
- Lift
- Line
- Source

RESERVOIR
- Reservoir

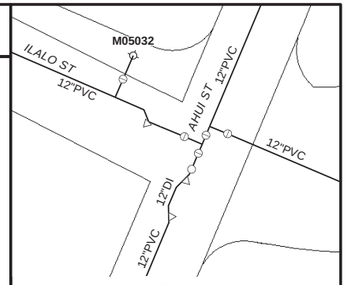
SOURCES
- Shaft
- Source Well
- Spring
- Tunnel
- Unknown

VALVES
- Air Release
- Air Release BFV
- Air Release BGGV
- Air Release Gate
- Altitude
- Backflow Preventor
- Bevel Gear Gate
- Butterfly
- Check
- Closed
- Control
- English
- Flap
- Float
- Gate
- Pressure Reducing
- Pressure Relief
- Pressure Sustaining
- Solenoid Control
- Spur Gear Gate
- Square Bottom Bevel Gear
- Stopcock
- Tapping
- Unknown

WATER TREATMENT PLANTS
- Aeration
- Blender
- Chlorination
- GAC
- Recycled Water Facility
- Sand Filtration

This map is a schematic representation of the water distribution system. Some features have been exaggerated for clarity & may not be to scale.

Revisions as of: 4/25/2006



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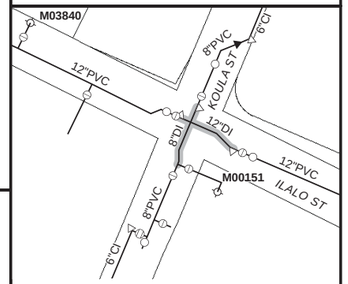

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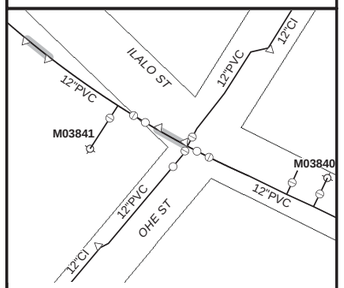

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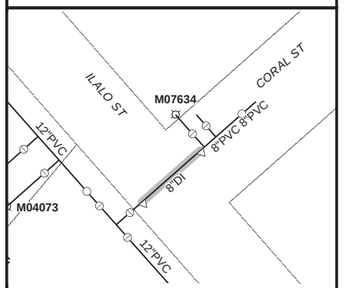

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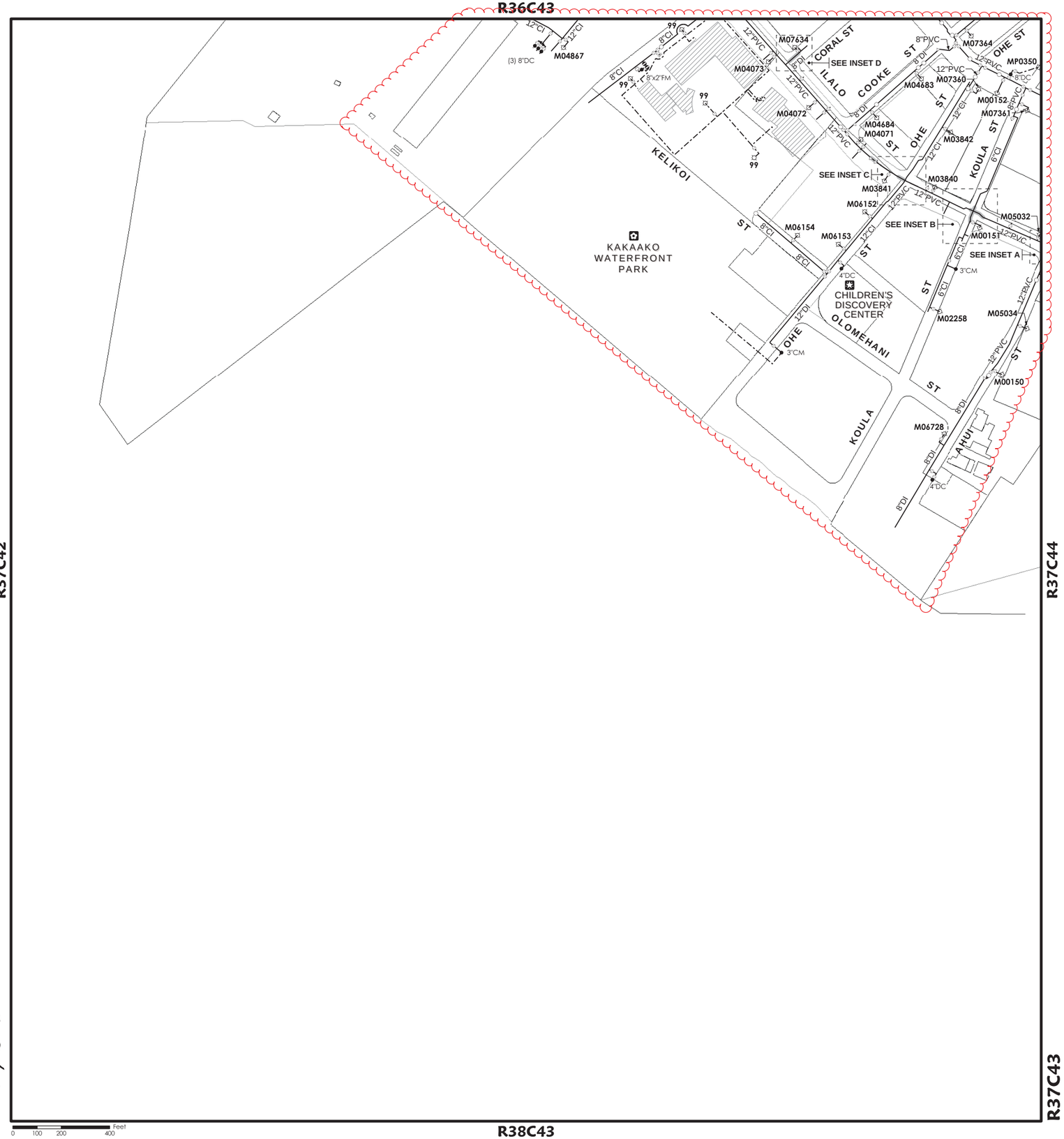

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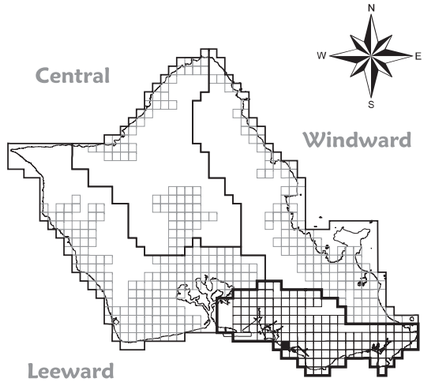

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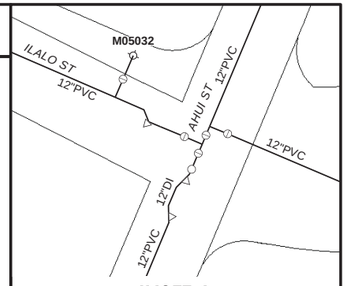

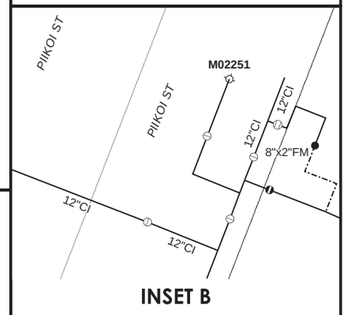

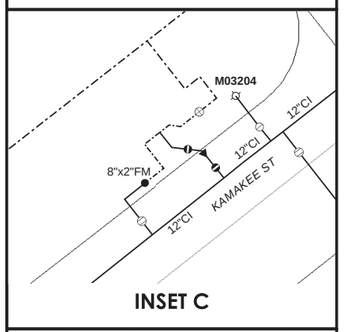

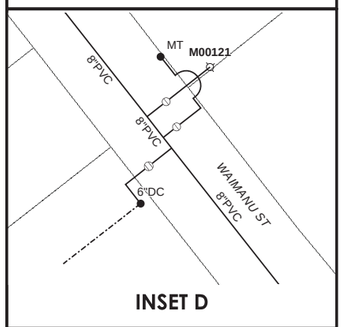

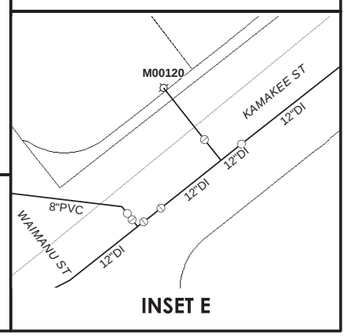

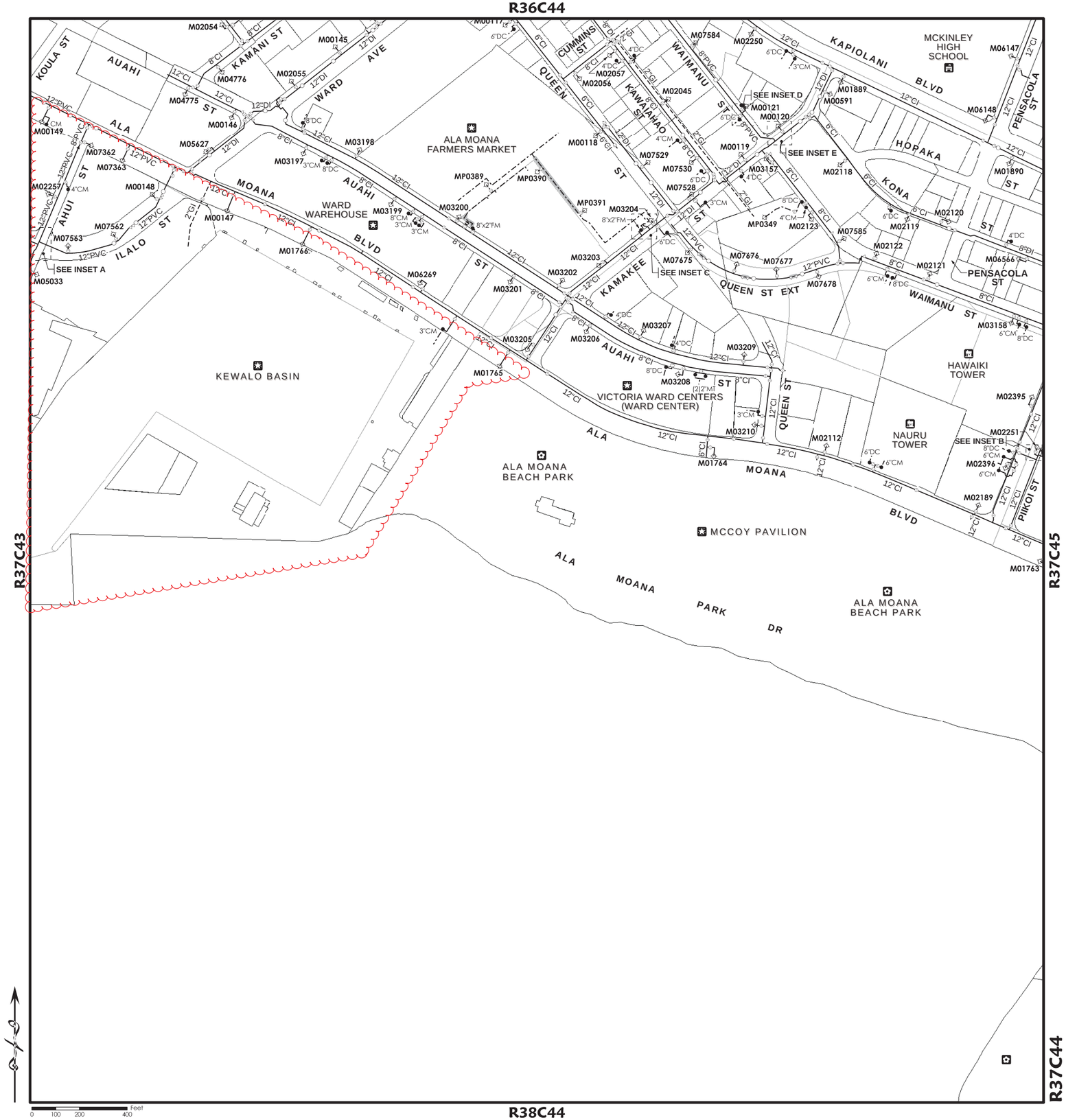

PRELIMINARY ENGINEERING REPORT
MAKAI AREA PARKS MASTER PLAN
WATER DEMAND CALCULATIONS
MARCH 2016

KAKAAKO WATERFRONT PARK - PROPOSED IMPROVEMENTS

Facility	Area	Population	Gal/Person/Day	Avg daily Water Demand
Community Center	3,500	200	5	1,000
Concession Stand	3,400	102	80	8,160
Pavilion (Point Panic)	1,000	80	10	800
Pavilion (Sports Complex)	720	100	10	1,000
Biergarten	3,000	90	80	7,200
Water Splash Pad (Recirculated)	4,000	-	-	3,000
			Total=	**21,160**

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

January 28, 2016

Mr. Mason M. M. Suga, P.E., LEED AP
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Suga:

Subject: Your Letter Dated Requesting the Availability of Water to the Parks in the Makai Area Parks Master Plan – Tax Map Key: 2-1-058:131; 2-1-059:023, 024, 025, 026; 2-1-060:007, 008, 030, 029

Thank you for your letter regarding the proposed Kakaako Gateway, Kakaako Waterfront, and Kewalo Basin Parks.

The existing water system is adequate to accommodate the proposed improvements at the parks in Kakaako Makai and Kewalo Basin. 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 daily storage.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

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

Appendix F:
TRAFFIC ASSESSMENT REPORT

Traffic Assessment Report

Makai Area Parks Master Plan

Prepared for:
PBR Hawaii

Prepared by:
Wilson Okamoto Corporation

January 2016

TRAFFIC ASSESSMENT REPORT

FOR THE

MAKAI AREA PARKS MASTER PLAN

Prepared for:

PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #10037-01

January 2016

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICIES

I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to assess traffic conditions with the implementation of the Makai Area Parks Master Plan in Kakaako on the island of Oahu. The proposed project entails improvements to Kewalo Basin Park, Kakaako Gateway Park, and Kakaako Waterfront Park to provide sustainable, family-friendly, active uses and gathering places within the project vicinity.

B. Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of baseline roadway and traffic operations in the vicinity.
3. Analysis and development of trip generation characteristics for the proposed project.
4. Superimposing site-generated traffic over future traffic conditions.
5. Analysis of future roadway and traffic conditions with the proposed project.
6. Recommendations of improvements, if appropriate, that would mitigate traffic conditions with the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site encompasses several parks south of Ala Moana Boulevard in Kakaako on the island of Oahu (see Figure 1). The Kakaako Waterfront Park and Kakaako Gateway Park are located adjacent to each other and are generally bounded by Keawe Street to the west, Ohe Street and Ahui Street to the east, and Ala Moana Boulevard to the north. The Kewalo Basin Park is located along the south side of Kewalo Basin Harbor east of the other two parks. The parks are further identified by Tax Map Keys (TMKs) 2-1-060: por. 007, 008, 029, 030, 2-1-059: 023, 024, 025, 026, and 2-1-058 por.: 131. Primary access to Kakaako Waterfront Park and Kakaako Gateway Park are provided via Cooke Street and Ohe Street with access to Kewalo Basin Park provided via an access road off Ala Moana Boulevard that is shared with Kewalo Basin Harbor.

WILSON OKAMOTO CORPORATION

MAKAI AREA PARKS MASTER PLAN

LOCATION MAP & VICINITY MAP

FIGURE 1

B. Project Characteristics

The Makai Area Parks Master Plan is expected to be implemented in four major phases over the next 20 years and entails improvements to the Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park. The Kakaako Waterfront Park currently encompasses approximately 39 acres and includes an amphitheater, a network of trails, and an oceanfront promenade while the Kakaako Gateway Park encompasses approximately 7.8 acres and consists of two open, flat grass fields. The Kewalo Basin Park is a small park adjacent to Kewalo Basin Harbor that encompasses approximately 5.8 acres and currently includes a walking path and some amenities.

Phases 1 to 3 of the proposed Master Plan primarily include improvements to the Kakaako Waterfront Park and Kewalo Basin Park that are expected to be completed by the Year 2025. Minimal improvements are anticipated for the Kakaako Gateway Park. The proposed improvements include the following:

Kakaako Waterfront Park

- Construction of a new two-way, two-lane roadway between Keawe Street and Kelikoi Street along the north edge of the park. Access to the new roadway is expected to be restricted to service vehicles during normal hours, but may be opened for public use during large events and/or as warranted.
- Development of a park entry and non-vehicular connections to Keawe Street.
- Reconfiguration of the existing at-grade parking area to convert a portion of the parking area into a new plaza area.
- Construction of new at-grade parking areas along Olomehani Street and Ahui Street.
- Grading improvements at the center of the park to create clear visual access from Ala Moana Boulevard to the ocean.
- Construction of additional park facilities including comfort stations and at-grade parking areas, as well as recreational facilities such as sand volleyball courts with bleachers, an accessible children's play area, and a splashpad within the new plaza area.

Kewalo Basin Park

- Construction of a non-vehicular connection to Ala Moana Beach Park.
- Grading and landscape improvements to improve the park's drainage and appearance.

Phase 4 is expected entail improvements to the Kakaako Waterfront Park that are expected to be completed by the Year 2035. These improvements include the following:

Kakaako Waterfront Park

- Development of a Community Center (~3,500 sf) near the center of the park.
- Relocation of the existing amphitheater to the south side of the park near the ocean. The new amphitheater is expected to be larger than the existing facility with a maximum capacity of 5,000-7,000 people.
- Construction of an additional children's play area on the north side of the park with slides and play apparatus.
- Construction of a Biergarten overlooking the new amphitheater (~3,000 sf), as well as, additional food concessions near the north side of the park.

Figure 2 shows the proposed project site plan.

III. BASELINE TRAFFIC CONDITIONS

A. Area Roadway System

At the northeast corner of the Kakaako Gateway Park, Cooke Street intersects Ala Moana Boulevard. Cooke Street originates at Kelikoi Street as a two-lane, two-way roadway that transitions into a four-lane roadway north of Ilalo Street. At the signalized intersection with Ala Moana Boulevard, both approaches of Cooke Street have an exclusive right-turn lane and a shared left-turn and through lane. In the vicinity of the project site, Ala Moana Boulevard is a predominantly six-lane, two-way roadway generally oriented in the east-west direction. At the intersection with Cooke Street, both approaches of Ala Moana Boulevard have an exclusive left-turn lane, two through lanes, and a shared through and right-turn lane.

East of the intersection with Cooke Street, Ala Moana Boulevard intersects Ohe Street. At this unsignalized intersection both approaches of Ala Moana Boulevard have two through lanes and a shared through and right-turn lane. Ohe Street is a two-lane, two-way roadway generally oriented in the north-south direction between Ala Moana Boulevard and Olomehani Street. At the intersection with Ala Moana Boulevard, Ohe Street has one stop-controlled lane that serves right-turn traffic movements.

Further east, Ala Moana Boulevard intersects an access roadway serving the Kewalo Basin Park and Kewalo Basin Harbor. At this signalized intersection, the westbound approach of Ala Moana Boulevard has three through lanes while the eastbound approach has two through lanes and a shared through and right-turn lane.

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MAKAI AREA PARKS MASTER PLAN

PROPOSED SITE PLAN

FIGURE 2

The access road approach of the intersection has exclusive left-turn and right-turn lanes at this intersection.

South of Ala Moana Boulevard, Cooke Street intersects Ilalo Street. At this all-way stop intersection, the northbound approach of Cooke Street has one lane that serves all traffic movements while the southbound approach has an exclusive right-turn lane and an exclusive left-turn lane. Ilalo Street is a predominantly two-lane, two-way roadway generally oriented in the east-west direction. At the intersection with Cooke Street, both approaches of Ilalo Street have one lane that serves all traffic movements.

East of the intersection with Cooke Street, Ilalo Street intersects Ohe Street. At this unsignalized intersection, both approaches of Ilalo Street have one lane that serves all traffic movements. The northbound approach of Ohe Street has an exclusive left-turn lane and a shared through and right-turn lane at this intersection while the southbound approach has one lane that serves all traffic movements.

At the southeast corner of the Kakaako Gateway Park, Cooke Street intersects Kelikoi Street. At this unsignalized t-intersection, the southbound approach of Cooke Street has one lane that serves left-turn and through movements. Kelikoi Street is a two-lane, two-way roadway generally oriented in the east-west direction between the Children's Discovery Center and Cooke Street. It should be noted that Kelikoi Street is connected to Olomehani Street by a short private roadway. At the intersection with Cooke Street, the Kelikoi Street approach has one stop-controlled lane that serves left-turn and right-turn movements. The northbound approach of the intersection is comprised of a driveway for the Kakaako Waterfront Park parking area which has one lane that serves through and right-turn traffic movements.

Southeast of the Cooke Street and Kelikoi Street intersection, Ohe Street intersects Olomehani Street. At this unsignalized intersection, the southbound approach of Ohe Street has one stop-controlled lane that serves left-turn and right-turn traffic movements. Olomehani Street is a two-lane, two-way roadway generally oriented in the east-west direction between the Kakaako Waterfront Park and Ahui Street. At the intersection with Ohe Street, both approaches of Olomehani Street have one lane that serve the allowed traffic movements.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

Field investigations conducted in March 2015 and May 2015 were supplemented by field investigations conducted in November 2015. These investigations consisted of manual turning movement count surveys during the morning peak hours between 6:00 AM and 9:00 AM, and the afternoon peak hours between 3:00 PM and 6:00 PM at the following intersections:

- Ala Moana Boulevard and Cooke Street
- Ala Moana Boulevard and Ohe Street
- Ala Moana Boulevard and Kewalo Basin Access Road
- Ilalo Street and Cooke Street
- Ilalo Street and Ohe Street
- Cooke Street and Kelikoi Street
- Ohe Street and Olomehani Street

Appendix A includes the baseline traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Synchro" software, developed by Trafficware. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak periods of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand

exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

2. Baseline Peak Hour Traffic

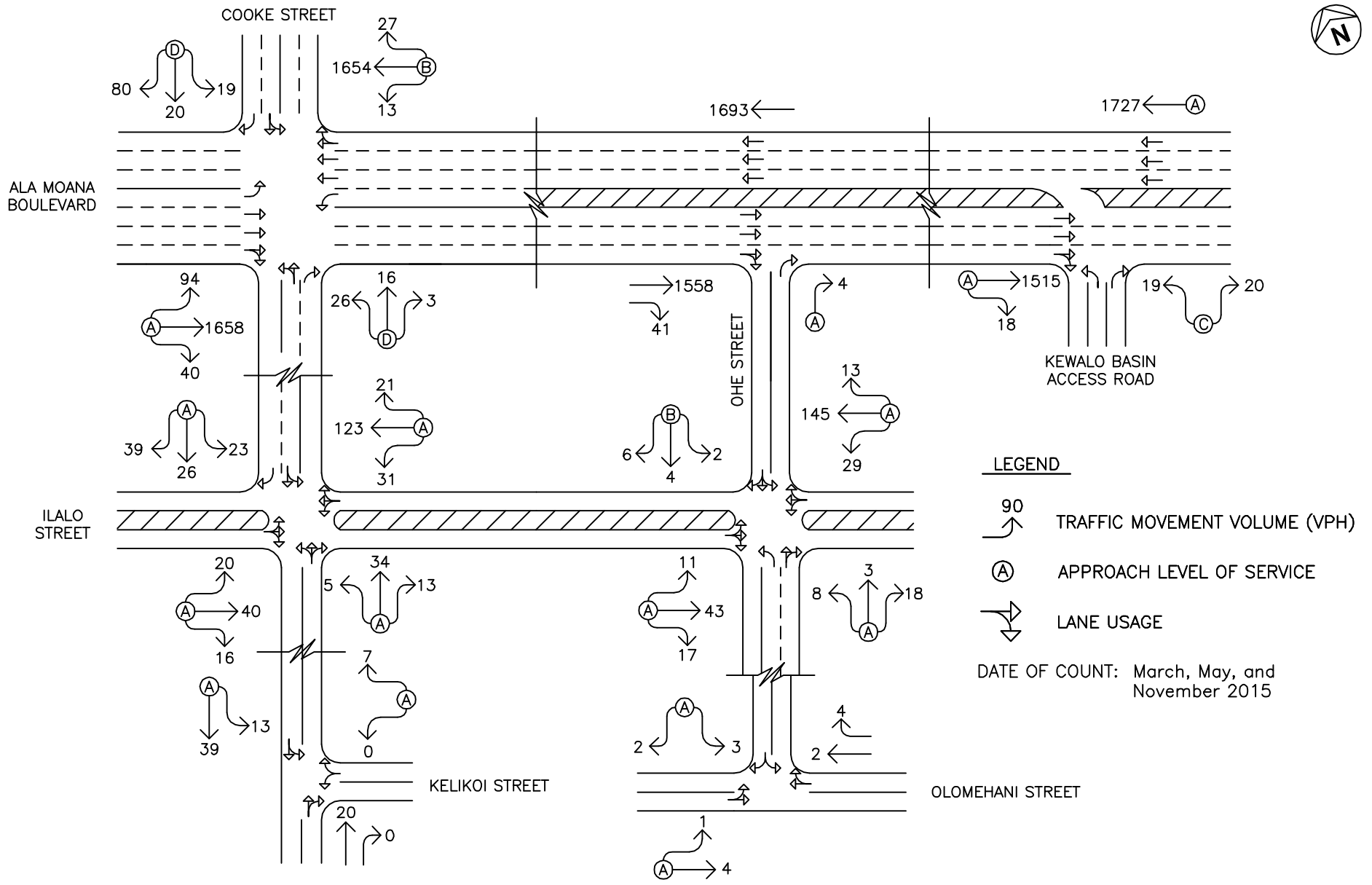
a. General

Figures 3 and 4 show the baseline AM and PM peak period traffic volumes and operating conditions. The AM peak hour of traffic generally occurs between 7:15 AM and 8:15 AM while the PM peak hour of traffic generally occurs between 3:30 PM and 4:30 PM. Although the peak hours of traffic generally occur around the same time periods at each of the study intersections, the absolute commuter peak hour time periods for each intersection may differ slightly. The analysis is based on these absolute peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

b. Ala Moana Boulevard and Cooke Street

At the intersection with Cooke Street, Ala Moana Boulevard carries 1,792 vehicles eastbound and 1,694 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is higher with 2,146 vehicles traveling eastbound and 1,688 vehicles traveling westbound. The eastbound approach of Ala Moana Boulevard operate at LOS "A" and LOS "B" during the AM and PM peak periods, respectively, while the westbound approach operates at LOS B" during both peak periods.

Cooke Street carries 45 vehicles northbound and 119 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 117 vehicles traveling northbound and 202 vehicles traveling southbound. Both approaches of Keawe Street operate at LOS "D" during both peak periods.



MAKAI AREA PARKS MASTER PLAN

BASELINE AM PEAK HOUR OF TRAFFIC

FIGURE 3

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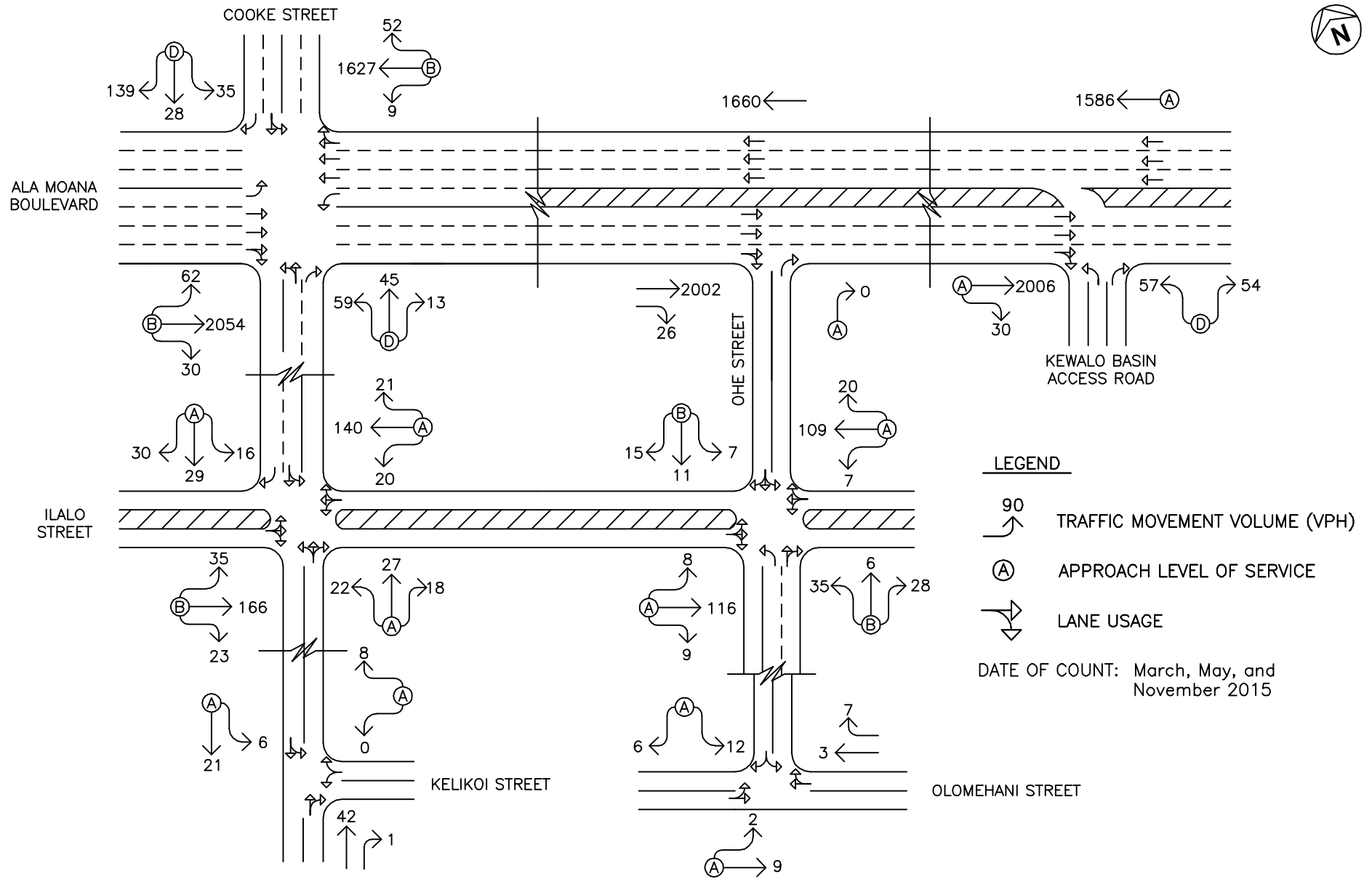

MAKAI AREA PARKS MASTER PLAN

BASELINE PM PEAK HOUR OF TRAFFIC

FIGURE 4

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c. Ala Moana Boulevard and Ohe Street

At the intersection with Ohe Street, Ala Moana Boulevard carries 1,599 vehicles eastbound and 1,693 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is higher with 2,028 vehicles traveling eastbound and 1,660 vehicles traveling westbound. The northbound approach of Ohe Street carries 4 vehicles during the AM peak period and no vehicles were observed on the approach during the PM peak period. The northbound approach of Ohe Street operates at LOS "A" during both peak periods.

d. Ala Moana Boulevard and the Kewalo Basin Access Road

At the intersection with the Kewalo Basin Access Road, Ala Moana Boulevard carries 1,533 vehicles eastbound and 1,727 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume was higher with 2,036 vehicles traveling eastbound and 1,586 vehicles traveling westbound. Both approaches of Ala Moana Boulevard operate at LOS "A" during both peak periods.

The Kewalo Basin Access Road carries 39 vehicles and 111 vehicles northbound during the AM and PM peak periods, respectively. This approach operates at LOS "C" during the AM peak period and LOS "D" during the PM peak period.

e. Ilalo Street and Cooke Street

At the intersection with Cooke Street, Ilalo Street carries 76 vehicles eastbound and 175 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is higher with 224 vehicles traveling eastbound and 181 vehicles traveling westbound. Both approaches of Ilalo Street operate at LOS "A" during both peak periods.

Cooke Street carries 52 vehicles northbound and 88 vehicles southbound during the AM peak periods. During the PM peak period, the overall traffic volume is approximately the same with 67 vehicles

traveling northbound and 75 vehicles traveling southbound. Both approaches of Cooke Street operate at LOS "A" at this intersection during both peak periods.

f. Ilalo Street and Ohe Street

At the intersection with Ohe Street, Ilalo Street carries 71 vehicles eastbound and 187 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is approximately the same with 133 vehicles traveling eastbound and 136 vehicles traveling westbound. Both approaches of Ilalo Street operate at LOS "A" during both peak periods.

Ohe Street carries 29 vehicles northbound and 12 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 69 vehicles traveling northbound and 33 vehicles traveling southbound. The northbound approach of Ohe Street operates at LOS "A" and LOS "B" during the AM and PM peak periods, respectively, while the southbound approach operates at LOS "B" during both peak periods.

g. Cooke Street and Kelikoi Street

At the intersection with Kelikoi Street, Cooke Street carries 52 vehicles southbound during the AM peak period and 27 vehicles southbound during the PM peak period. The Cooke Street approach operates at LOS "A" during both peak periods.

Kelikoi Street carries 7 vehicles westbound during the AM peak period and 8 vehicles westbound during the PM peak period. The Kelikoi Street approach operates at LOS "A" during both peak periods.

The northbound approach of the intersection is comprised of a driveway to the Kakaako Waterfront Park parking area. This approach carries 20 vehicles northbound during the AM peak period and 43 vehicles northbound during the PM peak period.

h. Ohe Street and Olomehani Street

At the intersection with Olomehani Street, Ohe Street carries 5 vehicles southbound during the AM peak period and 18 vehicles during the PM peak period. The southbound approach of Ohe Street operates at LOS "A" during both peak periods.

Olomehani Street carries 5 vehicles eastbound and 6 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are slightly higher with 11 vehicles traveling eastbound and 10 vehicles traveling westbound. The eastbound approach of Olomehani Street operates at LOS "A" during both peak periods.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 9th Edition," 2012. The ITE trip generation rates are developed empirically by correlating vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per acre. The majority of the Master Plan improvements for the Makai Area Parks are intended to enhance or revitalize the existing parks. As such, the parks are not expected to generate additional trips during the AM and PM peak period until Phase 4 of the Master Plan is complete. The development of uses within the Kakaako Waterfront Park like a Biergarten could potentially generate additional trips during peak periods and consequently trips related to these uses are incorporated into project conditions. Table 1 summarizes the trip generation characteristics related to Phase 4 of the proposed Makai Area Parks Master Plan applied to the AM and PM peak hours of traffic.

Table 1: Phase 4 Peak Hour Trip Generation

DRINKING PLACE (BIERGARTEN) INDEPENDENT VARIABLE: 1,000 sf of development = 3		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	0
	EXIT	0
	TOTAL	0
PM PEAK	ENTER	22
	EXIT	12
	TOTAL	34

2. Trip Distribution

Phases 1 to 3 of the Makai Area Parks Master Plan improvements are not expected to generate additional trips in the project vicinity. However, modifications to the existing parking area and development of new parking areas at the Kakaako Waterfront Park are expected to result in a reassignment of existing trips in the vicinity of that park. As such, the distribution of vehicles at the intersections of Cooke Street with Kelikoi Street and Ohe Street with Olomehani Street is expected to change based on the new distribution of parking for the Kakaako Waterfront Park.

The distribution of trips associated with Phase 4 of the Makai Area Parks Master Plan improvements is based on the relative distribution of parking spaces for the Kakaako Waterfront Park. Vehicles accessing the parking areas along Olomehani Street were assumed to utilize Ohe Street while those accessing the parking area along Kelikoi Street were assumed to utilize Cooke Street. The direction distribution of site-generated vehicles at the study intersections was assumed to remain similar to existing conditions.

B. Through Traffic Forecasting Methodology

The travel forecast utilized for this study is based on the Oahu Metropolitan Planning Organization (OMPO) regional forecasting model which includes the development of other projects such as the adjacent Kamehameha Schools/Bishop Estate (KSBE) developments to the north and Ward developments by Howard Hughes Corporation to the east. The use of the OMPO model more accurately reflects the anticipated impacts of traffic growth on the island more than the use of

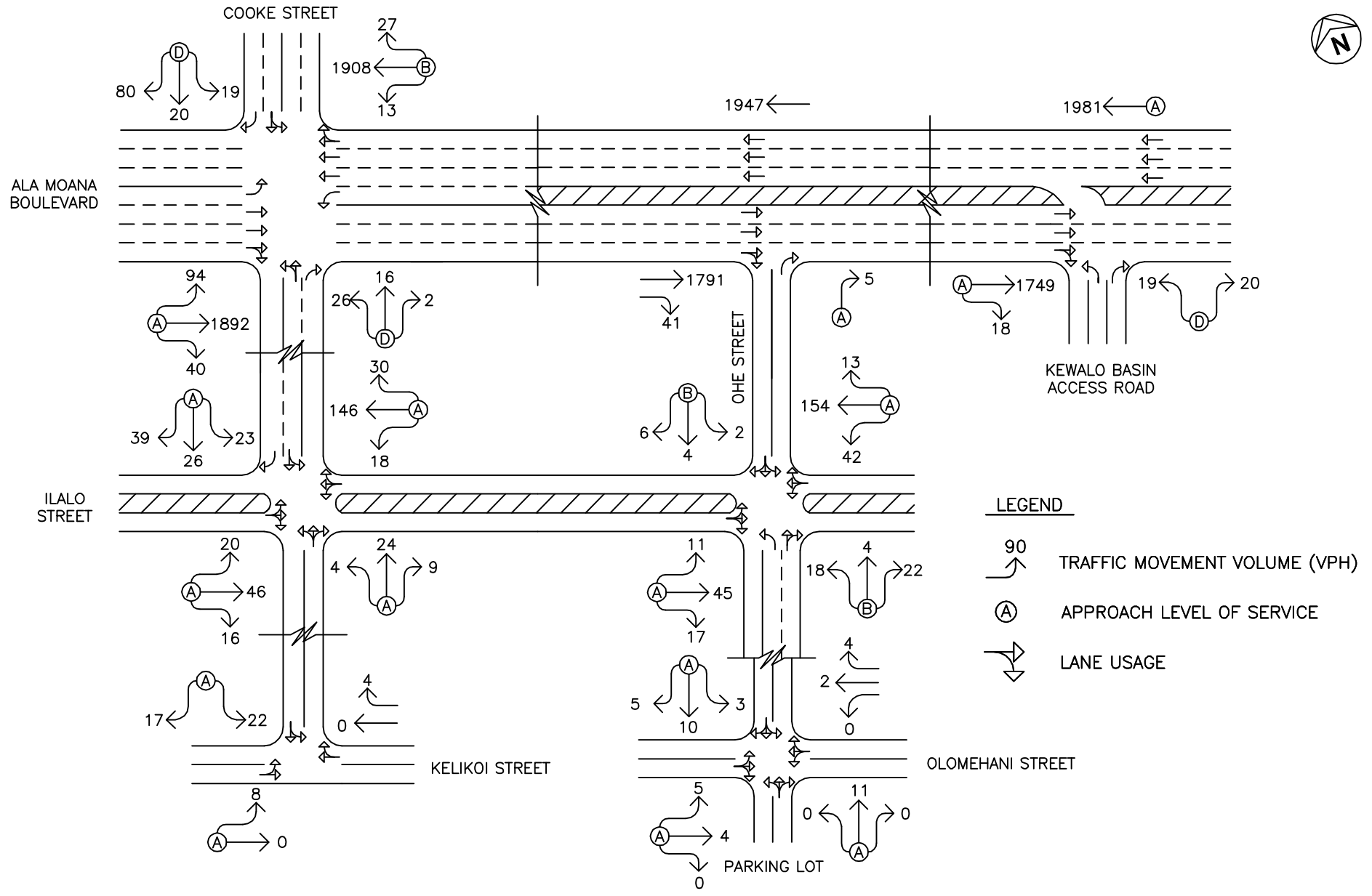
historical traffic count data. The travel forecast utilized for the OMPO model is based on Societal Economic Data (SED) which represents the population distribution within a multitude of traffic analysis zones. As such, since population estimates for the island of Oahu indicate that population growth is expected to be relatively linear to the Year 2035, a linear growth in traffic was also assumed over that period. Consequently, the traffic forecast from the OMPO model was scaled appropriately to determine Year 2025 and Year 2035 traffic volumes.

C. Year 2025 Total Traffic Volumes With Project

The Year 2025 cumulative AM and PM peak hour traffic conditions with the implementation of Phase 1 to 3 of the Makai Area Parks Master Plan is shown in Figures 5 and 6, and summarized in Table 2. The cumulative volumes consist of the anticipated reassignment of existing site-generated trips superimposed over Year 2025 projected traffic demands. The study intersections immediately adjacent to the Kakaako Waterfront Park are assumed to be modified to accommodate the anticipated improvements to the surrounding roadway network in conjunction with the proposed Master Plan. LOS calculations are included in Appendix D.

