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 19-020

April 10, 2019

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

Dear Mr. Glenn:

SUBJECT: Notice of Determination Letter
Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities

Under the provisions of Act 172 (12), the Department of Environmental Services (ENV) has determined at the outset that an environmental impact statement (EIS) is required for the proposed Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities situated at TMK Zone 9 Sections 1 through 4 and Sections 6 through 9 (multiple properties), in the 'Ewa District on the island of O'ahu. A completed OEQC Publication Form and EIS Preparation Notice (EISPN) is enclosed, with a copy of the same sent via electronic mail to *oeqc@doh.hawaii.gov*.

Pursuant to the requirements of Sections 11-200-3 and 11-200-15 of the Hawai'i Administrative Rules, we request that you publish notice of this determination and EISPN in the next available edition of the Environmental Notice for the public to review and submit comments to the ENV and its consultant, AECOM Technical Services, Inc., during a 30-day public comment period.

Should you have any questions, please contact Mr. Paul Christiansen, Civil Engineer, CIP Program and Planning, at (808) 768-3470 or email at *p.christiansen@honolulu.gov.*

Sincerely,

Ross S. Tanimoto

for Lori M.K. Kahikina, P.E.
Director

Enclosures: Completed OEQC Publication Form
EISPN, Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities (one hard copy, three compact disks)

19-327

AGENCY
PUBLICATION FORM

Project Name:	Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities
Project Short Name:	Honouliuli Wastewater Conveyance Plan
HRS §343-5 Trigger(s):	• Proposes the use of County and State lands and County funds. • Proposes any use within any land classified as a conservation district by the state land use commission under HRS Chapter 205. • Proposes any use within a shoreline area as defined in HRS Section 205A-41. • Proposes any wastewater facility, except an individual wastewater system or a wastewater facility serving fewer than fifty single-family dwellings or the equivalent.
Island(s):	O'ahu
Judicial District(s):	'Ewa
TMK(s):	TMK Zone 9 Sections 1 through 4 and Sections 6 through 9 (multiple properties).
Permit(s)/Approval(s):	**Federal**: • U.S. Army Corps of Engineers – Department of the Army Permit (CWA Section 404; Rivers and Harbors Act Section 10) – National Environmental Policy Act • U.S. Coast Guard – USCG Section 9 Permit Applicability Guidance • U.S. Environmental Protection Agency – NPDES Form 2A – Discharge of Municipal Wastewater from New and Existing Publicly Owned Treatment Works • U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Services (NMFS) – Endangered Species Act Section 7 Consultation – NOAA NMFS Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation • U.S. Navy – Real Estate License – Explosive Safety Submission Determination Request – Site Approval Request – Dig Permit – Waiver Request to the Joint Base Pearl Harbor-Hickam Green Waste Disposal Policy – Toning Equipment Clearance – Defense Biometric Identification System **State of Hawai'i:** • Department of Business, Economic Development and Tourism, Office of Planning – Coastal Zone Management Consistency Determination • Department of Health (DOH) – Air Pollution Control Permits (Covered Source Permit and/or Noncovered Source Permit) – Noise Variance Permit – NPDES NOI Form C – Storm Water Discharges Associated with Construction Activities – NPDES NOI Form F – Discharges Associated with Hydrotesting Waters – NPDES NOI Form G – Discharges Associated with Construction Activity Dewatering – Section 401 Water Quality Certificate • Department of Land and Natural Resources Historic Preservation Division – Chapter 6E, HRS Historic Preservation Review • Department of Transportation (DOT) – Highways – Permit to Perform Work Within State Highways – Construction Plan Review and Approval – Harbors – Work within the Energy Corridor