Table 2: Projected Year 2025 With Project LOS Traffic Operating Conditions

Intersection	Approach	AM	PM
Ala Moana Blvd/ Cooke St	Eastbound	A	B
	Westbound	B	B
	Northbound	D	D
	Southbound	D	D
Ala Moana Blvd/Ohe St	Northbound	A	A
Ala Moana Blvd/ Kewalo Basin Access Rd	Eastbound	A	A
	Westbound	A	A
	Northbound	D	D
Ilalo St/Cooke St	Eastbound	A	B
	Westbound	A	A
	Northbound	A	A
	Southbound	A	A



MAKAI AREA PARKS MASTER PLAN

YEAR 2025 AM PEAK HOUR OF TRAFFIC

FIGURE 5

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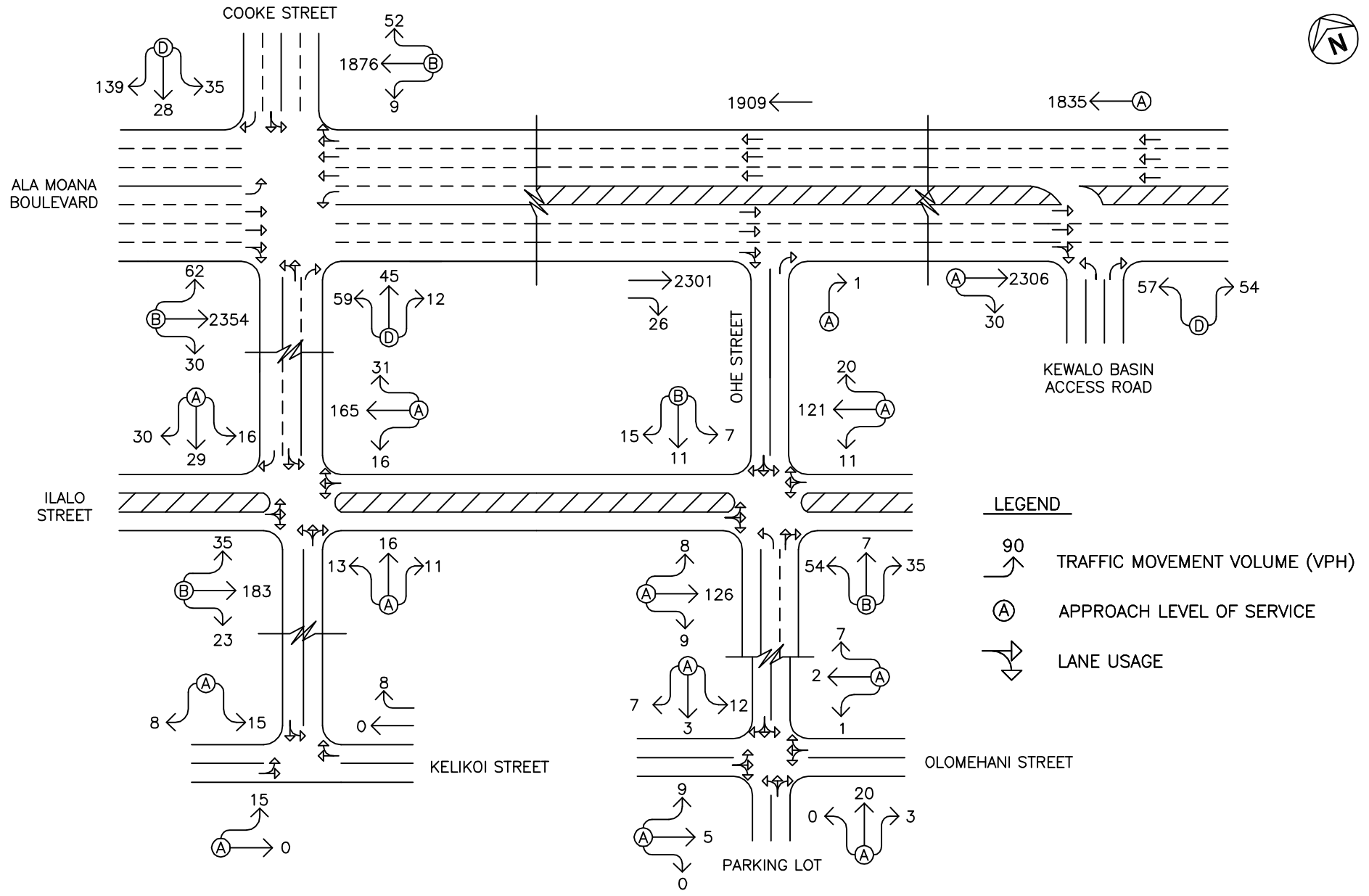


MAKAI AREA PARKS MASTER PLAN

YEAR 2025 PM PEAK HOUR OF TRAFFIC

FIGURE 6

WILSON OKAMOTO CORPORATION

Table 2: Projected Year 2025 With Project LOS Traffic Operating Conditions (Cont'd)

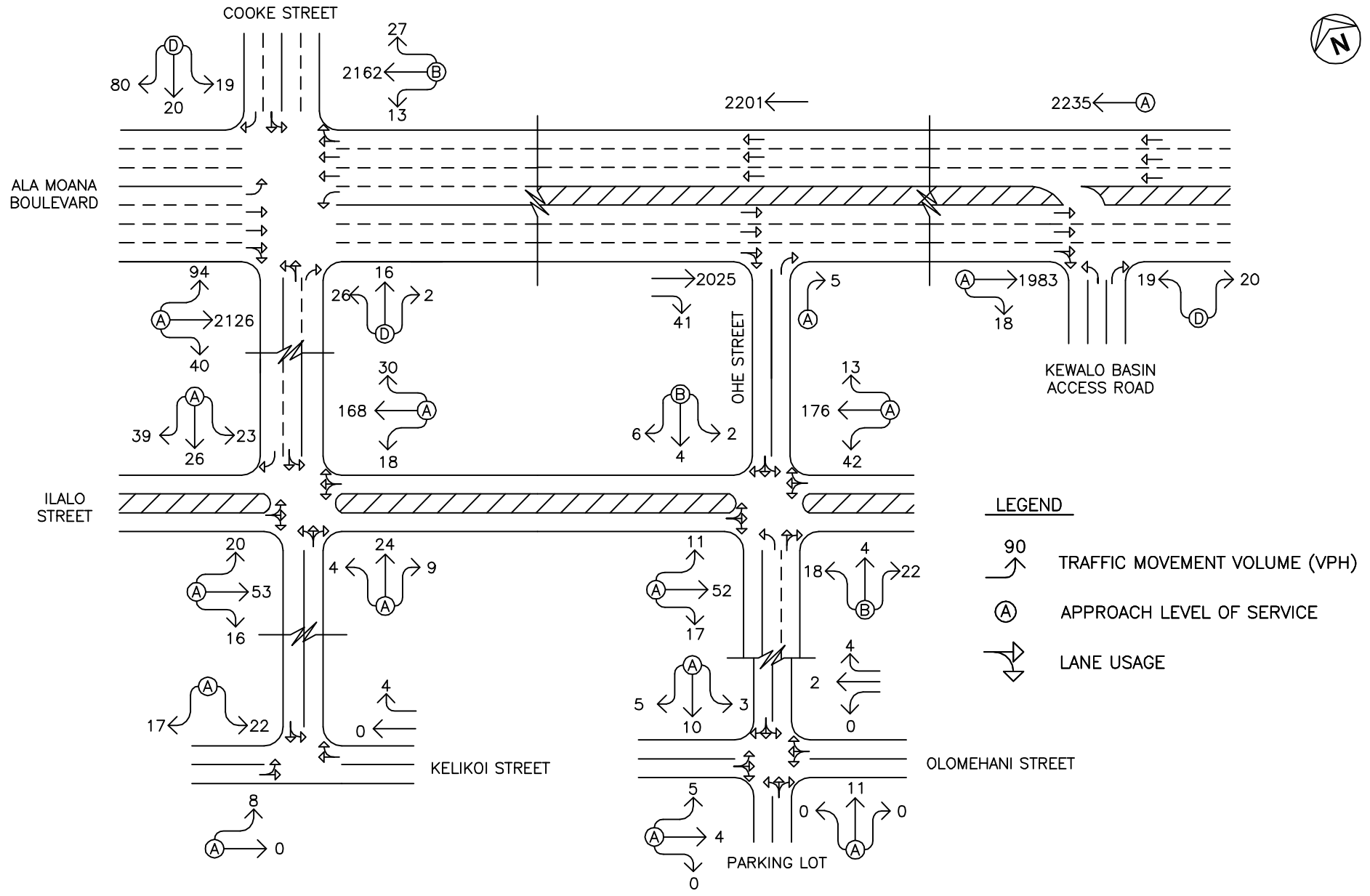
Intersection	Approach/ Critical Movement	AM	PM
Ilalo St/Ohe St	Eastbound	A	A
	Westbound	A	A
	Northbound	B	B
	Southbound	B	B
Cooke St/Kelikoi St*	Eastbound	A	A
	Southbound	A	A
Ohe St/Olomehani St*	Eastbound	A	A
	Westbound	-	A
	Northbound	A	A
	Southbound	A	A

*Intersection modified

Under Year 2025 with project conditions, traffic volumes along Ala Moana Boulevard and Ilalo Street are expected increase due to anticipated ambient growth in traffic along those roadways. Traffic operations at the study intersections along Ala Moana Boulevard are expected to operate at LOS "D" or better during both peak periods while those at the study intersections along Ilalo Street expected to operate at LOS "B" or better during both peak periods. Immediately adjacent to the Kakaako Waterfront Park the intersections of Cooke Street with Kelikoi Street and Ohe Street with Olomehani Street are expected to be modified to accommodate the planned improvements to the surrounding roadway network in conjunction with the Master Plan. The modified approaches of those two study intersections are expected operate at LOS "A" during both peak periods under Year 2025 with project conditions.

D. Year 2035 Total Traffic Volumes With Project

The Year 2035 cumulative peak hour traffic conditions with the completion of the Makai Area Parks Master Plan are shown in Figures 7 and 8, and summarized in Table 3. The cumulative volumes consist of site-generated traffic superimposed over Year 2035 projected traffic demands. LOS calculations are included in Appendix E.

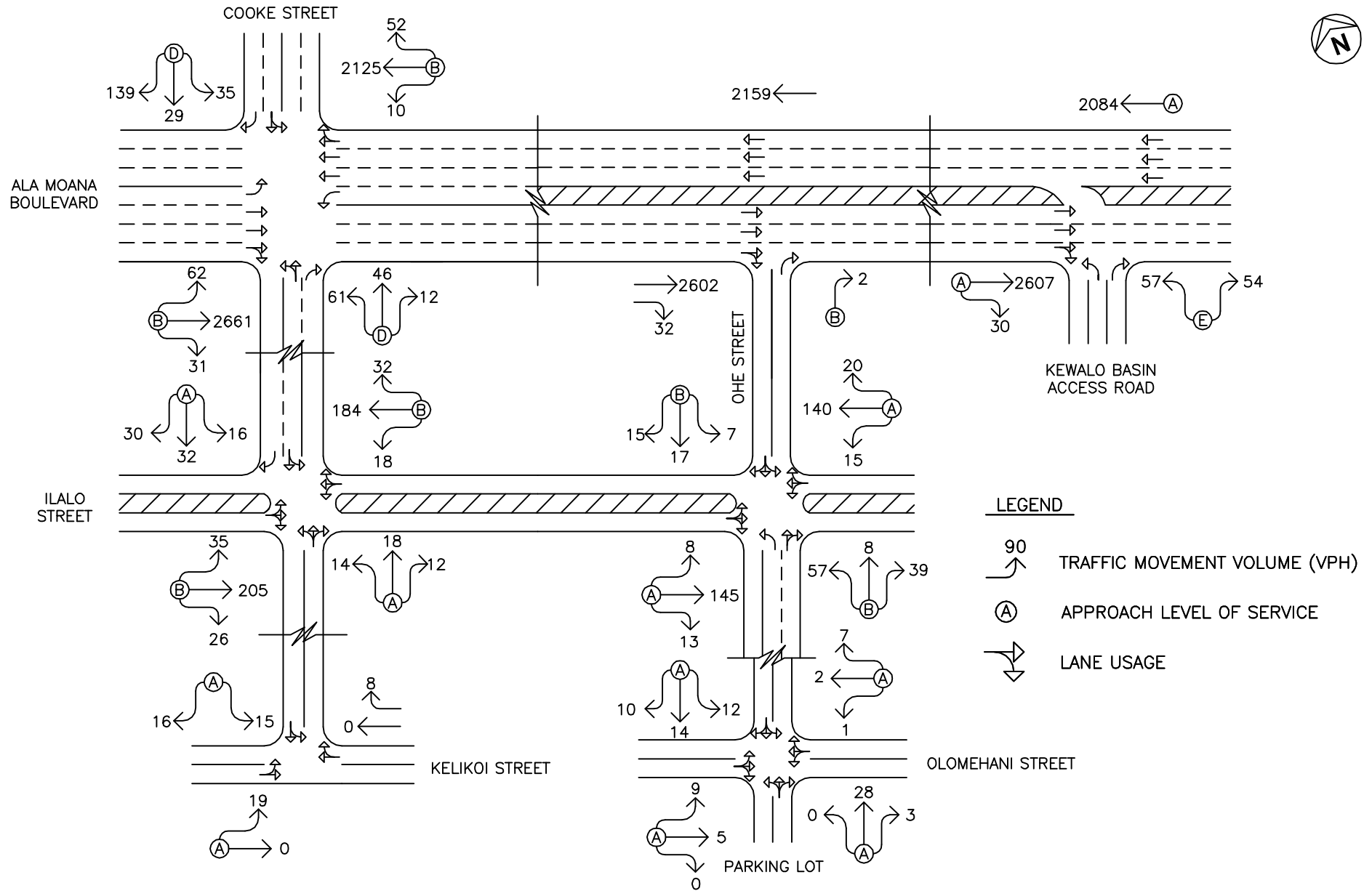


MAKAI AREA PARKS MASTER PLAN

YEAR 2035 AM PEAK HOUR OF TRAFFIC

FIGURE 7

WILSON OKAMOTO CORPORATION



MAKAI AREA PARKS MASTER PLAN

YEAR 2035 PM PEAK HOUR OF TRAFFIC

FIGURE 8

WILSON OKAMOTO CORPORATION

Table 3: Projected Year 2035 With Project LOS Traffic Operating Conditions

Intersection	Approach/ Critical Movement	AM	PM
Ala Moana Blvd/ Cooke St	Eastbound	A	B
	Westbound	B	B
	Northbound	D	D
	Southbound	D	D
Ala Moana Blvd/Ohe St	Northbound	A	B
Ala Moana Blvd/ Kewalo Basin Access Rd	Eastbound	A	A
	Westbound	A	A
	Northbound	D	E
Ilalo St/Cooke St	Eastbound	A	B
	Westbound	A	B
	Northbound	A	A
	Southbound	A	A
Ilalo St/Ohe St	Eastbound	A	A
	Westbound	A	A
	Northbound	B	B
	Southbound	B	B
Cooke St/Kelikoi St	Eastbound	A	A
	Southbound	A	A
Ohe St/Olomehani St	Eastbound	A	A
	Westbound	A	A
	Northbound	A	A
	Southbound	A	A

Under Year 2035 with project conditions, traffic volumes along Ala Moana Boulevard and Ilalo Street are expected increase primarily due to anticipated ambient growth in traffic along those roadways. Traffic operations at the study intersections along Ala Moana Boulevard are expected to operate at LOS "D" or better during both peak periods with the exception of the northbound approach of the intersection with the Kewalo Basin Access Road which is expected to operate at LOS "E" during the PM peak period. Along Ilalo Street, the approached of the study intersections along this roadway are expected to operate at LOS "B" or better during both peak periods.

Immediately adjacent to the Kakaako Waterfront Park, traffic volumes at the intersections of Cooke Street with Kelikoi Street and Ohe Street with Olomehani Street are expected increase slightly due to the development of uses within the park like a Biergarten. With the additional site-generated vehicles, the approaches of these intersections are expected to operate at LOS "A" during both peak periods.

V. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study to be incorporated in the project design.

1. Maintain sufficient sight distance for motorists to safely enter and exit the project driveways.

2. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.

3. Provide adequate turn-around area for vehicles to maneuver on the project site to avoid vehicle-reversing maneuvers onto public roadways.

4. Provide sufficient turning radii at all project driveways/roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

5. Prepare a Traffic Management Plan (TMP) for Special Events such as concerts at the amphitheater or sport events at the recreational facilities at the Makai Area Parks to minimize the impact of vehicles associated with special events on the surrounding roadway network. Most special events at the parks are expected to be held during off-peak or weekend periods.

VI. CONCLUSION

The Makai Area Parks Master Plan is expected to be implemented in four major phases over the next 20 years and entails improvements to the Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park to provide sustainable, family-friendly, active uses and gathering places within the project vicinity. These improvements include improving connectively to the Kewalo Basin Park and Kakaako Waterfront Park, as well as, new facilities and grading improvements at the Kakaako Waterfront Park to create visual access from Ala Moana Boulevard to the ocean. The majority of the planned Master Plan improvements are intended to enhance or revitalize the existing parks and are not expected to significantly increase site-generated traffic during the AM and PM peak periods. However, special events are expected to be held at the Makai Area Parks, primarily during off-peak or

weekend periods, that may require the implementation of traffic management strategies. As such, the preparation of a Traffic Management Plan (TMP) for Special Events at the Makai Area Parks is recommended to minimize the impact of vehicles associated with special events on the surrounding roadway network.

APPENDIX A

BASELINE TRAFFIC COUNT DATA

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:KW, GC
Counters:D4-3888, D4-3890
Weather:Clear

File Name : CooAla AM
Site Code : 00000001
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

	Cooke Street Southbound					Ala Moana Boulevard Westbound					Cooke Street Northbound					Ala Moana Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	1	2	8	2	13	2	174	1	3	180	4	3	1	4	12	5	267	7	0	279	484
06:15 AM	1	3	7	5	16	0	224	5	2	231	0	2	0	3	5	9	319	8	2	338	590
06:30 AM	5	2	14	6	27	2	275	5	0	282	3	0	1	8	12	10	337	7	3	357	678
06:45 AM	3	5	11	6	25	0	324	5	1	330	6	5	1	6	18	22	390	11	5	428	801
Total	10	12	40	19	81	4	997	16	6	1023	13	10	3	21	47	46	1313	33	10	1402	2553
07:00 AM	4	3	11	0	18	3	363	5	4	375	4	3	0	8	15	25	402	8	3	438	846
07:15 AM	4	2	25	0	31	4	410	10	2	426	4	3	1	6	14	26	445	12	4	487	958
07:30 AM	2	6	16	5	29	1	394	5	3	403	5	3	0	9	17	21	423	6	3	453	902
07:45 AM	7	6	19	3	35	5	444	6	2	457	7	4	0	12	23	15	377	11	6	409	924
Total	17	17	71	8	113	13	1611	26	11	1661	20	13	1	35	69	87	1647	37	16	1787	3630
08:00 AM	6	6	20	7	39	3	406	6	6	421	10	6	2	11	29	32	413	11	1	457	946
08:15 AM	6	8	23	5	42	3	409	6	6	424	3	6	0	4	13	15	340	11	4	370	849
08:30 AM	3	9	16	7	35	7	335	8	3	353	9	3	1	7	20	22	304	10	7	343	751
08:45 AM	4	10	15	5	34	4	281	15	2	302	6	5	7	3	21	14	306	12	2	334	691
Total	19	33	74	24	150	17	1431	35	17	1500	28	20	10	25	83	83	1363	44	14	1504	3237
Grand Total	46	62	185	51	344	34	4039	77	34	4184	61	43	14	81	199	216	4323	114	40	4693	9420
Apprch %	13.4	18	53.8	14.8		0.8	96.5	1.8	0.8		30.7	21.6	7	40.7		4.6	92.1	2.4	0.9		
Total %	0.5	0.7	2	0.5	3.7	0.4	42.9	0.8	0.4	44.4	0.6	0.5	0.1	0.9	2.1	2.3	45.9	1.2	0.4	49.8	

	Cooke Street Southbound				Ala Moana Boulevard Westbound				Cooke Street Northbound				Ala Moana Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	4	2	**25**	31	4	410	**10**	424	4	3	1	8	26	**445**	**12**	**483**	**946**
07:30 AM	2	**6**	16	24	1	394	5	400	5	3	0	8	21	423	6	450	882
07:45 AM	**7**	6	19	**32**	**5**	**444**	6	**455**	7	4	0	11	15	377	11	403	901
08:00 AM	6	6	20	32	3	406	6	415	**10**	**6**	**2**	**18**	**32**	413	11	456	921
Total Volume	19	20	80	119	13	1654	27	1694	26	16	3	45	94	1658	40	1792	3650
% App. Total	16	16.8	67.2		0.8	97.6	1.6		57.8	35.6	6.7		5.2	92.5	2.2		
PHF	.679	.833	.800	.930	.650	.931	.675	.931	.650	.667	.375	.625	.734	.931	.833	.928	.965

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:CY, DY
Counters:TU-0651, TU-0652
Weather:Clear

File Name : CooAla PM
Site Code : 00000002
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

	Koula Street Southbound					Ala Moana Boulevard Westbound					Koula Street Northbound					Ala Moana Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	13	3	23	2	41	1	341	6	1	349	15	7	6	12	40	7	437	7	1	452	882
03:15 PM	5	4	18	5	32	3	362	18	2	385	14	10	9	14	47	13	439	6	2	460	924
03:30 PM	8	6	32	11	57	2	395	13	5	415	22	11	5	12	50	13	532	10	5	560	1082
03:45 PM	9	8	39	8	64	5	425	14	3	447	12	7	4	11	34	12	547	4	5	568	1113
Total	35	21	112	26	194	11	1523	51	11	1596	63	35	24	49	171	45	1955	27	13	2040	4001
04:00 PM	9	10	25	11	55	2	391	15	0	408	14	15	1	11	41	19	499	10	2	530	1034
04:15 PM	9	4	43	11	67	0	416	10	10	436	11	12	3	5	31	18	476	6	3	503	1037
04:30 PM	11	11	33	17	72	2	353	11	3	369	9	15	3	14	41	14	521	8	12	555	1037
04:45 PM	11	7	29	6	53	2	378	8	7	395	16	14	2	5	37	5	478	2	8	493	978
Total	40	32	130	45	247	6	1538	44	20	1608	50	56	9	35	150	56	1974	26	25	2081	4086
05:00 PM	8	12	27	8	55	4	342	9	6	361	7	11	5	12	35	6	507	8	10	531	982
05:15 PM	14	10	32	11	67	2	349	13	3	367	3	10	4	14	31	9	517	13	11	550	1015
05:30 PM	11	6	21	7	45	1	395	6	10	412	8	14	3	14	39	10	506	4	19	539	1035
05:45 PM	13	2	26	7	48	2	325	7	4	338	11	9	2	16	38	10	519	0	12	541	965
Total	46	30	106	33	215	9	1411	35	23	1478	29	44	14	56	143	35	2049	25	52	2161	3997
Grand Total	121	83	348	104	656	26	4472	130	54	4682	142	135	47	140	464	136	5978	78	90	6282	12084
Apprch %	18.4	12.7	53	15.9		0.6	95.5	2.8	1.2		30.6	29.1	10.1	30.2		2.2	95.2	1.2	1.4		
Total %	1	0.7	2.9	0.9	5.4	0.2	37	1.1	0.4	38.7	1.2	1.1	0.4	1.2	3.8	1.1	49.5	0.6	0.7	52	

	Koula Street Southbound				Ala Moana Boulevard Westbound				Koula Street Northbound				Ala Moana Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	8	6	32	46	2	395	13	410	**22**	11	**5**	**38**	13	532	**10**	555	1049
03:45 PM	**9**	8	39	**56**	**5**	**425**	14	**444**	12	7	4	23	12	**547**	4	**563**	**1086**
04:00 PM	9	**10**	25	44	2	391	**15**	408	14	**15**	1	30	**19**	499	10	528	1010
04:15 PM	9	4	**43**	56	0	416	10	426	11	12	3	26	18	476	6	500	1008
Total Volume	35	28	139	202	9	1627	52	1688	59	45	13	117	62	2054	30	2146	4153
% App. Total	17.3	13.9	68.8		0.5	96.4	3.1		50.4	38.5	11.1		2.9	95.7	1.4		
PHF	.972	.700	.808	.902	.450	.957	.867	.950	.670	.750	.650	.770	.816	.939	.750	.953	.956

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:AC, FS
Counters:TU-0649, TU-0650
Weather:Clear

File Name : OheAla AM
Site Code : 00000004
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	1	1	2	0	178	0	0	178	0	1	2	1	4	0	260	1	1	262	446
06:15 AM	0	0	0	4	4	0	234	1	0	235	0	0	3	4	7	0	310	9	5	324	570
06:30 AM	0	0	0	4	4	0	285	0	0	285	0	0	0	6	6	0	320	7	4	331	626
06:45 AM	0	0	0	3	3	0	330	0	0	330	0	0	0	6	6	0	368	8	5	381	720
Total	0	0	1	12	13	0	1027	1	0	1028	0	1	5	17	23	0	1258	25	15	1298	2362
07:00 AM	0	0	0	3	3	0	371	0	0	371	0	0	1	9	10	0	380	6	3	389	773
07:15 AM	0	0	0	5	5	0	423	0	0	423	0	0	0	6	6	0	413	13	5	431	865
07:30 AM	0	0	0	3	3	0	404	0	0	404	0	0	2	15	17	0	404	6	2	412	836
07:45 AM	0	0	0	1	1	0	456	0	0	456	0	0	1	15	16	0	356	11	6	373	846
Total	0	0	0	12	12	0	1654	0	0	1654	0	0	4	45	49	0	1553	36	16	1605	3320
08:00 AM	0	0	1	4	5	0	410	1	0	411	0	0	1	11	12	0	385	11	1	397	825
08:15 AM	0	0	2	1	3	0	415	0	0	415	0	0	0	5	5	0	305	12	4	321	744
08:30 AM	0	0	1	3	4	0	351	0	0	351	0	0	0	5	5	0	274	11	7	292	652
08:45 AM	0	0	2	4	6	0	290	0	0	290	0	0	0	4	4	0	285	13	4	302	602
Total	0	0	6	12	18	0	1466	1	0	1467	0	0	1	25	26	0	1249	47	16	1312	2823
Grand Total	0	0	7	36	43	0	4147	2	0	4149	0	1	10	87	98	0	4060	108	47	4215	8505
Apprch %	0	0	16.3	83.7		0	100	0	0		0	1	10.2	88.8		0	96.3	2.6	1.1		
Total %	0	0	0.1	0.4	0.5	0	48.8	0	0	48.8	0	0	0.1	1	1.2	0	47.7	1.3	0.6	49.6	

	Ohe Street Southbound				Ala Moana Boulevard Westbound				Ohe Street Northbound				Ala Moana Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	423	0	423	0	0	0	0	0	**413**	**13**	**426**	**849**
07:30 AM	0	0	0	0	0	404	0	404	0	0	**2**	**2**	0	404	6	410	816
07:45 AM	0	0	0	0	0	**456**	0	**456**	0	0	1	1	0	356	11	367	824
08:00 AM	0	0	**1**	**1**	0	410	**1**	411	0	0	1	1	0	385	11	396	809
Total Volume	0	0	1	1	0	1693	1	1694	0	0	4	4	0	1558	41	1599	3298
% App. Total	0	0	100		0	99.9	0.1		0	0	100		0	97.4	2.6		
PHF	.000	.000	.250	.250	.000	.928	.250	.929	.000	.000	.500	.500	.000	.943	.788	.938	.971

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:AC, FS
Counters:TU-0649, TU-0650
Weather:Clear

File Name : OheAla PM
Site Code : 00000004
Start Date : 3/5/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Ala Moana Boulevard Westbound					Ohe Street Northbound					Ala Moana Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	0	0	3	3	0	350	0	0	350	0	0	4	8	12	0	452	7	0	459	824
03:15 PM	0	0	3	4	7	0	388	0	0	388	0	0	0	13	13	0	426	7	2	435	843
03:30 PM	0	0	1	11	12	0	397	0	0	397	0	0	0	11	11	0	523	11	2	536	956
03:45 PM	0	0	3	5	8	0	441	0	0	441	0	0	0	6	6	0	528	2	3	533	988
Total	0	0	7	23	30	0	1576	0	0	1576	0	0	4	38	42	0	1929	27	7	1963	3611
04:00 PM	0	0	0	5	5	0	392	0	0	392	0	0	0	6	6	0	491	8	1	500	903
04:15 PM	0	0	3	16	19	0	430	2	0	432	0	0	0	2	2	0	460	5	3	468	921
04:30 PM	0	0	2	7	9	0	357	1	0	358	0	0	0	13	13	0	522	6	11	539	919
04:45 PM	0	0	2	2	4	0	391	1	0	392	0	0	0	6	6	0	467	3	9	479	881
Total	0	0	7	30	37	0	1570	4	0	1574	0	0	0	27	27	0	1940	22	24	1986	3624
05:00 PM	0	0	2	6	8	0	366	0	0	366	0	0	0	12	12	0	510	7	10	527	913
05:15 PM	1	1	2	9	13	0	373	0	0	373	0	1	4	14	19	0	531	8	7	546	951
05:30 PM	0	0	1	5	6	0	367	1	0	368	0	0	2	15	17	0	510	2	15	527	918
05:45 PM	0	0	0	14	14	0	361	0	0	361	0	0	0	7	7	0	537	0	11	548	930
Total	1	1	5	34	41	0	1467	1	0	1468	0	1	6	48	55	0	2088	17	43	2148	3712
Grand Total	1	1	19	87	108	0	4613	5	0	4618	0	1	10	113	124	0	5957	66	74	6097	10947
Apprch %	0.9	0.9	17.6	80.6		0	99.9	0.1	0		0	0.8	8.1	91.1		0	97.7	1.1	1.2		
Total %	0	0	0.2	0.8	1	0	42.1	0	0	42.2	0	0	0.1	1	1.1	0	54.4	0.6	0.7	55.7	

	Ohe Street Southbound				Ala Moana Boulevard Westbound				Ohe Street Northbound				Ala Moana Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	0	1	1	0	397	0	397	0	0	0	0	0	523	**11**	**534**	932
03:45 PM	0	0	**3**	**3**	0	**441**	0	**441**	0	0	0	0	0	**528**	2	530	**974**
04:00 PM	0	0	0	0	0	392	0	392	0	0	0	0	0	491	8	499	891
04:15 PM	0	0	3	3	0	430	**2**	432	0	0	0	0	0	460	5	465	900
Total Volume	0	0	7	7	0	1660	2	1662	0	0	0	0	0	2002	26	2028	3697
% App. Total	0	0	100		0	99.9	0.1		0	0	0		0	98.7	1.3		
PHF	.000	.000	.583	.583	.000	.941	.250	.942	.000	.000	.000	.000	.000	.948	.591	.949	.949

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:DY, JC
Counters:TU-0654, TU-0653
Weather:Clear

File Name : Kewalo Basin Entrance AM
Site Code : 00000000
Start Date : 3/10/2015
Page No : 1

Groups Printed- Unshifted

	Southbound	Ala Moana Boulevard Westbound					Kewalo Basin Entrance Northbound					Ala Moana Boulevard Eastbound					
Start Time	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	173	0	0	173	2	0	3	2	7	0	200	10	0	210	390
06:15 AM	0	0	227	0	0	227	2	0	1	1	4	0	270	9	0	279	510
06:30 AM	0	0	282	0	0	282	3	0	3	3	9	0	290	12	0	302	593
06:45 AM	0	0	336	0	0	336	2	0	3	7	12	0	403	10	3	416	764
Total	0	0	1018	0	0	1018	9	0	10	13	32	0	1163	41	3	1207	2257
07:00 AM	0	0	405	0	0	405	10	0	4	6	20	0	390	5	1	396	821
07:15 AM	0	0	457	0	0	457	5	0	5	10	20	0	378	2	0	380	857
07:30 AM	0	0	436	0	0	436	5	0	5	7	17	0	391	4	0	395	848
07:45 AM	0	0	387	0	0	387	5	1	6	12	24	0	375	8	0	383	794
Total	0	0	1685	0	0	1685	25	1	20	35	81	0	1534	19	1	1554	3320
08:00 AM	0	0	447	0	0	447	4	0	4	6	14	0	371	4	0	375	836
08:15 AM	0	0	411	0	0	411	7	0	4	12	23	0	349	4	0	353	787
08:30 AM	0	1	389	0	0	390	4	0	7	6	17	0	350	4	1	355	762
08:45 AM	0	0	304	0	0	304	6	0	4	5	15	0	326	12	1	339	658
Total	0	1	1551	0	0	1552	21	0	19	29	69	0	1396	24	2	1422	3043
Grand Total	0	1	4254	0	0	4255	55	1	49	77	182	0	4093	84	6	4183	8620
Apprch %		0	100	0	0		30.2	0.5	26.9	42.3		0	97.8	2	0.1		
Total %	0	0	49.4	0	0	49.4	0.6	0	0.6	0.9	2.1	0	47.5	1	0.1	48.5	

	Southbound	Ala Moana Boulevard Westbound				Kewalo Basin Entrance Northbound				Ala Moana Boulevard Eastbound				
Start Time	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:15 AM														
07:15 AM	0	0	**457**	0	**457**	**5**	0	5	10	0	378	2	380	**847**
07:30 AM	0	0	436	0	436	5	0	5	10	0	**391**	4	**395**	841
07:45 AM	0	0	387	0	387	5	**1**	**6**	**12**	0	375	**8**	383	782
08:00 AM	0	0	447	0	447	4	0	4	8	0	371	4	375	830
Total Volume	0	0	1727	0	1727	19	1	20	40	0	1515	18	1533	3300
% App. Total		0	100	0		47.5	2.5	50		0	98.8	1.2		
PHF	.000	.000	.945	.000	.945	.950	.250	.833	.833	.000	.969	.563	.970	.974

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:DY, CY
Counters:TU-0653, TU-0654
Weather:Clear

File Name : Kewalo Basin Entrance PM
Site Code : 00000002
Start Date : 3/10/2015
Page No : 1

Groups Printed- Unshifted

	Southbound	Ala Moana Boulevard Westbound					Kewalo Basin Driveway Northbound					Ala Moana Boulevard Eastbound					
Start Time	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	0	0	368	0	0	368	8	0	8	8	24	0	400	7	0	407	799
03:15 PM	0	0	316	0	0	316	9	0	15	9	33	0	387	6	2	395	744
03:30 PM	0	0	427	0	0	427	20	0	13	4	37	0	477	7	1	485	949
03:45 PM	0	0	398	0	0	398	10	0	11	3	24	0	460	6	1	467	889
Total	0	0	1509	0	0	1509	47	0	47	24	118	0	1724	26	4	1754	3381
04:00 PM	0	0	359	0	0	359	20	0	10	5	35	0	518	12	1	531	925
04:15 PM	0	0	402	0	0	402	7	0	20	6	33	0	551	5	2	558	993
04:30 PM	0	0	342	0	0	342	1	0	6	1	8	0	511	7	0	518	868
04:45 PM	0	0	348	0	0	348	5	0	9	4	18	0	546	5	0	551	917
Total	0	0	1451	0	0	1451	33	0	45	16	94	0	2126	29	3	2158	3703
05:00 PM	0	0	304	0	0	304	5	0	8	18	31	0	536	8	0	544	879
05:15 PM	0	0	368	0	0	368	5	0	15	15	35	0	515	7	0	522	925
05:30 PM	0	0	340	0	0	340	5	0	10	22	37	0	555	6	0	561	938
05:45 PM	0	0	310	0	0	310	7	0	10	17	34	0	514	6	0	520	864
Total	0	0	1322	0	0	1322	22	0	43	72	137	0	2120	27	0	2147	3606
Grand Total	0	0	4282	0	0	4282	102	0	135	112	349	0	5970	82	7	6059	10690
Apprch %		0	100	0	0		29.2	0	38.7	32.1		0	98.5	1.4	0.1		
Total %	0	0	40.1	0	0	40.1	1	0	1.3	1	3.3	0	55.8	0.8	0.1	56.7	

	Southbound	Ala Moana Boulevard Westbound				Kewalo Basin Driveway Northbound				Ala Moana Boulevard Eastbound				
Start Time	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 03:30 PM														
03:30 PM	0	0	**427**	0	**427**	**20**	0	13	**33**	0	477	7	484	944
03:45 PM	0	0	398	0	398	10	0	11	21	0	460	6	466	885
04:00 PM	0	0	359	0	359	20	0	10	30	0	518	**12**	530	919
04:15 PM	0	0	402	0	402	7	0	**20**	27	0	**551**	5	**556**	**985**
Total Volume	0	0	1586	0	1586	57	0	54	111	0	2006	30	2036	3733
% App. Total		0	100	0		51.4	0	48.6		0	98.5	1.5		
PHF	.000	.000	.929	.000	.929	.713	.000	.675	.841	.000	.910	.625	.915	.947

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:GC, MA
Counters:D4-5673, D4-5675
Weather:Clear

File Name : IlaCoo AM
Site Code : 00000002
Start Date : 5/13/2015
Page No : 1

Groups Printed- Unshifted

	Cooke Street Southbound					Ilalo Street Westbound					Cooke Street Northbound					Ilalo Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	4	1	3	0	8	0	8	1	2	11	0	2	0	0	2	1	11	2	1	15	36
06:15 AM	2	8	4	1	15	3	7	2	1	13	1	2	2	0	5	0	12	3	2	17	50
06:30 AM	2	3	2	0	7	3	9	3	0	15	0	2	0	3	5	1	7	2	2	12	39
06:45 AM	1	7	3	2	13	3	19	4	3	29	0	2	1	3	6	3	5	4	1	13	61
Total	9	19	12	3	43	9	43	10	6	68	1	8	3	6	18	5	35	11	6	57	186
07:00 AM	5	3	6	0	14	1	18	8	0	27	1	1	0	1	3	3	3	1	3	10	54
07:15 AM	8	4	3	4	19	7	24	5	2	38	0	2	5	2	9	2	5	2	1	10	76
07:30 AM	4	6	5	2	17	3	24	8	5	40	0	4	0	8	12	3	11	0	2	16	85
07:45 AM	6	6	10	3	25	5	33	3	4	45	0	4	2	2	8	4	4	6	1	15	93
Total	23	19	24	9	75	16	99	24	11	150	1	11	7	13	32	12	23	9	7	51	308
08:00 AM	7	5	9	0	21	8	30	8	1	47	1	6	1	8	16	5	7	4	3	19	103
08:15 AM	5	8	14	0	27	10	43	7	2	62	1	9	5	12	27	4	13	5	1	23	139
08:30 AM	5	7	7	0	19	4	21	2	1	28	1	6	5	5	17	8	3	4	0	15	79
08:45 AM	6	6	9	0	21	9	29	4	0	42	2	13	2	8	25	3	17	3	1	24	112
Total	23	26	39	0	88	31	123	21	4	179	5	34	13	33	85	20	40	16	5	81	433
Grand Total	55	64	75	12	206	56	265	55	21	397	7	53	23	52	135	37	98	36	18	189	927
Apprch %	26.7	31.1	36.4	5.8		14.1	66.8	13.9	5.3		5.2	39.3	17	38.5		19.6	51.9	19	9.5		
Total %	5.9	6.9	8.1	1.3	22.2	6	28.6	5.9	2.3	42.8	0.8	5.7	2.5	5.6	14.6	4	10.6	3.9	1.9	20.4	

	Cooke Street Southbound				Ilalo Street Westbound				Cooke Street Northbound				Ilalo Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**7**	5	9	21	8	30	**8**	46	1	6	1	8	5	7	4	16	91
08:15 AM	5	**8**	**14**	**27**	**10**	**43**	7	**60**	1	9	**5**	15	4	13	**5**	22	**124**
08:30 AM	5	7	7	19	4	21	2	27	1	6	5	12	**8**	3	4	15	73
08:45 AM	6	6	9	21	9	29	4	42	**2**	**13**	2	**17**	3	**17**	3	**23**	103
Total Volume	23	26	39	88	31	123	21	175	5	34	13	52	20	40	16	76	391
% App. Total	26.1	29.5	44.3		17.7	70.3	12		9.6	65.4	25		26.3	52.6	21.1		
PHF	.821	.813	.696	.815	.775	.715	.656	.729	.625	.654	.650	.765	.625	.588	.800	.826	.788

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:GC
Counters:D4-5673
Weather:Clear

File Name : IlaCoo PM
Site Code : 00000002
Start Date : 5/13/2015
Page No : 1

Groups Printed- Unshifted

	Cooke Street Southbound					Ilalo Street Westbound					Cooke Street Northbound					Ilalo Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	2	1	3	0	6	0	18	7	1	26	2	10	4	1	17	7	14	3	4	28	77
03:15 PM	1	6	1	0	8	1	37	17	6	61	2	4	5	0	11	3	21	5	2	31	111
03:30 PM	2	7	3	0	12	2	19	10	0	31	2	11	3	3	19	6	19	2	1	28	90
03:45 PM	1	1	5	1	8	1	33	9	2	45	3	8	4	2	17	0	21	2	1	24	94
Total	6	15	12	1	34	4	107	43	9	163	9	33	16	6	64	16	75	12	8	111	372
04:00 PM	3	4	11	5	23	7	39	10	5	61	2	9	2	9	22	11	26	7	7	51	157
04:15 PM	1	7	2	0	10	4	25	3	0	32	3	4	6	3	16	6	22	3	3	34	92
04:30 PM	4	12	7	2	25	3	51	10	2	66	7	6	4	7	24	11	45	10	6	72	187
04:45 PM	5	7	7	0	19	5	28	4	4	41	2	8	2	2	14	10	37	3	0	50	124
Total	13	30	27	7	77	19	143	27	11	200	14	27	14	21	76	38	130	23	16	207	560
05:00 PM	4	7	6	2	19	3	32	4	4	43	7	6	6	1	20	8	41	5	4	58	140
05:15 PM	3	3	10	9	25	9	29	3	6	47	6	7	6	9	28	6	43	5	6	60	160
05:30 PM	2	8	10	1	21	5	17	7	3	32	2	5	6	12	25	5	33	7	4	49	127
05:45 PM	2	8	1	0	11	9	27	16	0	52	4	10	5	1	20	6	18	5	4	33	116
Total	11	26	27	12	76	26	105	30	13	174	19	28	23	23	93	25	135	22	18	200	543
Grand Total	30	71	66	20	187	49	355	100	33	537	42	88	53	50	233	79	340	57	42	518	1475
Apprch %	16	38	35.3	10.7		9.1	66.1	18.6	6.1		18	37.8	22.7	21.5		15.3	65.6	11	8.1		
Total %	2	4.8	4.5	1.4	12.7	3.3	24.1	6.8	2.2	36.4	2.8	6	3.6	3.4	15.8	5.4	23.1	3.9	2.8	35.1	

	Cooke Street Southbound				Ilalo Street Westbound				Cooke Street Northbound				Ilalo Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	4	**12**	7	**23**	3	**51**	**10**	**64**	**7**	6	4	17	**11**	**45**	**10**	**66**	**170**
04:45 PM	**5**	7	7	19	5	28	4	37	2	**8**	2	12	10	37	3	50	118
05:00 PM	4	7	6	17	3	32	4	39	7	6	**6**	**19**	8	41	5	54	129
05:15 PM	3	3	**10**	16	**9**	29	3	41	6	7	6	19	6	43	5	54	130
Total Volume	16	29	30	75	20	140	21	181	22	27	18	67	35	166	23	224	547
% App. Total	21.3	38.7	40		11	77.3	11.6		32.8	40.3	26.9		15.6	74.1	10.3		
PHF	.800	.604	.750	.815	.556	.686	.525	.707	.786	.844	.750	.882	.795	.922	.575	.848	.804

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:FS, CM
Counters:TU-0651, TU-0654
Weather:Clear

File Name : IlaOhe AM
Site Code : 00000002
Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Ilalo Street Westbound					Ohe Street Northbound					Ilalo Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	0	1	1	2	2	13	3	0	18	1	0	2	0	3	1	4	4	0	9	32
06:15 AM	0	3	2	0	5	3	8	1	0	12	1	0	1	3	5	2	10	4	1	17	39
06:30 AM	0	7	2	0	9	7	14	1	0	22	3	1	2	0	6	0	8	4	0	12	49
06:45 AM	1	3	0	0	4	2	23	3	0	28	1	1	4	1	7	1	7	3	1	12	51
Total	1	13	5	1	20	14	58	8	0	80	6	2	9	4	21	4	29	15	2	50	171
07:00 AM	0	3	1	3	7	5	30	6	0	41	6	0	1	0	7	2	6	7	1	16	71
07:15 AM	0	3	0	3	6	10	28	4	1	43	6	0	2	3	11	2	7	8	1	18	78
07:30 AM	0	2	0	1	3	8	25	4	2	39	2	0	6	0	8	2	6	4	0	12	62
07:45 AM	0	2	2	2	6	13	29	3	2	47	2	0	4	1	7	4	7	3	0	14	74
Total	0	10	3	9	22	36	112	17	5	170	16	0	13	4	33	10	26	22	2	60	285
08:00 AM	1	1	0	1	3	5	39	3	2	49	3	1	9	2	15	2	11	4	0	17	84
08:15 AM	1	1	4	2	8	2	44	4	1	51	0	0	4	0	4	5	15	7	0	27	90
08:30 AM	0	0	0	2	2	9	33	3	1	46	3	2	1	3	9	0	10	3	0	13	70
08:45 AM	0	2	3	3	8	3	28	3	1	35	2	0	1	3	6	1	8	4	0	13	62
Total	2	4	7	8	21	19	144	13	5	181	8	3	15	8	34	8	44	18	0	70	306
Grand Total	3	27	15	18	63	69	314	38	10	431	30	5	37	16	88	22	99	55	4	180	762
Apprch %	4.8	42.9	23.8	28.6		16	72.9	8.8	2.3		34.1	5.7	42	18.2		12.2	55	30.6	2.2		
Total %	0.4	3.5	2	2.4	8.3	9.1	41.2	5	1.3	56.6	3.9	0.7	4.9	2.1	11.5	2.9	13	7.2	0.5	23.6	

	Ohe Street Southbound				Ilalo Street Westbound				Ohe Street Northbound				Ilalo Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**2**	2	4	**13**	29	3	45	2	0	4	6	4	7	3	14	69
08:00 AM	**1**	1	0	2	5	39	3	47	**3**	1	**9**	**13**	2	11	4	17	79
08:15 AM	1	1	**4**	**6**	2	**44**	**4**	**50**	0	0	4	4	**5**	**15**	**7**	**27**	**87**
08:30 AM	0	0	0	0	9	33	3	45	3	**2**	1	6	0	10	3	13	64
Total Volume	2	4	6	12	29	145	13	187	8	3	18	29	11	43	17	71	299
% App. Total	16.7	33.3	50		15.5	77.5	7		27.6	10.3	62.1		15.5	60.6	23.9		
PHF	.500	.500	.375	.500	.558	.824	.813	.935	.667	.375	.500	.558	.550	.717	.607	.657	.859

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:
Counters:
Weather:

File Name : IlaOhe PM
Site Code : 00000002
Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Ilalo Street Westbound					Ohe Street Northbound					Ilalo Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	1	0	4	0	5	2	18	5	0	25	2	0	2	1	5	3	15	2	1	21	56
03:15 PM	1	1	1	0	3	2	37	3	0	42	5	1	4	2	12	0	19	1	1	21	78
03:30 PM	1	2	6	0	9	3	25	4	0	32	8	1	1	1	11	0	17	2	3	22	74
03:45 PM	1	1	6	1	9	2	22	2	0	26	8	0	3	0	11	2	22	1	0	25	71
Total	4	4	17	1	26	9	102	14	0	125	23	2	10	4	39	5	73	6	5	89	279
04:00 PM	0	3	5	3	11	2	21	7	0	30	11	1	10	0	22	4	39	2	0	45	108
04:15 PM	1	4	4	2	11	1	27	9	0	37	9	0	4	1	14	1	22	2	0	25	87
04:30 PM	4	2	4	5	15	2	38	1	1	42	9	3	9	0	21	2	25	1	0	28	106
04:45 PM	2	2	2	0	6	2	23	3	0	28	6	2	5	0	13	1	30	4	0	35	82
Total	7	11	15	10	43	7	109	20	1	137	35	6	28	1	70	8	116	9	0	133	383
05:00 PM	3	1	0	0	4	5	26	3	0	34	0	3	3	0	6	1	35	3	0	39	83
05:15 PM	0	1	1	0	2	3	31	4	0	38	8	1	5	0	14	0	34	0	0	34	88
05:30 PM	1	2	2	2	7	3	18	1	0	22	2	0	7	0	9	1	38	3	0	42	80
05:45 PM	0	0	1	0	1	0	12	2	0	14	2	0	4	0	6	1	25	1	0	27	48
Total	4	4	4	2	14	11	87	10	0	108	12	4	19	0	35	3	132	7	0	142	299
Grand Total	15	19	36	13	83	27	298	44	1	370	70	12	57	5	144	16	321	22	5	364	961
Apprch %	18.1	22.9	43.4	15.7		7.3	80.5	11.9	0.3		48.6	8.3	39.6	3.5		4.4	88.2	6	1.4		
Total %	1.6	2	3.7	1.4	8.6	2.8	31	4.6	0.1	38.5	7.3	1.2	5.9	0.5	15	1.7	33.4	2.3	0.5	37.9	

	Ohe Street Southbound					Ilalo Street Westbound					Ohe Street Northbound					Ilalo Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	3	**5**	3	11	**2**	21	7	0	30	**11**	1	**10**	0	**22**	**4**	**39**	2	0	**45**	**108**
04:15 PM	1	**4**	4	2	11	1	27	**9**	0	37	9	0	4	**1**	14	1	22	2	0	25	87
04:30 PM	**4**	2	4	**5**	**15**	2	**38**	1	**1**	**42**	9	**3**	9	0	21	2	25	1	0	28	106
04:45 PM	2	2	2	0	6	2	23	3	0	28	6	2	5	0	13	1	30	**4**	0	35	82
Total Volume	7	11	15	10	43	7	109	20	1	137	35	6	28	1	70	8	116	9	0	133	383
% App. Total	16.3	25.6	34.9	23.3		5.1	79.6	14.6	0.7		50	8.6	40	1.4		6	87.2	6.8	0		
PHF	.438	.688	.750	.500	.717	.875	.717	.556	.250	.815	.795	.500	.700	.250	.795	.500	.744	.563	.000	.739	.887

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:GC, PA
Counters:D4-3890, D4-3888
Weather:Clear

File Name : CooKel AM
Site Code : 00000003
Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Cooke Street Southbound					Kelikoi Street Westbound					Kakaako Parking Lot Northbound					John A. Burns School Of Medicine Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	0	6	0	0	6	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	9
06:15 AM	1	8	1	3	13	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	16
06:30 AM	2	6	1	2	11	0	0	4	0	4	0	2	1	0	3	0	0	0	0	0	18
06:45 AM	5	9	1	3	18	0	0	3	1	4	0	3	0	2	5	0	0	0	0	0	27
Total	8	29	3	8	48	0	0	9	1	10	0	7	1	2	10	2	0	0	0	2	70
07:00 AM	5	3	2	2	12	0	0	0	1	1	0	2	0	0	2	5	0	0	1	6	21
07:15 AM	2	15	4	1	22	0	0	2	3	5	0	5	0	0	5	1	0	0	3	4	36
07:30 AM	3	9	2	1	15	0	0	1	2	3	0	7	0	0	7	0	0	0	1	1	26
07:45 AM	4	9	5	1	19	0	0	1	1	2	0	4	0	0	4	1	0	0	0	1	26
Total	14	36	13	5	68	0	0	4	7	11	0	18	0	0	18	7	0	0	5	12	109
08:00 AM	4	6	0	5	15	0	0	3	2	5	0	4	0	0	4	5	0	0	1	6	30
08:15 AM	2	5	3	5	15	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	20
08:30 AM	3	5	4	2	14	0	0	1	4	5	0	3	0	1	4	2	0	0	3	5	28
08:45 AM	2	4	3	3	12	0	0	1	2	3	0	4	0	2	6	0	0	0	1	1	22
Total	11	20	10	15	56	0	0	6	8	14	0	15	0	3	18	7	0	0	5	12	100
Grand Total	33	85	26	28	172	0	0	19	16	35	0	40	1	5	46	16	0	0	10	26	279
Apprch %	19.2	49.4	15.1	16.3		0	0	54.3	45.7		0	87	2.2	10.9		61.5	0	0	38.5		
Total %	11.8	30.5	9.3	10	61.6	0	0	6.8	5.7	12.5	0	14.3	0.4	1.8	16.5	5.7	0	0	3.6	9.3	

	Cooke Street Southbound				Kelikoi Street Westbound				Kakaako Parking Lot Northbound				John A. Burns School Of Medicine Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	2	**15**	4	**21**	0	0	2	2	0	5	0	5	1	0	0	1	**29**
07:30 AM	3	9	2	14	0	0	1	1	0	**7**	0	**7**	0	0	0	0	22
07:45 AM	**4**	9	**5**	18	0	0	1	1	0	4	0	4	1	0	0	1	24
08:00 AM	4	6	0	10	0	0	**3**	**3**	0	4	0	4	**5**	0	0	**5**	22
Total Volume	13	39	11	63	0	0	7	7	0	20	0	20	7	0	0	7	97
% App. Total	20.6	61.9	17.5		0	0	100		0	100	0		100	0	0		
PHF	.813	.650	.550	.750	.000	.000	.583	.583	.000	.714	.000	.714	.350	.000	.000	.350	.836

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counted By:
Counters:
Weather:

File Name : CooKel PM
Site Code : 00000003
Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Cooke Street From North					Kelikoi Street From East					Kakaako Parking Lot From South					John A. Burns School of Medicine From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	1	0	3	0	4	2	1	0	3	6	0	13	0	0	13	0	0	1	1	2	25
03:15 PM	1	3	0	2	6	4	0	0	3	7	0	7	0	0	7	0	1	0	0	1	21
03:30 PM	1	6	0	0	7	11	0	1	2	14	0	5	1	0	6	0	0	1	3	4	31
03:45 PM	0	4	0	2	6	4	0	0	0	4	0	5	0	0	5	0	0	2	5	7	22
Total	3	13	3	4	23	21	1	1	8	31	0	30	1	0	31	0	1	4	9	14	99
04:00 PM	1	6	0	5	12	4	0	0	1	5	1	15	0	0	16	1	0	3	8	12	45
04:15 PM	0	3	4	4	11	1	0	0	1	2	0	10	0	0	10	0	0	2	2	4	27
04:30 PM	0	5	0	1	6	3	0	0	2	5	0	6	0	0	6	0	0	10	3	13	30
04:45 PM	0	6	2	1	9	0	0	0	0	0	0	11	0	0	11	0	0	0	5	5	25
Total	1	20	6	11	38	8	0	0	4	12	1	42	0	0	43	1	0	15	18	34	127
05:00 PM	1	4	0	0	5	0	0	0	4	4	0	7	0	0	7	0	0	0	1	1	17
05:15 PM	0	4	0	1	5	1	0	0	2	3	0	9	0	0	9	0	0	4	2	6	23
05:30 PM	0	7	1	0	8	0	0	0	0	0	0	9	0	0	9	0	0	0	3	3	20
05:45 PM	0	1	0	1	2	0	0	0	9	9	0	7	0	0	7	0	0	0	2	2	20
Total	1	16	1	2	20	1	0	0	15	16	0	32	0	0	32	0	0	4	8	12	80
Grand Total	5	49	10	17	81	30	1	1	27	59	1	104	1	0	106	1	1	23	35	60	306
Apprch %	6.2	60.5	12.3	21		50.8	1.7	1.7	45.8		0.9	98.1	0.9	0		1.7	1.7	38.3	58.3		
Total %	1.6	16	3.3	5.6	26.5	9.8	0.3	0.3	8.8	19.3	0.3	34	0.3	0	34.6	0.3	0.3	7.5	11.4	19.6	

	Cooke Street From North				Kelikoi Street From East				Kakaako Parking Lot From South				John A. Burns School of Medicine From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**1**	**6**	0	7	**4**	0	0	**4**	**1**	**15**	0	**16**	**1**	0	3	4	**31**
04:15 PM	0	3	**4**	7	1	0	0	1	0	10	0	10	0	0	2	2	20
04:30 PM	0	5	0	5	3	0	0	3	0	6	0	6	0	0	**10**	**10**	24
04:45 PM	0	6	2	**8**	0	0	0	0	0	11	0	11	0	0	0	0	19
Total Volume	1	20	6	27	8	0	0	8	1	42	0	43	1	0	15	16	94
% App. Total	3.7	74.1	22.2		100	0	0		2.3	97.7	0		6.2	0	93.8		
PHF	.250	.833	.375	.844	.500	.000	.000	.500	.250	.700	.000	.672	.250	.000	.375	.400	.758

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:CY, DY
Counters:TU-1957, TU-0653
Weather:Clear

File Name : OloOhe AM
Site Code : 00000001
Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Olomehani Street Westbound					Northbound	Olomehani Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	1	0	2	0	3	0	2	1	0	3	0	1	0	0	0	1	7
06:15 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	2	3
06:30 AM	1	0	1	0	2	0	1	0	0	1	0	1	0	0	0	1	4
06:45 AM	1	0	2	0	3	0	1	3	0	4	0	0	1	0	0	1	8
Total	3	0	5	0	8	0	5	4	0	9	0	4	1	0	0	5	22
07:00 AM	0	0	2	1	3	0	0	0	0	0	0	1	2	0	0	3	6
07:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	3
07:30 AM	0	0	1	0	1	0	0	2	0	2	0	0	1	0	0	1	4
07:45 AM	1	0	1	0	2	0	1	1	0	2	0	0	2	0	0	2	6
Total	3	0	4	1	8	0	1	3	0	4	0	1	6	0	0	7	19
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2
08:15 AM	0	0	1	0	1	0	2	0	0	2	0	1	0	0	0	1	4
08:30 AM	2	0	1	1	4	0	2	1	0	3	0	1	3	0	0	4	11
08:45 AM	1	0	4	0	5	0	2	0	0	2	0	0	1	0	0	1	8
Total	3	0	6	1	10	0	7	2	0	9	0	2	4	0	0	6	25
Grand Total	9	0	15	2	26	0	13	9	0	22	0	7	11	0	0	18	66
Apprch %	34.6	0	57.7	7.7		0	59.1	40.9	0			38.9	61.1	0	0		
Total %	13.6	0	22.7	3	39.4	0	19.7	13.6	0	33.3	0	10.6	16.7	0	0	27.3	

	Ohe Street Southbound				Olomehani Street Westbound				Northbound	Olomehani Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 08:00 AM														
08:00 AM	0	0	0	0	0	1	**1**	2	0	0	0	0	0	2
08:15 AM	0	0	1	1	0	**2**	0	2	0	**1**	0	0	1	4
08:30 AM	**2**	0	1	3	0	2	1	**3**	0	1	**3**	0	**4**	**10**
08:45 AM	1	0	**4**	**5**	0	2	0	2	0	0	1	0	1	8
Total Volume	3	0	6	9	0	7	2	9	0	2	4	0	6	24
% App. Total	33.3	0	66.7		0	77.8	22.2			33.3	66.7	0		
PHF	.375	.000	.375	.450	.000	.875	.500	.750	.000	.500	.333	.000	.375	.600

Wilson Okamoto Corporation

1907 S. Beretania Street, Suite 400
Honolulu, Hi 96826

Counted By:DY, CY
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Start Date : 11/24/2015
Page No : 1

Groups Printed- Unshifted

	Ohe Street Southbound					Olomehani Street Westbound					Northbound	Olomehani Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:00 PM	2	0	0	2	4	0	3	4	0	7	0	0	8	0	0	8	19
03:15 PM	0	0	2	0	2	0	0	0	0	0	0	1	8	0	0	9	11
03:30 PM	0	0	0	0	0	0	2	1	0	3	0	1	0	0	0	1	4
03:45 PM	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3
Total	4	0	2	2	8	0	6	5	0	11	0	2	16	0	0	18	37
04:00 PM	5	0	2	1	8	0	1	4	0	5	0	0	2	0	0	2	15
04:15 PM	3	0	1	1	5	0	1	2	0	3	0	0	4	0	0	4	12
04:30 PM	3	0	1	0	4	0	1	1	0	2	0	1	0	0	0	1	7
04:45 PM	1	0	2	0	3	0	0	0	0	0	0	1	3	0	0	4	7
Total	12	0	6	2	20	0	3	7	0	10	0	2	9	0	0	11	41
05:00 PM	2	0	1	1	4	0	2	0	0	2	0	0	4	0	0	4	10
05:15 PM	3	0	0	0	3	0	1	1	0	2	0	1	2	0	0	3	8
05:30 PM	2	0	0	0	2	0	2	0	0	2	0	0	3	0	0	3	7
05:45 PM	0	0	0	2	2	0	0	0	0	0	0	1	4	0	0	5	7
Total	7	0	1	3	11	0	5	1	0	6	0	2	13	0	0	15	32
Grand Total	23	0	9	7	39	0	14	13	0	27	0	6	38	0	0	44	110
Apprch %	59	0	23.1	17.9		0	51.9	48.1	0			13.6	86.4	0	0		
Total %	20.9	0	8.2	6.4	35.5	0	12.7	11.8	0	24.5	0	5.5	34.5	0	0	40	

	Ohe Street Southbound				Olomehani Street Westbound				Northbound	Olomehani Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:00 PM														
04:00 PM	**5**	0	**2**	**7**	0	**1**	**4**	**5**	0	0	2	0	2	**14**
04:15 PM	3	0	1	4	0	1	2	3	0	0	**4**	0	**4**	11
04:30 PM	3	0	1	4	0	1	1	2	0	**1**	0	0	1	7
04:45 PM	1	0	2	3	0	0	0	0	0	1	3	0	4	7
Total Volume	12	0	6	18	0	3	7	10	0	2	9	0	11	39
% App. Total	66.7	0	33.3		0	30	70			18.2	81.8	0		
PHF	.600	.000	.750	.643	.000	.750	.438	.500	.000	.500	.563	.000	.688	.696

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

"Highway Capacity Manual," Transportation Research Board, 2000.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

"Highway Capacity Manual," Transportation Research Board, 2000.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

Table 1: Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

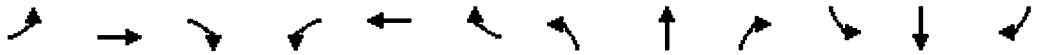
"Highway Capacity Manual," Transportation Research Board, 2000.

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS
BASELINE PEAK PERIOD TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	1658	40	13	1654	27	26	16	3	19	20	80
Future Volume (vph)	94	1658	40	13	1654	27	26	16	3	19	20	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.97		1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	5060		1770	5068			1791	1544		1807	1542
Flt Permitted	0.95	1.00		0.95	1.00			0.78	1.00		0.82	1.00
Satd. Flow (perm)	1770	5060		1770	5068			1449	1544		1524	1542
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	1709	41	13	1705	28	27	16	3	20	21	82
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	3	0	0	75
Lane Group Flow (vph)	97	1749	0	13	1732	0	0	43	0	0	41	7
Confl. Peds. (#/hr)			38			15	14		13	13		14
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	10.7	62.6		1.1	53.0			6.8	6.8		6.8	6.8
Effective Green, g (s)	10.7	62.6		1.1	53.0			6.8	6.8		6.8	6.8
Actuated g/C Ratio	0.13	0.73		0.01	0.62			0.08	0.08		0.08	0.08
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	221	3704		22	3141			115	122		121	122
v/s Ratio Prot	c0.05	c0.35		0.01	c0.34							
v/s Ratio Perm								c0.03	0.00		0.03	0.00
v/c Ratio	0.44	0.47		0.59	0.55			0.37	0.00		0.34	0.05
Uniform Delay, d1	34.6	4.7		42.0	9.4			37.3	36.2		37.2	36.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	0.1		36.0	0.2			2.0	0.0		1.7	0.2
Delay (s)	36.0	4.8		78.0	9.6			39.4	36.2		38.9	36.6
Level of Service	D	A		E	A			D	D		D	D
Approach Delay (s)		6.4			10.1			39.2			37.3	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.9%	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)	62	2054	30	9	1627	52	59	45	13	35	28	139
Future Volume (vph)	62	2054	30	9	1627	52	59	45	13	35	28	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.97		1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	1.00
Satd. Flow (prot)	1770	5069		1770	5043			1812	1532		1813	1537
Flt Permitted	0.95	1.00		0.95	1.00			0.79	1.00		0.78	1.00
Satd. Flow (perm)	1770	5069		1770	5043			1469	1532		1458	1537
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	2140	31	9	1695	54	61	47	14	36	29	145
RTOR Reduction (vph)	0	1	0	0	2	0	0	0	12	0	0	118
Lane Group Flow (vph)	65	2170	0	9	1747	0	0	108	2	0	65	27
Confl. Peds. (#/hr)			41			39			18			15
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	7.9	67.0		0.8	59.9			13.4	13.4		13.4	13.4
Effective Green, g (s)	7.9	67.0		0.8	59.9			13.4	13.4		13.4	13.4
Actuated g/C Ratio	0.08	0.70		0.01	0.62			0.14	0.14		0.14	0.14
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	145	3530		14	3140			204	213		203	214
v/s Ratio Prot	c0.04	c0.43		0.01	0.35							
v/s Ratio Perm								c0.07	0.00		0.04	0.02
v/c Ratio	0.45	0.61		0.64	0.56			0.53	0.01		0.32	0.13
Uniform Delay, d1	42.1	7.7		47.6	10.5			38.5	35.7		37.3	36.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.3		71.2	0.2			2.5	0.0		0.9	0.3
Delay (s)	44.3	8.1		118.8	10.7			40.9	35.7		38.2	36.5
Level of Service	D	A		F	B			D	D		D	D
Approach Delay (s)		9.1			11.2			40.3			37.1	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	96.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1558	41	0	1693	0	4
Future Volume (Veh/h)	1558	41	0	1693	0	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1606	42	0	1745	0	4
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.86		0.86	0.86
vC, conflicting volume			1695		2256	603
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1246		1896	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			457		50	893

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	642	642	363	582	582	582	4
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	42	0	0	0	4
cSH	1700	1700	1700	1700	1700	1700	893
Volume to Capacity	0.38	0.38	0.21	0.34	0.34	0.34	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.1
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2002	26	0	1660	0	0
Future Volume (Veh/h)	2002	26	0	1660	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2107	27	0	1747	0	0
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.77		0.77	0.77
vC, conflicting volume			2181		2750	763
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1488		2227	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			329		27	798

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	843	843	448	582	582	582	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	27	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.50	0.26	0.34	0.34	0.34	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							A
Approach Delay (s)	0.0			0.0			0.0
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1515	18	0	1727	19	20
Future Volume (vph)	1515	18	0	1727	19	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5071			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5071			5085	1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1562	19	0	1780	20	21
RTOR Reduction (vph)	1	0	0	0	0	20
Lane Group Flow (vph)	1580	0	0	1780	20	1
Confl. Peds. (#/hr)		35				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	50.2			50.2	3.5	3.5
Effective Green, g (s)	50.2			50.2	3.5	3.5
Actuated g/C Ratio	0.79			0.79	0.05	0.05
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	3996			4007	97	86
v/s Ratio Prot	0.31			c0.35	c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.40			0.44	0.21	0.01
Uniform Delay, d1	2.1			2.2	28.8	28.5
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.1	1.1	0.1
Delay (s)	2.1			2.3	29.8	28.5
Level of Service	A			A	C	C
Approach Delay (s)	2.1			2.3	29.2	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	2.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	63.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2006	30	0	1586	57	54
Future Volume (vph)	2006	30	0	1586	57	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5069			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5069			5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2112	32	0	1669	60	57
RTOR Reduction (vph)	1	0	0	0	0	28
Lane Group Flow (vph)	2143	0	0	1669	60	29
Confl. Peds. (#/hr)		18				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	68.8			68.8	7.0	7.0
Effective Green, g (s)	68.8			68.8	7.0	7.0
Actuated g/C Ratio	0.80			0.80	0.08	0.08
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	4064			4077	144	129
v/s Ratio Prot	c0.42			0.33	c0.03	
v/s Ratio Perm						0.02
v/c Ratio	0.53			0.41	0.42	0.23
Uniform Delay, d1	2.9			2.5	37.5	36.9
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.1	1.9	0.9
Delay (s)	3.0			2.6	39.4	37.8
Level of Service	A			A	D	D
Approach Delay (s)	3.0			2.6	38.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	85.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↰	↱
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	40	16	31	123	21	5	34	13	23	26	39
Future Volume (vph)	20	40	16	31	123	21	5	34	13	23	26	39
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	25	51	20	39	156	27	6	43	16	29	33	49

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	96	222	65	62	49
Volume Left (vph)	25	39	6	29	0
Volume Right (vph)	20	27	16	0	49
Hadj (s)	-0.04	0.00	-0.10	0.27	-0.67
Departure Headway (s)	4.6	4.5	4.8	5.6	4.6
Degree Utilization, x	0.12	0.27	0.09	0.10	0.06
Capacity (veh/h)	750	772	694	603	721
Control Delay (s)	8.2	9.1	8.3	8.0	6.8
Approach Delay (s)	8.2	9.1	8.3	7.4	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	28.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↰	↱
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	166	23	20	140	21	22	27	18	16	29	30
Future Volume (vph)	35	166	23	20	140	21	22	27	18	16	29	30
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	44	208	29	25	175	26	28	34	23	20	36	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	281	226	85	56	38
Volume Left (vph)	44	25	28	20	0
Volume Right (vph)	29	26	23	0	38
Hadj (s)	0.00	-0.01	-0.06	0.21	-0.67
Departure Headway (s)	4.7	4.7	5.3	6.0	5.2
Degree Utilization, x	0.36	0.30	0.13	0.09	0.05
Capacity (veh/h)	731	723	609	540	626
Control Delay (s)	10.3	9.7	9.1	8.5	7.3
Approach Delay (s)	10.3	9.7	9.1	8.0	
Approach LOS	B	A	A	A	

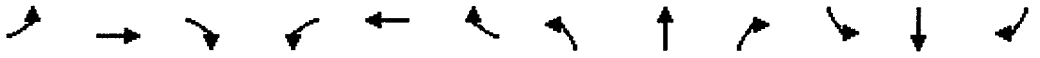
Intersection Summary				
Delay	9.6			
Level of Service	A			
Intersection Capacity Utilization	36.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	43	17	29	145	13	8	3	18	2	4	6
Future Volume (Veh/h)	11	43	17	29	145	13	8	3	18	2	4	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	13	50	20	34	169	15	9	3	21	2	5	7
Pedestrians					6			6			7	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	191			76			346	351	72	366	354	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			76			346	351	72	366	354	184
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			99	100	98	100	99	99
cM capacity (veh/h)	1373			1514			636	606	999	610	604	899

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	83	218	9	24	14
Volume Left	13	34	9	0	2
Volume Right	20	15	0	21	7
cSH	1373	1514	636	924	724
Volume to Capacity	0.01	0.02	0.01	0.03	0.02
Queue Length 95th (ft)	1	2	1	2	1
Control Delay (s)	1.3	1.3	10.7	9.0	10.1
Lane LOS	A	A	B	A	B
Approach Delay (s)	1.3	1.3	9.5		10.1
Approach LOS			A		B

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A	
Analysis Period (min)	15			

* User Entered Value



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	116	9	7	109	20	35	6	28	7	11	15
Future Volume (Veh/h)	8	116	9	7	109	20	35	6	28	7	11	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	9	130	10	8	122	22	39	7	31	8	12	17
Pedestrians					1			1			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	154			141			326	324	137	348	318	143
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154			141			326	324	137	348	318	143
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			94	99	97	99	98	98
cM capacity (veh/h)	1413			1441			654	636	946	625	640	933

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	149	152	39	38	37
Volume Left	9	8	39	0	8
Volume Right	10	22	0	31	17
cSH	1413	1441	654	868	743
Volume to Capacity	0.01	0.01	0.06	0.04	0.05
Queue Length 95th (ft)	0	0	5	3	4
Control Delay (s)	0.5	0.4	10.9	9.3	10.1
Lane LOS	A	A	B	A	B
Approach Delay (s)	0.5	0.4	10.1		10.1
Approach LOS			B		B

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	25.1%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	7	20	0	13	39
Future Volume (Veh/h)	0	7	20	0	13	39
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	8	24	0	15	46
Pedestrians	8					8
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	1					1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	108	40			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	108	40			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			99	
cM capacity (veh/h)	874	1016			1568	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	24	61
Volume Left	0	0	15
Volume Right	8	0	0
cSH	1016	1700	1568
Volume to Capacity	0.01	0.01	0.01
Queue Length 95th (ft)	1	0	1
Control Delay (s)	8.6	0.0	1.9
Lane LOS	A		A
Approach Delay (s)	8.6	0.0	1.9
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	8	42	1	6	21
Future Volume (Veh/h)	0	8	42	1	6	21
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	0	11	59	1	8	30
Pedestrians	4					11
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	0					1
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	110	74			64	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	110	74			64	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			99	
cM capacity (veh/h)	880	973			1533	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	60	38
Volume Left	0	0	8
Volume Right	11	1	0
cSH	973	1700	1533
Volume to Capacity	0.01	0.04	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	1.6
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	1.6
Approach LOS	A		

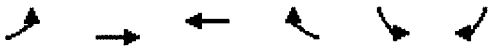
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	4	2	4	3	2
Future Volume (Veh/h)	1	4	2	4	3	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	2	7	3	7	5	3
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	11				18	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	11				18	8
tC, single (s)	4.1				*5.4	*5.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1607				1002	1076

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	9	10	8
Volume Left	2	0	5
Volume Right	0	7	3
cSH	1607	1700	1029
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	1.6	0.0	8.5
Lane LOS	A		A
Approach Delay (s)	1.6	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	9	3	7	12	6
Future Volume (Veh/h)	2	9	3	7	12	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	3	13	4	10	17	9
Pedestrians			7		2	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			1		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	16				37	11
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16				37	11
tC, single (s)	4.1				*5.4	*5.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1598				975	1071

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	14	26
Volume Left	3	0	17
Volume Right	0	10	9
cSH	1598	1700	1007
Volume to Capacity	0.00	0.01	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	1.4	0.0	8.7
Lane LOS	A		A
Approach Delay (s)	1.4	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

APPENDIX D

CAPACITY ANALYSIS CALCULATIONS
YEAR 2025 PEAK PERIOD TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	1892	40	13	1908	27	26	16	2	19	20	80
Future Volume (vph)	94	1892	40	13	1908	27	26	16	2	19	20	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.97		1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	5061		1770	5070			1786	1538		1804	1536
Flt Permitted	0.95	1.00		0.95	1.00			0.79	1.00		0.84	1.00
Satd. Flow (perm)	1770	5061		1770	5070			1456	1538		1551	1536
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	1951	41	13	1967	28	27	16	2	20	21	82
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	2	0	0	74
Lane Group Flow (vph)	97	1991	0	13	1994	0	0	43	0	0	41	8
Confl. Peds. (#/hr)			38			15	14		13	13		14
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	12.1	81.2		2.1	71.2			11.3	11.3		11.3	11.3
Effective Green, g (s)	12.1	81.2		2.1	71.2			11.3	11.3		11.3	11.3
Actuated g/C Ratio	0.11	0.74		0.02	0.65			0.10	0.10		0.10	0.10
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	195	3749		33	3293			150	158		159	158
v/s Ratio Prot	c0.05	c0.39		0.01	c0.39							
v/s Ratio Perm								c0.03	0.00		0.03	0.01
v/c Ratio	0.50	0.53		0.39	0.61			0.29	0.00		0.26	0.05
Uniform Delay, d1	45.9	6.1		53.1	11.1			45.4	44.1		45.3	44.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	0.1		7.6	0.3			1.1	0.0		0.9	0.1
Delay (s)	47.9	6.2		60.7	11.4			46.5	44.1		46.1	44.5
Level of Service	D	A		E	B			D	D		D	D
Approach Delay (s)		8.1			11.7			46.4			45.0	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	109.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.8%	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)	62	2354	30	9	1876	52	59	45	12	35	28	139
Future Volume (vph)	62	2354	30	9	1876	52	59	45	12	35	28	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.96		1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	1.00
Satd. Flow (prot)	1770	5070		1770	5044			1812	1522		1813	1529
Flt Permitted	0.95	1.00		0.95	1.00			0.79	1.00		0.80	1.00
Satd. Flow (perm)	1770	5070		1770	5044			1473	1522		1488	1529
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	2452	31	9	1954	54	61	47	12	36	29	145
RTOR Reduction (vph)	0	1	0	0	2	0	0	0	11	0	0	89
Lane Group Flow (vph)	65	2482	0	9	2006	0	0	108	2	0	65	56
Confl. Peds. (#/hr)			41			39			18			15
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	8.2	90.2		1.3	83.3			21.1	21.1		21.1	21.1
Effective Green, g (s)	8.2	90.2		1.3	83.3			21.1	21.1		21.1	21.1
Actuated g/C Ratio	0.06	0.71		0.01	0.65			0.17	0.17		0.17	0.17
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	113	3583		18	3292			243	251		246	252
v/s Ratio Prot	c0.04	c0.49		0.01	0.40							
v/s Ratio Perm								c0.07	0.00		0.04	0.04
v/c Ratio	0.58	0.69		0.50	0.61			0.44	0.01		0.26	0.22
Uniform Delay, d1	58.0	10.7		62.8	12.8			48.0	44.5		46.5	46.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	6.9	0.6		20.2	0.3			1.3	0.0		0.6	0.4
Delay (s)	64.9	11.3		83.0	13.1			49.3	44.5		47.1	46.6
Level of Service	E	B		F	B			D	D		D	D
Approach Delay (s)		12.7			13.4			48.8			46.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	127.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1791	41	0	1947	0	5
Future Volume (Veh/h)	1791	41	0	1947	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1846	42	0	2007	0	5
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.83		0.83	0.83
vC, conflicting volume			1935		2583	683
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1420		2198	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			378		30	863

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	738	738	411	669	669	669	5
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	42	0	0	0	5
cSH	1700	1700	1700	1700	1700	1700	863
Volume to Capacity	0.43	0.43	0.24	0.39	0.39	0.39	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.2
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.2
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
1: Ohe Street & Ala Moana Blvd/Ala Moana Boulevard

12/29/2015

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2301	26	0	1909	0	1
Future Volume (Veh/h)	2301	26	0	1909	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2422	27	0	2009	0	1
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.71		0.71	0.71
vC, conflicting volume			2496		3152	868
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1688		2608	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			255		14	738

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	969	969	511	670	670	670	1
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	27	0	0	0	1
cSH	1700	1700	1700	1700	1700	1700	738
Volume to Capacity	0.57	0.57	0.30	0.39	0.39	0.39	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.9
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1749	18	0	1981	19	20
Future Volume (vph)	1749	18	0	1981	19	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5072			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5072			5085	1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1803	19	0	2042	20	21
RTOR Reduction (vph)	1	0	0	0	0	20
Lane Group Flow (vph)	1821	0	0	2042	20	1
Confl. Peds. (#/hr)		35				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	63.0			63.0	3.6	3.6
Effective Green, g (s)	63.0			63.0	3.6	3.6
Actuated g/C Ratio	0.82			0.82	0.05	0.05
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	4171			4182	83	74
v/s Ratio Prot	0.36			c0.40	c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.44			0.49	0.24	0.01
Uniform Delay, d1	1.9			2.0	35.2	34.8
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.1	1.5	0.1
Delay (s)	2.0			2.1	36.7	34.9
Level of Service	A			A	D	C
Approach Delay (s)	2.0			2.1	35.8	
Approach LOS	A			A	D	

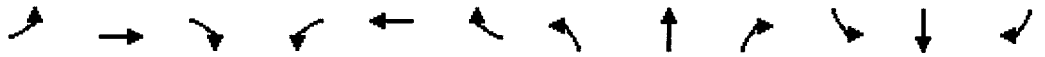
Intersection Summary			
HCM 2000 Control Delay	2.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2306	30	0	1835	57	54
Future Volume (vph)	2306	30	0	1835	57	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5070			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5070			5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2427	32	0	1932	60	57
RTOR Reduction (vph)	1	0	0	0	0	17
Lane Group Flow (vph)	2458	0	0	1932	60	40
Confl. Peds. (#/hr)		18				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	94.7			94.7	7.8	7.8
Effective Green, g (s)	94.7			94.7	7.8	7.8
Actuated g/C Ratio	0.84			0.84	0.07	0.07
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	4267			4280	122	109
v/s Ratio Prot	c0.48			0.38	c0.03	
v/s Ratio Perm						0.03
v/c Ratio	0.58			0.45	0.49	0.37
Uniform Delay, d1	2.7			2.3	50.4	50.0
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.2			0.1	3.1	2.1
Delay (s)	2.9			2.3	53.5	52.1
Level of Service	A			A	D	D
Approach Delay (s)	2.9			2.3	52.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

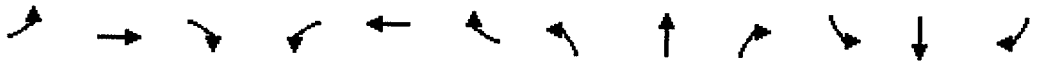
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↰	↱
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	46	16	18	146	30	4	24	9	23	26	39
Future Volume (vph)	20	46	16	18	146	30	4	24	9	23	26	39
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	25	58	20	23	185	38	5	30	11	29	33	49

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	103	246	46	62	49
Volume Left (vph)	25	23	5	29	0
Volume Right (vph)	20	38	11	0	49
Hadj (s)	-0.03	-0.04	-0.09	0.27	-0.67
Departure Headway (s)	4.5	4.4	4.9	5.6	4.7
Degree Utilization, x	0.13	0.30	0.06	0.10	0.06
Capacity (veh/h)	756	787	679	597	712
Control Delay (s)	8.2	9.2	8.2	8.0	6.8
Approach Delay (s)	8.2	9.2	8.2	7.5	
Approach LOS	A	A	A	A	

Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	30.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	183	23	16	165	31	13	16	11	16	29	30
Future Volume (vph)	35	183	23	16	165	31	13	16	11	16	29	30
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	44	229	29	20	206	39	16	20	14	20	36	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	302	265	50	56	38
Volume Left (vph)	44	20	16	20	0
Volume Right (vph)	29	39	14	0	38
Hadj (s)	0.01	-0.04	-0.07	0.21	-0.67
Departure Headway (s)	4.6	4.6	5.4	6.1	5.2
Degree Utilization, x	0.39	0.34	0.08	0.10	0.06
Capacity (veh/h)	743	744	587	533	617
Control Delay (s)	10.5	10.0	8.9	8.6	7.3
Approach Delay (s)	10.5	10.0	8.9	8.1	
Approach LOS	B	A	A	A	

Intersection Summary			
Delay	9.9		
Level of Service	A		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑			↕	
Traffic Volume (veh/h)	11	45	17	42	154	13	18	4	22	2	4	6
Future Volume (Veh/h)	11	45	17	42	154	13	18	4	22	2	4	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	13	52	20	49	179	15	21	5	26	2	5	7
Pedestrians					6			6			7	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	201			78			388	393	74	414	396	194
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	201			78			388	393	74	414	396	194
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			96	99	97	100	99	99
cM capacity (veh/h)	1362			1512			599	575	997	565	573	890

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	85	243	21	31	14
Volume Left	13	49	21	0	2
Volume Right	20	15	0	26	7
cSH	1362	1512	599	891	696
Volume to Capacity	0.01	0.03	0.04	0.03	0.02
Queue Length 95th (ft)	1	3	3	3	2
Control Delay (s)	1.2	1.7	11.2	9.2	10.3
Lane LOS	A	A	B	A	B
Approach Delay (s)	1.2	1.7	10.0		10.3
Approach LOS			B		B

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	29.3%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑			↕	
Traffic Volume (veh/h)	8	126	9	11	121	20	54	7	35	7	11	15
Future Volume (Veh/h)	8	126	9	11	121	20	54	7	35	7	11	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	9	142	10	12	136	22	61	8	39	8	12	17
Pedestrians					1			1			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	168			153			360	358	149	390	352	157
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	168			153			360	358	149	390	352	157
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			90	99	96	99	98	98
cM capacity (veh/h)	1396			1426			625	613	935	585	617	920

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	161	170	61	47	37
Volume Left	9	12	61	0	8
Volume Right	10	22	0	39	17
cSH	1396	1426	625	858	717
Volume to Capacity	0.01	0.01	0.10	0.05	0.05
Queue Length 95th (ft)	0	1	8	4	4
Control Delay (s)	0.5	0.6	11.4	9.4	10.3
Lane LOS	A	A	B	A	B
Approach Delay (s)	0.5	0.6	10.5		10.3
Approach LOS			B		B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	28.3%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	4	22	17
Future Volume (Veh/h)	8	0	0	4	22	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	10	0	0	5	26	20
Pedestrians			8		8	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			1		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				38	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				38	10
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	1593				953	1062

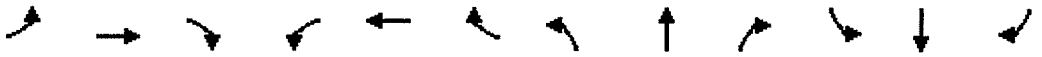
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	10	5	46
Volume Left	10	0	26
Volume Right	0	5	20
cSH	1593	1700	998
Volume to Capacity	0.01	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	7.3	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	7.3	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	0	8	15	8
Future Volume (Veh/h)	15	0	0	8	15	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.71	0.71	0.92
Hourly flow rate (vph)	16	0	0	11	21	9
Pedestrians			4		11	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22				52	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				52	16
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1577				933	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	16	11	30
Volume Left	16	0	21
Volume Right	0	11	9
cSH	1577	1700	965
Volume to Capacity	0.01	0.01	0.03
Queue Length 95th (ft)	1	0	2
Control Delay (s)	7.3	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	7.3	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	4	0	0	2	4	0	11	0	3	10	5
Future Volume (Veh/h)	5	4	0	0	2	4	0	11	0	3	10	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	8	7	0	0	3	7	0	18	0	5	17	8
Pedestrians											1	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											3.5	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11			7			46	34	7	40	30	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			7			46	34	7	40	30	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	*5.4	6.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	98	100	99	98	99
cM capacity (veh/h)	1607			1614			930	853	1075	962	857	1076

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	10	18	30
Volume Left	8	0	0	5
Volume Right	0	7	0	8
cSH	1607	1614	853	924
Volume to Capacity	0.00	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	2	3
Control Delay (s)	3.9	0.0	9.3	9.0
Lane LOS	A		A	A
Approach Delay (s)	3.9	0.0	9.3	9.0
Approach LOS			A	A

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	5	0	1	2	7	0	20	3	12	3	7
Future Volume (Veh/h)	9	5	0	1	2	7	0	20	3	12	3	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.92	0.92	0.70	0.70	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	13	7	0	1	3	10	0	22	3	17	3	10
Pedestrians					7						2	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	15			7			54	50	14	66	45	10
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	15			7			54	50	14	66	45	10
tC, single (s)	4.1			4.1			7.1	6.5	6.2	*5.4	6.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	97	100	98	100	99
cM capacity (veh/h)	1600			1614			925	833	1059	920	838	1072

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	14	25	30
Volume Left	13	1	0	17
Volume Right	0	10	3	10
cSH	1600	1614	854	956
Volume to Capacity	0.01	0.00	0.03	0.03
Queue Length 95th (ft)	1	0	2	2
Control Delay (s)	4.7	0.5	9.3	8.9
Lane LOS	A	A	A	A
Approach Delay (s)	4.7	0.5	9.3	8.9
Approach LOS			A	A

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS
YEAR 2035 PEAK PERIOD TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	2126	40	13	2162	27	26	16	2	19	20	80
Future Volume (vph)	94	2126	40	13	2162	27	26	16	2	19	20	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.97		1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	5063		1770	5071			1784	1534		1802	1532
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.85	1.00
Satd. Flow (perm)	1770	5063		1770	5071			1470	1534		1563	1532
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	2192	41	13	2229	28	27	16	2	20	21	82
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	2	0	0	73
Lane Group Flow (vph)	97	2232	0	13	2256	0	0	43	0	0	41	9
Confl. Peds. (#/hr)			38			15	14		13	13		14
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	12.3	93.0		2.0	82.7			13.3	13.3		13.3	13.3
Effective Green, g (s)	12.3	93.0		2.0	82.7			13.3	13.3		13.3	13.3
Actuated g/C Ratio	0.10	0.75		0.02	0.67			0.11	0.11		0.11	0.11
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	176	3818		28	3401			158	165		168	165
v/s Ratio Prot	c0.05	c0.44		0.01	c0.44							
v/s Ratio Perm								c0.03	0.00		0.03	0.01
v/c Ratio	0.55	0.58		0.46	0.66			0.27	0.00		0.24	0.05
Uniform Delay, d1	52.9	6.7		60.1	12.0			50.6	49.1		50.4	49.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	3.7	0.2		11.7	0.5			0.9	0.0		0.8	0.1
Delay (s)	56.6	6.9		71.8	12.5			51.5	49.1		51.2	49.5
Level of Service	E	A		E	B			D	D		D	D
Approach Delay (s)		9.0			12.9			51.4			50.0	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	123.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.7%	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)	62	2661	31	10	2125	52	61	46	12	35	29	139
Future Volume (vph)	62	2661	31	10	2125	52	61	46	12	35	29	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.96		1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.97	1.00
Satd. Flow (prot)	1770	5071		1770	5047			1811	1518		1813	1526
Flt Permitted	0.95	1.00		0.95	1.00			0.79	1.00		0.78	1.00
Satd. Flow (perm)	1770	5071		1770	5047			1465	1518		1456	1526
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	65	2772	32	10	2214	54	64	48	12	36	30	145
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	11	0	0	74
Lane Group Flow (vph)	65	2803	0	10	2267	0	0	112	2	0	66	71
Confl. Peds. (#/hr)			41			39			18			15
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			7	
Permitted Phases							4		4	7		7
Actuated Green, G (s)	8.3	100.5		1.9	94.1			21.3	21.3		21.3	21.3
Effective Green, g (s)	8.3	100.5		1.9	94.1			21.3	21.3		21.3	21.3
Actuated g/C Ratio	0.06	0.72		0.01	0.68			0.15	0.15		0.15	0.15
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	105	3674		24	3424			224	233		223	234
v/s Ratio Prot	c0.04	c0.55		0.01	0.45							
v/s Ratio Perm								c0.08	0.00		0.05	0.05
v/c Ratio	0.62	0.76		0.42	0.66			0.50	0.01		0.30	0.30
Uniform Delay, d1	63.7	11.8		67.9	13.0			53.8	49.8		52.1	52.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	10.4	1.0		11.3	0.5			1.8	0.0		0.7	0.7
Delay (s)	74.1	12.7		79.1	13.5			55.6	49.8		52.8	52.9
Level of Service	E	B		E	B			E	D		D	D
Approach Delay (s)		14.1			13.8			55.0			52.8	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	138.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2025	41	0	2201	0	5
Future Volume (Veh/h)	2025	41	0	2201	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	2088	42	0	2269	0	5
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.80		0.80	0.80
vC, conflicting volume			2177		2912	764
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1613		2527	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			308		17	833

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	835	835	460	756	756	756	5
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	42	0	0	0	5
cSH	1700	1700	1700	1700	1700	1700	833
Volume to Capacity	0.49	0.49	0.27	0.44	0.44	0.44	0.01
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.3
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.3
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2602	32	0	2159	0	2
Future Volume (Veh/h)	2602	32	0	2159	0	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2739	34	0	2273	0	2
Pedestrians					47	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					4	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	188					
pX, platoon unblocked			0.65		0.65	0.65
vC, conflicting volume			2820		3561	977
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1900		3046	0
tC, single (s)			4.1		6.8	*5.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			191		6	669

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	1096	1096	582	758	758	758	2
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	34	0	0	0	2
cSH	1700	1700	1700	1700	1700	1700	669
Volume to Capacity	0.64	0.64	0.34	0.45	0.45	0.45	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.4
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