	City and County of Honolulu (CCH): • Board of Water Supply (BWS) – Water and Water System Requirements – Construction Plan Review and Approval • Department of Environmental Services EIS Approval • Department of Planning and Permitting (DPP) – Building Permit – Construction Plan Review and Approval – Development Plan Public Facilities Map Amendment – Dewatering Permit – Electrical Permit – Grading and Erosion Control Plan Review – Grading, Grubbing, and Stockpiling Permit – Plumbing Permit – Shoreline Setback Variance – Sidewalk/Driveway Work Permit – Special Management Area Use Permit (Major) • Department of Transportation Services – Street Usage Permit **Other:** • Utility Companies – Utility Service Requirements – Permit Regarding Work on Utility Lines
Proposing/Determining Agency:	City and County of Honolulu, Department of Environmental Services
Contact Name, Email, Telephone, Address	Paul Christiansen, p.christiansen@honolulu.gov, (808) 768-3470 1000 Ulu'ohia Street, Suite 308, Kapolei, HI 96707
Accepting Authority:	City and County of Honolulu, Department of Environmental Services
Contact Name, Email, Telephone, Address	Lori Kahikina, lkahikina@honolulu.gov, (808) 768-3486 1000 Uluohia Street, Suite 308, Kapolei, HI 96707
Consultant:	AECOM Technical Services, Inc.
Contact Name, Email, Telephone, Address	Lesley Matsumoto, Lesley.Matsumoto@aecom.com, tel: (808) 529-7259 1001 Bishop Street 16th Floor, Honolulu, Hawai'i 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.
_X__ 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.
____ 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.

The City and County of Honolulu Department of Environmental Services (ENV) proposes to improve, rehabilitate and/or upgrade the existing East Interceptor Wastewater Collection System, which includes the system of sewer lines, pump stations, and force mains conveying flows from Hālawa, Waimalu, Pearl City and Waipahu to the Honouliuli Wastewater Treatment Plant, to accommodate wastewater flows projected through the planning period of 2050. The action to be evaluated in the ENV's Environmental Impact Statement (EIS) is the planned improvements to the East Interceptor System and a proposed new sewer conveyance system from the Waiawa area to the East Interceptor System. Two East Interceptor conveyance options and three Waiawa conveyance options will be evaluated in the EIS. The options vary as to location, whether new or existing locations are considered, and/or type of conveyance system. ENV anticipates that subsequent to this programmatic plan, and following the development of additional details of the individual projects, there may be further consideration of potential environmental effects for decision-making on the projects. When sufficient design details are available, separate project-specific HRS Chapter 343 documents will be prepared and compliance with special laws (e.g., HRS Chapter 6E Historic Preservation) will be demonstrated.

OFFICE OF THE MAYOR
CITY AND COUNTY OF HONOLULU

530 SOUTH KING STREET, ROOM 300 • HONOLULU, HAWAII 96813
PHONE: (808) 768-4141 • FAX: (808) 768-4242 • INTERNET: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROY K. AMEMIYA, JR.
MANAGING DIRECTOR

GEORGETTE T. DEEMER
DEPUTY MANAGING DIRECTOR

October 26, 2017

MEMORANDUM

TO: Lori M. K. Kahikina, P.E.
Director

FROM: The Honorable Kirk Caldwell, Mayor

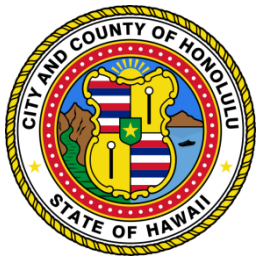
SUBJECT: Environmental Impact Statements for the City's Wastewater Program and Projects, Oahu, Hawaii

I hereby delegate authority to the Department of Environmental Services (ENV) to act as the Accepting Authority on behalf of the Mayor of the City and County of Honolulu for the Environmental Impact Statements (EIS's) which the City and County of Honolulu undertakes for its Wastewater Program and Projects. The undertaking of each EIS shall be in accordance with applicable law, rules and recommended practices. It is understood that this delegation will allow for a more efficient work process for the EIS's to the benefit of the Wastewater Program and Projects.

cc: Department of Planning and Permitting
Department of Design and Construction

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE HONOULIULI/WAIPAHU/PEARL CITY WASTEWATER CONVEYANCE FACILITIES

City & County of Honolulu
Department of Environmental Services
1000 Ulu‘ohia Street, Suite 308
Kapolei, Hawai‘i 96707



March 2019

ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE HONOULIULI/WAIPAHU/PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Prepared for:

City & County of Honolulu
Department of Environmental Services
1000 Ulu‘ohia Street, Suite 308
Kapolei, Hawai‘i 96707