* User Entered Value

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1983	18	0	2235	19	20
Future Volume (vph)	1983	18	0	2235	19	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5073			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5073			5085	1770	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2044	19	0	2304	20	21
RTOR Reduction (vph)	1	0	0	0	0	20
Lane Group Flow (vph)	2062	0	0	2304	20	1
Confl. Peds. (#/hr)		35				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	79.3			79.3	3.8	3.8
Effective Green, g (s)	79.3			79.3	3.8	3.8
Actuated g/C Ratio	0.85			0.85	0.04	0.04
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	4321			4331	72	64
v/s Ratio Prot	0.41			c0.45	c0.01	
v/s Ratio Perm						0.00
v/c Ratio	0.48			0.53	0.28	0.01
Uniform Delay, d1	1.7			1.9	43.3	42.9
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.1			0.1	2.1	0.1
Delay (s)	1.8			2.0	45.4	42.9
Level of Service	A			A	D	D
Approach Delay (s)	1.8			2.0	44.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	2.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2607	30	0	2084	57	54
Future Volume (vph)	2607	30	0	2084	57	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.91			0.91	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	5072			5085	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	5072			5085	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2744	32	0	2194	60	57
RTOR Reduction (vph)	1	0	0	0	0	10
Lane Group Flow (vph)	2775	0	0	2194	60	47
Confl. Peds. (#/hr)		18				
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Actuated Green, G (s)	114.7			114.7	8.4	8.4
Effective Green, g (s)	114.7			114.7	8.4	8.4
Actuated g/C Ratio	0.86			0.86	0.06	0.06
Clearance Time (s)	5.0			5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Lane Grp Cap (vph)	4370			4382	111	99
v/s Ratio Prot	c0.55			0.43	c0.03	
v/s Ratio Perm						0.03
v/c Ratio	0.64			0.50	0.54	0.47
Uniform Delay, d1	2.8			2.2	60.5	60.2
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.3			0.1	5.3	3.5
Delay (s)	3.1			2.3	65.8	63.7
Level of Service	A			A	E	E
Approach Delay (s)	3.1			2.3	64.8	
Approach LOS	A			A	E	

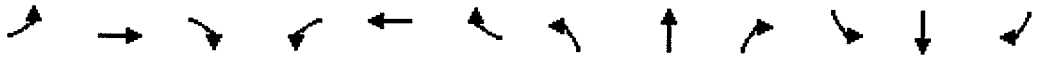
Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	133.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↰	↱
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	53	16	18	168	30	4	24	9	23	26	39
Future Volume (vph)	20	53	16	18	168	30	4	24	9	23	26	39
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	25	67	20	23	213	38	5	30	11	29	33	49

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	112	274	46	62	49
Volume Left (vph)	25	23	5	29	0
Volume Right (vph)	20	38	11	0	49
Hadj (s)	-0.03	-0.03	-0.09	0.27	-0.67
Departure Headway (s)	4.6	4.4	5.0	5.7	4.8
Degree Utilization, x	0.14	0.34	0.06	0.10	0.07
Capacity (veh/h)	748	784	660	585	695
Control Delay (s)	8.4	9.6	8.3	8.1	6.9
Approach Delay (s)	8.4	9.6	8.3	7.6	
Approach LOS	A	A	A	A	

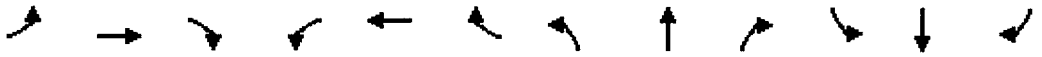
Intersection Summary			
Delay	8.8		
Level of Service	A		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	205	26	18	184	32	14	18	12	16	32	30
Future Volume (vph)	35	205	26	18	184	32	14	18	12	16	32	30
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	44	256	33	23	230	40	18	23	15	20	40	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	333	293	56	60	38
Volume Left (vph)	44	23	18	20	0
Volume Right (vph)	33	40	15	0	38
Hadj (s)	0.00	-0.03	-0.06	0.20	-0.67
Departure Headway (s)	4.7	4.7	5.6	6.3	5.4
Degree Utilization, x	0.43	0.38	0.09	0.10	0.06
Capacity (veh/h)	731	730	555	515	593
Control Delay (s)	11.3	10.6	9.2	8.8	7.5
Approach Delay (s)	11.3	10.6	9.2	8.3	
Approach LOS	B	B	A	A	

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	52	17	42	176	13	18	4	22	2	4	6
Future Volume (Veh/h)	11	52	17	42	176	13	18	4	22	2	4	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	13	60	20	49	205	15	21	5	26	2	5	7
Pedestrians					6			6			7	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	227			86			422	427	82	448	430	220
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	227			86			422	427	82	448	430	220
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			96	99	97	100	99	99
cM capacity (veh/h)	1332			1502			574	555	989	542	554	867

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	93	269	21	31	14
Volume Left	13	49	21	0	2
Volume Right	20	15	0	26	7
cSH	1332	1502	574	878	673
Volume to Capacity	0.01	0.03	0.04	0.04	0.02
Queue Length 95th (ft)	1	3	3	3	2
Control Delay (s)	1.1	1.6	11.5	9.2	10.5
Lane LOS	A	A	B	A	B
Approach Delay (s)	1.1	1.6	10.2		10.5
Approach LOS			B		B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	30.8%	ICU Level of Service		A
Analysis Period (min)	15			

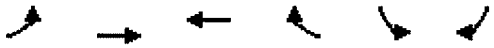
* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	145	13	15	140	20	57	8	39	7	17	15
Future Volume (Veh/h)	8	145	13	15	140	20	57	8	39	7	17	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	9	163	15	17	157	22	64	9	44	8	19	17
Pedestrians					1			1			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	189			179			418	412	172	450	409	178
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	189			179			418	412	172	450	409	178
tC, single (s)	4.1			4.1			*6.1	*5.5	*5.2	*6.1	*5.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			89	98	95	99	97	98
cM capacity (veh/h)	1372			1395			574	578	913	537	580	901

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	187	196	64	53	44
Volume Left	9	17	64	0	8
Volume Right	15	22	0	44	17
cSH	1372	1395	574	831	661
Volume to Capacity	0.01	0.01	0.11	0.06	0.07
Queue Length 95th (ft)	0	1	9	5	5
Control Delay (s)	0.4	0.8	12.1	9.6	10.8
Lane LOS	A	A	B	A	B
Approach Delay (s)	0.4	0.8	11.0		10.8
Approach LOS			B		B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	30.7%	ICU Level of Service		A
Analysis Period (min)	15			

* User Entered Value



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	4	22	17
Future Volume (Veh/h)	8	0	0	4	22	17
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	10	0	0	5	26	20
Pedestrians			8		8	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			1		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13				38	10
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				38	10
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	1593				953	1062

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	10	5	46
Volume Left	10	0	26
Volume Right	0	5	20
cSH	1593	1700	998
Volume to Capacity	0.01	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	7.3	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	7.3	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	8	15	16
Future Volume (Veh/h)	19	0	0	8	15	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.71	0.71	0.92
Hourly flow rate (vph)	21	0	0	11	21	17
Pedestrians			4		11	
Lane Width (ft)			12.0		12.0	
Walking Speed (ft/s)			3.5		3.5	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22				62	16
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22				62	16
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1577				918	1051

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	11	38
Volume Left	21	0	21
Volume Right	0	11	17
cSH	1577	1700	973
Volume to Capacity	0.01	0.01	0.04
Queue Length 95th (ft)	1	0	3
Control Delay (s)	7.3	0.0	8.8
Lane LOS	A		A
Approach Delay (s)	7.3	0.0	8.8
Approach LOS			A

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	4	0	0	2	4	0	11	0	3	10	5
Future Volume (Veh/h)	5	4	0	0	2	4	0	11	0	3	10	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Hourly flow rate (vph)	8	7	0	0	3	7	0	18	0	5	17	8
Pedestrians											1	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											3.5	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11			7			46	34	7	40	30	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			7			46	34	7	40	30	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	*5.4	6.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	98	100	99	98	99
cM capacity (veh/h)	1607			1614			930	853	1075	962	857	1076

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	10	18	30
Volume Left	8	0	0	5
Volume Right	0	7	0	8
cSH	1607	1614	853	924
Volume to Capacity	0.00	0.00	0.02	0.03
Queue Length 95th (ft)	0	0	2	3
Control Delay (s)	3.9	0.0	9.3	9.0
Lane LOS	A		A	A
Approach Delay (s)	3.9	0.0	9.3	9.0
Approach LOS			A	A

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	5	0	1	2	7	0	28	3	12	14	10
Future Volume (Veh/h)	9	5	0	1	2	7	0	28	3	12	14	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.92	0.92	0.70	0.70	0.92	0.92	0.92	0.70	0.92	0.70
Hourly flow rate (vph)	13	7	0	1	3	10	0	30	3	17	15	14
Pedestrians					7						2	
Lane Width (ft)					12.0						12.0	
Walking Speed (ft/s)					3.5						3.5	
Percent Blockage					1						0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	15			7			64	50	14	70	45	10
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	15			7			64	50	14	70	45	10
tC, single (s)	4.1			4.1			7.1	6.5	6.2	*5.4	6.5	*5.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	96	100	98	98	99
cM capacity (veh/h)	1600			1614			897	833	1059	909	838	1072

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	14	33	46
Volume Left	13	1	0	17
Volume Right	0	10	3	14
cSH	1600	1614	849	926
Volume to Capacity	0.01	0.00	0.04	0.05
Queue Length 95th (ft)	1	0	3	4
Control Delay (s)	4.7	0.5	9.4	9.1
Lane LOS	A	A	A	A
Approach Delay (s)	4.7	0.5	9.4	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Appendix G:
MARKET & ECONOMIC REPORT

Kakaako Makai Parks - Sports Complex
Financial Feasibiity Analysis

Development Criteria			
Land Area (estimated)	217,800	S.F.	217,800
FAR	1.0		1.0
Additional Bonus FAR	0.0		0.0
Maximum Buildable Area	217,800	S.F.	217,800
Projected Height Limit	0	S.F.	0
Projected Building Area	50,000	S.F.	50,000
Actual Building Size inclusive of parking	187,800	S.F.	187,800
Total Parking Stalls	459	stalls	459
Parking Stall Square Footage	300	S.F./stall	300
Total Parking Area	137,800	S.F.	137,800
Sports Complex			
Gross Building Area		S.F	50,000
Building Efficiency			100%
Net Rentable Area		S.F	50,000
Projected Stabilized Revenue ($2016)*			
Court Rental			$1,382,400
In-house Club League			108,000
Tournament Fees			144,000
Facility Rental - parties, events			18,000
Total Revenue			$1,652,400
Estimated Operating Expenses			
Purchases	15.0%		$247,860
Wages	40.0%		$660,960
Utilities	10.0%		$165,240
Ground Rent	**15.0%**		**$247,860**
Marketing	4.0%		$66,096
Other	12.0%		$198,288
Total Expenses	96.0%		$1,586,304
Total Projected Annual NOI	4.0%		$66,096

** Estimated revenue does not account for donations or sponsorship funds.*

Development Costs

Hard Costs ($2016)			
Site Preparation	$14	psf land area	2,975,000
Site Utilities	$5	psf land area	1,150,000
Surface Parking	$3,500	per stall	1,607,667
Building			
Core and Shell	$172	psf building area	8,600,000
Workout Facilities	$7	psf building area	369,000
Indoor Courts	$70	psf building area	3,518,000
Locker Rooms	$14	psf building area	705,600
Admin Office	$8	psf building area	402,000
Total Hard Costs			***$19,327,267***
Soft Costs ($2016)			
Architect/Mechanical/Civil/StructuralEngineer	5.0%	hard costs	966,363
Construction Management		Allowance	3,070,000
Insurance		Allowance	240,000
Building Permits		Allowance	190,000
General Administrative		Allowance	200,000
Total Soft Costs			***$4,666,363***
Subtotal			***$23,993,630***
Contingency	5%	of Hard Costs	966,363
	5%	of Soft Costs	233,318
Total Construction Costs			$25,193,312
Developer Profit	5%	of Hard Costs	966,363
Total Development Costs			**$26,159,675**

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Kakaako Makai Parks - Amphitheatre (3,000 seats)
Financial Feasibiity Analysis

Development Criteria			
Land Area (estimated)	435,600	S.F.	435,600
FAR	1.0		1.0
Additional Bonus FAR	0.0		0.0
Maximum Buildable Area	435,600	S.F.	435,600
Projected Height Limit	0	S.F.	0
Projected Building Area	25,588	S.F.	25,588
Total Parking Stalls	600	stalls	600
Parking Stall Square Footage	300	S.F./stall	300
Total Parking Area	180,000	S.F.	180,000
Amphitetheatre			
Gross Building Area		S.F	25,588
Building Efficiency			100%
Net Rentable Area		S.F	25,588
Projected Stabilized Revenue ($2016)			
	Attendance*		
Total Ticket and Concession Sales	431,500	$5 per person	$ 1,726,000
Less: Promoter share		15%	$ (258,900)
Total Revenue			$ 1,467,100
Estimated Operating Expenses			
Purchases	33.0%		$ 484,143
Wages	18.0%		$ 264,078
Utilities	6.0%		$ 88,026
Ground Rent	**9.0%**		**$ 132,039**
Marketing	7.0%		$ 102,697
Other	17.0%		$ 249,407
Total Expenses	90%		$ 1,320,390
Total Projected Annual NOI	10%		$ 146,710

* Estimated attendance based on:

	Events	Attendees
High-Use Days (Thursday - Sunday)	154	424,000
Low-Use Days (Monday - Wednesday)	30	7,500
	184	431,500

Development Costs

Hard Costs ($2016)			
Site Preparation	$5	psf land area	$ 2,000,000
Site Utilities	$1	psf land area	$ 600,000
Surface Parking	$3,500	per stall	$ 2,100,000
Building (5,000 sf)	$479	psf building area	$ 2,394,000
Seating & Canopy (3,000 seats/20,588 sf)	$329	psf building area	$ 6,772,000
Total Hard Costs			***$ 13,866,000***
Soft Costs ($2016)			
Architect/Mechanical/Civil/StructuralEngineer	5.0%	hard costs	$ 693,300
Construction Management		Allowance	$ 2,280,000
Insurance		Allowance	$ 170,000
Building Permits		Allowance	$ 130,000
General Administrative		Allowance	$ 100,000
Total Soft Costs			***$ 3,373,300***
Subtotal			***$ 17,239,300***
Contingency	5%	of Hard Costs	$ 693,300
	5%	of Soft Costs	$ 168,665
Total Construction Costs			$ 18,101,265
Developer Profit	5%	of Hard Costs	$ 693,300
Total Development Costs			**$ 18,794,565**

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Kakaako Makai Parks - Beer Garden

Financial Feasibiity Analysis

Development Criteria				
Land Area (estimated)	8,000	S.F.		8,000
FAR	1.0			1.0
Additional Bonus FAR	0.0			0.0
Maximum Buildable Area	8,000	S.F.		8,000
Projected Height Limit	0	S.F.		0
Projected Building Area	3,200	S.F.		3,200
Total Parking Stalls	15	stalls		15
Parking Stall Square Footage	300	S.F./stall		300
Total Parking Area	4,500	S.F.		4,500
Beer Garden				
Gross Building Area		S.F		3,200
Building Efficiency				100%
Net Rentable Area		S.F		3,000
Projected Stabilized Revenue ($2016)				
Est. Sales (11am - 7 pm)	$726	per sf	$	2,178,000
Estimated Operating Expenses				
Building Op. Exp.	$1.40	per sf/month	$	50,400
COGS	60.0%	of revenue	$	1,306,800
Wages	25.0%	of revenue	$	544,500
Ground Rent	**7.0%**	**of revenue**	**$**	**152,460**
Marketing	1.0%	of revenue	$	21,780
Total Expenses			$	2,075,940
Total Projected Annual NOI	4.7%	of revenue	$	102,060

Development Costs

Hard Costs ($2016)				
Site Preparation	$10	psf land area	$	80,000
Surface Parking	$3,500	per stall	$	52,500
Building	$250	psf building area	$	800,000
Total Hard Costs			***$***	***932,500***
Soft Costs ($2016)				
Architect/Mechanical/Civil/StructuralEngineer	8.0%	hard costs	$	74,600
Development Management	1.0%	Allowance	$	9,325
Insurance	1.0%	Allowance	$	9,325
Building Permits		Allowance	$	8,266
General Administrative		Allowance	$	10,000
Tenant Improvement Allowance (Retail Space)	$50	psf	$	160,000
Total Soft Costs			***$***	***280,841***
Financing				
Loan Costs				
Construction Loan	60.0%	total cons costs		728,005
Interest (50% average loan balance over 16 months)	5.00%			24,267
Lender Fees	1.00%	points		7,280
Total Financing Costs				***$31,547***
Subtotal			***$***	***1,244,888***
Contingency	5%	of Hard Costs	$	46,625
	5%	of Soft Costs	$	14,042
Total Construction Costs			$	1,305,555
Developer Profit	5%	of Hard Costs	$	46,625
Total Development Costs			**$**	**1,352,180**

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Kakaako Makai Parks - Food Trucks
Financial Feasibiity Analysis

Development Criteria			
Land Area (estimated)	10,000	S.F.	10,000
FAR	1.0		1.0
Additional Bonus FAR	0.0		0.0
Maximum Buildable Area	10,000	S.F.	10,000
Projected Height Limit	0	S.F.	0
Projected Building Area	0	S.F.	0
Total Parking Stalls	10	stalls	10
Parking Stall Square Footage	300	S.F./stall	300
Total Parking Area	3,000	S.F.	3,000
Food Truck			
Projected Stabilized Revenue ($2016)			
Site fees and percentage rent (10 trucks)	$3,000	per truck/month	$ 360,000
Estimated Operating Expenses			
Site Op. Exp.	$0.40	per sf/month	$ 48,000
Ground Rent	$0.70	per sf/month	$ 84,000
Wages	40.0%	of revenue	$ 144,000
Marketing	3.0%	of revenue	$ 10,800
Total Expenses			$ 286,800
Total Projected Annual NOI	20.3%	of revenue	$ 73,200

Development Costs

Hard Costs ($2016)			
Site Preparation/Grading	$15	psf land area	$ 150,000
Total Hard Costs			***$ 150,000***
Soft Costs ($2016)			
Architect/Mechanical/Civil/StructuralEngineer	5.0%	hard costs	$ 7,500
Development Management	1.0%	Allowance	$ 1,500
Insurance	1.0%	Allowance	$ 1,500
Building Permits		Allowance	$ 2,400
General Administrative		Allowance	$ 5,000
Total Soft Costs			***$ 19,400***
Subtotal			***$ 169,400***
Contingency	5%	of Hard Costs	$ 7,500
	5%	of Soft Costs	$ 970
Total Construction Costs			$ 177,870
Total Development Costs			**$ 177,870**

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KAKAAKO MAKAI PARKS

Demand and Feasibility Analysis
Sports Complexes
12/16/15

DRAFT REPORT

Prepared for
PBR Hawaii

Prepared by
Colliers International Hawaii

TABLE OF CONTENTS

Introduction

The Hawaii Community Development Authority ("HCDA") engaged land planning firm, PBR HAWAII & Associates, Inc. to create a master plan for parks in the Makai Area of the Kakaako Community Development District ("Kakaako Makai Parks"). As part of this planning effort, feedback was garnered from stakeholders to identify potential commercial business concepts that would be supported by park users. Colliers was hired to explore these concepts for their market viability.

One of these concepts is a recreational sports complex. There are only a handful of these facilities on the island. Colliers will explore national and local industry trends, identify comparable local and national facilities, and determine the consumer support for a sports complex at Kakaako Makai Parks.

Amateur Sports and Recreational Facilities

There are two basic objectives under which the development of community and amateur sports and recreational facilities can be considered. The Local Model and the Sports Tourism Model. These are described below.

Local Model
The local model serves as a community asset providing sports, recreation, youth development, and educational services. In order to accomplish this goal, it is encouraged that the facilities develop their own program options and partnerships with existing community organizations such as Parks & Recreation, existing program providers, and coaches. By creating partnerships with groups and people who have the ability to bring existing teams/user groups to each location, the facility will immediately host multiple activities and serve a wide range of community pursuits.

During peak hours (after school/work and on the weekends), a local model indoor facility could offer indoor instructional clinics, leagues, tournaments, classes, and other programs for the following activities:

- Basketball
- Volleyball
- Court Events
- Court Rentals
- Wrestling
- Cheerleading
- Fitness & Training
- Party/Banquet Rentals

Sports Tourism Model

The goal of a sports tourism model is to attract teams, players, and spectators to the market to generate revenue for the facility and to create economic impact through direct spending in the community. Within the sports tourism model, there are two primary ways of developing tournaments: creating in-house tournaments and outsourcing tournaments to existing organizers/rights holders.

In-house tournaments require a significant amount of time, energy, and human resources to develop and execute. This type of event requires the facility to market the event, register teams, secure hotels, train staff, hire officials, manage play, etc. As such, significant revenue can be generated but the cost of doing business is high. Additionally, tournaments typically take multiple years to grow, so first-year (and often second-year) events are small, marginally profitable, and create a minimal economic impact.

Outsourced tournaments require much less work on the part of the facility because inventory is rented to a tournament provider who is in charge of securing teams and running the event. Outsourced tournaments often provide significantly greater economic impact in the early years of operation because they are established and grown at other facilities in prior years, so there are more teams in attendance. However, the amount of money the facility can generate on an outsourced tournament is limited because team registration fees always go to the rights holder and other revenue streams (e.g. hotel rebates, gate fees, etc.) are often collected by the rights holder as well.

In order to achieve the ideal balance of revenue generation for each facility and direct spending in the community, a facility at the Kakaako Makai Parks should strive for a mix of in-house tournaments and outsourced tournaments.

While there is potential to draw out-of-state tournaments to a suitable facility in Honolulu, this report will focus primarily on the local use aspect of demand.

RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

National Facilities

There are only a handful of purpose-built sports recreational gym facilities on Oahu. To gain a better understanding of these types of facilities, we have researched various sports complexes on the mainland.

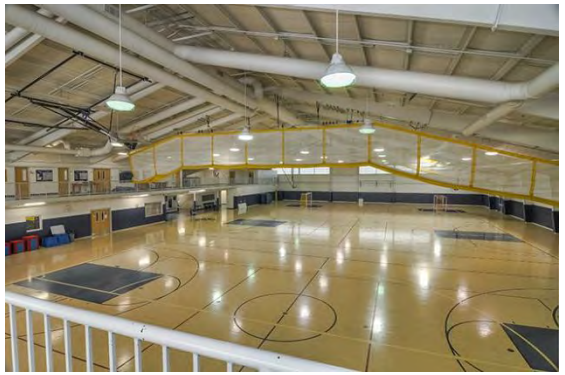
Greensboro Sportsplex

Location:	Greensboro, North Carolina
Owned/Operated by:	City of Greensboro Parks and Recreation Dept
Size:	106,000 square feet
Year Built:	2002
MSA Population:	732,801
Attendance:	Approx. 135,000/yr
Facilities:	8 full-length basketball/volleyball courts 4 indoor soccer fields Inline roller hockey rink Fitness center
Tournaments hosted/yr:	45 basketball/12 to 15 volleyball hosted annually with an estimated 75 teams and 700 spectators per event for basketball and 35 and 2,500 (for volleyball).
Fees:	Daily usage $5 - $6 Court Rental $60 - $90/hour

RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

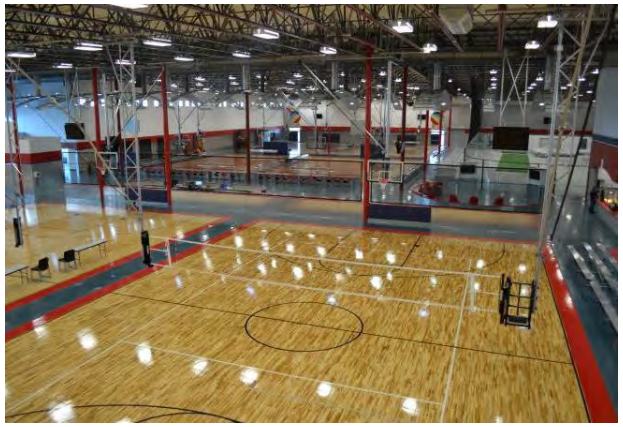
Okun Fieldhouse

Location:	Shawnee, Kansas
Owned/Operated by:	Johnson County Parks and Recreation Dept
Size:	56,500 square feet
Year Built:	1999
MSA population:	544,179
Attendance (2014):	83,639
Facilities:	4 full-length basketball courts 8 volleyball courts
Tournaments :	10 basketball/12 volleyball hosted annually with an estimated 30 teams and 700 spectators per event. Estimated 50,000 tournament participants/yr
Fees:	Court Rental $60 - $90/hr



Plano Sports Authority

Location:	Plano, Texas
Owned/Operated by:	Plano Sports Authority
Size:	143,000 sf PSA1/95,000 sf PSA2
Year Built:	2002/2008
MSA Population:	885,241
Attendance:	Serves 60,000 youths in area
Facilities:	22 basketball/volleyball courts Multi-purpose turf area Full-service cafe
Tournaments :	20 basketball hosted annually with an estimated 80 to 100 teams and 1,200 spectators per event.
Fees:	Court Rental $50/hr



RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

Local Recreational Sports Facility Inventory

The inventory of indoor recreational sports facilities for public use is largely made up of school gym, city parks and community center facilities. The majority of these are limited in size and court offerings and are most-often used to support practices and in-season games. There is very limited ability with the existing inventory, to efficiently host a sizable indoor tournament for sports such as volleyball or basketball.

A review of Oahu's park facilities shows a total of 132 parks with basketball courts and 121 parks with volleyball courts. Colliers reviewed the websites of the more than 40 volleyball clubs to determine which school and park and recreation locations were used. As shown in the table to the right, there are approximately 33 facilities that are regularly used for volleyball club play. Furthermore, there are only 4 sand volleyball courts on the island. Most of these venues only have room for one court.

OAHU PARKS - SPORTS FACILITIES

Sport	Number of Parks with this Use
Baseball/Softball	107
Football	24
Basketball	132
Volleyball	121
Soccer	42
Tennis	49

Public Facilities for Volleyball Courts (Club Use)

Schools

Aiea High School
Farrington High School
Hawaiian Mission Academy
Holy Nativity
Hongwanji Mission School
Kaimuki High School
Kaiser High School
Kameheha Kekuhaupio Gym
La Pietra School
McKinley High School
Mid Pac
Moanalua High School
Pearl City High School
St. Andrews
St. Mark's
Star of the Sea

Parks & Recreation

Ala Moana Beach Park
Booth District Park
Halawa District Park
Kaimuki Community Park
Kalakaua District Park
Kalihi Valley District Park
Koko Head Neighborhood Park
Lanakila District Park
Manoa Valley District Park
Nuuanu Valley Park
Palolo Valley District Park
Salt Lake District Park

Other

Palama Settlement
Community Church of Honolulu
Coast Guard Gym
Susannah Wesley Community Center

Source: Volleyball club websites and discussions with club representatives.

RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

There are only a handful of purpose-built recreational sports facilities on the island. The University of Hawaii ("UH") Warrior Recreation Center in Mānoa and the Salvation Army Kroc Center in Kapolei are recently built multi-purpose gym facilities that are available for public use via membership or day passes. The UH facility is for students, faculty/staff and school affiliate use only.

OAHU RECREATIONAL INDOOR SPORTS FACILITIES					
	The Salvation Army Kroc Center Hawaii	University of Hawaii Warrior Recreation Center	Palama Settlement	DOE School Facilities	Parks
					
Location	Kapolei	UH Mānoa campus	Kalihi	various	various
Year Opened	2012	2014	1982		
Total Complex Size (sf)	27,087	66,000			
Total Cost	$133 million				
Gym Facilities					
	4,700sf NCAA regulation sized court	3 floors	3 volleyball courts		
	Basketball, Volleyball, Indoor Hockey, etc.	Indoor running track	3 basketball courts		
	6 hanging basketball hoops	2 full basketball courts/3 volleyball courts			
	48-bed dormitory	Rock climbing walls			
Gym Usage Rates					
Who can use it	General public	UH students, faculty, staff, alumni, associates	General public	General Public	General Public
Hourly			$35 to $115	$76 to $96 (1)	$15
Daily	$12 to $16	$5 to $10	n/a	$516 to $860 (1)	
Membership (individual)	$39 to $59/month	$25 to $30/month	n/a	n/a	n/a
(1) Includes utility and custodial charges.					
Source: On-line research and discussions with facility representatives.					

RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

Fitness Centers

Additional competition to a sports facility at the Kakaako Makai Parks would be the various fitness centers located in the area.

- 24-Hour Fitness – 1000 Bishop St
- 24-Hour Fitness – Kapiolani
- UFC Gym Kakaako – 805 Pohukaina St
- Crossfit Oahu – Reed Street
- Orangetheory (Kakaako) – 660 Ala Moana Blvd (under construction)
- Clark Hatch Fitness 745 Fort Street Mall
- Honolulu Fitness Center – 1146 Fort Street Mall
- Honolulu Club – 932 Ward Ave, 7th Floor
- Volcanic Climbing & Fitness – 1212 Punahou Street

The physical and operational characteristics of the existing inventory are considered together with an assessment of the characteristics of the trade area and interviews with representatives of local recreational sports organizations to estimate demand.

Planned Inventory

In general, the majority of the existing inventory is older and limited in the amount of indoor space/courts that can be provided at one time. According to discussions with volleyball club representatives, the current inventory is sufficient but the demand is there for higher quality/state-of-art facilities, as well as multi-court spaces to hold tournaments.

RECREATIONAL SPORTS FACILITIES MARKET OVERVIEW

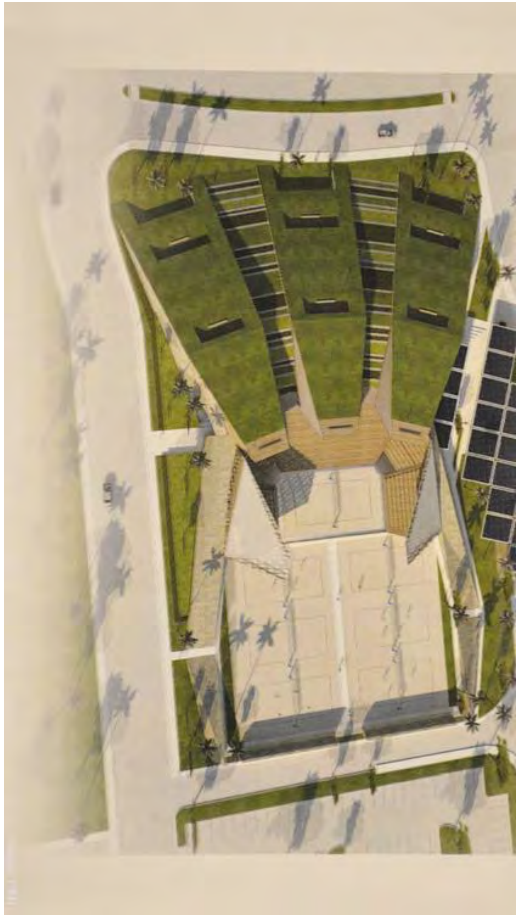
The Center for Volleyball Excellence ("COVE")

There are plans by a private entity to develop a facility at Kakaako Makai Parks that is geared toward the volleyball community. The COVE is being spearheaded by Kevin Wong, a beach volleyball Olympian and former UCLA All-American and also involves several well-known business and community leaders.

COVE is being described as a "community center in the heart of Kakaako that brings families back to an area that has been neglected, [and as] a safe harbor for children in their quest for excellence in sports and excellence in life." The plan involves working with the Hawaii Tourism Authority, the NCAA and U.S.A. Volleyball in conjunction with holding events at COVE. Some of the planned events include a high school championship, a Pacific-Rim championship, a beach festival and even an NCAA championship.

Initial plans call for outdoor space for 6 sand volleyball courts and an approximately 50,000 square foot multi-purpose gym that could house 10 to 12 indoor volleyball courts. This facility would likely fill the void in the market for spaces to host large tournaments. Other indoor sports such as basketball, wrestling, cheerleading, martial arts, and so on, as well as non-sport community groups could also make use of the multi-purpose gym. Furthermore, the outdoor space could be used to accommodate concerts and other outdoor events besides volleyball. Peak weekend attendance is anticipated at 3,000 to 4,000 spectators/players. Per our discussion with them, their business plan does project enough revenue to be profitable.

COVE hopes to have an environmental impact statement completed early next year with groundbreaking aimed for sometime in 2016. The development costs for this facility are estimated at about $22 million.



TRADE AREA ANALYSIS

Trade Area Overview

When assessing the appropriate trade area that demand for a sports complex would be generated from, we looked at the following area characteristics:

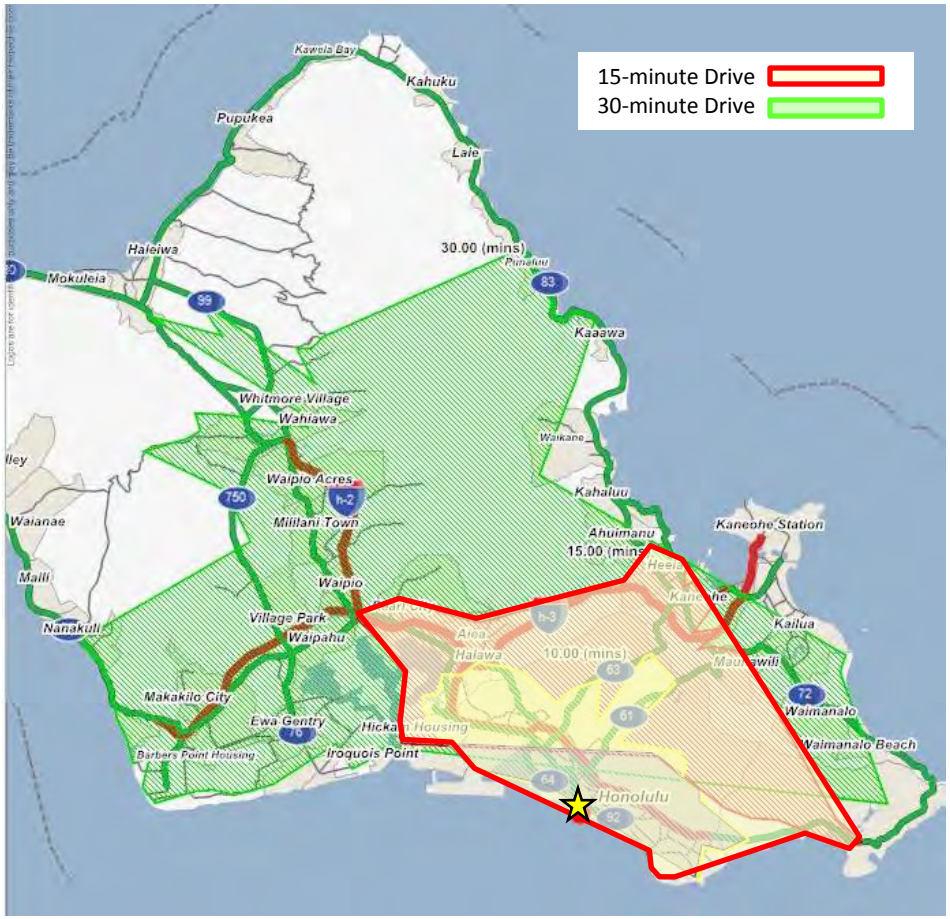
- Transportation Access/Drive-time
- Population
- Age

Transportation Access/Drive-time

Transportation access to and from the site is key in terms of drawing local participation and interest from mainland tournament organizers and attendees.

Demographics were pulled for 15-minute and 30-minute drive time categories. As shown on the map, a 30-minute drive time covers the majority of the island except the North Shore and West Oahu past Kapolei. We can assume that drive-times for some parts of this area are likely to extend into the 30 to 45-minute or longer range depending on traffic. Large sports tournaments and events would likely draw from the entire island.

The 15-minute drive time area covers all of Urban Honolulu and extends into parts of East Oahu, Windward Oahu, and Leeward Oahu. Residents in these areas would likely participate in tournaments as well as daily/weekly team or open play.



Source: Sites USA

TRADE AREA ANALYSIS

Demographics

We identified the Primary Trade Area for as being within a 15-minute drive time of the Kakaako Makai Parks site. While the 30-minute drive time category covered most of the island, we felt that residents would travel from all parts of the island to attend sports tournaments or special events at a new sports complex. Therefore, we assumed the rest of the island was the Secondary Trade Area.

Population

There are an estimated 454,685 residents within a 15-minute drive from the Kakaako Makai Parks site. In addition, there are more than 2,000 new condo units under construction with an additional 2,200+ planned for this trade area. The remaining island population is estimated at 534,137 residents.

DEMOGRAPHICS (2015)	Primary Trade Area (15-minute Drive Time)	Secondary Trade Area (Remaining areas of the island) (1)
Population		
Estimated Population (2015)	454,685	534,137
Projected Population (2020)	480,579	563,170
Projected Annual Change (2015-2020)	1.1%	1.1%
Historical Annual Change (2000-2015)	0.5%	0.9%
Households		
Estimated Households (2015)	167,658	157,114
Projected Households (2020)	175,142	163,498
Projected Annual Change (2015-2020)	0.9%	0.9%
Historical Annual Change (2000-2015)	0.6%	0.9%
Average Household Size	3.2	2.9
Age		
Median Age	38.7	37.6
Average Household Income		
Estimated Average Household Income (2015)	$95,325	$91,609
Projected Average Household Income (2020)	$101,174	$97,065
Projected Annual Change (2015-2020)	1.2%	1.2%
Historical Annual Change (2000-2015)	2.6%	2.7%
Source: Sites USA		

(1) Average HH Size, Median Age, and Average HH Income data are for entire island of Oahu.

Age

Another demographic characteristic that is important to the overall viability of a sports complex is the age of the local population. Sports participation trends can vary greatly by age and the type of sport. As a result, the age distribution of the trade areas will impact the type and amount of utilization at the subject site.

The median age for the primary market is 38.7 and 37.6 years old for the primary and secondary trade areas, respectively. The primary market area has a lower proportion of youths (age 7 to 17) than the national average, while the secondary market has slightly higher proportion. For residents age 18 to 34 years, The remaining age categories (35 years and older) have a slightly higher proportion (56% vs 54%) than the national average. The secondary market proportions are similar to the national averages.

To ensure that the facility offers an amenity for the community as a whole, a mix of youth and adult programming should be offered.

Total Age Distribution (2015)					
	Primary Market Total 15-min		Secondary Market Island of Oahu		U.S.
Total Population	454,685		534,137		318,892,103
Median Age	38.7		37.6		37.7
Age Group	Residents	% of total	Residents	% of total	% of total
Age Under 7 Years	37,130	8%	58,348	11%	9%
Age 7 to 11 Years	16,231	4%	25,489	5%	6%
Age 12 to 17 Years	29,745	7%	44,729	8%	8%
Age 18 to 24 Years	44,709	10%	60,290	11%	10%
Age 25 to 34 Years	70,126	15%	82,422	15%	13%
Age 35 to 44 Years	57,261	13%	67,997	13%	13%
Age 45 to 54 Years	56,830	12%	64,571	12%	14%
Age 55 to 64 Years	56,718	12%	58,283	11%	13%
Age 65 to 74 Years	42,099	9%	41,933	8%	8%
Age 75+ Years	43,837	10%	30,079	6%	6%
Total	454,685	100%	534,140	100%	100%

Source: Sites USA demographic data

DEMAND ANALYSIS

The purpose of this section is to estimate the utilization levels that could be achieved for a sports facility at Kakaako Makai Parks. A variety of information sources have been used to gauge potential demand, including:

- A review of industry trends and sports participation levels
- Interviews with local sports organizations
- Review of historical utilization levels at comparable/competitive facilities

Sports Participation Trend Data

As an initial step in estimating demand, it is helpful to understand the approximate number of sports participants residing within the trade area. The Sports Business Research Network (SBRnet) compiles trend data on nationwide participation levels for a number of sports and recreational activities. Colliers estimated the number of participants for volleyball and basketball as these sports can utilize the same gym floor space.

Primary Market Area [1] - Estimated Participants by Age										
Age Range (years)	**7-11**	**12-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75+**	**TOTAL**
Population	16,231	29,745	44,709	70,126	57,261	56,830	56,718	42,099	43,837	417,555
Volleyball Participation as % of Population [2]	4.70%	10.60%	5.20%	3.90%	2.20%	1.90%	1.00%	0.40%	0.20%	30.10%
Estimated Participants	763	3,153	2,325	2,735	1,260	1,080	567	168	88	12,138
Basketball Participation as % of Population [2]	21.10%	21.00%	13.80%	9.60%	5.50%	4.40%	1.90%	0.50%	0.00%	77.80%
Estimated Participants	3,425	6,246	6,170	6,732	3,149	2,501	1,078	210	0	29,511
Total Sports Complex Participants	**4,187**	**9,399**	**8,495**	**9,467**	**4,409**	**3,580**	**1,645**	**379**	**88**	**41,649**
	10.05%	22.57%	20.40%	22.73%	10.59%	8.60%	3.95%	0.91%	0.21%	
(1) Primary market area is within 15-minute drive of site										
(2) 2015 national percentages provided by SBRnet										

DEMAND ANALYSIS

Based on these national ratios, there are an estimated 12,138 potential volleyball participants and 29,511 basketball participants within a 15-minute drive of the site (primary market). The secondary market (the rest of the island) adds an additional 15,822 and 38,902 participants, respectively. Youths (age 7 to 17) and adults in the 18 to 34 years old age category capture the highest proportions of potential sports participants. Based on these findings, the programming for a new sports recreational facility should target both youths and adults.

Secondary Market Area [1] - Estimated Participants by Age										
Age Range (years)	**7-11**	**12-17**	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75+**	**TOTAL**
Population	25,489	44,729	60,290	82,422	67,997	64,571	58,283	41,933	30,078	475,791
Volleyball Participation as % of Population [2]	4.70%	10.60%	5.20%	3.90%	2.20%	1.90%	1.00%	0.40%	0.20%	30.10%
Estimated Participants	1,198	4,741	3,135	3,214	1,496	1,227	583	168	60	15,822
Basketball Participation as % of Population [2]	21.10%	21.00%	13.80%	9.60%	5.50%	4.40%	1.90%	0.50%	0.00%	77.80%
Estimated Participants	5,378	9,393	8,320	7,913	3,740	2,841	1,107	210	0	38,902
Total Sports Complex Participants	**6,576**	**14,134**	**11,455**	**11,127**	**5,236**	**4,068**	**1,690**	**377**	**60**	**54,724**
	12.02%	25.83%	20.93%	20.33%	9.57%	7.43%	3.09%	0.69%	0.11%	
(1) Secondary market area is the rest of the island outside of the primary market.										
(2) 2015 national percentages provided by SBRnet										

DEMAND ANALYSIS

Population Demand Model

Since a volleyball facility is being proposed for Kakaako Makai Parks, Colliers examined the demand for volleyball courts using a national benchmark. According to the National Park and Recreation Association park and recreation standards and guidelines, there should be 1 volleyball court per 5,000 residents. Based on this ratio and the trade area population for residents of sports playing ages (7 to 75+ years old), there is demand for 84 volleyball courts. If we assume that the existing trade area park and other facilities with volleyball facilities have one court each, there would be a surplus of 12 courts.

While it appears that there is an adequate amount of courts to meet this demand, the quality and size of the facilities may not be sufficient to support the needs of the volleyball community.

VOLLEYBALL COURT DEMAND	
Trade Area Population (Primary Market)	417,555
Volleyball Courts Demand (1 per 5,000 residents)	84
Trade Area Parks with Volleyball Use	63
Other Facilities (school gyms and community centers)	33
Shortage/(Surplus)	(12)

DEMAND ANALYSIS

Volleyball Club Demand

Colliers conducted interviews with representatives of the USA Volleyball (USAV) Aloha Region to assess their potential interest in utilizing a new facility for their events and activities. The Aloha Region consists of over 40 clubs and over 100 teams. Tournaments are scheduled every weekend from January through April. These representatives expressed a lot of interest in a new, higher quality, multi-court facility.

The following is a summary of the key findings of these interviews:

- There is a lack of quality facilities
- There is a lack of multi-court facilities to host regional/interisland and larger local tournaments. The few that are available are difficult to schedule.
- There are only a handful of sand volleyball courts. This lack of inventory has hindered the growth of this sport.
- Usage would depend on the fees charged. Tournament fees charged to teams are often not enough to cover the court rental costs.

Key Findings:

- Over 1,000 volleyball club players on Oahu
- Estimated 20 to 25 tournaments per year
- Weekend tournaments with 2 to 3 courts typically draw about 80 players per day
- Mainland facilities with 8 to 10 volleyball courts:
    - Host an average of 10 to 15 tournaments per year with 35 to 40 teams.
    - Average attendance is 500 to 750 spectators per tournament in addition to 300 to 500 players.

FINANCIAL BENCHMARKS

Financial Performance

Colliers performed a high level review of the financial performance of comparable mainland sports recreational facilities, as well as local facilities. The findings below should serve as general benchmarks for a more detailed feasibility analysis.

- Revenue streams from the following activities:
    - In-house sports club fees
    - Memberships
    - Group events/party space rentals
    - Court rentals
    - Tournaments
    - Food & Beverage
    - Government owned/operated facilities had break-even operations or the need for some subsidies. Benchmark facility operating income (EBIDTA) ratios for privately-owned facilities average 15% to 25% of stabilized revenues.

- Local volleyball court hourly rental rates range from $15 (city park facility) to $115 (community center)
- Local volleyball tournament fees range from $75 to $100 per team
- Court rental rates for comparable mainland facilities range from $60 to $100+ per hour

RECOMMENDATIONS

Summary

A recreational sports complex is a relatively new concept in urban Honolulu. While the UH Warrior Center and the Kroc Center in Kapolei have comparable multi-purpose gyms, public usage is limited by membership. And while the existing inventory of indoor courts is sufficient to meet demand based on national per capita benchmarks , the volleyball community has expressed a strong desire and need for a larger and higher quality multi-court facilities. Thus, we can qualitatively determine that there is a need for a multi-court facility.

A review of facilities in similar sized metropolitan areas indicates that a 10+ court facility could be the right size to serve the community. Based on existing club demand alone, a proposed facility can likely attract 10 to 15 local tournaments which is similar to what comparable mainland facilities host. The plans of the proposed COVE development also suggest hosting regional and even national tournaments. Furthermore, a multi-use gym facility could also be used for non-sport community activities such as group events, festivals, pop up markets, and small concerts.

However, considering the breakeven /subsidized operating income of city/county operated sports recreational facilities on the mainland, the development of a new facility by the HCDA is not likely to be financially feasible. A privately-developed and operated facility would alleviate the risk and financial burden for the HCDA.

Amphitheater Demand and Feasibility Analysis
12/21/2015

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Introduction

The Hawaii Community Development Authority ("HCDA") engaged land planning firm, PBR & Associates to create a master plan for Kakaako Waterfront Park. As part of this planning effort, feedback was garnered from stakeholders to identify potential commercial business concepts that would be supported by park users. Colliers was hired to explore these concepts for their market viability. One of these concepts is that of a an outdoor amphitheater.

Kakaako Waterfront Park has an outdoor amphitheater facility that is under utilized and not actively marketed to event and concert promoters for rent. Colliers reviewed national trends for concert and event promotion, evaluated financial performances of competitive sites and interviewed local event promoters to measure their support for a new outdoor concert venue or a relocated and enlarged concert venue at Kakaako Waterfront Park.

National Concert and Event Promotion Trends

National Trends

The U.S. national concert and event promotion industry projected an annualized growth rate for 2015 of 4.7% as revenues rose to $25.1 billion. Revenue is projected to growth at a 5.1% rate in 2015 for live musical performances. Over the next five years, industry revenue is forecasted to climb by an annualized rate of 5.0% and increase to $32.1 billion by 2020.

Real household disposable income is this industry's primary economic indicator as it demonstrates an individual's willingness to spend on entertainment. Disposable income which grew by a 1.5% annualized rate over the previous five years is projected to continue to rise. The U.S. economy is forecasted to continue to improve and will positively impact spending for concert and event attendance.

Live music concerts constitute 50.1% of the total industry revenues. With physical and digital record sales declining, live musical performances has become a major revenue earner for both musicians and event promoters. Open air events such as festivals, state fairs, cultural events and pageants constitute 20.4% of the industry's revenue and this was followed by theatrical performances, non franchise sporting events and public speaking events. The concert and event promotion industry is in the growth stage of its economic life cycle and its future will likely be characterized by revenue growth that is higher than that of the overall economy.

Ticket sales remain a major source of industry revenue, but its importance is in decline. The ability to maximize revenues from alternative sources such as sponsorships, artists services, merchandise and concession sales and parking revenue will be key determinants of a promoter/venue's success. Profit margins for concert and event promoters vary widely and are highly dependent upon maximizing ticket sales, and whether the promoter rents or owns its own facilities. Additionally, promoter's profit margins are greatly enhanced should they share

National Trends

profits generated from food and beverage and merchandise sales. According toe AEG Live (national concert promotion company) profits could easily range for a stand-alone event of 6% to 8%, but could increase to a range of 18% to 22% when combined with real estate revenue. The average profit market for concert and event promoters is estimated at 10.9% of revenues for 2015.

Operators must make the most of their facilities by selling out events and renting venues to third party companies when not in use. By optimizing a venue's capacity, this translates into lower per unit/event costs and enables promoters to offer consumers with more affordable ticket prices.

Companies that own venues or provide venue management services generate revenue primarily from ticket service charges, rental income, premium seating and venue sponsorships as well as a percentage of concessions, merchandise and parking revenues. Profit margins for promoters that own their facilities are significantly higher than promoters that rent their facilities and do not share in concession or parking revenues.

Notable Open Air Concert Venues

Colliers compiled information on several notable U.S. amphitheaters and compared seating capacity and demographics information. The following examples are for successful concert venues that have capitalized on their unique geographies and waterfront locations. Additionally, many of these amphitheaters are located within driving distance of major metropolitan markets that provide the customer base for events at these 10,000 + seat arenas.

Notable U.S. Amphitheaters

Red Rocks Amphitheater, Denver CO

The Red Rocks Amphitheater is located in Morrison Colorado, which is 10 miles west of Denver. This open air venue is fashioned among large rock outcroppings located in Red Rocks Park. The facility is owned and operated by the City and County of Denver.

The venue has a seating capacity of 9,525 and has five meeting rooms for smaller events. For 2015, Red Rocks hosted 124 music events. Total population is roughly triple that of Honolulu.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.16 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	195,885	1,018,350	1,274,114
2015 Total Population	506,462	2,631,937	3,354,921
2015 Household income: Average	$85,051	$85,874	$88,865
Entertainment (Household Average)	$2,627.24	$2,599.68	$2,640.85
Fees and admissions (Household Average)	$651.46	$643.92	$659.52
2015 POPULATION BY AGE			
% Age 0 to 4	5.82%	6.27%	6.28%
% Age 5 to 9	6.31%	6.65%	6.83%
% Age 10 to 14	6.40%	6.49%	6.74%
% Age 15 to 19	6.04%	6.07%	6.17%
% Age 20 to 24	6.26%	7.00%	6.67%
% Age 25 to 29	6.97%	8.13%	7.63%
% Age 30 to 34	7.02%	8.10%	7.84%
% Age 35 to 39	6.28%	7.05%	7.05%
% Age 40 to 44	6.74%	7.23%	7.35%
% Age 45 to 49	6.64%	6.49%	6.63%
% Age 50 to 54	7.77%	6.93%	7.08%
% Age 55 to 59	7.43%	6.48%	6.61%
% Age 60 to 64	6.29%	5.49%	5.60%
% Age 65 to 69	5.00%	4.21%	4.33%
% Age 70 to 74	3.35%	2.70%	2.73%
% Age 75 to 79	2.27%	1.84%	1.78%
% Age 80 to 84	1.70%	1.39%	1.30%
% Age 85+	1.71%	1.48%	1.38%
Median Age Total Population	39.1	35.9	36.3

Notable U.S. Amphitheaters

Nikon at Jones Beach Theater, Wantagh NY

The Nikon at Jones Beach Theater is located in Wantagh, NY that has a population of 18,871, but is within the New York metropolitan area with an estimated population of more than 23.6 million. Within the 50 mile radius of The Nikon, 18.01 million reside.

The venue has a seating capacity of 15,000 . The Bandshell and Poolshell , which are two additional stages outside of the Jones Beach Theater offer additional music options and are used for the many free concerts for local and regional acts.

	25 MILE RING 1963.16 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	2,230,159	6,518,785
2015 Total Population	6,518,392	18,080,398
2015 Household income: Average	$89,137	$97,181
2015 Per Capita Income	$30,946	$35,773
Entertainment (Household Average)	$2,570.94	$2,604.97
Fees and admissions (Household Average)	$639.51	$661.79
2015 POPULATION BY AGE		
% Age 0 to 4	6.30%	6.27%
% Age 5 to 9	5.99%	6.04%
% Age 10 to 14	6.04%	6.03%
% Age 15 to 19	6.10%	6.20%
% Age 20 to 24	7.08%	6.95%
% Age 25 to 29	7.55%	7.71%
% Age 30 to 34	7.22%	7.44%
% Age 35 to 39	6.58%	6.71%
% Age 40 to 44	6.77%	6.85%
% Age 45 to 49	7.01%	7.04%
% Age 50 to 54	7.30%	7.21%
% Age 55 to 59	6.70%	6.60%
% Age 60 to 64	5.56%	5.41%
% Age 65 to 69	4.39%	4.33%
% Age 70 to 74	3.16%	3.11%
% Age 75 to 79	2.38%	2.29%
% Age 80 to 84	1.81%	1.78%
% Age 85+	2.06%	2.03%
Median Age Total Population	37.8	37.5

Notable U.S. Amphitheaters

MidFlorida Credit Union Amphitheater, Tampa, FL

The MidFlorida Credit Union Amphitheater located in Tampa FL, is the largest facility in the Tampa area. Owned and operated by the Florida State Fair Authority, this venue seats up to 20,000. Within a 50 mile radius, this facility can draw attendees from a population base of 4.13 million. The 42.3 median age is one of the oldest of these selected amphitheaters.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	265,681	877,551	1,637,188
2015 Total Population	692,118	2,255,747	4,132,780
2015 Household income: Average	$61,625	$69,799	$65,606
Entertainment (Household Average)	$2,360.48	$2,491.07	$2,477.00
Fees and admissions (Household Average)	$544.57	$591.36	$583.15
2015 POPULATION BY AGE			
% Age 0 to 4	6.42%	5.92%	5.47%
% Age 5 to 9	6.02%	6.09%	5.77%
% Age 10 to 14	6.00%	6.14%	5.89%
% Age 15 to 19	6.80%	6.03%	5.78%
% Age 20 to 24	8.85%	6.61%	6.21%
% Age 25 to 29	8.49%	6.94%	6.16%
% Age 30 to 34	7.46%	6.85%	6.12%
% Age 35 to 39	6.23%	6.21%	5.64%
% Age 40 to 44	6.66%	6.88%	6.40%
% Age 45 to 49	6.63%	6.82%	6.58%
% Age 50 to 54	6.96%	7.26%	7.25%
% Age 55 to 59	6.24%	6.66%	6.90%
% Age 60 to 64	5.24%	5.84%	6.26%
% Age 65 to 69	4.10%	5.12%	6.00%
% Age 70 to 74	2.73%	3.73%	4.70%
% Age 75 to 79	2.01%	2.72%	3.48%
% Age 80 to 84	1.58%	2.07%	2.63%
% Age 85+	1.59%	2.12%	2.77%
Median Age Total Population	35.0	39.4	42.3

Demographic Analysis of Notable U.S. Amphitheaters

Isleta Amphitheater, Albuquerque, NM

The Isleta Amphitheater located in Albuquerque, NM is owned by entertainment conglomerate Live Nation. This venue can seat up to 15,000 in its open air facility.

The Albuquerque metropolitan area is similar to Honolulu, with population counts near 1.0 million and household counts around 360,000. The median age of 36.5 is also very similar to Honolulu's median age of 36.6.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	161,158	338,076	359,497
2015 Total Population	409,767	862,226	921,658
2015 Household income: Average	$56,797	$68,872	$68,552
Entertainment (Household Average)	$2,298.68	$2,454.91	$2,457.09
Fees and admissions (Household Average)	$517.52	$578.29	$578.78
2010 POPULATION BY AGE			
% Age 0 to 4	7.49%	6.82%	6.79%
% Age 5 to 9	7.05%	6.86%	6.86%
% Age 10 to 14	6.48%	6.75%	6.79%
% Age 15 to 19	7.16%	6.93%	6.97%
% Age 20 to 24	8.48%	7.05%	6.94%
% Age 25 to 29	8.43%	7.27%	7.13%
% Age 30 to 34	7.29%	6.65%	6.56%
% Age 35 to 39	6.35%	6.38%	6.35%
% Age 40 to 44	6.17%	6.44%	6.42%
% Age 45 to 49	6.64%	7.27%	7.29%
% Age 50 to 54	6.48%	7.24%	7.29%
% Age 55 to 59	5.83%	6.54%	6.61%
% Age 60 to 64	4.88%	5.64%	5.72%
% Age 65 to 69	3.38%	3.92%	3.99%
% Age 70 to 74	2.55%	2.84%	2.88%
% Age 75 to 79	2.09%	2.20%	2.20%
% Age 80 to 84	1.65%	1.65%	1.64%
% Age 85+	1.59%	1.58%	1.56%
Median Age Total Population	33.4	36.3	36.5

Demographic Analysis of Notable U.S. Amphitheaters

Rotary Amphitheater, Fresno, CA

Situated in 300-acre Woodland Park, the Rotary Amphitheater is located on the banks of the San Joaquin River, in Fresno CA. This facility seats up to 3,500 and 70% of these seats have protection from the elements.

The population base of 1.55 million is similar in size to Honolulu at 1.0 million. The Fresno median age is decidedly younger at 31.3 vs. 36.6 for Honolulu.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	203,384	293,333	470,206
2015 Total Population	627,474	957,381	1,550,579
2015 Household income: Average	$66,126	$64,775	$63,873
Entertainment (Household Average)	$2,416.97	$2,405.17	$2,400.17
Fees and admissions (Household Average)	$568.10	$561.92	$559.14
2015 POPULATION BY AGE			
% Age 0 to 4	8.01%	8.33%	8.36%
% Age 5 to 9	8.06%	8.39%	8.45%
% Age 10 to 14	7.50%	7.79%	7.85%
% Age 15 to 19	7.35%	7.60%	7.69%
% Age 20 to 24	8.64%	8.40%	8.31%
% Age 25 to 29	7.82%	7.62%	7.54%
% Age 30 to 34	7.11%	7.08%	7.08%
% Age 35 to 39	6.09%	6.11%	6.13%
% Age 40 to 44	5.92%	5.87%	5.91%
% Age 45 to 49	5.89%	5.74%	5.76%
% Age 50 to 54	6.06%	5.92%	5.92%
% Age 55 to 59	5.61%	5.45%	5.42%
% Age 60 to 64	4.80%	4.69%	4.61%
% Age 65 to 69	3.70%	3.68%	3.68%
% Age 70 to 74	2.54%	2.57%	2.59%
% Age 75 to 79	1.82%	1.82%	1.84%
% Age 80 to 84	1.45%	1.41%	1.40%
% Age 85+	1.63%	1.52%	1.46%
Median Age Total Population	31.8	31.3	31.3

Notable U.S. Amphitheaters

Snow Park Amphitheater, Park City UT

The Snow Park Amphitheater located in Park City UT is an open air 6,000 seat facility open during the warmer summer months. Adjacent to Deer Valley Resort, concert attendees may bring their own food and relax on blankets on the sloped open green areas fronting the stage.

The population base of 2.3 million within a 50 mile radius of the venue is roughly double that of Honolulu HI.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.16 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	14,232	295,487	714,733
2015 Total Population	42,228	859,725	2,308,609
2015 Household income: Average	$116,909	$84,264	$79,137
Entertainment (Household Average)	$2,892.13	$2,615.00	$2,611.38
Fees and admissions (Household Average)	$776.44	$646.38	$636.69
2015 POPULATION BY AGE			
% Age 0 to 4	6.22%	7.28%	8.71%
% Age 5 to 9	8.09%	7.64%	9.05%
% Age 10 to 14	8.56%	7.59%	8.50%
% Age 15 to 19	7.21%	6.96%	7.57%
% Age 20 to 24	5.46%	7.81%	8.61%
% Age 25 to 29	6.06%	7.79%	7.45%
% Age 30 to 34	6.21%	7.73%	8.13%
% Age 35 to 39	6.96%	7.08%	7.32%
% Age 40 to 44	7.77%	6.51%	6.18%
% Age 45 to 49	7.12%	5.81%	5.17%
% Age 50 to 54	7.48%	6.05%	5.31%
% Age 55 to 59	7.64%	5.87%	5.01%
% Age 60 to 64	6.06%	4.94%	4.10%
% Age 65 to 69	4.15%	3.75%	3.09%
% Age 70 to 74	2.56%	2.62%	2.14%
% Age 75 to 79	1.23%	1.80%	1.50%
% Age 80 to 84	.66%	1.35%	1.10%
% Age 85+	.55%	1.42%	1.08%
Median Age Total Population	36.6	33.2	30.1

Notable U.S. Amphitheaters

Les Schwab Amphitheater, Bend OR

The Les Schwab Amphitheater is located in Bend OR, which has a population of 81,236. This outdoor, riverfront theater sits on the west bank of the Deschutes River at an elevation of 3,600 feet.

The venue has a seating capacity of 8,000. In a 2010 Bend Oregon County economic study, it estimated that 39 percent of the audience is from out of town. Of the out of town attendees, 80 percent came specifically for a concert performance..

This venue typically starts its concert season in early May and runs until early October.

	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	68,203	87,270
2015 Total Population	172,103	220,842
2015 Household income: Average	$67,256	$63,809
2015 Per Capita Income	$36,835	$25,497
Entertainment (Household Average)	$2,538.95	$2,511.65
Fees and admissions (Household Average)	$604.62	$592.34
2015 POPULATION BY AGE		
% Age 0 to 4	5.30%	5.32%
% Age 5 to 9	6.34%	6.21%
% Age 10 to 14	6.21%	6.17%
% Age 15 to 19	5.79%	5.85%
% Age 20 to 24	5.10%	5.06%
% Age 25 to 29	5.74%	5.50%
% Age 30 to 34	6.50%	6.14%
% Age 35 to 39	6.18%	5.93%
% Age 40 to 44	6.96%	6.64%
% Age 45 to 49	6.13%	6.06%
% Age 50 to 54	7.02%	7.04%
% Age 55 to 59	7.28%	7.38%
% Age 60 to 64	7.58%	7.75%
% Age 65 to 69	6.59%	6.94%
% Age 70 to 74	4.64%	4.96%
% Age 75 to 79	2.80%	3.10%
% Age 80 to 84	1.84%	1.93%
% Age 85+	1.99%	2.01%
Median Age Total Population	42.0	42.9

Notable U.S. Amphitheaters

Gorge Amphitheater (George, WA)

The Gorge Amphitheater is located in the rural town of George above the Columbia River in Washington state which is located 150 miles east of Seattle. The venue has a seating capacity of 27,500 (which incudes the lawn area) and event attendees have a spectacular view of the Columbia River gorge canyon and the surrounding vistas.

The Gorge has been voted as the best outdoor concert venue by the Wall Street Journal, Pollster, and Concertboom. Population counts are less than 50% of Honolulu, but the ability to draw audiences beyond the 50 mile radius is a primary reason for its success.

	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	954	15,360	147,773
2015 Total Population	2,723	46,511	419,528
2015 Household income: Average	$61,381	$62,509	$61,111
Entertainment (Household Average)	$2,454.22	$2,476.59	$2,434.59
Fees and admissions (Household Average)	$571.20	$576.87	$564.64
2015 POPULATION BY AGE			
% Age 0 to 4	7.90%	7.87%	7.73%
% Age 5 to 9	7.79%	8.26%	7.86%
% Age 10 to 14	8.08%	8.31%	7.44%
% Age 15 to 19	7.79%	7.62%	7.23%
% Age 20 to 24	7.27%	6.68%	8.19%
% Age 25 to 29	5.91%	6.15%	6.42%
% Age 30 to 34	6.13%	6.59%	6.41%
% Age 35 to 39	5.03%	5.83%	5.81%
% Age 40 to 44	6.02%	6.09%	5.83%
% Age 45 to 49	5.62%	5.79%	5.59%
% Age 50 to 54	7.31%	6.40%	6.18%
% Age 55 to 59	6.02%	6.21%	6.05%
% Age 60 to 64	5.47%	5.50%	5.46%
% Age 65 to 69	5.33%	4.47%	4.57%
% Age 70 to 74	3.34%	3.27%	3.34%
% Age 75 to 79	2.50%	2.04%	2.30%
% Age 80 to 84	1.69%	1.56%	1.72%
% Age 85+	.88%	1.35%	1.88%
Median Age Total Population	34.3	33.9	34.0

Kakaako Waterfront Park - Demographics

Kakaako Waterfront Park- Demographics

Kakaako Waterfront Park unique waterfront property with views of ocean, sunset and both downtown and Waikiki.

While there is an existing amphitheater at the southwestern end of the park, it is underutilized and could use additional investment to add reserved seating, as well as upgrades for power, lighting and mechanical systems for staging.

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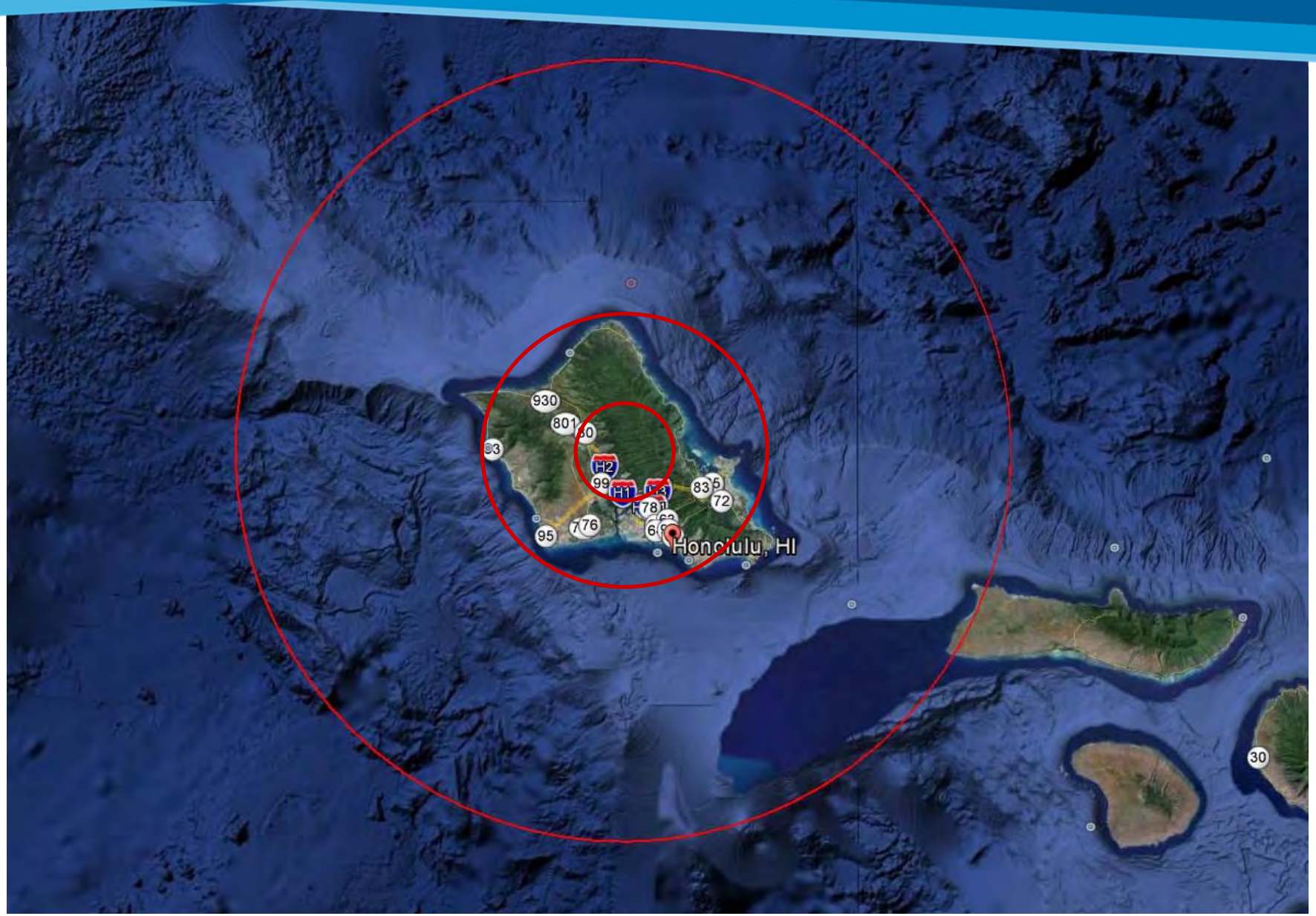
	10 MILE RING 314.11 SQ/MI	25 MILE RING 1963.17 SQ/MI	50 MILE RING 7852.58 SQ/MI
2015 Households	191,407	313,431	321,477
2015 Total Population	543,781	972,089	998,055
2015 Household income: Average	$91,098	$94,845	$94,484
Entertainment (Household Average)	$2,620.73	$2,678.12	$2,674.61
Fees and admissions (Household Average)	$655.41	$676.46	$674.99
2015 POPULATION BY AGE			
% Age 0 to 4	5.52%	6.55%	6.58%
% Age 5 to 9	5.17%	6.07%	6.09%
% Age 10 to 14	4.92%	5.70%	5.71%
% Age 15 to 19	4.98%	5.50%	5.51%
% Age 20 to 24	7.99%	8.39%	8.38%
% Age 25 to 29	8.38%	8.42%	8.44%
% Age 30 to 34	7.34%	7.33%	7.34%
% Age 35 to 39	6.09%	6.19%	6.20%
% Age 40 to 44	6.19%	6.29%	6.29%
% Age 45 to 49	6.01%	6.03%	6.02%
% Age 50 to 54	6.45%	6.25%	6.26%
% Age 55 to 59	6.54%	6.09%	6.10%
% Age 60 to 64	5.99%	5.52%	5.51%
% Age 65 to 69	5.43%	4.94%	4.93%
% Age 70 to 74	3.78%	3.39%	3.37%
% Age 75 to 79	2.91%	2.45%	2.43%
% Age 80 to 84	2.69%	2.15%	2.13%
% Age 85+	3.64%	2.73%	2.71%
Median Age Total Population	39.7	36.6	36.6

Kakaako Waterfront Park Radius Maps (10, 25 and 50 miles)



Amphitheater Ratio Analyses

Kakaako Waterfront Park Ratio Analyses

Colliers compared annual household consumer spending for entertainment fees and admissions for the eight amphitheater locations. In order to effectively compare these metropolitan and rural locations, we created ratios of entertainment spending an a per capita basis for a concert's target market demographic (those aged 20 – 44 years old). We also categorized these amphitheaters based on the size of their populations.

	Large Markets			Comparable Markets			Small Rural Markets		
Demographic Summary	**Nikon at Jones Beach Wantagh, NY**	**Tampa, FL MidFlorida**	**Denver, CO Red Rocks**	**Park City, UT Snow Park**	**Fresno, CA Rotary**	**Albuquerque, NM Isleta**	**Bend OR Les Schwab**	**George, WA Gorge**	**Honolulu, HI Kakaako Waterfront Park**
25 Mile Households	2,230,159	877,551	1,018,350	295,487	293,333	338,076	68,203	15,360	313,431
50 Mile Households	6,518,785	1,637,188	1,274,114	714,733	470,206	359,497	87,270	147,773	321,477
25 Mile Population	6,518,392	2,255,747	2,631,937	859,725	957,381	862,226	172,103	46,511	972,089
50 Mile Population	18,080,398	4,137,780	3,354,921	2,308,609	1,550,579	921,658	220,842	419,528	998,055
Average Household Income (25 Miles)	$89,137	$69,799	$85,874	$84,264	$64,775	$68,872	$67,256	$62,509	$98,845
Average Household Income (50 Miles)	$97,181	$65,606	$88,865	$79,137	$63,873	$68,552	$63,809	$61,111	$94,484
Per Capita Income(25 Miles)	$30,946	$27,599	$33,749	$29,470	$20,085	$27,455	$26,835	$20,676	$31,748
Per Capita Income(50 Miles)	$35,773	$26,452	$34,270	$24,847	$19,738	$27,186	$25,497	$21,933	$31,587
Annual Entertainment Fees (25 miles)	$639.51	$591.36	$643.92	$646.38	$561.92	$578.29	$604.62	$576.87	$676.46
Annual Entertainment Fees (50 miles)	$661.79	$583.15	$659.52	$636.69	$559.14	$578.78	$592.34	$564.64	$674.99
Percentage of Total Population(50 miles)									
21-44	35.7%	30.5%	37.5%	37.7%	35.0%	33.4%	30.5%	32.7%	36.7%
45-64	26.3%	27.0%	30.3%	19.6%	21.7%	26.9%	28.9%	23.3%	23.9%
Ratio Analysis	**Nikon at Jones Beach Wantagh, NY**	**Tampa, FL MidFlorida**	**Denver, CO Red Rocks**	**Park City, UT Snow Park**	**Fresno, CA Rotary**	**Albuquerque, NM Isleta**	**Bend OR Les Schwab**	**George, WA Gorge**	**Honolulu, HI Kakaako Waterfront Park**
Household Entertainment Revenues (25 miles)	$1,426,208,982	$518,948,559	$655,735,932	$190,996,887	$164,829,679	$195,505,970	$41,236,898	$8,860,723	$212,023,534
Household Entertainment Revenues (50 miles)	$4,314,066,725	$954,726,182	$840,303,665	$455,063,354	$262,910,983	$208,069,674	$51,693,512	$83,438,547	$216,993,760
Entertainment Revenue per capita (25 Miles)	$218.80	$230.06	$249.15	$222.16	$172.17	$226.75	$239.61	$190.51	$218.11
Entertainment Revenue per capita (50 Miles)	$238.60	$230.73	$250.47	$197.12	$169.56	$225.76	$234.07	$198.89	$217.42
Entertainment Revenue as a percent of Per Capita Income (25 Miles)	0.71%	0.83%	0.74%	0.75%	0.86%	0.83%	0.89%	0.92%	0.69%
Entertainment Revenue as a percent of Per Capita Income (50 Miles)	0.67%	0.87%	0.73%	0.79%	0.86%	0.83%	0.92%	0.91%	0.69%
Entertainment Revenue for Target Age Group 21-44 (25 Miles)	$508,586,123.01	$158,434,995.17	$245,966,548.09	$71,986,726.73	$57,640,938.87	$65,298,993.99	$12,569,006.47	$2,893,912.20	$77,706,625.31
Entertainment Revenue for Target Age Group 21-44 (50 Miles)	$1,132,873,922.02	$257,680,596.58	$254,191,858.75	$89,146,911.00	$57,077,974.37	$55,991,549.18	$14,949,763.61	$19,424,493.68	$51,839,809.32
Ent Rev. per capita of target audience (25 miles)	$218.80	$230.06	$249.15	$222.16	$172.17	$226.75	$239.61	$190.51	$218.11
Ent Rev. per capita of target audience (50 miles)	$175.71	$203.98	$201.99	$102.45	$105.26	$181.89	$222.09	$141.77	$141.72

Amphitheater Ratio Analyses

Colliers utilized several industry metrics to compare entertainment expenditures across multiple markets. These are:

Per Capita Annual Entertainment Expenditures - Expenditure data is compiled from the U.S. Census that measures annual household expenditures for entertainment fees and admissions, which covers music, theater and sporting event spending. Colliers extrapolated data to determine the per capita spending for each amphitheater location. A market that generates an above average level of per capita entertainment expense is considered an attractive market for an amphitheater development.

Those markets with the healthiest per capital annual entertainment expenditures were located in Denver, CO (Red Rocks Amphitheater), Tampa, FL (MidFlorida Amphitheather) and Bend, OR (Les Schwab). Of the eight locations analyzed, ***Honolulu ranked among the bottom two***.

Entertainment Expenditures / Per Capita Income – The per capita annual entertainment expenditure is compared against total per capita income to determine if a specific market allocates a higher percentage of their income for entertainment. An above average percentage ratio would indicate an attractive market for amphitheater development.

Despite Honolulu ranking among the top two markets for per capita income, it ***ranked near the bottom with only 0.69%*** of per capita income allocated to entertainment spending.

Entertainment Expenditures/Target Age Population – The prime target audience for most concerts are aged between 20 – 44 years old. It is this market that are the biggest spenders on concerts and outdoor entertainment. The larger the dollar amount that this target audience allocates to entertainment, the stronger likelihood of a favorable entertainment venue market.

Topping the list of locales with the highest allocation for entertainment expenditures by the prime target market demographic was the rural community of Bend, OR at $222.09 spent per year, this was followed by Tampa, FL at $203.98, and Denver, CO at $201.98. ***Out of eight locations, Honolulu ranked among the bottom three***.

Competitive Honolulu Venues

Performance Venues	Capacity
Arts at Marks Garage	75
Atherton Studio	75
Kumu Kahua Theater	100
Manoa Valley Theater	165
Chaminade Theater	275
Paliku Theater	300
Diamond Head Theater	500
Mamiya Theater	500
Kennedy Theater	600
Kaimuki High School Auditorium	675
McKinley High School Auditorium	1,000
Hawaii Theater	1,400
Andrews Amphitheater	3,500
Waikiki Shell	8,000
Neal Blaisdell Arena	8,000
Stan Sheriff Center	11,300
Aloha Stadium	50,000

Source: Neal Blaisdell Center Master Plan June 2015

Local Concert and Event Market

Honolulu has a number of public and private venues that could host concerts ranging in size from 75 to 50,000. Additionally, many Honolulu hotels have meeting and conference rooms with seating capacities that can accommodate up to 200 to 1,200 attendees. Based on the size of their audience, an event planner would have a number of options available to choose from.

A new Kakaako Waterfront Park Amphitheater would be in direct competition with venues with larger seating capacities such as the Andrews Amphitheater, Hawaii Convention Center, Waikiki Shell, Neal Blaisdell Arena, Stan Sheriff Center and Aloha Stadium. These aforementioned facilities are all operated by either the City and County of Honolulu or the State of Hawaii.

Only Andrews Amphitheater, Waikiki Shell and Aloha Stadium are outdoor facilities.

Local Concert and Event Market

Andrews Amphitheater

Located on the University of Hawaii at Manoa campus, Andrews Amphitheater was built in 1935. This open air facility can seat up to 3,500. This facility is not operated as a "for profit" facility as it provides significantly discounted rates for university –affiliated organizations ($30.00/day). Rates for non university organizations is $300.00/day. Despite these low rental rates, Earl Matsushita, University of Hawaii facilities manager, mentioned that there are roughly 12 events held per year at Andrews.

This facility does have a number of restrictions, which can impact an event promoter's ability to generate additional revenue. This site is only open during non-school hours (Friday 5:30 – 10:30 PM, Saturday from 2:00 PM to 10:30 PM, and Sunday from 2:00 PM to 6:30 PM. No alcohol is permitted on campus and all food/beverage services must be handled by Sodexho (on-campus UH food contractor). Sound levels shall not exceed 55 dBA and should be lower than 45 dBA after 10:00 PM. Portable bathroom facilities need to be provided for each authorized event. There are electrical power limitations in Andrews and standby power may be needed.

Hawaii Convention Center

The Hawaii Convention Center was built in 1998 with its objective to build business group travel and convention business. This 1.1 million square foot facility expects to generate $13.4 million in gross revenues for year-end 2015. While still not profitable since its opening, the growth in revenues and shrinkage in expenses to operate this facility is believed to be trending in the right direction.

The number of events fell from last year's 182 to 176 for 2015 and its occupancy rate fell from 32 percent to 31 percent during this same time period. Teri Orton, Hawaii Convention Center General Manager, stated that a successful convention center should have an average occupancy between 40 and 60 percent. The Hawaii Convention Center still has a ways to go before accomplishing this goal.

Competitive Honolulu Venues

Local Concert and Event Market

Neal Blaisdell Center

Honolulu's concert and event promotion industry is very active with recent performances and planned events for world renown performers such as Janet Jackson, Diana Ross, Stylistics and UB-40. The most popular events are held at Neal Blaisdell Center ("NBC"), which has a capacity of up to 8,000 at the NBC Arena. The NBC Concert Hall can seat 2,174 and the NBC Exhibition Hall has exhibition space of up to 85,000 sq. ft. Built in 1964, the NBC complex is visited by more than 800,000 people per year. There are 1,521 total parking stalls within its parking structure and at grade. For 2014 there were 132 events held at the Arena, a slight decrease from the 146 held in 2013.

While the goal is to maximize revenues to support operations, the ***2015 Neal Blaisdell Center Master Plan Summary of Existing Conditions*** report by planning firm AECOM, indicated that expenses were greater than revenues and that the facility suffers from outdated operations model and technology.

Waikiki Shell

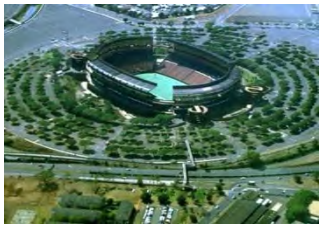
The NBC and the Waikiki Shell are both managed by the City & County of Honolulu's Customer Services (Enterprise Services Division) which oversees the Sales and Marketing, Production and Box Office. The Waikiki Shell, built in 1958, and is an outdoor amphitheater which has reserved seating of 1,958 with an additional 6,000 available on the open lawn. Parking is free in the adjacent parking lots.

This facility would be the primary comparable for an outdoor amphitheater development at Kakaako Waterfront Park. The 2014 City & County Annual Report indicated that the Waikiki Shell was booked for 41 days. At this level of activity, the Waikiki Shell is not producing a profit.

Local Concert and Event Market

Stan Sheriff Center

The Stan Sheriff Center is best known as the home to the University of Hawaii at Manoa's basketball and volleyball games. In addition to school functions, this venue hosts non-school functions as well. This facility has a concert seating capacity of 11,300. The arena stands 113-feet tall and is capped by an aluminum dome. The two concourse levels combined cover a total of 187,000 square feet. Built in 1994, this facility is the newest of the four large concert venues on Oahu.



Aloha Stadium

Built in 1975, Aloha Stadium is home to the University of Hawaii's football team and has hosted the Pro Bowl and the Hawaii Bowl for more than thirty years. Its original design allowed for different configurations to allow for concerts, baseball and football events. Unfortunately this feature is no longer available. With a maximum seating capacity of 50,000, the largest single event concert seated 38,000 for a Janet Jackson concert.

Promoter's Interviews

Local Promoter Interviews

In addition to reviewing market demographics and industry market ratios, conducting a comparative analysis of national and local event locations, Colliers conducted interviews with several concert and event promoters to garner feedback regarding their thoughts about the availability of another concert venue.

What size venue would you recommend be built…

Burt Kawasaki
"The lack of facilities requires that I have to schedule events further and further away from my typical target audience. We have a large event planned at the Waimanalo Polo Fields with talent that is costing me $250,000 and up to 10,000-15,000 people buying tickets"

Ryan Davis (Bassment Hawaii)
"I feel there is a need for a facility that can accommodate 10,000 seats. The problem with the Waikiki Shell is that there is a curfew and a noise requirement that restricts use. I've used the Aloha Tower Marketplace for events, but now that facility is no longer available. Ideally, there would be flexibility to have a facility range from 4,000 to 10,000 seats. The sweet spot is anything above 3,000 seats."

Mike Licata
"I've booked events at Hollywood Bowl (6-7,000 seats) and Irvine Meadows (11-12,000 seats). The preference would be to allow for flexibility for the promoter to use a site appropriate for the entertainer's audience"

…big name entertainers are not interested in Honolulu due to small venues…

…we need a facility that can accommodate 10,000 to 12,000 …

…flexibility in venue seating arrangements are a necessity for promoters to be successful…

Promoter's Interviews

Tom Moffett

" Many mainland big ticket entertainers do not want to come to Hawaii due to the size of the venues. They desire larger seating capacity with 10,000+ seats in order to make the costs to bring their production to Hawaii cost effective. I would support any venue that could accommodate audiences larger than the NBC"

If Built, How Many Events Would You Be Able to Book on a Monthly Basis?

Ryan Davis
"I believe for a facility with my requirements, I could commit to providing at least one performance per month using 4,000-10,000 seats"

Mike Licata
"I could provide up to 3 events per month"

Greg "G-Spot" Dehnert
"Probably up to two events per month"

Burt Kawasaki
"Up to two events per month with crowds in excess of 3,000 seats"

…based on interviews with independent promoters, there is potential commitment for up to 8 events per month…

Promoter's Interviews

What Factors Impact Your Ability to Host a Successful Event?

Ryan Davis

"I would like to be able to have to ability to allow our performances to run till 12:00 midnight or even 2:00 AM. Additionally, the red tape to fill out forms and documents for insurance to indemnify the venue for damages is cumbersome. For Waikiki Shell the cost for the promoter was as much as $10 per attendee should be below $5.00 per head. This is even without revenue sharing, plus we had to pay for power, security, lighting, stage set up etc… Promoters are faced with tons of expenses and we don't share in concessions fees and revenues (at Shell or NBC).

Burt Kawasaki

"the State would not allow us to host events till 2:00 AM. The hottest events are for top named DJ's that can fill 10,000 attendee facilities, but these events run late into the night"

Tom Moffett

"A large number of reserve seating allows us to charge for premium seats, prefer a facility with a high percentage of fixed seating. We could charge up to $100 per seat for reserved seating. The Waikiki Shell held a regular evening event, the "Kodak Hula Show" which helped to keep interest the facility at a high level, this should be considered for this venue so that continual revenue is generated"

Greg "G-Spot" Dehnert

"Would like a share of concession, food, merchandise and alcohol sales revenues…both the Shell and NBC do not allow percentages for promoters"

…curfews that limit events to 10:00 PM …

…no revenue sharing for concessions, alcohol sales or merchandise sales…

…red tape regarding application for use of facilities…

Promoter's Interviews

What Issues would a Kakaako Waterfront Park Amphitheater Face?

Ryan Davis
"Parking is a big issue, if there were a 10,000 attendee event, where and how would these people get to and from an event"

Burt Kawasaki
"The site is ideal, within town and event attendee access is great. Facility would have to accommodate increased need for parking and security"

Tom Moffett
"Need to buffer sound, if entertainers are facing towards town, complaints about loud sounds would create a problem, especially if there were no 10:00 PM curfew"

Greg "G-Spot" Dehnert
"Will the government or a private developer/promoter operate the facility? There is a vested interest by promoters to make sure their events are well attended and profitable whereas a governmental body does not"

…Parking is a problem…

…there is a need for a sound buffer…

…A private promoter or developer has a vested interest in selling tickets…

Factors to Consider

1. Weak Consumer Demand

Based on demand analyses that incorporated demographics data and entertainment fee expenditures for comparable venues, Kakaako Waterfront Park does not appear to be a favorable location for a new amphitheater development. Entertainment expenditures per capita, entertainment spending as a percentage of total per capita income, and entertainment revenue per capita for the target demographic (20-44 year olds) are all below comparable metropolitan areas. These lower event expenditures could also be related to the lack of quality event locations resulting in fewer concert/events being held in Honolulu.

Consumer entertainment expenditure demand metrics do not appear favorable for consideration of a large amphitheater development.

2. High Level of Competition

The large number of Waikiki hotel facilities are able to host events (under 1,500) as well as public and private event facilities serve as major competition for smaller venue events. For larger event venues, an amphitheater development would be in competition with Andrews Amphitheater, Hawaii Convention Center, Waikiki Shell, Neal Blaisdell Center Arena, Stan Sheriff Center and Aloha Stadium which have seating capacities ranging from 3,500 – 50,000. Many of these facilities are managed and operated by either the City and County of Honolulu or the State of Hawaii (inclusive of the Aloha Stadium Authority and University of Hawaii). The negative financial performances of these facilities reflects the difficulty in meeting optimal utilization. Most of these facilities require government subsidies to continue operating and have not yet generated a profit. In an interview with Mary Wells, NBC and Waikiki Shell events manager, she mentioned that these facilities are operated for the public good and not driven by profit objectives. The Waikiki Shell is busy during the summer months, but events diminish substantially for fall and winter months. NBC management objective are mandated to cover operating costs and this does not include paying off debt or capital improvement projects.

Additionally, promoters are often hampered by curfews, noise restrictions, lack of alcohol or merchandise revenue sharing, high costs for labor and electricity/power, which all hit a promoter's bottom line and impact the number of concerts and events held.

Negative financial performances of these competitive venues is unfavorable for development.

3. Promoters Support New Development

Event and concert promoters that were interviewed felt that there is demand for a facility that could accommodate up to 12,000 people. Informally, there is a belief that promoters would be able to generate between 48 to 60 events a year. While this level of activity would be comparable to the Waikiki Shell, a large majority would not be for events in excess of 10,000 seats. Several promoters mentioned that a modern concert facility that could accommodate between 3,000 and 5,000 could be ideal. In addition to the number of events that could be generated, promoters identified several additional issues that need to be addressed that would directly impact their financial returns.

A. Concerns over whether a developer would own and operate the facility, or would the government operate the facility?
B. How would parking be addressed for an event of 10,000+ attendees?
C. Promoters desire for a percentage of concession and merchandise sales?
D. Promoters mentioned about the surrounding residential community being concerned over noise and whether there will be restrictions relating to allowable decibel levels. The new facility will have to successfully buffer noise levels.
E. The Waikiki Shell's 10:30 PM curfew was a big issue and there were hopes that the new facility would be more liberal in late night hours of operation.
F. Flexibility of seating (premium seating would allow for higher revenues).