Prepared by:

AECOM Technical Services, Inc.
1001 Bishop Street, Suite 1600
Honolulu, Hawai‘i 96813-3698

March 2019

SUMMARY SHEET

Project Name:	Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities
Proposing Agency:	City and County of Honolulu (CCH) Department of Environmental Services (ENV)
Accepting Authority:	CCH ENV
Tax Map Keys (TMKs):	The project area is located in TMK Zone 9 Sections 1 through 4 and Sections 6 through 9 and spans multiple properties.
Location:	ʻEwa, Central Oʻahu, and a portion of the Primary Urban Center Development Plan Areas, Oʻahu, Hawaiʻi
Project Area:	The Honouliuli sewer basin includes areas with current wastewater flows to the Honouliuli WWTP as well as potential future flows from areas including but not limited to Hālawa, ʻAiea, Pearl City, Waipiʻo, Waikele, Waipahu, ʻEwa, Kapolei, and Mililani. This Environmental Impact Statement Preparation Notice (EISPN) focuses on proposed improvements and upgrades to the existing East Interceptor System of the Honouliuli sewer basin. The East Interceptor System area includes the primary trunk system of gravity lines, pump stations, and force mains conveying flows from areas generally east (to Hālawa) and north (to Mililani) of the Honouliuli WWTP. The EISPN also focuses on new conveyance corridors in the East Interceptor System to support the proposed Waiawa Master Plan development.
Project Description:	The ENV's Proposed Action is to upgrade and/or expand the existing East Interceptor System to accommodate wastewater flows projected through the planning period of 2050. The Proposed Action includes replacement WWPSs, replacement force mains, new force mains, and new trunk sewers to increase the capacity and rehabilitate the existing conveyance system from Hālawa to the Honouliuli WWTP. This EISPN evaluates this programmatic plan.
Existing Uses:	Residential, commercial, industrial, institutional, open space, harbor, and agricultural.
State Land Use:	Urban, Agricultural, and Conservation Districts.
Zoning:	Apartment, agriculture, business, Federal and military preservation, industrial, resort, preservation, residential and mixed districts.
Flood Insurance Rate Map:	Portions are in the flood zone.
Special Management Area:	A portion is in the Special Management Area.

List of Permits/Approvals:	Clearances and permits needed from the various Federal, State and CCH agencies may include but are not limited to the following. **Federal**: • U.S. Army Corps of Engineers – Department of the Army Permit (CWA Section 404; Rivers and Harbors Act Section 10) – National Environmental Policy Act • U.S. Coast Guard – USCG Section 9 Permit Applicability Guidance • U.S. Environmental Protection Agency – NPDES Form 2A – Discharge of Municipal Wastewater from New and Existing Publicly Owned Treatment Works • U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Services (NMFS) – Endangered Species Act Section 7 Consultation – NOAA NMFS Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation • U.S. Navy – Real Estate License – Explosive Safety Submission Determination Request – Site Approval Request – Dig Permit – Waiver Request to the Joint Base Pearl Harbor-Hickam Green Waste Disposal Policy – Toning Equipment Clearance – Defense Biometric Identification System **State of Hawai'i:** • Department of Business, Economic Development and Tourism, Office of Planning – Coastal Zone Management Consistency Determination • Department of Health (DOH) – Air Pollution Control Permits (Covered Source Permit and/or Noncovered Source Permit) – Noise Variance Permit – NPDES NOI Form C – Storm Water Discharges Associated with Construction Activities – NPDES NOI Form F – Discharges Associated with Hydrotesting Waters – NPDES NOI Form G – Discharges Associated with Construction Activity Dewatering – Section 401 Water Quality Certificate