Promoter interest remains strong for a newer/modern amphitheater development

Recommendations

Collier's demand models indicate that Honolulu residents are below average in their spending for entertainment. In fact, of the eight event venues analyzed, Honolulu typically ranked among the lowest quartile. Of the local concert venues evaluated for this study, none are earning a profit. While this financial outcome can be explained by the need for many of these facilities to support the "public good" can often translate into events hosted by low income generating events and the underutilization of the facility. The fixed costs to air condition/ light an 8,000 seat arena is the same for an event that sells 500 seats or 8,000 seats.

Nonetheless, a private "for profit" operated facility would likely have an upper hand by more actively promoting their facility and coordinating only profitable events. A privately owned facility would be better able to invest in upkeep and maintenance for their facility and likely successfully fill a good portion of the event calendar. The combination of poor quality facilities and the lack of revenue sharing for promoters have a dampening effect on a promoter's enthusiasm to host events at these facilities.

Recommendations

The lack of a successful financially viable concert venue in Honolulu serves as a harsh reality of the difficulties in optimizing the use of the existing concert/event venues. Despite a strong level of promoter support for a larger concert/event facility(10,000+ seats), the current level of demand would not justify the expense of building a new facility. In our interview with the Mary Wells, she mentioned that only three events during 2015 topped 10,000 seats.

If consideration were given for a smaller venue (between 3,000 – 5,000 seats) the existing competition for events would come from the Waikiki Shell, NBC Arena, and Stan Sheriff Center (all government run facilities). The Waikiki Shell hosted 41 events in 2014 and remains filled during the summer months, but the facility is underutilized during the rest of the year.

Recommendations

A new modern facility with adequate power, lighting, staging, parking and concession/revenue sharing capacities would attract strong promoter interest. Additionally, if this new facility had a more liberal curfew, allowed alcohol sales, and reduced its noise level requirements, promoters would be more inclined to consider this venue as an option.

While Collier's does not recommend the development of a new Kakaako amphitheater, consideration should be given to more active marketing of the existing amphitheater facility. Should this result in a healthy increase in booked events, smaller investments such as providing increased electrical power, installing flexible fixed seating, upgrading the staging and lighting equipment and putting up permanent fencing should be considered.

Beer Garden Demand and Feasibility Analysis

11/20/2015

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Introduction

The Hawaii Community Development Authority ("HCDA") engaged land planning firm, PBR & Associates to create a master plan for Kakaako Waterfront Park. As part of this planning effort, feedback was garnered from neighborhood stakeholders to identify potential commercial business concepts that would be supported by park users. Colliers was hired to explore these concepts for their market viability. The first of these concepts is that of a beer garden.

By definition, a beer garden (taken from the German "biergarten") is an open-air space where beer and food are served. The concept actually originated as Bavarian breweries planted gardens above cellars to keep their lagers cool enough to ferment underground. Many clever breweries turned these spaces into outdoor spaces with communal seating that serve beer and traditional food.

While a traditional German beer garden may seem out of place in Honolulu, many of the desired elements such as open air, tree-lined, communal spaces are available throughout Kakaako Waterfront Park. Colliers will explore national and local beer industry trends, identify local comparable beer establishments and determine the consumer support for a "beer garden" establishment at Kakaako Waterfront Park.

National Trends

In 2013, U.S. beer production rose to 191.98 million barrels of beer. This equated to more than $174 billion in total beer sales. While the domestic beer market is faced flat volume in 2014, the 2.7% increase in domestic beer sales was principally due to price increases and a bump in super-premium beer sales. The largest domestic brands include Budweiser, Coors and Miller which account for nearly 54% of total domestic beer sales. While domestic beer sales remained flat, growth is being experienced among imported beer which posted a 6.5% jump in volume and an 8.2% increase in sales. Much of this imported beer growth is attributed to the success of Mexican beer brands such as Dos Equis, Corona and Modelo Especial which account for 63% of the dollars spent in this segment.

While craft beer sales constitute a very small percentage (8.8% share) of the total beer market, the rapid proliferation of new small breweries has become the primary driver for expanding beer sales. In 2014, craft beer volume increased more than 17%, and dollar sales rose by 20.5%. Between 2009 and 2014, craft beer volume had increased by a tremendous 81%. This pace of growth has been impeded by the limited distribution and lack of shelf space in many convenience/grocery stores available for small regional breweries.

Craft beers are capitalizing on their ability to broaden their styles and varieties of beer they offer. As craft beer brewers provide more flavors, this trend is garnering an increased interest from the millennial generation that has shown an interest in expanding their tastes beyond “Dad’s Budweiser”. In fact, in a 2013 Nielsen survey that asked the reasons for purchasing craft beer, 50% of consumers that responded mentioned that they wanted to experiment with different styles and flavors. While per alcohol consumption stayed relatively constant during the past five years, consumer have steadily shifted away from big name beers like Budweiser, Miller or Coors and substituted them with craft beer products.
The craft beer segment experienced an annualized growth of 18.8% between 2010 and 2015 and is projected to surpass $6.5 billion in sales in 2020. The average annual profit for craft beer vendors is a healthy 8.2% of revenue.

Gallup Poll Findings

…64% have occasion to use alcoholic beverages…

…men prefer beer (57%) over wine (17%)…

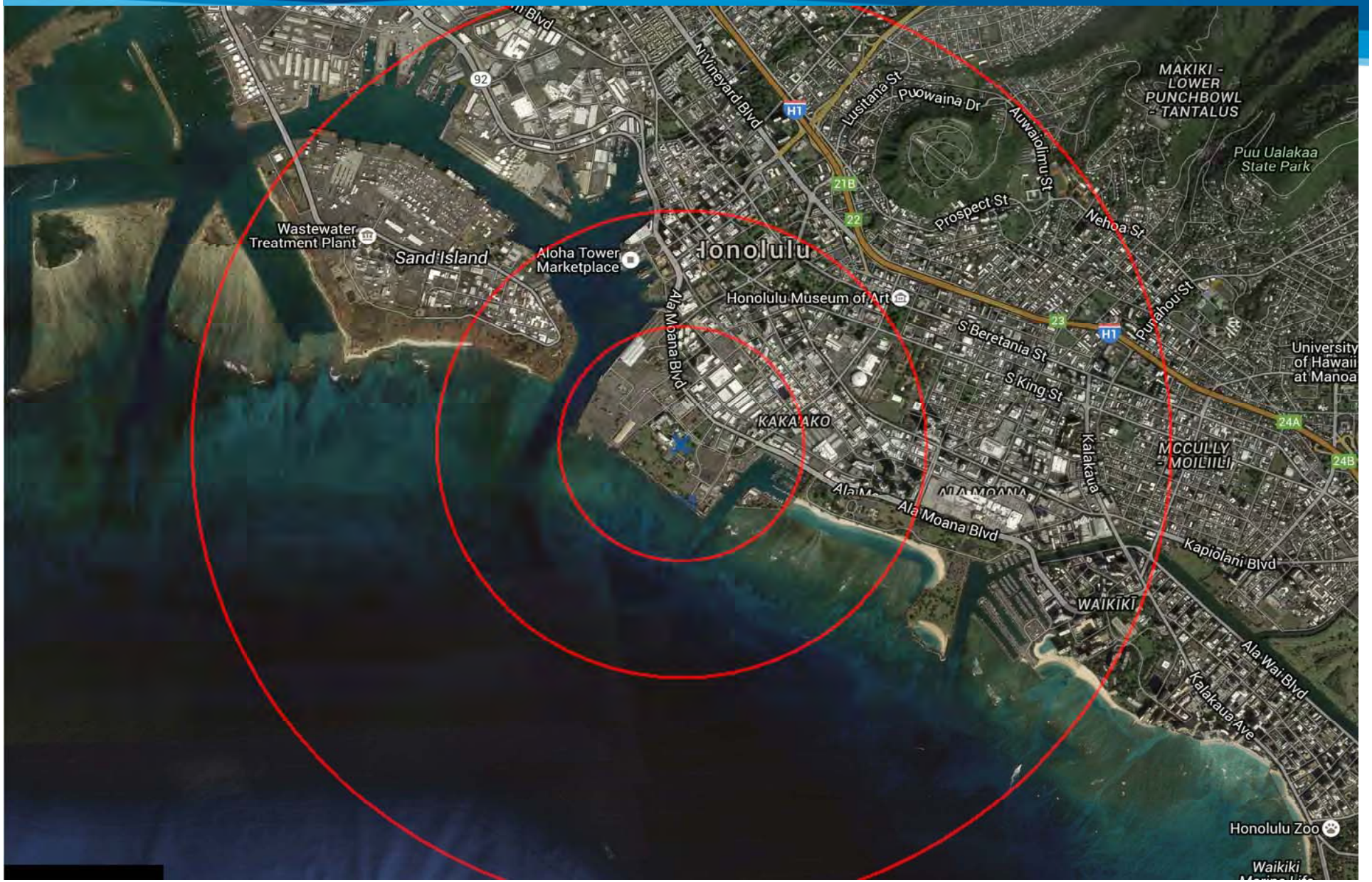
…average number of drinks per week 4.1…

Gallup regularly conducts an annual survey of random Americans for their drinking habits. Their 2014 survey found that 64% surveyed said that they "have occasion to use alcoholic beverages". Of those surveyed that drink alcohol, 67% indicate that they have at least one drink in the past week and 41% prefer beer.

Among men, 57% prefer beer over wine (17%), whereas 46% of women preferred wine. For 18–to-34 year olds, 48% preferred beer and for those aged 35-to–42, 43% preferred beer. Only the 55+ aged cohort selected wine (38%) over beer (32%).

Of those that consumed alcohol, the average number of drinks that they had over the past week was 4.1. Roughly 50% had between one and seven drinks per week with 14% consuming more than 8 drinks per week.

Kakaako Waterfront Park Radius Maps (0.5, 1.0 and 2.0 miles)



Kakaako Waterfront Park - Demographics

Kakaako Waterfront Park- Demographics

We identified that the prime target market for a beer garden would be those that live or work within a 2-mile radius of Kakaako Waterfront Park.

Sites USA ™, a census tracking software program, indicated that 95,429 residents live in the area, with 190,028 (daytime population) that work in the area. This would be our potential consumer base for the beer garden.

Kakaako Waterfront Park Demographics	0.5 Mile		1.0 Mile		2.0 Mile	
Estimated Population (2015)	1,198		12,148		**95,429**	
Projected Population (2020)	1,235		12,760		102,504	
Projected Annual Growth (2015-2020)	36	0.6%	612	1.0%	7,075	1.5%
Estimated Population Density (2015)	1,529	psm	3,870	psm	7,600	psm
Estimated Households (2015)	426		6,008		43,765	
Projected Households (2020)	442		6,240		46,416	
Projected Annual Growth (2015-2010)	15	0.7%	232	0.8%	2,651	1.2%
Average Household Income (2015)	132,186		81,108		67,972	
Projected Household Income (2020)	139,867		85,982		71,588	
Projected Annual Change (2015-2020)	7,681	1.2%	4,875	1.2%	3,616	1.1%
Estimated Population Aged 20+ (2015)	1,019		10,365		79,232	
Female Population Aged 20+ (2015)	512		5,206		40,696	
Male Population Aged 20+(2015)	508		5,158		38,536	
Total Businesses	869		5,480		12,210	
Total Employees	1,646		68,727		158,629	
Daytime Demographics Age 16 Years of Over	12,142		72,881		**190,028**	

Source: Sites USA

Weekly Drink Consumption Demand Model

Beer Garden Demand Analysis (Weekly Drink Consumption Methodology)

We incorporated these national survey findings and applied them to the population within a 2-mile radius of Kakaako Waterfront Park. The census indicated that 190,028 people live and work within this area. Using this population base, we incorporate the ratio for those that drink alcohol (64%) and prefer beer (41%) to determine that there are 74,904 potential consumers for a beer garden. With an average of 4.1 drinks per week, we estimated that the number of drinks consumed outside the home would be 1.72 (ratio of alcohol consumed away from home vs. alcohol consumed at home). The total potential annual beer sales for this area to be $33.54 million.

Demand Analysis Based on Weekly Consumption

Kakaako residents	Daytime population	Drink alcohol	Prefer beer	Alcoholic drinks per person per week	Alcoholic Drinks per person consumed outside of home	Weeks per year	Avg price per beer
95,429	190,028	64%	41%	4.1	1.722	52	$5.00
						Total Beer Sales :	**$33,535,982**

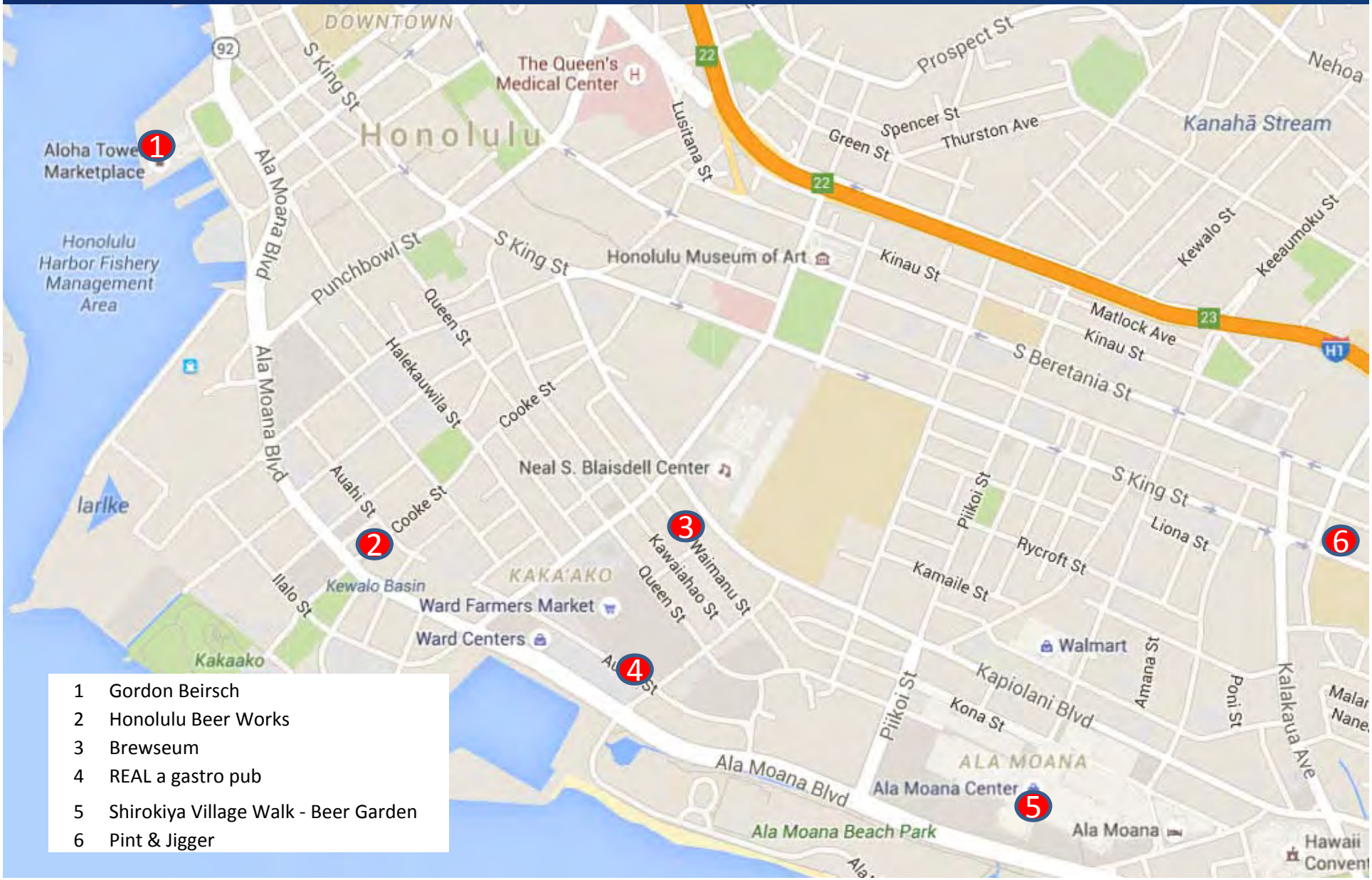
Source: Gallup Poll, Colliers International

Colliers compiled sales data from five successful beer pub establishments and calculated the average sales per square foot to be $968.25.

Estimated Sales Per Square Foot

Name	Size	Annual Sales	Sales/SF
Gorden Beirsch	14,471	$6,060,670	$418.81
Tropics Tap	3,795	$3,000,000	$790.51
REAL a gastro pub	1,500	$2,500,000	$1,666.67
Kona Brewing Company	5,500	$4,850,504	$881.91
Yardhouse	12,000	$13,000,000	$1,083.33
Avg Sales Per Square Foot:			**$968.25**

Primary Beer Pub Competition



1	Gordon Beirsch
2	Honolulu Beer Works
3	Brewseum
4	REAL a gastro pub
5	Shirokiya Village Walk - Beer Garden
6	Pint & Jigger

Notable Honolulu Beer Pubs and Breweries

Waikiki Brewing Company


Kona Brewing Company


REAL a gastro pub

Honolulu Beerworks


Gordon Biersch

Yardhouse


Shirokiya Beer Garden


Brew'd Craft Pub

Weekly Alcohol Consumption Demand Model

	BEER GARDEN MARKET INFORMATION				Menu Prices	
	Name	Address	Hours of Operation	Number of Seats/ Sq. Footage	Beer	Entrees
1	Gordon Beirsch	1 Aloha Tower	M-TH 11-11 F-S 11-12	14,471		$10 - $20
2	Honolulu Beer Works	328 Cooke St	M-TH 11-10, F-S- 11-12 PM	2,500	$6.75	$10-$15
3	Brewseum	901 Waimanu St	M-T 5-10PM, F-S 5-11 PM (INCLUDES DISTILLERY)	1500	$5-$7	
4	REAL a gastro pub	1020 Auahi	M-S 2 -2 (TWO FLOORS)	1,200	$4- $9	$7-$12
5	Shirokiya Village Walk - Beer Garden	1450 Ala Moana Blvd	M-S 9-9 PM	1,200	$3.00 - $6.00	
6	Pint & Jigger	1936 King St	M-TH 4:30 - 12:00 F-S 4:30 - 2:00 PM	3,268	$6.00 - $8.00	$7-$17
				24,139		

Based on $33.5 million in beer sales we are able to estimate the amount of food sales. An industry rule of thumb, is that 40% of a beer pub's total sales would be food sales.

Colliers estimates that the total beer pub sales would be $55.89 million. Based on an average of $968 per square foot in sales, this generates 57,726.1 square feet demand within a 2 mile radius of Kakaako Waterfront Park. With an existing peer pub inventory of 24,139 square feet within the 2 mile primary market radius, this results in a residual demand of 33,587.1 square feet. This is the amount of additional beer pubs that could be established based on existing market demand.

Colliers incorporates a market capture rate into its calculations. This rate estimates the amount of the residual demand that would be secured by this beer garden. We anticipate that the likely demand for a beer garden to range from a conservative 2,687 square feet to an aggressive 4,031 square feet for an operation opened from 10:00 AM to 10:00 PM. Should hours of operation be restricted to daylight hours, the capture rate would likely be negatively impacted.

Total Beer Sales :	**$33,535,982**
Total Beer and Food Sales:	**$55,893,303**
Avg. sales per sf	**$968**
Total Beer Pub Demand:	**57,726.1**
Existing Inventory:	**24,139.0**
Residual Demand:	**33,587.1**

Capture Rate	Estimated Demand
Conservative 8%	2,687
Moderate 10%	3,359
Aggressive 12%	4,031

Consumer Expenditures Demand Model

Consumer Expenditures

In addition to estimating demand based on weekly alcohol consumption, Colliers uses a Pitney Bowes Consumer Expenditures census report that categorizes household expenditures by product type.

For alcohol purchases away from home, the average household annual expenditure was $190.27 for residents within a 2-mile radius of Kakaako Waterfront Park.

	0.5 mi Ring	1 mi Ring	2 mi Ring
2015 Household income: Average	$92,615	$91,725	$72,055
2015 Total household expenditures (Household Average)	$30,830.84	$31,328.35	$29,283.45
Food (Household Average)	$6,846.48	$6,956.06	$6,610.33
Food at home (Household Average)	$4,071.84	$4,133.93	$3,967.62
Food away from home (Household Average)	$2,774.64	$2,822.12	$2,642.71
Alcoholic beverages (Household Average)	$482.53	$487.93	$455.88
At home (Household Average)	$281.73	$283.65	$265.61
Away from home (Household Average)	$200.80	$204.28	$190.27

Source: Pitney Bowes

Consumer Expenditures Demand Analysis

For this model, Colliers calculated the number of people that drink beer based on the number of households and the daytime population counts. The Pitney Bowes Consumer Expenditures Report ™ identified that each household spent an average of $190.27 per year on alcohol away from home.

While this estimate is an average for all households, Colliers extrapolated the average alcohol expenditure for those households that consumed alcohol. The annual average alcohol "away from home" expenditure for these households is $297.29. This is equivalent to $26.5 million in beer sales. Using the beer pub ratio of 40% of sales is food and 60% of sales are for alcohol, we determined that total beer pub sales for this market is $44.09 million.

This amount of beer pub sales produces a residual beer pub demand of 24,139 square feet for this market.

Incorporating similar capture rates to those used for the weekly alcohol consumption model, the consumer expenditures model ranged from a conservative 1,613 square feet to an aggressive 2,420 square feet.

Demand Estimate Based on Consumer Expenditures	0.5 mi Ring	1 mi Ring	2 mi Ring
Households	837	5,858	47,698
Conversion Households to Residents (x2)	1,674	11,715	95,396
Daytime Population that Drink Alcohol (64%)	7,771	46,644	121,618
Total Population that Drink Alcohol	9,445	58,359	217,014
Beer Preference (41%)	3,872	23,927	88,976
Alcohol Purchases Per Household	$200.80	$204.28	**$190.27**
Households that Drink Alcohol (64%)	$313.75	$319.19	$297.29
Total Beer Sales	$1,214,943	$7,637,433	$26,451,784
Pub Food Sales 40%	$809,962	$5,091,622	$17,634,523
Total Pub Beer/Food Sales	$2,024,905	$12,729,055	**$44,086,307**
Square Footage Demand	2,035.1	12,793.0	44,307.8
Existing Inventory			24,139.0

Capture Rate		
8%	conservative	1,613.4
10%	moderate	2,016.8
12%	aggressive	2,420.2

Factors to Consider

A beer garden's success is contingent upon many factors which include selection of a prime location within the park, accessibility and ease of parking, hours of operation, and a broad selection of craft and brand beers.

Site Location

A careful consideration of the beer garden's location within Kakaako Waterfront Park is very important. The ability to capitalize on waterfront and sunset views with a location closer to the ocean creates a unique environment, whereas a site near busy Ala Moana Boulevard could boost beer garden visibility.

Parking

Most customers will want to be able to easily access the beer garden with a minimum of walking. Currently, the primary Kakaako Waterfront Park parking lot is located to the south of the Gateway Park and to the west of Children's Discovery Center.

Hours of Operation

Beer pubs and bars have varying hours of operation, with many open till 2:00 AM. For those that provide food, many are open for lunch, resulting in hours of operation that could go from 10:00 AM to 2:00 AM. While it seems unlikely that a beer garden at Kakaako Waterfront Park would be open till 2:00 AM, a restriction to the hours of operation would likely negatively impact the beer garden's revenue potential. Many U.S. mainland beer gardens are open longer hours during the summer months and shorter hours during winter months. For safety reasons, consideration should be given to a reduction in night time hours of operation.

Factors to Consider

Selection and Price Point of Beers

The success of Honolulu Brewing, Waikiki Brewing and Lanikai Brewing Companies supports the notion that local brewed beers have a place in our marketplace. For beer pubs, craft beers have a higher price point and can generate healthier profits than nationally branded beer.

Despite the growing demand for craft beers, the manager at Shirokiya Village Walk, mentioned that most of the beer that they sell is comprised of lower priced beers on tap. Budweiser, Coors and Miller, which are very widely available , constitute a large majority of their beer sold. The Kakaako Waterfront Park beer garden should incorporate a selection of craft beers as well as include popular mainstream beer brands.

Recommendations

Colliers created two demand models to estimate the amount of square footage that would be supported by consumer alcohol expenditures. The first model used national estimates for weekly beer consumption and estimated a range of demand from a conservative 2,687 square feet to an aggressive 4,031 square feet. The consumer expenditures model utilized census estimates on the annual household expenditure for "alcohol away from home" and projected demand to range from a conservative 1,613 to an aggressive 2,420 square feet.

Both models provided support the establishment of an additional beer pub/garden within a two mile radius of Kakaako Waterfront Park. ***Colliers believes this market can support a beer garden sized between 2,000 and 3,000 square feet in size***.

Food Truck Demand Analysis
3/1/2016

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Introduction

The Hawaii Community Development Authority ("HCDA") engaged land planning firm, PBR & Associates to create a master plan for Kakaako Waterfront Park. As part of this planning effort, feedback was garnered from neighborhood stakeholders to identify potential commercial business concepts that would be supported by park users. Colliers was hired to explore these concepts for their market viability. One of these concepts is that of a food truck court.

Mobile food trucks have been around for years, typically associated with blue collar locations, the recent food truck resurgence was fueled by a post recessionary factors such as the decline in construction activity and a corresponding reduction in demand for food trucks as well as an increase in layoffs among food preparers and chefs.

For experienced cooks suddenly without work, the food truck seemed a clear choice. Food trucks are not only sought out for their affordability but as well for their nostalgia; and their popularity continues to rise.

Typically today's food trucks are not your ordinary taco and burger construction site roach coach, many food trucks now provide aspiring chefs the ability test out new concepts and garner a following for their variations of ethnic and fusion cuisines. Food trucks now garner a level of respect, as innovative menus and unique food offerings can generate a loyal following.

With the introduction of social media, such as Facebook and Twitter, a gourmet food truck can effectively publicize its menu and its location via smartphones and tablets to its customers.

Locally, there are two well-known food truck courts, Makers and Tasters Kewalo and Pau Hana Market. Makers and Tasters is located in Kakaako at the former Fisherman's Wharf site. Pau Hana Market is located in Waikiki at 234 Beachwalk Avenue. Both site operators were interviewed for this study.

National Food Truck Trends

National Trends

In 2015, food trucks generated an estimated $856.7 million in revenue and an annual growth rate of 9.3% between 2010 and 2015. By the end of 2015, the number of food trucks is projected to increase at an annualized 6.6% rate to 4,255. This pace is projected to slow to a 0.4% growth rate from 2015-2020, as food establishments grow to 4,336. Food trucks is one of the best-performing segments of the food-service sector. The desire for "gourmet cuisine at budget conscious prices" garnered wide appeal among value conscious consumers. The category breakdown of food offerings by food trucks are: 28.3% American Food, 24.6% Latin American Food, 18.1% Asian/Middle Eastern Food, 9.6% other, and 9.4% Desserts.

Nationally, food truck profit margins averaged 8.99%. By 2020, profit margins are anticipated to grow slightly to 9.2%. The majority of a food truck's expenses are tied to wages (37.9%) and food costs (36.0%). Unfortunately, food truck performance can vary widely based on a number of factors including food truck regulation, food truck marketing, health and sanitation, food quality, customer service and location selection.

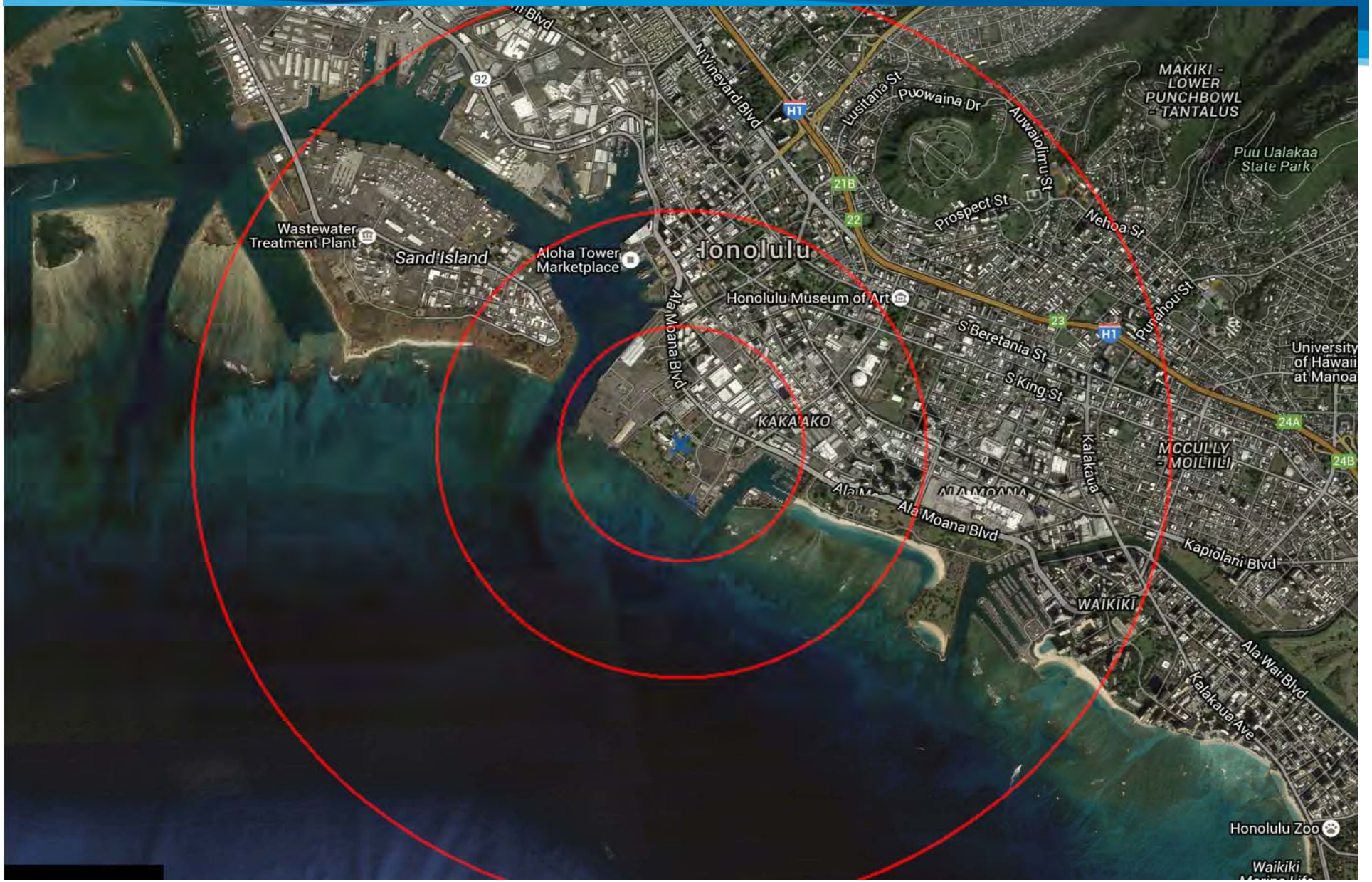
Food trucks have low operating expenses, enabling them to offer competitive pricing options for high quality meals, replacing higher priced dining options for low-cost choices. Projected annual growth in revenue for the 2016-2020 frame is 3.1%.

Food trucks are generally located in urban high population dense locations where heavy foot traffic is present and helps to increase the vendors' pool of potential customers. Site selection is a major factor in determining the potential success for a food truck. Additionally, poor weather inhibits customers to seek out a food truck, luckily Honolulu is an ideal location for food truck facilities.

Competition exists between brick and mortar restaurants and food trucks for consumer dollars. The high failure rate among restaurants is easily translated to the high turnover rate among food trucks. Many food truck operators struggle to turn a profit.

Consumers aged 25-34 spend the most at food trucks on a monthly basis. Similarly consumers aged 35-44 turn to food trucks on a regular basis for a convenient meal. Those aged 25-44 constitute 43.4% of the market for food trucks in 2015. Additionally, the widespread use of smart phone technology to attract customers identifies closely with the 18-29 demographic ,which are the most active on social media sites.

Kakaako Waterfront Park Radius Maps (0.5, 1.0 and 2.0 miles)



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Additionally, Ala Moana Boulevard is a heavily trafficked thoroughfare with 43,604 cars driving by Kakaako Waterfront Park every 24 hours and serve as a secondary target market.

Kakaako Waterfront Park Demographics	0.5 Mile		1.0 Mile		2.0 Mile	
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Daytime Demographics Age 16 Years of Over	12,142		72,881		190,028	

Source: Sites USA

Street Grindz Model

Makers and Tasters Kewalo

Street Grindz, a local event planning agency secured a three year lease for a 66,000 square foot parcel from the Office of Hawaiian Affairs. Located at the former Fisherman's Wharf location, Street Grindz named their site "Makers and Tasters Kewalo" and is open daily. The "Makers" label identifies those that provide food /drink products to the "Tasters". Street Grindz mentioned that they maintain a list of 600 food vendors that they evaluate and rotate through the Makers and Tasters Kewalo site on a consistent and regular basis.

The Makers and Tasters site is typically open 6 days a week for lunch and dinner (Monday – Saturday). Each day is segmented into a lunch shift : 10 AM – 2:30 PM and a dinner shift: 4:30 – 9:30. Sunday – Tuesday there is no dinner shift. Pricing for food venders are $75 per shift for a cost of $150 per day for a vendor open for the lunch and dinner shifts. On any given day, there are typically ten food trucks located at this site.

Street Grindz invested between $150,000 and $200,000 to upgrade this site's infrastructure. This included building a pad site, adding mobile bathrooms, fencing, seating areas, security and lighting. The site can park up to 150 cars. Each food truck is responsible for its own water, waste water removal, cooking power and grease disposal. There are no utility hookups for the food trucks (as prohibited by Dept. of Heath regulations).

Street Grindz Model

Makers and Tasters Kewalo

Street Grindz has access to 300 food vendors and a list of 600 total vendors (crafts, food, etc) that they typically incorporate into their daily vendor rotation. Each vendor is evaluated at the end of their contract and the lower performing vendors are weeded out. They currently do not charge percentage of sales but will increase rates during events. Its these events that help to boost vendor interest. Street Grindz holds an “Eat the Streets” event once a month, its been reported that thousands have attended these events and boosts the sales performance for the food vendors and help to make Street Grindz profitable.

Its this focus on “activating the community” with events such as Eat the Streets, Sunset Zumba, live music, food festivals and Movie in the Park that Street Grindz believes has helped to reduce the homeless problem in the park, as well as boosted the number of local residents to visit their food truck court. Their strategy is to be more than just food trucks but a total community program that generates more interest than just food.

Because their focus in on building a regular customer base of local residents, the frequent rotation of food trucks and food vendors helps to keep the site fresh. The belief is that if residents find different food vendors at their Makers and Tasters Kewalo that they would frequent the site more often.

HL Honolulu Model

Pau Hana Market

HL Honolulu operates a truck food court named Pau Hana Market which is located in Waikiki. They own the 10,578 square foot lot from which they operate. They invested in infrastructure which provides bathrooms, seating areas, on-site security and a commissary kitchen.

HL Honolulu requires that food trucks be committed to staying on site and open for fixed time slots i.e. 10AM – 8:00 PM. Currently there are seven food trucks on site. Each day they are required to move off the site and then drive back, this fulfills the requirement that they trucks are mobile and not fixed structures.

Food trucks lease space on the site and typically maintain leases for 6 – 12 month periods. The daily stream of new visitors to Waikiki allows HL Honolulu to keep the same food vendors for longer periods of time, whereas a site targeting locals residents would likely require a change in vendors to keep customer interest high. Many of their food trucks are international in flavor and target Japanese and foreign visitors.

Monthly fees for Pau Hana Market vendors is 20% of sales and $1,200 per month. Typically the goal is to generate more than $3,000 per food truck per month.

HL Honolulu Model

Street Food Stadium

Street Food Stadium is a new development owned by HL Honolulu that is located on Kalakaua Avenue and Fern Street. HL Honolulu is testing a new business model that is catered to those that want to test out their food concepts without having to invest in purchasing a food truck. HL Honolulu provides for a lease, the site, the truck, the infrastructure, point of sale system, use of their commissary and site marketing and promotion for a flat monthly fee.

Additionally, for international investors seeking to invest in a food operation, HL Honolulu also plans to provide an operator and manage the food truck operation for them.

Street Food Stadium will house up to 10 food trucks and offers a food prep commissary, grease trap, bathrooms, access to water and utility hookups. For those requiring to track percentage of sales , a point of sale system will be provided by HL Honolulu.

HL Honolulu's financial target is to generate $3,000 per month for a food vendor that provides their own truck or $4,700 per month for a vendor that leases the site and a truck from HL. Each food vendor is required to sign a six month to one year lease.

Site Factors

Kakaako Waterfront Park Site

Both Street Grindz and HL Honolulu felt the a 10,000 square foot lot would be ideal for their operations.

Street Grindz mentioned that due to the large size of their current lot (66,000 sq. ft.) that it is underutilized and impedes their profitability. The advantages of the large site is that for big events, such as a food festival or Eat the Streets, it allows them to easily expand. The use of the Kakaako Waterfront Park amphitheater and additional land for large events such as concerts or festivals would be of great interest. They also mentioned that green space with open lawn and trees are vital for creating an appropriate setting for their customers.

Street Grinds also mentioned that a waterfront location is not really necessary for their operation and is more an amenity for those seeking a casual scenic environment to enjoy their food, drink and entertainment. They mentioned that the central parking lot (site 2 and 3) at Kakaako Waterfront Park would be suitable for their operation.

For HL Honolulu, they felt flat open lots adjacent to Ala Moana Boulevard would be the best locations for their operation. In addition to active social media marketing, the potential to

capture potential customers with Ala Moana Boulevard street (site - 1) signage would benefit their food truck operators.

HL Honolulu mentioned that they typically build a food commissary, bathrooms and a grease trap for their vendors, and trenching and plumbing infrastructure would likely be more costly for sites further away from Ala Moana Boulevard.

Both Street Grindz and HL Honolulu expressed strong interest in being included in any RFP for a ground lease for a truck food court at Kakaako Waterfront Park.

Factors to Consider

Closure of Makers and Tasters Kewalo

The development of a KWP truck food court should coincide with the closure of the OHA Makers and Tasters Kewalo site. It would not be beneficial to have two truck food courts in direct competition with each other.

Oahu Food Truck Population Estimate

The State of Hawaii Department of Health estimated that the number of sanitation permits offered for food trucks and food carts for 2014 was 325. These permits authorizes a food cart vendor to operate for a two year period. Peter Oshiro, the State Department of Health Environment Program Manager, estimated that roughly 50%, or 162 vendors would be successful enough to survive the second year of operation as there is a high turnover rate.

Ground Lessee Coordination

Both Street Grindz and HL Honolulu believe that whoever is selected to operate the truck food court, that concurrent events such as food festivals, music concerts and movie nights should be coordinated with the operator of the amphitheater and the sports complex so that all venues are benefiting from a coordinated approach.

Beer Garden Coordination

Street Grindz recommended that the operator of the truck food court could also manage the Beer Garden for Kakaako Waterfront Park. The truck food court could offer a variety of foods for the beer garden vendor to benefit from as well.

Recommendations

Colliers recommends the development of a truck food court at Kakaako Waterfront Park ("KWP") on a ground lease of a **10,000 square foot pad** site for an initial term of ten years or longer (this would allow the ground lessee to be able to recoup their investment into site infrastructure). A thorough vetting of the business models identified by this demand study should be conducted before selecting a potential ground lessee.

The selected vendor should also be directed to provide active marketing and promotion for the food court site, provide support and coordination for events held at other KWP park venues, and be involved in activating community involvement at KWP. Signage should also be considered along busy Ala Moana Boulevard to boost interest in the activities and food offerings at KWP.

Appendix H:
BIOLOGICAL RESOURCES SURVEY

BIOLOGICAL RESOURCES SURVEY

for the

KAKA'AKO MAKAI PARKS PROJECT

KAKA'AKO, HONOLULU

by

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BIOLOGICAL RESOURCES SURVEY
KAKA'AKO MAKAI PARKS PROJECT

INTRODUCTION

The Kaka'ako Makai Parks project which is managed by the Hawaii Community Development Authority encompasses lands along the waterfront at Kaka'ako and Kewalo Basin in lower Honolulu. Three component parks, Kewalo Basin Park, Kaka'ako Waterfront Park and Gateway Park were the subject of this biological resources study (see Figure 1). This study supports environmental requirements of the planning process.

SITE DESCRIPTION

The three parks all have open spaces with lawns, shade trees, walkways, picnic tables, parking areas and restroom facilities. Uses include walking, jogging, picnicking and surfing. There are rock revetments fronting the ocean so there are no beaches. Kewalo Basin Park also facilitates boating access to the ocean. Elevations extend from sea level up to about 50 feet in Kaka'ako Waterfront Park. Two parcels below Olomehani Street that were part of the project are presently under lease and were not part of public park facilities at the time of the study.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the proposed Kaka'ako Makai Parks Project which was conducted in June 2015. The objectives of the survey were to:

1. Document what plant and animal species occur on the property or may likely occur in the existing habitat.

2. Document the status and abundance of each species.

3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used selecting routes to cover the entire area and all habitat types. Areas most likely to harbor native or rare plants such as gullies or rock outcrops were more intensively examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation in the three component parks is all typical of public parks. Most areas are mowed lawns with a variety of medium to large shade trees. Hedges border structures and facilities. The two undeveloped parcels were largely barren with an assortment of dry grasses and weeds. One plant species that was abundant throughout all areas was the monkeypod (*Samanea saman*) tree. Also common were coconut trees (*Cocos nucifera*), Chinese banyan trees (*Ficus microcarpa*) and Bermuda grass (*Cynodon dactylon*).

Six native plant species were recorded during the survey. They include the endemic (occurs only in Hawaii) 'akia (*Wikstroemia uva-ursi*) and five indigenous species (native to Hawaii and other Pacific islands), hala (*Pandanus tectorius*), kou (*Cordia subcordata*), pōhuehue (*Ipomoea pes-caprae* subsp. *Brasiliensis*), naupaka kahakai (*Scaevola taccada*) and pōpolo (*Solanum americanum*).

An additional seven species were brought to Hawaii by the early Polynesian voyagers. They include niu (*Cocos nucifera*), ki (*Cordyline fruticosa*), kamani (*Calophyllum inophyllum*), kukui (*Aleurites moluccana*), hau (*Hibiscus tileaceus*), milo (*Thespesia populnea*) and noni (*Morinda citrifolia*).

A total of 136 plant species were recorded during the survey. Of these 123 species were non-native plants that are ornamentals or are lawn or roadside weeds.

DISCUSSION AND RECOMMENDATIONS

The vegetation within the project area is dominated by non-native plants. The six native plant species recorded are all widespread and common in Hawaii, and all of them had been planted here as components of the landscaping. The seven plants of Polynesian origin were, likewise, common and had been purposely introduced into the landscape.

No federally listed Endangered or Threatened plant species (USFWS, 2015) were found in the project. No special habitats were identified within the project area. This project area lies within the heart of urban Honolulu, distant from any natural habitats.

Because of the above existing conditions it has been determined that there is little of botanical concern in the project area, and that the anticipated disturbances associated with the proposed park developments are not expected to have a significant negative impact on the botanical resources in this part of O'ahu.

It is recommended, however, that coastal and lowland native plant species continue to be incorporated into future landscape designs.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within three groups: Ferns, Monocots and Dicots. Taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999) and Staples & Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation.

2. Common English or Hawaiian name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.

   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

   Polynesian introduction = plants introduced to Hawai'i in the course of Polynesian migrations and prior to western contact.

   non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

   abundant = forming a major part of the vegetation within the project area.

   common = widely scattered throughout the area or locally abundant within a portion of it.

   uncommon = scattered sparsely throughout the area or occurring in a few small patches.