	• Department of Land and Natural Resources Historic Preservation Division – Chapter 6E, HRS Historic Preservation Review • Department of Transportation (DOT) – Highways – Permit to Perform Work Within State Highways – Construction Plan Review and Approval – Harbors – Work within the Energy Corridor **City and County of Honolulu (CCH):** • Board of Water Supply (BWS) – Water and Water System Requirements – Construction Plan Review and Approval • Department of Environmental Services EIS Approval • Department of Planning and Permitting (DPP) – Building Permit – Construction Plan Review and Approval – Development Plan Public Facilities Map Amendment – Dewatering Permit – Electrical Permit – Grading and Erosion Control Plan Review – Grading, Grubbing, and Stockpiling Permit – Plumbing Permit – Shoreline Setback Variance – Sidewalk/Driveway Work Permit – Special Management Area Use Permit (Major) • Department of Transportation Services – Street Usage Permit **Other:** • Utility Companies – Utility Service Requirements – Permit Regarding Work on Utility Lines
Determination:	In accordance with HRS Chapter 343-5(b), the ENV has determined, through its judgment and experience, that an environmental impact statement is likely to be required and has chosen not to prepare an environmental assessment and instead prepare an environmental impact statement that begins with the preparation of this environmental impact statement preparation notice. In the EIS, the ENV will evaluate the Proposed Action against the significance criteria in HAR 11-200-12.

EIS Preparer:	AECOM Technical Services, Inc. 1001 Bishop Street, Suite 1600 Honolulu, Hawai‘i 96813 Contact: Lesley Matsumoto

TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

BWS	Board of Water Supply
CCH	City and County of Honolulu
CAB	Clean Air Branch
CIP	Capital Improvement Program
DEIS	Draft Environmental Impact Statement
DEM	Department of Emergency Management
DHHL	Department of Hawaiian Home Lands
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
ENV	Department of Environmental Services
EPA	U.S. Environmental Protection Agency
EQ	(flow) equalization
FACD	First Amended Consent Decree
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FM	force main
GHG	Greenhouse Gas
GMSL	global mean sea level
GST	Gravity Sewer Tunnel
HART	Honolulu Authority for Rapid Transportation
HECO	Hawaiian Electric Company, Inc.
Honouliuli Fac Plan	Honouliuli/Waipahu/Pearl City Wastewater Facilities Plan
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HRS	Hawai‘i Revised Statues
I/I	Infiltration and Inflow
IBC	International Building Code
IPCC	Intergovernmental Panel on Climate Change
LF	linear feet
mgd	million gallons per day
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NWI	National Wetland Inventory
OEQC	Office of Environmental Quality Control
RCP	reinforced concrete pipes
SMH	Sewer Manhole
SSO	Sanitary Sewer Overflow
USACE	United States Army Corp of Engineers
USFWS	U.S. Fish and Wildlife Survey
VFD	Variable Frequency Drive
WWPS	Wastewater Pump Station
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