   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
FERNS			
NEPHROLEPIDACEAE (Sword Fern Family)			
Nephrolepis brownei (Desv.) Hovencamp & Miyamoto	Asian sword fern	non-native	rare
POLYPODIACEAE (Polypody Fern Family)			
Phymatosorus grossus (Langsd. & Fisch.) Brownley	*laua'e*	non-native	rare
MONOCOTS			
AMARYLLIDACEAE (Amaryllis Family)			
Crinum augustum Roxb.	Queen Emma lily	non-native	uncommon
ARECACEAE (Palm Family)			
Cocos nucifera L.	*niu*, coconut	Polynesian	common
Dypsis lutescens (H.Wendl.) Beentjie & J. Dransfield	golden-fruited palm	non-native	rare
Pritchardia pacifica Seeman & H. Wendl.	Fiji fan palm	non-native	uncommon
Pritchardia thurstonii F. Mueller & Drude	Lau Islands fan palm	non-native	uncommon
Ptychosperma macarthurii (Veitch) J.D. Hooker	Macarthur palm	non-native	rare
Roystonea regia (Kunth) O.F. Cook	royal palm	non-native	rare
Veitchia merrillii (Becc.) H.E. Moore	Manila palm	non-native	rare
ASPARAGACEAE (Asparagus Family)			
Cordyline fruticosa (L.) A. Chev.	*ki, ti*	Polynesian	rare
Dracaena reflexa Lam.	song of India	non-native	rare
Yucca gigantea Lem.	giant yucca	non-native	rare
BROMELIACEAE (Bromeliad Family)			
Ananas comosus (L.) Merrill	pineapple	non-native	rare
CYPERACEAE (Sedge Family)			
Cyperus gracilis R. Brown	McCoy sedge	non-native	rare
Cyperus rotundus L.	nut sedge	non-native	uncommon
Eleocharis radicans (Poir.) Kunth	*pipiwai*	non-native	rare
Kyllinga brevifolia Rottb.	*kili'o'opu*	non-native	uncommon
Kyllinga nemoralis (J.R. Forster & G. Forster) Dandy	*kili'o'opu*	non-native	uncommon
MUSACEAE (Banana Family)			
Musa acuminata x balbisiana Colla	banana	non-native	rare
PANDANACEAE (Screwpine Family)			
Pandanus tectorius Parkinson ex Z.	*hala*	indigenous	rare
POACEAE (Grass Family)			
Axonopus compressus (Sw.) P. Beauv.	broad-leaved carpetgrass	non-native	uncommon
Bothriochloa bladhii (Retz.) S. T. Blake	----------	non-native	uncommon
Cenchrus ciliaris L.	buffelgrass	non-native	rare
Cenchrus echinatus L.	common sandbur	non-native	uncommon
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	uncommon
Chloris gayana Kunth	Rhodes grass	non-native	rare
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native	common
Digitaria ciliaris (Retz.) Koeler	Henry's crabgrass	non-native	rare
Digitaria insularis (L.) Mez ex Ekman	sourgrass	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Eleusine indica (L.) Gaertn.	wiregrass	non-native	uncommon
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	non-native	uncommon
Eremochloa ophiuroides (Munro) Hackel	centipede grass	non-native	rare
Megathyrsus maximus (Jacq.) Simon & Jacobs	Guinea grass	non-native	uncommon
Melinis repens (Willd.) Zizka	Natal redtop	non-native	uncommon
Paspalum conjugatum Bergius	Hilo grass	non-native	uncommon
Paspalum dilatatum Poir.	Dallis grass	non-native	rare
Paspalum fimbriatum Kunth	frimbriate paspalum	non-native	rare
Poa annua L.	annual bluegrass	non-native	rare
Saccharum officinarum L.	sugar cane	non-native	rare
Sporobolus dinader (Retz.) P. Beauv.	Indian dropseed	non-native	uncommon
Stenotaphrum secundatum (Walter) Kuntze	St. Augustine grass	non-native	rare
XANTHORRHOEACEAE (Grass Tree Family)			
Aloe vera (L.) N.L. Burm.	common aloe	non-native	rare
ZINGIBERACEAE (Ginger Family)			
Hedychium coronarium J. Konig	white ginger	non-native	rare
DICOTS			
ACANTHACEAE (Acanthus Family)			
Asystasia gangetica (L.) T. Anderson	Chinese violet	non-native	rare
Dicliptera chinensis (L.) Juss.	----------	non-native	rare
AMARANTHACEAE (Amaranth Family)			
Alternanthera caracasana Kunth	mat chaff flower	non-native	rare
Alternanthera pungens Kunth	khaki weed	non-native	rare
Amaranthus viridis L.	slender amaranth	non-native	uncommon
APOCYNACEAE (Dogbane Family)			
Carissa macrocarpa (Eklon) A.DC.	Natal plum	non-native	rare
Nerium oleander L.	oleander	non-native	rare
Plumeria rubra L.	plumeria	non-native	rare
ARALIACEAE (Ginseng Family)			
Schefflera actinophylla (Endl.) Harms	octopus tree	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens pilosa L.	Spanish needle	non-native	rare
Calyptocarpus vialis Less	straggler daisy	non-native	uncommon
Conyza bonariensis (L.) Cronq.	hairy horseweed	non-native	rare
Eclipta prostrata (L.) L.	false daisy	non-native	uncommon
Emilia sonchifolia (L.) DC.	Flora's paintbrush	non-native	rare
Erigeron bellioides DC.	fleabane	non-native	rare
Sphageneticola trilobata (L.) Pruski	wedelia	non-native	rare
Synedrella nodiflora (L.) Gaertn.	nodeweed	non-native	uncommon
Tridax procumbens L.	coat buttons	non-native	rare
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	non-native	rare
Youngia japoncia (L.) DC.	Oriental hawksbeard	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
BIGNONIACEAE (Bignonia Family)			
Catalpa longissima (Jacq.) D. deCourset	yokewood	non-native	rare
Kigelia africana (Lam.) Benth.	sausage tree	non-native	rare
Spathodea campanulata P. Beauv.	African tulip tree	non-native	rare
Tabebuia heterophylla (A.P. deCandolle) Britton	pink tecoma	non-native	rare
BORAGINACEAE (Borage Family)			
Cordia sebestina L.	geiger tree	non-native	uncommon
Cordia subcordata Lam.	*kou*	indigenous	uncommon
Heliotropium procumbens Mill.	fourspike heliotrope	non-native	rare
Tournefortia argentea L.f.	tree heliotrope	non-native	rare
BRASSICACEAE (Mustard Family)			
Coronopus didymus (L.) Sm.	swinecress	non-native	rare
Lepidium virginicum L.	pepperwort	non-native	rare
CARICACEAE (Papaya Family)			
Carica papaya L.	papaya	non-native	rare
CASUARINACEAE (She-oak Family)			
Casuarina equisetifolia L.	common ironwood	non-native	rare
CLUSIACEAE (Clusia Family)			
Callophyllum inophyllum L.	*kamani*	Polynesian	uncommon
Clusia rosea Jacq.	autograph tree	non-native	uncommon
COMBRETACEAE (Indian Almond Family)			
Terminalia catappa L.	Indian almond	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea obscura (L.Z) Ker-Gawl.	----------	non-native	uncommon
Ipomoea pes-caprae (L.) R. Br. subsp.*brasiliensis* (L.) Oostr.	*pōhuehue*	indigenous	rare
Ipomoea triloba L.	little bell	non-native	rare
CUCURBITACEAE (Gourd Family)			
Coccinea grandis (L.) Voigt	ivy gourd	non-native	rare
Lagenaria siceraria (Molina) Standly	long squash	non-native	rare
Momordica charantia L.	bitter melon	non-native	rare
EUPHORBIACEAE (Spurge Family)			
Aleurites moluccana (L.) Willd.	*kukui*	Polynesian	rare
Euphorbia hirta L.	hairy spurge	non-native	rare
Euphorbia hypericifolia L.	graceful spurge	non-native	rare
Euphorbia prostrata	prostrate spurge	non-native	rare
Euphorbia thymifolia	thyme-leaved spurge	non-native	uncommon
Ricinus communis L.	castor bean	non-native	rare
FABACEAE (Pea Family)			
Alysicarpus vaginalis (L.) DC.	alyce clover	non-native	uncommon
Bauhinia x blakeana Dunn	Hong Kong orchid tree	non-native	rare
Cassia x nealiae H.S. Irwin & Barneby	rainbow shower	non-native	rare
Chamaecrista nictitans (L.) Moench	partridge pea	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	rare
Desmodium tortuosum (Sw.) DC.	Florida beggarweed	non-native	rare
Erythrina variegata L.	tiger's claw	non-native	rare
Indigofera spicata Forssk.	creeping indigo	non-native	uncommon
Leucaena leucocephala (Lam.) de Wit	*koa haole*	non-native	uncommon
Macroptilium atropurpureum (DC.) Urb.	siratro	non-native	rare
Mimosa pudica L.	sensitive plant	non-native	rare
Peltophorum pterocarpum (A.P. de Candolle) K. Heyne	yellow poinciana	non-native	rare
Phaseolus vulgaris L.	long bean	non-native	rare
Pithecellobium dulce (Roxb.) Benth.	*'opiuma*	non-native	uncommon
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	*kiawe*	non-native	rare
Pterocarpus indicus Willd.	narra	non-native	rare
Samanea saman (Jacq.) Merrill	monkeypod	non-native	abundant
GOODENIACEAE (Goodenia Family)			
Scaevola taccada (Gaertn.) Roxb.	*naupaka kahakai*	indigenous	uncommon
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	non-native	rare
Hibiscus rosa-sinensis L.	Chinese red hibiscus	non-native	rare
Hibiscus tileaceus L.	*hau*	Polynesian	uncommon
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	rare
Sida ciliaris L.	bracted fanpetals	non-native	uncommon
Sida rhombifolia L.	arrowleaf sida	non-native	rare
Thespesia populnea (L.) Sol. ex Correa	*milo*	Polynesian	uncommon
MORACEAE (Fig Family)			
Ficus benghalensis L.	Indian banyan	non-native	rare
Ficus benjamina L.	weeping fig	non-native	rare
Ficus lyrata Warburg	lyre-leaved fig	non-native	uncommon
Ficus microcarpa L. fil.	Chinese banyan	non-native	common
Ficus religiosa L.	Bo tree	non-native	rare
MYRTACEAE (Myrtle Family)			
Melaleuca quinquenervia (Cav.) S.T. Blake	paper bark	non-native	rare
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	scarlet spiderling	non-native	uncommon
Bougainvillea spectabilis Willd.	bougainvillea	non-native	uncommon
PASSIFLORACEAE (Passion Flower Family)			
Passiflora foetida L.	love-in-a-mist	non-native	uncommon
PHYLLANTHACEAE (Phyllanthus Family)			
Phyllanthus debilis Klein ex Willd.	niruri	non-native	rare
PITTOSPORACEAE (Pittosporum Family)			
Pittosporum tobira (Thunberg) W.T.Aiton	tobira	non-native	rare
PLANTAGINACEAE (Plantain Family)			
Plantago lanceolata L.	narrow-leaved plantain	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
POLYGONACEAE (Buckwheat Family)			
Coccoloba uvifera P. Br.	sea grape	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pig weed	non-native	rare
RUBIACEAE (Coffee Family)			
Morinda citrifolia L.	*noni*	Polynesian	rare
Oldenlandia corymbosa L.	corymbose diamond flower	non-native	rare
Spermacoce assurgens Ruiz & Pav.	buttonweed	non-native	rare
SOLANACEAE (Nightshade Family)			
Solanum americanum L.	*pōpolo*	indigenous	rare
Solanum lycospersicum L.	tomato	non-native	rare
THYMELAEACEAE ('Akia Family)			
Wikstroemia uva-ursi A. Gray	*'akia*	endemic	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Just two species of non-native mammals were observed in the project area during three site visits. Taxonomy and nomenclature follow Tomich (1986). Domestic cats (*Felis catus*) were common throughout the area. The feeding of cats by some members of the public promotes the development of feral colonies wherever this occurs. Domestic dogs (*Canis familiaris*) are frequent park visitors as leashed animals with their owners who are walking or jogging. Other mammal species one might expect to see in the parks include the occasional mice (*Mus domesticus*), rats (*Rattus* spp.) and mongoose (*Herpestes auropunctatus*).

An evening survey was conducted at two locations within the project area using a bat detecting device (Batbox IIID), set to the frequency of 27,000 Hertz that the Hawaiian hoary bats are known to use for echolocation in their pursuit of nocturnal flying insects. No bats were detected at either of the locations with the use of this device.

BIRDS

Bird life was modest in the diversity of species observed but fairly well represented in total numbers. Taxonomy and nomenclature follow American Ornithologists' Union (2014). A total of twelve bird species were observed during three site visits. Two non-native bird species were quite abundant in the project area, the common myna (*Acridotheres tristis*) and the zebra dove (*Geopelia striata*). Also common were the spotted dove (*Streptopelia chinensis*) and the cattle egret (*Bubulcus ibis*).

One indigenous seabird, the white tern (*Gygis alba rothschildi*) was an occasional visitor around large park trees where they may roost and nest. These white terns are common in colonies in the Papahānaumokuākea Marine National Monument and in other tropical Pacific islands, but they have been declared Endangered on O'ahu where there is an incipient but growing population.

INSECTS

Insect life was sparse throughout the project area due primarily to the lack of habitat diversity one encounters in well managed parks. Thirteen non-native insect species were observed during three site visits. Taxonomy and nomenclature follow Nishida et al (1992). No species were found to be common, but three uncommon species were the honey bee (*Apis mellifera*), the passion flower butterfly (*Agraulis vanillae*) and the dung fly (*Musca sorbens*). Ten other insect species were rare. No native insect species were found.

DISCUSSION AND RECOMMENDATIONS

The Kaka'ako Makai Parks are extensively used by urban Honolulu residents for walking, jogging, picnicking and as access to surf spots. This usage discourages many forms of wildlife from using the habitat. Occurrences of mammals, birds and insect was sparse to moderate and only one native bird the indigenous and Endangered white tern, was present. All other wildlife species, including two mammals, thirteen insects and eleven of twelve birds, are of no particular protective focus.

The white tern population on Oahu has been growing slowly since its first discovery in 1981. They are becoming increasingly common around trees in parks between Koko Head and Honolulu Harbor. Habitat for these terns is not highly specialized. Any tree species with suitable forking branches that will hold an egg will do. It is recommended that any tree pruning or removal work within the Kaka'ako Makai Parks be preceded by inspections to ensure that no white tern nests are present or will be affected.

The endemic and protected Hawaiian hoary bat was not detected during the survey. These bats are not known from urban Honolulu and are not expected to occur in the project area.

No Endangered nēnē or Hawaiian goose are known from Oahu except in captivity and are not expected in the project area.

No Blackburn's sphinx moths (*Manduca blackburni*) were found during the survey. They are not presently known from Oahu and none of their special host plants were found either.

No protected waterbirds, the ae'o or Hawaiian stilt (*Himantopus mexicanus knudseni*), 'alae ke'oke'o or Hawaiian coot (*Fulica alai*), 'alae'ula or common moorhen (*Gallinula chloropus sandvicensis*) or the koloa or Hawaiian duck (*Anas wyvilliana*) were seen during the survey and no suitable wetland habitat occurs on or near to the project area.

Hawaiian petrels (*Pterodroma phaeopygia sandwichensis*) and Newell's shearwaters (*Puffinus auricularis newellii*), (collectively known as seabirds) may transit over the project area when flying between the ocean and nesting sights in the mountains during their breeding season (March through November). Fatalities to these seabirds resulting from collisions with artificial structures that extend above the surrounding vegetation have been documented in Hawaii where high densities of transiting seabirds occur. Additionally, artificial lighting such as floodlighting for construction work can adversely impact seabirds by causing disorientation which may result in collision with utility lines, buildings, fences and vehicles. Fledgling seabirds are especially affected by artificial lighting and have a tendency to exhaust themselves while circling the light sources and become grounded. Too weak to fly, these birds become vulnerable to predation by predators such as mongoose (*Herpestes auropunctatus*), cats (*Felis catus*) and dogs (*Canis familiaris*). These threats can be minimized by the shielding of any outdoor lighting so that the light is visible only from below.

No other recommendations regarding wildlife are deemed necessary.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within three groups: Mammals, Birds and Insects. For each species the following information is provided:

1. Common name.

2. Scientific name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.

   common = a few flocks or well scattered individuals throughout the area.

   uncommon = only one flock or several individuals seen within the project area.

   rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MAMMALS			
Felis catus L.	domestic cat	non-native	common
Canis familiaris L.	domestic dog	non-native	uncommon
BIRDS			
Acridotheres tristis L.	common myna	non-native	abundant
Geopelia striata L.	zebra dove	non-native	abundant
Streptopelia chinensis Scopoli	spotted dove	non-native	common
Bubulcus ibis L.	cattle egret	non-native	common
Carpodacus mexicanus Muller	house finch	non-native	uncommon
Estrilda astrild L.	common waxbill	non-native	uncommon
Lonchura punctulata L.	nutmeg mannikin	non-native	uncommon
Passer domesticus L.	house sparrow	non-native	uncommon
Columba livia Gmelin	rock pigeon	non-native	rare
Gygis alba rothschildi Sparrman	manu o ku, white tern	indigenous	rare
Zosterops japonicus Temminck & Schlegel	Japanese white-eye	non-native	rare
Pycnonotus cafer L.	red-vented bulbul	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order DIPTERA - flies			
CALLIPHORIDAE (Blow Fly Family)			
Calliphora vicina Robineau - Desvoidy	blue bottle fly	non-native	rare
DOLICHOPODIDAE (Long-legged Fly Family)			
Chrysosoma globiferum Wiedemann	irridescent green long-legged fly	non-native	rare
MUSCIDAE (House Fly Family)			
Musca sorbens Wiedemann	dung fly	non-native	uncommon
Order HYMENOPTERA - bees, wasps, ants			
APIDAE (Honey Bee Family)			
Apis mellifera L.	honey bee	non-native	uncommon
Xylocopa sonorina Smith	Sonoran carpenter bee	non-native	rare
FORMICIDAE (Ant Family)			
Ambylopone sp.	amblyoponine ant	non-native	rare
SPHECIDAE (Thread-waisted Wasp Family)			
Chalybion bengalense Dahlbom	oriental mud dauber wasp	non-native	rare
VESPIDAE (Vespid Wasp Family)			
Polistes aurifer Saussure	golden paper wasp	non-native	rare
Order LEPIDOPTERA - butterflies, wasps			
LYCAENIDAE (Gossamer-winged Butterfly Family)			
Lampides boeticus L.	long tail blue butterfly	non-native	rare
NYMPHALIDAE (Brush-footed Butterfly Family)			
Agraulis vanillae L.	passion flower butterfly	non-native	uncommon
Danaus plexippus L.	monarch butterfly	non-native	rare
PIERIDAE (White & Sulphur Butterfly Family)			
Phoebis agarithe Boisduval	large orange sulphur butterfly	non-native	rare
Pieris rapae L.	cabbage butterfly	non-native	rare

Figure 1. Kaka'ako Makai Parks Project

Figure 2. Kewalo Basin Park showing the main pavilion and restroom at the west end.

Figure 3. Kewalo Basin Park showing the landscape along the eastern waterfront.

Figure 4. Kaka'ako Waterfront Park. Looking east toward the main pavilion and the hilltop viewing area.

Figure 5. Kaka'ako Waterfront Park showing the rolling landscape and the main parking area.

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Appendix I:
CULTURAL SUMMARY REPORT

CULTURAL SUMMARY REPORT

KAKAAKO MAKAI PARKS

Active Use Facilities Master Plan

Kakaako Waterfront Park
[TMK: (1) 2-1-060:008, (1) 2-1-060:029 (por.), (1) 2-1-060:030 (por.)]
Kakaako Gateway Park
[TMK: (1) 2-1-060:007, (1) 2-1-059:023, (1) 2-1-059:024, (1) 2-1-059:025, (1) 2-1-059:026, (1) 2-1-060:030 (por.)]
Kewalo Basin Park
[TMK: (1) 2-1-058:131]

Prepared by:

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Honolulu Hawaii 96813

Prepared for:

HCDA
Hawaii Community Development Authority

April 2016

Summary

Title/Reference	Cultural Summary Report for the Kakaako Makai Parks Active Use Facilities Master Plan,
Project Location	Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park. Collectively, throughout this document, these parks are referred to as the "Kakaako Makai Parks" or the "Parks." The Parks are located in the ili of Kakaako, Kukuluaeo, Kaakaukuki and Kewalo, Waikiki Ahupuaa, district of Honolulu (Kona), island of Oahu, State of Hawaii (Figure 1 Regional Location Map).
Tax Map Keys	TMK: (1) 2-1-060:008, 2-1-060:029 (por.), 2-1-060:030 (por.); TMK: (1) 2-1-060:007, 2-1-059:023, 2-1-059:024, 2-1-059:025, 2-1-059:026 and 2-1-060:030 (por.); TMK: (1) 2-1-058:131 (Figure 2 Tax Map Key).
Proposing Agency	Hawaii Community Development Authority
Project Description	The proposed action involves an Active Use Facilities Master Plan for proposed improvements associated with three parks within the Kakaako Community Development District (KCDD) that are owned and operated by the Hawaii Community Development Authority (HCDA). Preparation of an Environmental Impact Statement (EIS) is being undertaken to address requirements of Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, Department of Health, Chapter 200, Environmental Impact Rules Hawaii Administrative Rules (HAR).
Project Acreage	Kakaako Waterfront Park encompasses 39 acres and three parcels. Kakaako Gateway Park encompasses 7.8 acres and six parcels. Kewalo Basin Park encompasses a 5.8 acre portion of a single parcel.
Cultural Summary Report Description	This Cultural Summary Report describes the potential impacts of proposed master plan improvements for, existing conditions, and surrounding environment of Kakaako Makai Parks (Figure 3 Aerial Photo).
Document Purpose	Acknowledging that numerous Cultural Impact Assessments (CIA) had been conducted on KCDD Lands, which include the Kakaako Makai Parks and immediately adjacent lands, HCDA requested that PBR HAWAII prepare a Cultural Summary Report (CSR) rather than conducting a full CIA. While the project requires compliance with the State of Hawaii environmental review process Chapter 343, HRS, which requires consideration of a proposed project's effect on traditional cultural practices, HCDA acknowledges that numerous CIA's have been prepared utilizing methods and practices including but not limited to a document research and cultural consultation efforts pertinent to the assessment of the proposed project's impacts to cultural practices (per the OEQC's Guidelines for Assessing Cultural Impacts). The CSR is intended to support the project's environmental review and may also serve to support the project's historic preservation review under Chapter 6E-42, HRS, and Chapter 13-284, HAR.
Community	In the Kewalo Basin Repair Project Hawaiian organizations, agencies and

Consultation	community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the Project area and the vicinity. Outreach included efforts to contact 39 individuals and agencies. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the Oahu Island Burial Council (OIBC), Hui Malama I Na Kupuna O Hawaii Nei, the Honolulu Hawaiian Civic Club, Friends of Kewalos, Halau Ku Mana, and community members of Kakaako.
Summary of conclusions in reviewed reports (see "Prior Reports" section of this document)	• The study area is associated with moolelo (oral history) in which Kaakaukukui, Kewalo and Kukuluaeo were traditionally noted for their fishponds and salt pans, for the marsh lands where pili grass and other plants could be collected, for ceremonial sites such as Puukea Heiau, Kewalo Spring, and Kawailumalumai Pond at which sacrifices were made, and for their trails that allowed transport between the more populated areas of Waikiki and Honolulu. Important chiefs such as Hua-nui-ka-la-lailai were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources; some commoners probably also lived in the area, possibly adjacent to the ponds and the trails. The study area is also associated with legendary accounts of the Waters of Hao, Kapoi and the heiau, and the legend of Hiiaka and more. Traditional name of general location that the University of Hawaii Health and Wellness Center project area is situated on would have been the near shore waters off of Kaakaukukui, which is an ili awarded to Victoria Kamamalu in 1848 (LCA 7713). The land on which the project area sits was a Historic refuse landfill. Kaakaukukui was among several Bishop Estate properties acquired by the Territory of Hawaii in 1919. • In traditional times, the study area is characterized by fishponds, salt ponds, trails connecting Honolulu (Kou) and Waikiki, and occasional taro loi. Wetland/fishpond deposits have been documented in the Kakaako Mauka Area. • The current urban district known as Kakaako is significantly larger than the traditional area of the same name, which is described in mid 19th century documents and maps as a small ili (traditional land unit). In addition to Kakaako, the Mauka Area District also includes lands once known as Kaakaukukui, Kukuluaeo, and Kewalo, and possibly smaller portions of other ili. • The project area is near to Kou, which is was a politically important harbor and village prior to European contact and is now the location of the city of Honolulu. King Kamehameha I moved the seat of government to Kou in 1809. The expansion of Kou affected the surrounding areas, including Kaakaukukui. • Historic Bishop (1884) map indicates that a "Beach Road" once ran along the shoreline and makai of the ili of Kaakaukukui. This road appears to have become Ala Moana Blvd. The Wall (1911) map shows a retaining wall running along what is now Olomehani Street and the area makai of Ala Moana Blvd was filled with sediment by that time.

	• Unlawful residents came to inhabit the area and the area became known as 'Squattersville.' Described in 1920s as a fishing village of roughly 700 people, mostly of Native and part-Hawaiians. The Territorial Government evicted the squatters in 1926. • There was a surf break called 'Stonewall' at Kaakaukukui in the 1930s and 1940s, where the area is still a popular fishing and swimming. Marine resources were abundant and locals dove and caught a variety of fish and squid and also gathered limu and wana from the reef. • Kaakaukukui was transformed into a dump in the late 1940s and early 1950s, extending a massive seawall seaward to retain the city's refuse. Kakaako Waterfront Park is situated on the footprint of the landfill. • The coastline continues to be utilized for a variety of recreational activities including fishing, swimming, and surfing as well as a gathering place for family picnics, barbeques, and parties. • The park and shoreline access areas are from the Kakaako Waterfront Park parking lot and several streets that terminate at the park. • Previous archaeological work confirms that there are intermittent buried cultural layers in this near shore environment reflecting the Hawaiian pattern of permanent settlements in proximity to agriculture, aquaculture and marine resources. • Kakaako is a highly urbanized area with a mix of low, mid and high rise structures. There are no structures in the Mauka Area that predate or reflect the style of construction prior to western contact with native Hawaiians in 1778. A few remaining buildings were built by or inspired by nineteenth century missionaries, however, most buildings in Kakaako were built during the twentieth century after Hawaii became a U.S. territory. • Covington's 1881 map indicates that the Project area is within Kewalo Ahupuaa and that the Kewalo Ahupuaa is comprised of Kakaako Ili on the east and Kukuluaeo Ili on the west. While modern districting refers to Kewalo Ahupuaa as Kakaako District, the size and placement of the letters on Covington's 1881 map suggest that Kewalo is the larger land division, with Kakaako Ili and Kukuluaeo Ili inside this ahupuaa. Moreover, Kewalo is not a continuous ahupuaa. As the Hawaiian Government Surveys office explained in 1850: "Kewalo had its seacoast adjoining Waikiki, its continuous kula on the plain, and one-half of Punchbowl Hill • From the moolelo, one can see that Kewalo, with the ili of Kakaako and Kukuluaeo, was noted for its fishponds and salt pans, for the marsh lands where pili grass and other plants could be collected, for ceremonial sites such as Puukea Heiau and Kewalo Spring, for Kawailumalumai Pond, where sacrifices were made, and for the trails that allowed transport between the more populated areas between Waikiki and Honolulu. • Important chiefs were born in the Kewalo area and conducted religious rites, and commoners traveled to the area to procure food and other resources. Some commoners perhaps lived in the area, adjacent to the ponds and trails. • Perhaps the most famous wahi pana (storied place) of Kewalo is the fish

	pond called Kawailumalumai, or "Drowning Waters," used to drown kauwa or kapu (taboo) breakers as the first step in a sacrificial ritual known as Kanawai Kaihehee (Kamakau 1991:6), or Ke-kai-heehee, which translates as "sea sliding along," suggesting that the victims were slid under the sea (Westervelt 1991:16). Early references indicate that Kawailumalumai Pond may have been near what was once the Ward Estate (now Neal Blaisdell Center). • Kewalo is located between two centers of population, Kou and Waikiki, on the southern shore of pre-Contact Oahu. In Waikiki, a system of taro loi (irrigated fields) fed by streams, descending from Makiki, Manoa, and Palolo valleys, blanketed the plain, and networks of fish ponds dotted the shoreline. Similarly, Kou (the area of downtown Honolulu surrounding the harbor) possessed shoreward fishponds and irrigated fields watered by ample streams descending from Nuuanu and Pauoa Valleys. The pre-Contact population and land use patterns of Kewalo may have derived from its relationship to these two densely populated areas; it may have participated in some of the activities associated with them. • By the 1840s LCA claims indicate that traditional Hawaiian usage of the region and its environs seems to have remained confined to salt making and farming of fishponds, with some wetland agriculture in those areas mauka or toward Waikiki at the very limits of the field system descending from Makiki and Manoa Valleys. Kewalo had a narrow upland section (often called "Kewalo Uka"), a larger lower river valley section, and a small coastal section (called "Kewalo Kai") joined by a small strip of land. There is evidence that there were fish and salt ponds in the area, and by the late 19th century rice was being planted in the swampy central area of Kewalo. • The Ward Estate once covered a large portion of the Kakaako Mauka District. Curtis Perry Ward, a native of Kentucky, came to the Hawaiian Islands in 1853 and in 1865 married Victoria Robinson, who was descended from the Hawaiian alii and early French and British residents. For his new family, Ward purchased at auction the 12-acre estate of Joseph Booth, Royal Patent 306, and additional contiguous lands in the Koula area in 1870 (Hustace 2000:21–25). This constituted the mauka portion of "Old Plantation" from Thomas Square on King Street to the makai border at Waimanu Street. A few years later (before 1875), Ward added to his property with the purchase of 77 acres and 3,000 feet of ocean frontage in the ili of Kukuluaeo, makai of Queen Street. Workers were hired to clear the fishponds and ditches, plant taro in the fishponds, fence in pastures for the horse, plant 6,000 coconut trees, plant kiawe trees for firewood, and restore the kahaka (salt pans) near the shore (Hustace 2000:41).
Result of Prior	• According to SCIA prepared for the Kakaako Community Development

Community Consultation	District Transit Oriented Development Overlay a total of 200 cultural groups, practitioners, and informants were identified between the five previously conducted CIAs and TCP Study. No cultural groups or individuals were identified in Wilson Okamoto and Associates, Inc. (2002). However, out of the 81 community members identified by Spearing et al. (2008), they received responses from 34 individuals and were able to interview 12 informants, which were comprised of residents, cultural and lineal descendants, and cultural practitioners. Twenty individuals were identified by Vogeler et al. (2010) and interviewed five out of the ten respondents. Genz and Hammatt (2010) identified 39 potential informants, consisting of community members, government agency officials, community organization representatives, cultural and lineal descendants, cultural practitioners, and residents. Six individuals of 16 respondents were interviewed for the CIA. Elison and McElroy (2011) identified 88 cultural groups and individual informants, with a total of 8 individuals participating in interviews. Elison (2013) included transcripts from 6 newly conducted ethnographic interviews, transcripts from two previously conducted ethnographic interviews (Elison and McElroy 2011), a telephone consultation summary, and information from an email consultation in the Oral History-Consultation Interview Program component of the TCP Study. • The Kewalo Basin Repair Project CSH attempted to contact 39 community members, government agency and community organization representatives, and individuals, including residents, cultural and lineal descendants, and cultural practitioners. Of the 16 people that responded, six *kupuna* (elders) and/or *kamaaina* (Native-born) participated in formal interviews for more in-depth contributions to the CIA.
Conclusions & Recommendations	• Impacts from the proposed Master Plan to cultural resources or practices in the Project Area are expected to be negligible. The lands the Project Area occupies is largely man-made. The product of multiple land reclamation projects, the area has been heavily modified over the last 150 years and did not exist prior to the mid-20th Century. It is widely accepted and recognized that other than surfing and subsistence and sport fishing, few if any pre-contact cultural practices continue in the Kakaako Parks area. • Proposed park improvements will not restrict the existing public access to the ocean available through Kewalo Basin Park nor should there be an impact or effect upon the exercise of Native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities. • No mitigative measures are suggested.

Table of Contents

List of Figures

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Introduction

At the request of Hawaii Community Development Authority (HCDA), PBR HAWAII conducted a review of existing Cultural Impact Assessments (CIA) for the Kakaako Makai Parks Active Use Facilities Master Plan. The specific project area covered in this Cultural Summary Report (CSR) includes Kakaako Waterfront Park, Kakaako Gateway Park, and Kewalo Basin Park. Collectively, throughout this document, these parks are referred to as the "Kakaako Makai Parks" or the "Parks." The Parks are located in the located in the Kakaako ili, Waikiki ahupuaa, Honolulu moku, Oahu mokupuni (See Figure 1). The specific TMKs of the project area respectively include (1) 2-1-060:008, 2-1-060:029 (por.), 2-1-060:030 (por.); (1) 2-1-060:007, 2-1-059:023, 2-1-059:024, 2-1-059:025, 2-1-059:026 and 2-1-060:030 (por.); as well as TMK: (1) 2-1-058:131 (See Figure 2). The purpose of the CSR was to assess whether the proposed project will impact existing cultural beliefs, practices, and resources in the area (See Figure 3).

The project requires compliance with the State of Hawaii environmental review process (Chapter 343-2, Hawaii Revised Statues (HRS), which requires consideration of a proposed project's effect on traditional cultural practices. Through archival research this document provides information pertinent to the assessment of the proposed project's impacts to cultural practices (per the Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts). The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS Chapter 6E-42 and Chapter 13-284, Hawaii Administrative Rules (HAR).

Scope of Cultural Summary Report

The project area is located within the Kakaako Community Development District (KCDD) of Honolulu on the island of Oahu. KCDD lands have been studied and reviewed extensively in response to the overwhelming demand for development in the area immediately adjacent to and surrounding The Parks. Consequently numerous CIA's have been prepared in compliance with Chapter 343-2, HRS) and protocols listed in the OEQC Guidelines for Assessing Cultural Impacts). Additionally, other cultural studies, master plan reports and ethno-historical investigations have been conducted including a special Supplemental Cultural Impact Assessment (SCIA).

In lieu of producing a traditional CIA, HCDA engaged PBR HAWAII to conduct a "cultural summary" by limiting its scope of work to the review and examination of existing CIA's which satisfactorily promote and protect the cultural beliefs, practices and resources of native Hawaiians, other ethnic groups, and other groups at large that could be potentially impacted by the proposed project as prescribed by the 1997 *OEQC Guidelines for Assessing Cultural Impacts. (Appendix A)*

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DATE: 3/28/2016

LEGEND

Kakaako Makai Parks

Figure 1

Regional Location Map

KAKAAKO MAKAI PARKS

HCDA

Island of Oahu

North

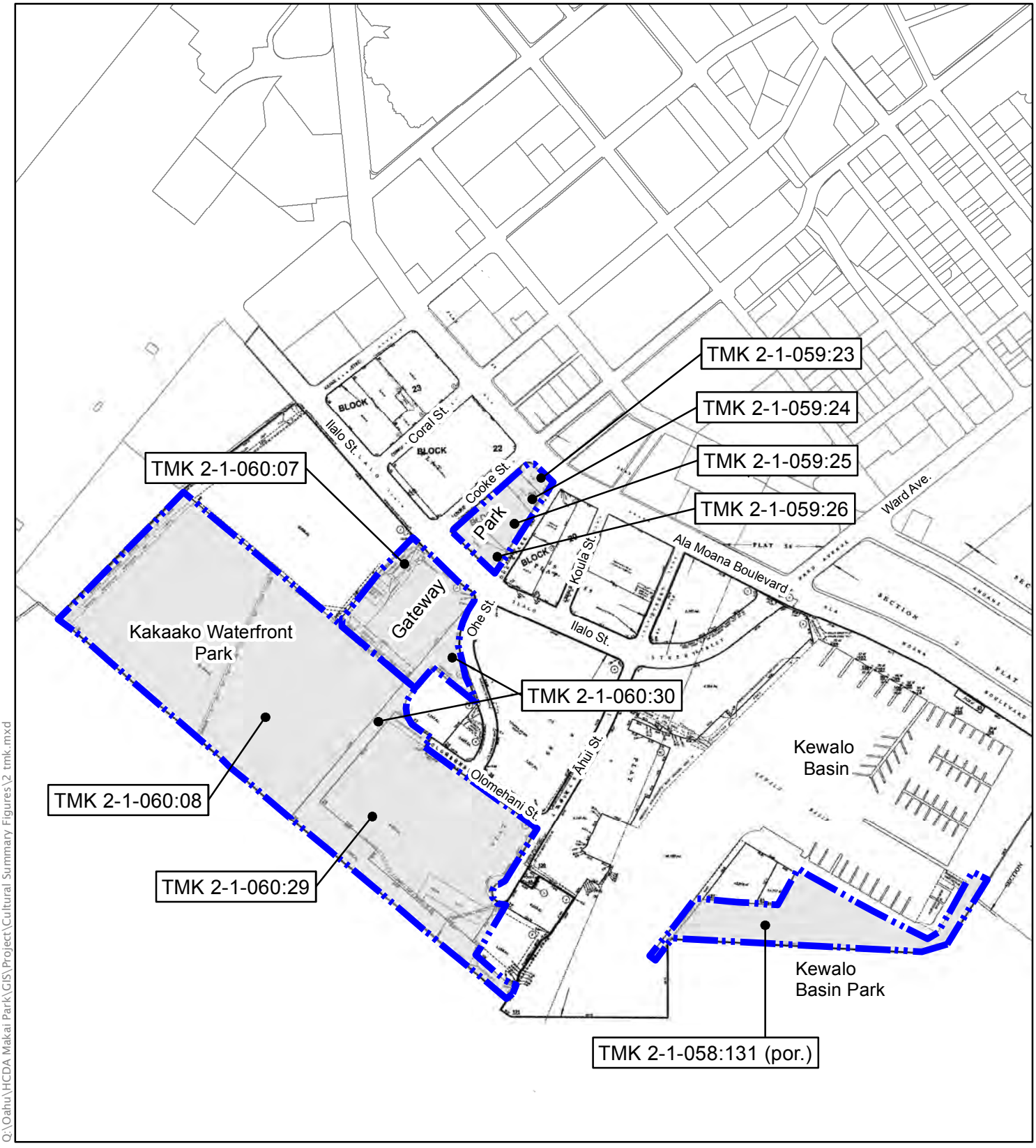
Linear Scale (feet)

0 1,000 2,000

Source: ESRI Online World Topo Map, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

PBR HAWAII & ASSOCIATES, INC.



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Kakaako Makai Parks

Figure 2

Tax Map Key

KAKAAKO MAKAI PARKS

HCDA

North

Island of Oahu

Linear Scale (feet)

0 300 600

Source: City & County of Honolulu, 2014.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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Kakaako Makai Parks

Figure 3
Aerial Photo

KAKAAKO MAKAI PARKS

HCDA
North

Linear Scale (feet)
0 300 600

Island of Oahu

PBR HAWAII & ASSOCIATES, INC.

Source: City & County of Honolulu, 2014.
Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Prior Cultural Impact Assessment Reports

Pursuant to the direction from HCDA, PBR HAWAII conducted a literature and document search to identify existing CIA's performed in and around the Kakaako Makai Parks project area. In the course of researching the OEQC and State Historic Preservation Division (SHPD) Library, PBR HAWAII identified five (5) CIA and one Supplemental Cultural Impact Assessment (SCIA) that were relevant to the project area including the following:

- Wilson Okamoto and Associates, Inc.
  2002 Cultural Impact Assessment in the Final Environmental Assessment University of Hawaii Health and Wellness Center. Prepared for the University of Hawaii, John A. Burns School of Medicine. Prepared by Wilson Okamoto and Associates, Inc., Honolulu.

- Spearing, Mishalla, Constance O'Hare, and Hallett H. Hammatt
  2008 Cultural Impact Assessment for the Kakaako Community Development District Mauka Area Plan, Waikiki Ahupuaa, Honolulu (Kona) District, Oahu Island. TMK: [1] 2-1-29-32, 44, 46-56 and 2-3-01-11. Prepared by Cultural Surveys Hawaii, Inc., Kailua

- Vogeler, Kuhio, Lehua Kauhane, and Hallet H. Hammatt
  2010 Cultural Impact Assessment for the Proposed McKinley High School Athletic Complex Master Plan Project, Honolulu (Kewalo) Ahupua, Honolulu District (Kona Moku), Island of Oahu. TMK: [1] 2-3-009:001 por. Prepared by Cultural Surveys Hawaii, Inc., Kailua.

- Genz, Joseph H. and Hallett H. Hammatt
  2010 Cultural Impact Assessment for the Kewalo Basin Repairs Project, Kakaako Ahupuaa, Honolulu (Kona District), Oahu. TMK: [1] 2-1-058. Prepared by Cultural Surveys Hawaii, Inc., Kailua.

- Elison, Mina and Windy K. McElroy
  2011 Final – Cultural Impact Assessment for Kakaako, Ahupuaa of Waikiki Kona District, Island of Oahu, Hawaii. TMK: [1] 2-3-006:017. Prepared by Keala Pono Archaeological Consulting, LLC, Hauula.

- Mooney, Kimberly M., B.A. and Paul L. Cleghorn, Ph.D.
  2014 Supplemental Cultural Impact Assessment for The Kakaako Community Development District Transit-Oriented Development Overlay Honolulu and Waikiki Ahupuaa, Kona District, Oahu Prepared by Pacific Legacy, Inc.

Of the six reports reviewed, PBR HAWAII determined the 2014 Pacific Legacy SCIA prepared for the Kakaako Community Development District Transit Oriented Development Overlay was the most comprehensive and most recent study done in and around the Parks. The SCIA succeeded

in not only comprehensively identifying cultural resources and practices in and around the Kakaako Makai Parks, but also added to the body of existing knowledge by identifying cultural groups, resources, and areas of interest previously overlooked or insufficiently covered by existing cultural resource records.

PBR HAWAII's document and archival review also revealed other cultural studies and reports not included in the Kakaako TOD Overlay Plan SCIA. Following is a table of the key resources relied upon to prepare this summary.

Table 1. Reference Documents

Title	**Author & Sponsor**	**Notes**
Cultural Impact Assessment for the Kewalo Basin Repairs Project, Kakaako Ahupuaa, Honolulu (Kona District), Oahu TMK: [1] 2-1-058	Prepared by Cultural Surveys Hawaii, Inc. for Helber Hastert & Fee, Planners	Provides information on historic, cultural resources, traditional uses and practices; community consultations findings
Cultural Landscape and Ancestral Connectivity Analysis	Prepared by Group 70 International for the Office of Hawaiian Affairs	Provide description of the project area and surrounding community, definition of "cultural space" and relevance to ancestral connectivity, summary of known cultural practices, beliefs, & values
Kakaako Makai Conceptual Master Plan Final Report	Prepared by MVE Pacific for Hawaii Community Development Authority	Provided landscape summary, community engagement feedback, historic and cultural; results of community engagement and consultation

Summary of Pre-Contact Uses

The Kakaako Makai Parks are located on the south shore of Oahu in the Moku of Kona (known today as Honolulu), the Ahupuaa of Waikiki, the ili of Kakaako, Kukuluaeo, Kaakaukuki and Kewalo. The area is specifically located just east of the former coastal village of Kou (now Downtown Honolulu), west of the ili of Kalia and Waikiki, and along the coastal edge of the former fisheries of Kaakaukuki and Kukuluaeo and Mamala Bay beyond that. Historical records indicate that the native population survived successfully in the area due to the presence of an abundant agrarian and aquacultural landscape. Prior to becoming a large maritime industrial center in the late 19th century, the surrounding areas of Kaakaukukui and Kukuluaeo were home to productive fishponds and salt pans (OHA, 2013).

Based on the results of the background research reported in the Kakaako TOD Overlay SCIA, the following ancient and pre-contact cultural activities and moolelo (stories) were reported to be associated with these ili.

Table 2. Summary Pre-Contact Uses in Parks area	
Kakaako	• Means “to strike and gather,” is described as a land area situated between Honuakaha and Kaholoakeahole that contained a fishing village pre-Contact era (Maly et al. 2013). • There is no meaning given for the place name Kakaako in Place Names of Hawaii (Pukui et al. 1974). However, Pukui and Elbert (1986:110) provide a translation for the word *kakaako* as “dull, slow.” • Thrum (1922:639) suggests kakaako means to “prepare the thatching,” based on the meaning of the name’s first half, *kaka* “to chop, beat, or thresh” and its last half, *ako*, which means “thatch.” • Spearing et al. (2008) speculate that the name could tie into the fact that tall pili grass, used to thatch traditional structures, thrived in salt marshes, such as those in Kakaako - provided that Thrum’s translation is correct. • In Thrum’s (1900:123-128) version of the legend of Kuula, Kakaako is mentioned as the location that Aiai, son of Kuula, stayed for several days and was befriended by a local named Apua.
Kaakaukukui	• Was once a reef which has been filled in. Name translates as “the right (or north) light,” which refers to the navigation landmark for seafarers (Spearing et al. 2008). • Kekahuna (1958:4) states that Kaakaukukui was “a beautiful sand beach and reef that formerly extended a quarter mile along Ala Moana Park to Kewalo Basin. • Other translations of Kaakaukukui consist of “radiating place for lamp” (Thrum 1922:635) and “to the right of the lighthouse” (Gessler 1937:187), as the 1869 Honolulu Lighthouse, no longer standing, was east of this location. Kaakaukukui was a “jump land” or lele, which is a non-contiguous portion of land belonging to an ili. One lot of the lele was located on the coast and the other two were inland (Spearing et al. 2008:15-16). • Maly et al. (2013:32) translates Kaakaukukui as “The north/right light,” and describes it as a coastal land “east of Waikahahulu, and adjoining Kukuluaeo.” Further, Maly et al. (2013:32) holds that the area, once fronted by fishponds and salt works, was cited in historical accounts, Mahele Olaims 6236, 7712, 7713 and 10605, and Register Map numbers 241, 395, 611, 861, 900, 1090, and 1471.
Kewalo	• Translated as “the calling,” represented a vast kula (land) and coastal region, but is now a name that refers to a manmade basin on the coastline of Kakaako. • Westervelt (1915) provides a glimpse of ancient Hawaiian practices that took place in this area, stating: Kewalo was the place where the Kauwa, a very low class of servants, were drowned by holding their heads under water, according to the law known as "Ke-kai-he-hee." "Kai" means "sea" and "hee" means "surf-riding" or "sliding along." The law meant the sliding of the servants under the waves of the sea (Westervelt 1915:3).
Kukuluaeo	• Kukuluaeo means “to walk on stilts” and shares the name with the Hawaiian Stilt (Himantopus mexicanus knudseni), which would have frequented the marsh area. • Pukui et al. (1974) holds that Kukuluaeo once fronted Kewalo Basin and described it as being marsh lands with salt ponds and fishponds. Kamakau (1865) states that Kukuluaeo was a well-known area in the pre-Contact era with a heiau called Puukea. Maly et al. (2013) describes the area as near shore.

Results of Background Research

The results of the background research also revealed an abundance of tangible cultural resources, and an array of fish, plants, salt, and ceremonial sites in or adjacent to the project area. Though some of those resources still exist, there are fewer of them.

The following tables present the results of the background research reported in the CIA's that contributed to the SCIA for the Kakaako TOD Overlay Plan.

Table 3. Wilson Okamoto and Associates, Inc. (2002) Results of Background Research

Wilson Okamoto and Associates, Inc. **(2010:iv-vii)**
1. Traditional name of general location that the University of Hawaii Health and Wellness Center project area is situated on would have been the near shore waters off of Kaakaukukui, which is an *ili* awarded to Victoria Kamamalu in 1848 (LCA 7713). The land on which the project area sits was a Historic refuse landfill. Kaakaukukui was among several Bishop Estate properties acquired by the Territory of Hawaii in 1919.
2. The project area is near to Kou, which is was a politically important harbor and village prior to European contact and is now the location of the city of Honolulu. King Kamehameha I moved the seat of government to Kou in 1809. The expansion of Kou affected the surrounding areas, including Kaakaukukui.
3. Historic Bishop (1884) map indicates that a "Beach Road" once ran along the shoreline and makai of the *ili* of Kaakaukukui. This road appears to have become Ala Moana Blvd. The Wall (1911) map shows a retaining wall running along what is now Olomehani Street and the area makai of Ala Moana Blvd was filled with sediment by that time.
4. Unlawful residents came to inhabit the area and the area became known as 'Squattersville.' Wilson Okamoto and Associates, Inc. (2002) references Clark's (1977:64) description of 1920s Squattersville as a fishing village of roughly 700 people, mostly of Native and part-Hawaiians. The Territorial Government evicted the squatters in 1926.
5. Wilson Okamoto and Associates, Inc. (2002) also uses Clark's (1977) description of Kaakaukukui in the 1930s and 1940s, where the area is still a popular fishing and swimming area for the people of Kakaako. Clark (1977) maintains that there was a surf break called 'Stonewall' that local kids surfed on redwood planks. Marine resources were abundant and locals dove and caught a variety of fish and squid and also gathered limu and wana from the reef.
6. Wilson Okamoto and Associates, Inc. (2002) continue with Clark's (1977) description of how the City and County of Honolulu transformed Kaakaukukui into a dump in the late 1940s and early 1950s, extending a massive seawall seaward to retain the city's refuse. Kakaako Waterfront Park is situated on the footprint of the landfill.
7. According to Wilson Okamoto and Associates, Inc. (2002) the coastline continues to be utilized for a variety of recreational activities including fishing, swimming, and surfing as well as a gathering place for family picnics, barbeques, and parties.
8. The park and shoreline access areas are from the Kakaako Waterfront Park parking lot and several streets that terminate at the park.

Table 4. Spearing et al. (2008) Results of Background Research

Spearing et al.(2008:iii-v)
1. The current urban district known as Kakaako is significantly larger than the traditional area of the same name, which is described in mid 19th century documents and maps as a small ili (traditional land unit). In addition to Kakaako, the Mauka Area District also includes lands once known as Kaakaukukui, Kukuluaeo, and Kewalo, and possibly smaller portions of other ili.
2. In traditional times, the study area is characterized by fishponds, salt ponds, trails connecting Honolulu (Kou) and Waikiki, and occasional taro *loi*. Wetland/fishpond deposits have been documented in the Kakaako Mauka Area.
3. Previous archaeological work confirms that there are intermittent buried cultural layers in this near shore environment reflecting the Hawaiian pattern of permanent settlements in proximity to agriculture, aquaculture and marine resources.
4. There are four large historically documented cemeteries in the Mauka Area District. The full extent of these cemeteries has not been delimited and there are likely to be hundreds of burials associated with these cemeteries but outside the modern structures. Archaeological evidence has shown that during post contact times portions of the lands in and around the Mauka Area District were used to bury large numbers of people in unmarked cemeteries. A total of 274 historic burials have been recorded (*in situ* or disinterred) in the Kakaako Mauka Area.
5. Kakaako is a highly urbanized area with a mix of low, mid and high rise structures. There are no structures in the Mauka Area that predate or reflect the style of construction prior to western contact with native Hawaiians in 1778. A few remaining buildings were built by or inspired by nineteenth century missionaries, however, most buildings in Kakaako were built during the twentieth century after Hawaii became a U.S. territory. To preserve Kakaako historic resources in accordance with Chapter 206E, HRS, the Draft Mauka Area Plan identifies eight properties to be protected. See Table 5. All eight properties are listed on either the National or State Register of Historic Places. The Draft Mauka Area Plan also proposes to protect the City and County of Honolulu's Neal Blaisdell Center for its cultural and aesthetic value.
6. The study area is associated with *moolelo* (oral history) in which Kaakaukukui, Kewalo and Kukuluaeo were traditionally noted for their fishponds and salt pans, for the marsh lands where *pili* grass and other plants could be collected, for ceremonial sites such as Puukea Heiau, Kewalo Spring, and Kawailumalumai Pond at which sacrifices were made, and for their trails that allowed transport between the more populated areas of Waikiki and Honolulu. Important chiefs such as Hua-nui-ka-la-lailai were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources; some commoners probably also lived in the area, possibly adjacent to the ponds and the trails. The study area is also associated with legendary accounts of the Waters of Hao, Kapoi and the *heiau*, and the legend of Hiiaka and more.

Table 5. Vogeler et al. (2010) Results of Background Research

Vogeler et al. (2010:iv-vii)
1. Covington's 1881 map indicates that the Project area is within Kewalo Ahupuaa and that the Kewalo Ahupuaa is comprised of Kakaako Ili on the east and Kukuluaeo Ili on the west. While modern districting refers to Kewalo Ahupuaa as Kakaako District, the size and placement of the letters on Covington's 1881 map suggest that Kewalo is the larger land division, with Kakaako Ili and Kukuluae`o Ili inside this ahupuaa. Moreover, Kewalo is not a continuous ahupuaa. As the Hawaiian Government Surveys office explained in 1850: "Kewalo had its seacoast adjoining Waikiki, its continuous kula on the plain, and one-half of Punchbowl Hill.
2. From the *moolelo*, one can see that Kewalo, with the *ili* of Kakaako and Kukuluaeo, was noted for its fishponds and salt pans, for the marsh lands where *pili* grass and other plants could be collected, for ceremonial sites such as Puukea Heiau and Kewalo Spring, for Kawailumalumai Pond, where sacrifices were made, and for the trails that allowed transport between the more populated areas between Waikiki and Honolulu.
3. Important chiefs were born in the Kewalo area and conducted religious rites, and commoners traveled to the area to procure food and other resources. Some commoners perhaps lived in the area, adjacent to the ponds and trails.
4. Perhaps the most famous *wahi pana* (storied place) of Kewalo is the fish pond called Kawailumalumai, or "Drowning Waters," used to drown *kauwa* or *kapu* (taboo) breakers as the first step in a sacrificial ritual known as *Kanawai Kaihehee* (Kamakau 1991:6), or *Ke-kai-heehee*, which translates as "sea sliding along," suggesting that the victims were slid under the sea (Westervelt 1991:16). Early references indicate that Kawailumalumai Pond may have been near what was once the Ward Estate (now Neal Blaisdell Center).
5. Kewalo is located between two centers of population, Kou and Waikiki, on the southern shore of pre-Contact Oahu. In Waikiki, a system of taro *loi* (irrigated fields) fed by streams, descending from Makiki, Manoa, and Palolo valleys, blanketed the plain, and networks of fish ponds dotted the shoreline. Similarly, Kou (the area of downtown Honolulu surrounding the harbor) possessed shoreward fishponds and irrigated fields watered by ample streams descending from Nuuanu and Pauoa Valleys. The pre-Contact population and land use patterns of Kewalo may have derived from its relationship to these two densely populated areas; it may have participated in some of the activities associated with them.
6. By the 1840s LCA claims indicate that traditional Hawaiian usage of the region and its environs seems to have remained confined to salt making and farming of fishponds, with some wetland agriculture in those areas *mauka* or toward Waikiki at the very limits of the field system descending from Makiki and Manoa Valleys. Kewalo had a narrow upland section (often called "Kewalo Uka"), a larger lower river valley section, and a small coastal section (called "Kewalo Kai") joined by a small strip of land. The Project area is within this large LCA claim. Taro patches probably existed north of King Street. The lot south of the Project area consisted of fish ponds. It is evident from the 1855 La Passe map (Figure 9), that there were also once fish or salt ponds in the current Project area. An 1897 map (Figure 13) indicates that the swampy central Kewalo section was used to plant rice by the late nineteenth century.

7. The Ward Estate once covered a large portion of the Kakaako Mauka District. Curtis Perry Ward, a native of Kentucky, came to the Hawaiian Islands in 1853 and in 1865 married Victoria Robinson, who was descended from the Hawaiian alii and early French and British residents. For his new family, Ward purchased at auction the 12-acre estate of Joseph Booth, Royal Patent 306, and additional contiguous lands in the Koula area in 1870 (Hustace 2000:21–25). This constituted the mauka portion of "Old Plantation" from Thomas Square on King Street to the makai border at Waimanu Street. A few years later (before 1875), Ward added to his property with the purchase of 77 acres and 3,000 feet of ocean frontage in the ili of Kukuluaeo, makai of Queen Street. Workers were hired to clear the fishponds and ditches, plant taro in the fishponds, fence in pastures for the horse, plant 6,000 coconut trees, plant kiawe trees for firewood, and restore the kahaka (salt pans) near the shore (Hustace 2000:41).
8. In 1930, her husband having died in 1882, Victoria Ward incorporated Victoria Ward, Limited to manage the estate. In 1957, the City and County of Honolulu purchased the mauka portion of the estate to construct the new Blaisdell Civic Center [sic] (Hustace 2000:67, 77).

Table 6. Genz & Hammatt (2010) Results of Background Research

Genz & Hammatt (2010:v-ix)
1. The location and extent of the area called Kakaako is ambiguous. The modern urban district of Kakaako is comprised of the *ili* (land section) of Kakaako and other lands once part of the extant *ahupuaa* (land division usually extending from the uplands to the sea) of Honolulu.
2.The Kakaako area has been heavily modified over the last 150 years due to historic filling of the area for land reclamation; however, the fill has served as an agency of preservation rather than destruction of the patterns of early Hawaiian life and the remains of nineteenth century Honolulu and Waikiki (Griffin et al. 1987:73). Much of the *wahi pana* (storied places), *loko ia* (fishponds), *heiau* (shrines), and other cultural resources, and natural deposits and land forms of the area have survived below this fill. Accompanying *moolelo* (stories, oral traditions), *oli* (chants), *olelo noeau* (proverbs), and *wanana* (prophecies) have been documented that still resonate with Hawaiians of the Kakaako district today.
3. The *ili* of Kakaako and surrounding lands remained outside the two most intensely populated and cultivated areas on southeastern Oahu— Waikiki and Honolulu—during pre-Contact times, yet Hawaiians used the lowland marshes, wetlands, salt pans, and coral reef flats for salt making and farming of fishponds along with some limited wetland taro agriculture (Kotzebue 1817), and this supported habitation sites clustered around the *mauka* (inland) boundary of the Kakaako area near Queen and King Streets (LaPasse 1855).
4. The salt marshes were excellent places to gather pili grass for the thatching of houses, which may have led to the name Kakaako (prepare the thatching) (Thrum 1922:639). *Moolelo* point to the coastal marshes of Kewalo as the habitat of the original *pueo* (owl) that became one of the Hawaiians' *aumakua* (deified ancestors) (Westervelt 1963:135–137; Thrum 1998:200–202). The *moolelo* of Kawaiahao follows a trail between Waikiki and Honolulu to locate two freshwater springs—Kewalo Spring and Kawaiahao (The Waters of Hao) (Pukui 1988:87–89), which highlights its location between the two main population centers.
5. Kewalo was once associated with a spring called Kawailumalumai (drowning waters, Sterling and Summers 1978:292) that was used to sacrifice *kauwa*, or members of a pariah caste, designed for the *heiau* of Kanelaau on the slopes of Puowaina (Punchbowl) as the first step in a drowning ritual known as Kaneawai Kaihehee (Kamakau 1991:6) or Ke-kaiheehee (sea sliding along) (Westervelt 1963:16).
6. Puukea Heiau (white hill), which belonged to the chief Huanuikalalailai, was possibly located on one of the few elevated locations in the flat, low-lying swamp that surrounded it. *Kahuna* (priests) used *mahiki* (a kind of grass) of Puukea, which grew on the nearby coast, to exorcise malicious spirits from the afflicted (Pukui and Elbert 1986:219), a concept that still resonates with the contemporary usage of *mahiki* in lines of *hooponopono* (family conference in which relationships are set right) inquiry to "peel off" layers of deeper feelings (Pukui et al. 1972:228).
7. Land Commission Award (LCA) documents reveal that much of the land in Kakaako was used to produce salt, including: salt ponds near the shore that filled with salt water at high tide (*alia*), drains where the salt water from these pans was transferred to smaller clay-lined or leaf-lined channels (*hooliu*), natural depressions in the rocks along the shore where salt formed naturally (*poho kai*), and land (*kula*) that could probably not be used for agriculture as it was impregnated with salt (LCA 1903). The abundance of salt led to the Kakaako Salt Works in the late nineteenth century (Hustace 2000:50).

8. The Kakaako area continued to remain outside Waikiki and Honolulu during the post-Contact era. It served as a place of the dying and the dead, of isolation and quarantine, of trash and wastelands, and the poor and the immigrant; however, it also represents the birth of modern Waikiki and Honolulu (Griffin et al. 1987:73). Specifically in this area: victims of the 1853 smallpox epidemic were quarantined in a camp (Thrum 1897:98) and those that did not survive were buried at Honuakaha Cemetery (Griffin et al. 1987:13); Hansen's Disease patients were treated in the Kakaako Leper Branch Hospital (Griffin et al. 1987:55); victims of the 1895 cholera epidemic were treated at the Kakaako Hospital (Thrum 1897:101); infected patients of the 1899 bubonic plague were moved to a quarantine camp; animals were quarantined in a station in 1905; and the city's garbage was burned in an incinerator at Kewalo Basin (UH 1978).

9. After the annexation of the Hawaiian Islands by the United States in 1898, the U.S. Congress began to plan for the coastal defenses of their new islands, which included Fort Armstrong on the Kaakaukukui Reef as a station for the storage of underwater mines. In 1911, the Honolulu Rifle Association, and possibly other groups, used the flat, uninhabited Kakaako lands near the coast as a rifle range (Williford and McGovern 2003:15).

10. The late nineteenth and early twentieth centuries were a time of intense development of the coasts of Honolulu, Kakaako and Waikiki. A number of land reclamation projects dredged offshore areas to deepen and create boat harbors, and used the dredged material to fill in the former swampy land. Kakaako became a prime spot for large industrial complexes, such as iron works, lumber yards, and draying companies (Nakamura 1979).

11. Kewalo Basin harbor was formerly a shallow reef that enclosed a deep section of water that had been used as a canoe landing since pre-Contact times and probably was used since the early historic period as an anchorage. Dredging of the Kewalo Channel began in 1924, but by the time the concrete wharf was completed in 1926, the lumber import business had faded, so the harbor was used mainly by commercial fishermen. In 1941, the government dredged and expanded the basin to its current 22 acres. In 1955, workers placed the dredged material along the makai (seaward) side to form an eight- -acre land section protected by a revetment—now the Kewalo Basin Park (Kewalo Basin Harbor 2009).

12. In 1899, Gorokichi Nakasugi, a Japanese shipwright, brought a traditional Japanese sailing vessel, called a *sampan*, to Hawaii, and this led to a unique class of vessels and distinctive maritime culture associated with the rise of the commercial fishing industry in Hawaii (Van Tilburg 2007). Japanese-trained shipwrights adapted the original *sampan* design to the rough waters of the Hawaiian Islands (Krauss 2006). The fishermen used a traditional live bait, pole-and-line method of fishing and unloaded their catches of *aku* (bonito, skipjack) and *ahi* (yellow-fin tuna) at Kewalo Basin (Van Tilburg 2007:43). The *sampan aku* fleet relocated to Kewalo Basin by 1930, and the McFarlane Tuna Company (now Hawaiian Tuna Packers) built a shipyard there in 1929 and a new tuna cannery at the basin in 1933 (Clark 1977:64). The *sampan* fishing industry declined dramatically following World War II, such that today the *Kula Kai*, built in 1947, is the only surviving vintage wooden *sampan* in Hawaii (Krauss 2006).

13. Previous oral histories of Kakaako residents documented the lives of the "unsung heroes" of Kakaako from the early twentieth century—the machinists, firemen, cannery workers, and others from diverse ethnic backgrounds that shaped the history of Hawaii (UH 1978). Many of the interviewees were of Japanese descent, and many of their fathers were fishermen who settled in Kakaako to have access to the waterfront. Usaburo Katamoto, a boat builder, described 35-foot *aku sampan* "sailing in the fair wind" off the Kewalo Basin harbor and Pearl Harbor, and that he used to dray the newly built vessels with a team of a dozen mules (UH 1978:534-632). Keisuke Masuda, a foreman at Hawaiian Tuna Packers, described in detail how at night he and a small crew of transient Filipinos unloaded the fish from the *sampan*, weighed the fish, operated the boiler, and steamed the fish, and how 200 Japanese women cleaned the fish and packaged the canned tuna (UH 1978:817-876).

14. As a result of the dredging, no pre-twentieth century burials or other pre-twentieth century finds would be expected in the immediate vicinity of the harbor, and there is no documented evidence from archaeological surveys, historical records, or oral traditions of *ilina* (graves) or *iwi kupuna* (ancestral remains) within the Project area. However, the adjacent lands of Kakaako contain two large cemeteries and numerous burials, and human skeletal remains were discovered near the former coastline on the *mauka* side of Kewalo Basin at the intersection of Ala Moana Boulevard and Kamakee Street (Souza et al. 2002). Further, the original foot path at the edge of the former coastline has been transformed through time to a horse path, buggy and cart path, and finally to the widened Ala Moana Boulevard. As a result, early twentieth century human burials and other cultural resources could potentially be located adjacent to the *makai* curb of Ala Moana Boulevard, but any lands seaward of the old trail were probably too close to the water table and too unstable to have been used for permanent habitation or burials (Hammatt and Shideler 2010).

15. During the first half of the twentieth century, the marshlands and rice fields in the Kakaako district were filled to accommodate the expanding urbanization of Honolulu. Poverty-stricken settlements arose in the 1920s, camps of Hawaiians, Portuguese, Chinese, and Japanese settlers developed in the 1930s, and the area became increasingly industrial in the 1940's. In the 1960's the explosive growth of surfing in Waikiki forced many surfers to explore and discover uncrowded breaks, including the waters of Ala Moana Beach Park and Kewalo Basin (Clark 1977:64)

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Table 7. Elison & McElroy (2011) Results of Background Research

Elison & McElroy (2011:58-59; 103)
1. [Kakaako was] Once a low, swampy area which has consequently undergone development through the addition of fill, Kakaako was situated between the two royal centers located in Honolulu (formerly Kou) and Waikiki. Place names and *olelo noeau* associated with Kakaako highlight the natural resources, with the area of Kukuluaeo being named after the *aeo,* or the Hawaiian Stilt which found refuge in the area's salt ponds. *Olelo noeau* associated with Honolulu, Kou, Kewalo, Kalia and the seas of Kuloloia and Mamala reveal a place that many, including *alii*, frequented for various purposes such as the playing of *konane*, playing music, fishing and gathering resources such as *alamihi* crabs and salt (Elison and McElroy 2011:58).
2. *Moolelo* referring to Kakaako, Kewalo and Honolulu also offer insight into the natural landscape and traditional practices of the area. In these *moolelo*, Kakaako is the stage upon which legendary figures such as Aiai, son of the fishing god Kuula, meets his wife and creates fishing *koa* (shrines) (Elison and McElroy 2011:58).
3. Historic accounts and artistic renditions of Honolulu, Kewalo, Kalia and Kakaako provide valuable information on traditional land use practices and topographic elements dating to the pre- and early post-Contact eras. The landscape of Kakaako is generally depicted as flat, warm and cultivated, with trails meandering through *loi kalo* and inland fishponds. Many artistic renditions show habitation sites, as well as the marshy salt ponds which typify this area of Oahu's southern shore (Elison and McElroy 2011:58).
4. Mele of Kakaako and its vicinity reveal information coinciding with *olelo noeau* and historic accounts regarding land use and also presents the opportunity to better understand the lives of its inhabitants in the nineteenth and twentieth centuries. As with any area, *mele* address a diverse array of subjects and express infinitely many sentiments. Those associated with Kakaako are no different and include chants referring to the birth of chiefs such as Hua-a Kamapau, which was born in Kewalo, *mele* about being quarantined for cholera and mele referring to the alcoholic drinks served at the old Kewalo Inn. This diversity of *mele* exemplifies the many changes which make the area of Kakaako such a historically significant place (Elison and McElroy 2011:58-59).
5. Land Commission Awards are a highly valuable resource for identifying traditional land use practices. Examination of testimony describing the lands of the subject property and the surrounding area reveals the high frequency of taro ponds, *kiopua* (ponds for young fish), pasture land, and few house sites. Previous archaeological investigations also present supporting data, recording many subsurface cultural sits associated with various pond sediments. Archaeological records also produce valuable information regarding pre-Contact use of Kakaako, as well as the high frequency of human burials within the area, many of which are likely to be associated with the number of diseases that ravaged Hawaii's population (Elison and McElroy 2011:59).
6. Previous ethnographic studies of Kakaako contain valuable information about life in Kakaako during the 1900s. Oral history interviews conducted with previous residents shed much light onto this once heavily populated area and its significant and dynamic history (Elison and McElroy 2011:59).

7. The background study revealed that Kakaako was a culturally significant area with many natural resources which supported traditional subsistence activities such as fishing, the gathering of plants, limu (seaweed), the production of paakai (salt), and supporting numerous inland fishponds used to raise mullet and awa, as well as kalo (Elison and McElroy 2011:103).
8. The location of Kakaako, between active roya1 centers in Hono1u1u and Waikiki, has shown that it was an integral location ideal to support food and salt production activities which fed the alii and the royal families (Elison and McElroy 2011:103).
9. Kakaako's history also provides insight into the plights of thousands of people, of all ethnicities who fell as victims to the various diseases which struck Hawaii in the 1800s. One could surmise that, due to the population density of Kakaako within the environs of Honolulu, the region was one of the hardest hit locations in all of Hawaii (Elison and McElroy 2011:103).

Table 8 below summarizes the results of background research reported by Cultural Surveys Hawaii in its Management Summary of the CIA it produced for the Kewalo Basin Repairs Project.

Table 8. Summary of Results of Background Research from Kewalo Basing Repairs Project CIA

Summary of Background research for this Project yielded the following results (presented in approximate chronological order):
1. The location and extent of the area called Kakaako is ambiguous. The modern urban district of Kakaako is comprised of the ili (land section) of Kakaako and other lands once part of the extant ahupuaa (land division usually extending from the uplands to the sea) of Honolulu.
2. The Kakaako area has been heavily modified over the last 150 years due to historic filling of the area for land reclamation; however, the fill has served as an agency of preservation rather than destruction of the patterns of early Hawaiian life and the remains of nineteenth century Honolulu and Waikiki (Griffin et al. 1987:73). Much of the wahi pana (storied places), loko ia (fishponds), heiau (shrines), and other cultural resources, and natural deposits and land forms of the area have survived below this fill. Accompanying moolelo (stories, oral traditions), oli (chants), olelo noeau (proverbs), and wanana (prophecies) have been documented that still resonate with Hawaiians of the Kakaako district today.
3. The ili of Kakaako and surrounding lands remained outside the two most intensely populated and cultivated areas on southeastern Oahu— Waikiki and Honolulu—during pre- Contact times, yet Hawaiians used the lowland marshes, wetlands, salt pans, and coral reef flats for salt making and farming of fishponds along with some limited wetland taro agriculture (Kotzebue 1817), and this supported habitation sites clustered around the mauka (inland) boundary of the Kakaako area near Queen and King Streets (LaPasse 1855).
4. The salt marshes were excellent places to gather pili grass for the thatching of houses, which may have led to the name Kakaako (prepare the thatching) (Thrum 1922:639). Moolelo point to the coastal marshes of Kewalo as the habitat of the original pueo (owl) that became one of the Hawaiians' aumakua (deified ancestors) (Westervelt 1963:135–137; Thrum 1998:200–202). The moolelo of Kawaiahao follows a trail between Waikiki and Honolulu to locate two freshwater springs—Kewalo Spring and Kawaiahao (The Waters of Hao) (Pukui 1988:87–89), which highlights its location between the two main population centers.
5. Kewalo was once associated with a spring called Kawailumalumai (drowning waters, Sterling and Summers 1978:292) that was used to sacrifice kauwa, or members of a pariah caste, designed for the heiau of Kanelaau on the slopes of Puowaina (Punchbowl) as the first step in a drowning ritual known as Kanawai Kaihehee (Kamakau 1991:6) or Ke-kai- heehee (sea sliding along) (Westervelt 1963:16).
6. Puukea Heiau (white hill), which belonged to the chief Huanuikalalailai, was possibly located on one of the few elevated locations in the flat, low-lying swamp that surrounded it. *Kahuna* (priests) used *mahiki* (a kind of grass) of Puukea, which grew on the nearby coast, to exorcise malicious spirits from the afflicted (Pukui and Elbert 1986:219), a concept that still resonates with the contemporary usage of *mahiki* in lines of *hooponopono* (family conference in which relationships are set right) inquiry to "peel off" layers of deeper feelings (Pukui et al. 1972:228).
7. Land Commission Award (LCA) documents reveal that much of the land in Kakaako was used to produce salt, including: salt ponds near the shore that filled with salt water at high tide (*alia*), drains where the salt water from these pans was transferred to smaller clay-lined or leaf-lined channels (*hooliu*), natural depressions in the rocks along the shore where salt formed naturally (*poho kai*), and land (*kula*) that could probably not be used for agriculture as it was impregnated with salt (LCA 1903). The abundance of salt led to the Kakaako Salt Works in the late nineteenth century (Hustace 2000:50).

8. The Kakaako area continued to remain outside Waikiki and Honolulu during the post-Contact era. It served as a place of the dying and the dead, of isolation and quarantine, of trash and wastelands, and the poor and the immigrant; however, it also represents the birth of modern Waikiki and Honolulu (Griffin et al. 1987:73). Specifically in this area: victims of the 1853 smallpox epidemic were quarantined in a camp (Thrum 1897:98) and those that did not survive were buried at Honuakaha Cemetery (Griffin et al. 1987:13); Hansen's Disease patients were treated in the Kakaako Leper Branch Hospital (Griffin et al. 1987:55); victims of the 1895 cholera epidemic were treated at the Kakaako Hospital (Thrum 1897:101); infected patients of the 1899 bubonic plague were moved to a quarantine camp; animals were quarantined in a station in 1905; and the city's garbage was burned in an incinerator at Kewalo Basin (UH 1978).
9. After the annexation of the Hawaiian Islands by the United States in 1898, the U.S. Congress began to plan for the coastal defenses of their new islands, which included Fort Armstrong on the Kaakaukukui Reef as a station for the storage of underwater mines. In 1911, the Honolulu Rifle Association, and possibly other groups, used the flat, uninhabited Kakaako lands near the coast as a rifle range (Williford and McGovern 2003:15).
10. The late nineteenth and early twentieth centuries were a time of intense development of the coasts of Honolulu, Kakaako, and Waikiki. A number of land reclamation projects dredged offshore areas to deepen and create boat harbors, and used the dredged material to fill in the former swampy land. Kakaako became a prime spot for large industrial complexes, such as iron works, lumber yards, and draying companies (Nakamura 1979).
11. Kewalo Basin harbor was formerly a shallow reef that enclosed a deep section of water that had the *makai* (seaward) side to form an eight-acre land section protected by a revetment—no the Kewalo Basin Park (Kewalo Basin Harbor 2009).
12. In 1899, Gorokichi Nakasugi, a Japanese shipwright, brought a traditional Japanese sailing vessel, called a sampan, to Hawaii, and this led to a unique class of vessels and distinctive maritime culture associated with the rise of the commercial fishing industry in Hawaii (Van Tilburg 2007). Japanese-trained shipwrights adapted the original sampan design to the rough waters of the Hawaiian Islands (Krauss 2006). The fishermen used a traditional live bait, pole-and-line method of fishing and unloaded their catches of aku (bonito, skipjack) and ahi (yellow-fin tuna) at Kewalo Basin (Van Tilburg 2007:43). The sampan aku fleet relocated to Kewalo Basin by 1930, and the McFarlane Tuna Company (now Hawaiian Tuna Packers) built a shipyard there in 1929 and a new tuna cannery at the basin in 1933 (Clark 1977:64). The sampan fishing industry declined dramatically following World War II, such that today the Kula Kai, built in 1947, is the only surviving vintage wooden sampan in Hawaii (Krauss 2006).
13. Previous oral histories of Kakaako residents documented the lives of the "unsung heroes" of Kakaako from the early twentieth century—the machinists, firemen, cannery workers, and others from diverse ethnic backgrounds that shaped the history of Hawaii (UH 1978). Many of the interviewees were of Japanese descent, and many of their fathers were fishermen who settled in Kakaako to have access to the waterfront. Usaburo Katamoto, a boat builder, described 35-foot aku sampan "sailing in the fair wind" off the Kewalo Basin harbor and Pearl Harbor, and that he used to dray the newly built vessels with a team of a dozen mules (UH 1978:534-632). Keisuke Masuda, a foreman at Hawaiian Tuna Packers, described in detail how at night he and a small crew of transient Filipinos unloaded the fish from the sampan, weighed the fish, operated the boiler, and steamed the fish, and how 200 Japanese women cleaned the fish and packaged the canned tuna (UH 1978:817-876).

14. As a result of the dredging, no pre-twentieth century burials or other pre-twentieth century finds would be expected in the immediate vicinity of the harbor, and there is no documented evidence from archaeological surveys, historical records, or oral traditions of ilina (graves) or iwi kupuna (ancestral remains) within the Project area. However, the adjacent lands of Kakaako contain two large cemeteries and numerous burials, and human skeletal remains were discovered near the former coastline on the mauka side of Kewalo Basin at the intersection of Ala Moana Boulevard and Kamakee Street (Souza et al. 2002). Further, the original foot path at the edge of the former coastline has been transformed through time to a horse path, buggy and cart path, and finally to the widened Ala Moana Boulevard. As a result, early twentieth century human burials and other cultural resources could potentially be located adjacent to the makai curb of Ala Moana Boulevard, but any lands seaward of the old trail were probably too close to the water table and too unstable to have been used for permanent habitation or burials (Hammatt and Shideler 2010).
15. During the first half of the twentieth century, the marshlands and rice fields in the Kakaako district were filled to accommodate the expanding urbanization of Honolulu. Poverty-stricken settlements arose in the 1920s, camps of Hawaiians, Portuguese, Chinese, and Japanese settlers developed in the 1930s, and the area became increasingly industrial in the 1940s. In the 1960s, the explosive growth of surfing in Waikiki forced many surfers to explore and discover uncrowded breaks, including the waters of Ala Moana Beach Park and Kewalo Basin (Clark 1977:64).

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Summary of Existing Cultural Practices

The 2014 Pacific Legacy SCIA revealed a number of cultural practices that have occurred and/or are currently occurring in the Kakaako TOD project area which includes and surrounds the Parks. Table 9 below provides a compilation of cultural practices identified in the previously conducted CIAs.

Table 9. Cultural Practices & Resources Identified in Reviewed CIA

Practice / Resource	Practice /Resource Area	Time Period	Cultural Group	CIA Identifying Cultural Practice
Agriculture (*loi kalo, niu,* & non-traditional; animal husbandry)	Various locations within project area	Pre-Contact to Historic	Hawaiians (no longer practiced in area); Ward Family (no longer practiced); Kakaako residents (small scale subsistence & supplemental agriculture); Halau Ku Mana (diverse array of native Hawaiian plants for education & traditional use)	Wilson Okamoto and Associates, Inc. (2002); Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010); Elison and McElroy (2011)
Aquaculture, fishponds (*loko ia*)	Makai areas of Kakaako & Kewalo	Pre-Contact to Historic	Hawaiians (no longer practiced in area)	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Archaeological Sites	Various locations within project area (in marked & unmarked locations)	Pre-Contact to Present	Hawaiians, other ethnic groups, & Community members (no specific ethnic group)	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Cemeteries & burials (*iwi kupuna*), traditional Hawaiian & post-Contact	Various locations within project area (in marked & unmarked locations)	Pre-Contact to Historic	Pre-Contact & early Contact Hawaiians (no longer practiced); Historic era no specific ethnic group	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Canoe landing & boat moorage	Kewalo Basin	Pre-Contact to Historic (canoe); Historic to present (boat)	Hawaiians (canoe landing no longer practiced in area); boat moorage practiced by various commercial, cultural, & ethnic groups	Genz & Hammatt (2010)
Ceremony & Religious Congregation	Various locations within project area	Pre-Contact to Present	Hawaiians (no longer practicing at *heiau;* human sacrifice abandoned; Catholic Church groups (Annual Holy Ghost Ceremony)	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Feasting (*luau*) & traditional food preparation (*aku* drying)	Kewalo Basin area	Undeter-mined to Present	Hawaiians & other ethnic groups	Vogeler et al. (2010); Genz & Hammatt (2010)
Fishing (net & pole)	Kewalo Basin & Ala Moana areas (shoreline & from boats)	Pre-Contact to Present	Fishermen (no specific ethnic group)	Vogeler et al. (2010); Genz & Hammatt (2010)

Practice / Resource	Practice /Resource Area	Time Period	Cultural Group	CIA Identifying Cultural Practice
Fishing, *aku sampan*	Kewalo Basin area	Historic to Present	Fishermen of the *Kula Kai*, last remaining *aku sampan* at Kewalo Basin	Genz & Hammatt (2010)
Fish processing & canning	Kewalo Basin area	Historic	Local, mostly Japanese, Korean, & Filipino	Genz & Hammatt (2010)
Fisherman's Wharf	Bounded by Ala Moana Blvd., Ward Ave., & Kewalo Basin	Historic to Recent years	Community members (no specific ethnic group); tourist & local patrons	Spearing et al. (2008)
Habitation	Various locations within project area	Pre-Contact to Present	Hawaiians & other ethnic groups; modern era no specific ethnic group	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Historic Buildings	Various locations within project area	Historic to present	Community members (no specific ethnic group); commercial groups & individuals	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Memorial statue of Mother Marianne Cope	Kakaako Waterfront Park	Modern/ Present	Community members (no specific ethnic group)	Genz & Hammatt (2010)
Memorial statue of the *Pueo Aumakua*	Kakaako Waterfront Park	Modern/ Present	Community members (no specific ethnic group)	Genz & Hammatt (2010)
McKinley High School & Memorial statue of President William McKinley	Bound by King St., Pensacola St., Kapiolani St., & Neal S. Blaisdell Center	Historic to present	Community members (no specific ethnic group); current students & alumni	Vogeler et al. (2010)
Mother Waldron Neighborhood Park	Bounded by Halekauwila St., Coral St., Pohukaina St., & Cook St.	Historic to present	Community members (no specific ethnic group)	Spearing et al. (2008); Vogeler et al. (2010);
Plant & *limu* gathering for traditional purposes	Various locations within project area; McKinley High School campus	Pre-Contact to Present	Practitioners of *laau lapaau;* gatherers of *pili* & *mahiki* grass (no longer practiced in area)*; limu* for traditional dishes	Spearing et al. (2008); Genz & Hammatt (2010)
Quarantine, human & animal	Kakaako Makai	Historic	Past smallpox, cholera, bubonic plague, & leprosy victims (no specific ethnic group); domesticated animals (pets & livestock)	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Arms storage, & practice; coastal defense	Kakaako Makai	Historic	U.S. Army & Honolulu Rifle Association	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Salt (*paakai*) gathering & production (*kai hoolulu*)	Much of Kakaako & Kewalo	Pre-Contact to Historic	Hawaiians, other ethnic groups, & commercial groups	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)
Surfing/Body Surfing & Swimming	*Makai* of Kewalo Basin and Kakaako Waterfront Park	Pre-Contact to Present	Surfers/Body Surfers, (no specific ethnic group)	Spearing et al. (2008); Genz & Hammatt (2010)
Trails (*ala hele*)	Leading from Waikiki to Honolulu (Kou) & connecting various communities to each other & resources	Pre-Contact to Present	Hawaiians, other ethnic groups, & Community members (no specific ethnic group)	Spearing et al. (2008); Vogeler et al. (2010); Genz & Hammatt (2010)

Newly Identified Cultural Resources

The 2014 Pacific Legacy SCIA also determined that prior CIA either missed or neglected to identify cultural resources and practices in and around the Parks. Table 16 below documents newly identified cultural resources.

Table 10. Newly Identified Cultural Resources

Resource	Resource Area	Comments
Kakaako Waterfront Park (major venue for various cultural activities & events)	Bound by Pier 1 complex; John Burns School of Medicine Campus; Kelikoi St., & Kewalo Basin	In project area; includes the surf breaks Point Panic, Flies, & Incinerators; fishing and diving, takes place along entire coastline (various fish species)
Kewalo Basin Park (significant venue for various cultural activities & events)	End of Kewalo Basin access road, between sea wall & harbor	In project area; various marine activities associated with coastline of park, including fishing and surfing; harbor is moorage for dinner cruises, parasailing, commercial fishing, glass bottom boats, and jetski rentals
Kakaako Makai Gateway Park (significant venue for various cultural activities & events)	Bound by Cooke St., Ala Moana Boulevard, & Ohe St	In project area; various activities, from organized events to random usage
Mother Waldron Neighborhood Park (significant venue for various cultural activities & events)	525 Coral St.	Site#80-14-1388; a “C & C of Honolulu Art Deco Park"; Within project area; from numerous regularly occurring activities, to major annual events, to random usage of park

Compliance with Section 343-2, Hawaii Revised Statues & Guidelines for Assessing Cultural Impacts

Upon reviewing the referenced materials PBR HAWAII determined that an extensive effort to engage and identify cultural and community groups was undertaken in compliance with Section 343-2, HRS and the protocols listed in the *Guidelines for Assessing Cultural Impacts* (OEQC 2011). PBR HAWAII confirmed that numerous individuals, community and community groups were identified and engaged through correspondence, interviews, community workshops and interviews.

Table 11 below summarizes the findings reported in the Kakaako TOD Overlay Plan SCIA.

Table 11 Results of Community Consultations Reported in Kakaako TOD Overlay Plan SCIA

Prior CIA Source	Results of Background Research
Wilson Okamoto and Associates, Inc. (2002)	• Did not follow the protocol listed in the *Guidelines for Assessing Cultural Impacts* (OEQC 2011) • No individuals were identified as cultural informants nor were any ethnographic interviews or community consultations performed.
Spearing et al. (2008)	• Dispatched requests for participation to 81 community members representing government agencies, community organizations, and individuals, including such stakeholders as Kakaako residents, cultural and lineal descendants, as well as cultural practitioners. • 34 cultural informants, comprised of twelve *kupuna* (elders) and/or *kamaaina* (native-born) responded to these requests and participated in interviews. • Consultations revealed 5 major concerns over adverse impacts on cultural, historic, and natural resources as well as cultural practices and beliefs potentially initiated by the proposed Kakaako Mauka Area Plan.
Genz and Hammatt (2010)	• Efforts to contact 39 cultural informants, representing themselves as cultural or lineal descendants, residents, community members, and/or cultural practitioners as well as government agencies and community organizations. • 6 individuals made up of *kupuna* and *kamaaina* were interviewed through comprehensive community consultations producing new insights on the cultural significance of the Kewalo Basin and surrounding land and water. • Several cultural groups and resources were identified that may be impacted by the proposed harbor improvements, including the *Kula Kai*, which the last operating *aku sampan* in Hawaii, as well as surfers, practitioners of *laau lapaau,* and fishermen among others.

Elison and McElroy (2011).	• 88 request letters sent to cultural descendants of Kakaako area
	• 9 requests sent to Native Hawaiian organizations
	• 8 ethnographic interviews were included with interviewees with varied connections to Kakaako, including
	  o individuals who were born and/or raised in Kakaako,
	  o those who traced their lineage to Kakaako.
	• Several themes, referred to as "Topical Breakouts," were investigated during these interviews:
	  o Personal Connections to Kakaako,
	  o The Past: Pre-Contact Kakaako,
	  o The Past: Post-Contact Kakaako, and
	  o Today: Kakaako and Koolani Phase II Plans.
	• Interviewees shared first-hand knowledge and the *manao* passed down from their kupuna to address these themes.

Potential Impacts & Recommended Mitigation Measures

Impacts from the proposed Master Plan to cultural resources or practices in the Project Area are expected to be negligible. The lands the Project Area occupies is largely man-made. The product of multiple land reclamation projects, the area has been heavily modified over the last 150 years and did not exist prior to the mid-20th Century. It is widely accepted and recognized that other than surfing and subsistence and sport fishing, few if any pre-contact cultural practices continue in the Kakaako Parks area.

Proposed park improvements will not restrict the existing public access to the ocean available through Kewalo Basin Park nor should there be an impact or affect upon the exercise of Native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities.

No mitigative measures are recommended or suggested.

References

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Group 70 International, Inc. (2013) *Cultural Landscape and Ancestral Connectivity Analysis.* Prepared for the Office of Hawaiian Affairs. Honolulu, Hawaii.

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MVE Pacific, Inc. (2011) *Kakaako Makai Conceptual Master Plan Final Report.* Prepared for the Hawaii Community Development Authority. Honolulu, Hawaii.

Spearing, M., O'Hare, C. & Hammatt, H.H. (2008) *Cultural Impact Assessment for the Kakaako Community Development District Mauka Area Plan, Waikiki Ahupuaʻa, Honolulu (Kona) District, Oahu Island. TMK: [1] 2-1-29-32, 44, 46-56 and 2-3-01-11.* Prepared for Hawaii Community Development authority. Honolulu, Hawaii.

Vogeler, K., Kauhane, L. & Hammatt, H.H. (2010) *Cultural Impact Assessment for the Proposed McKinley High School Athletic Complex Master Plan Project, Honolulu (Kewalo) Ahupuaa, Honolulu District (Kona Moku), Island of Oahu. TMK: [1] 2-3-009:001 por.* Prepared for Group 70 International, Inc. Honolulu, Hawaii.

Wilson Okamoto and Associates, Inc. (2002) *Cultural Impact Assessment in the Final Environmental Assessment, University of Hawaii Health and Wellness Center*. Prepared for the University of Hawaii John A. Burns School of Medicine. Honolulu, Hawaii.

Appendix A:

GUIDELINES FOR ASSESSING CULTURAL IMPACTS

Adopted by the Environmental Council, State of Hawaii, November 19, 1997

Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

I. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographicalextent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

If the subject area is in a developed urban setting, cultural impacts must still be assessed. Many incorrectly assume that the presence of urban infrastructure effectively precludes consideration of current cultural factors. For example, persons are known to gather kauna"oa, "ilima, "uhaloa, noni or ki on the grassy slopes and ramps of the H-1 freeway and some state highways on the neighbor islands. Certain landmarks and physical features are used by Hawaiian navigators for sailing, and the lines of sight from landmarks to the coast by fisherman to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

(1) identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua'a;

(2) identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

(3) receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

(4) conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

(5) identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

(6) assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of theinformant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§§§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

You may ask OEQC if a directory of cultural impacts assessment providers is available.