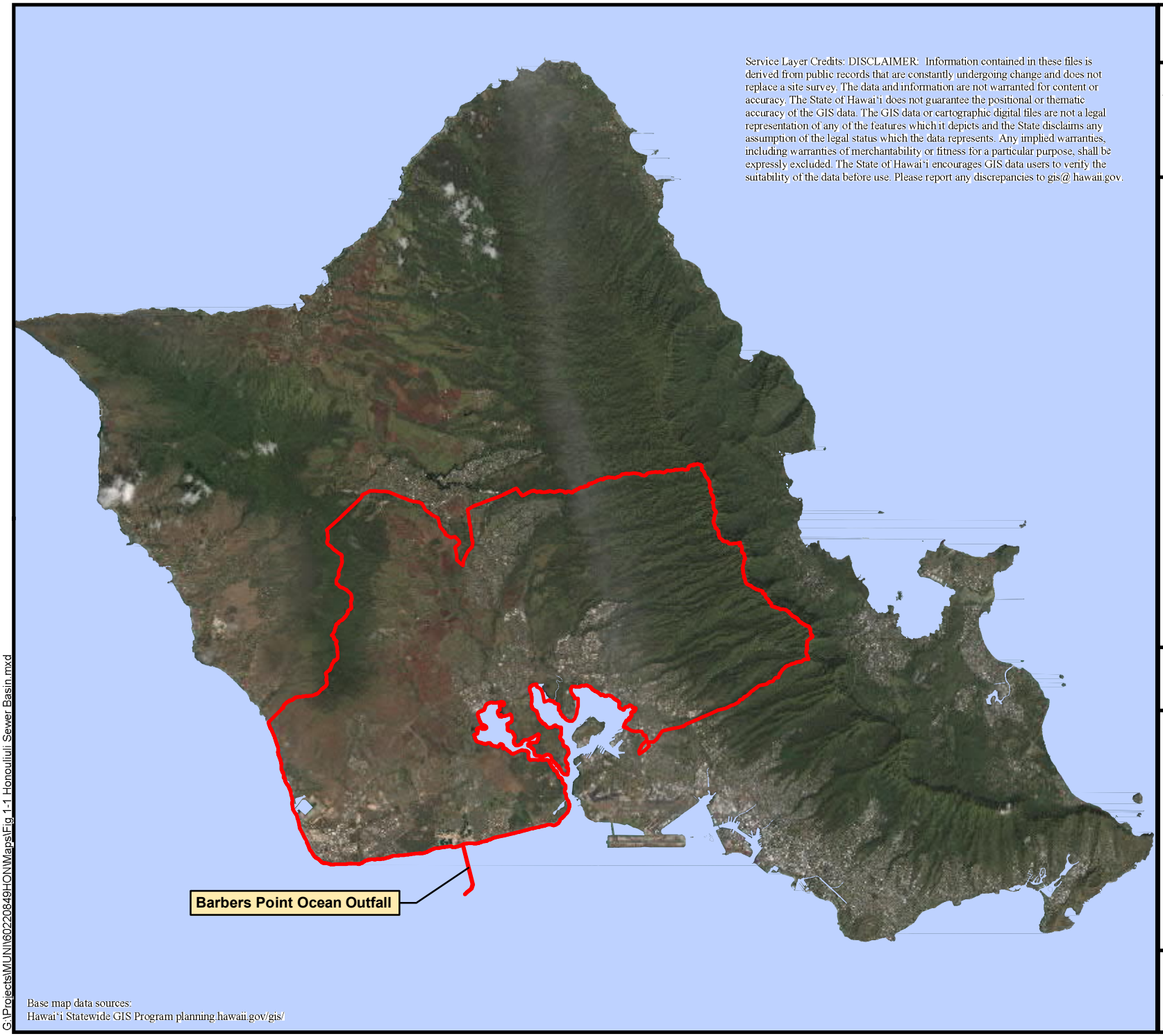
The City and County of Honolulu (CCH) Department of Environmental Services (ENV) is in the process of developing updates to the Honouliuli/Waipahu/Pearl City Wastewater Facilities Plan (Honouliuli Fac Plan) for the Honouliuli sewer basin. The study area for the Honouliuli Fac Plan consists of the Honouliuli Wastewater Treatment Plant (WWTP) and its wastewater service area, including the ʻEwa and Central Oʻahu area from Ko ʻOlina to Hālawa. The intent of the Honouliuli Fac Plan updates is to define improvements to the existing wastewater collection system and treatment facilities to meet future flow demands and permit compliance.

The Honouliuli sewer basin is delineated in Figure 1-1. As the second largest sewer basin on Oʻahu, it serves approximately one-third of the island's population and includes approximately 103,400 acres (about 27% of the island's total area). The Honouliuli WWTP provides primary treatment to all flow it receives and secondary treatment to approximately half of the total flow received. Currently, the Honouliuli WWTP treats over 26 million gallons per day (mgd) of wastewater.

The action to be evaluated in the ENV's Environmental Impact Statement (EIS) and considered in this Environmental Impact Statement Preparation Notice (EISPN) is the planned improvements to the East Interceptor System and the development of a new conveyance system from the future development in the Waiawa area to the East Interceptor System. The existing East Interceptor System is illustrated in Figure 1-2 and is the primary trunk system of gravity lines, pump stations, and force mains conveying flows from areas generally east and north of the Honouliuli WWTP. Two East Interceptor conveyance options and three Waiawa conveyance options will be evaluated in the EIS.

The following two Honouliuli Fac Plan projects have either been or are being evaluated under separate HRS Chapter 343 documents:

- Proposed improvements to, and expansion of, the Honouliuli WWTP. The EIS was completed in 2017 (AECOM, 2017) and was driven by consent decree mandates (see Section 1.2.1).
- Construction of the Waipahu WWPS Third Force Main. The Environmental Assessment (EA) is currently being prepared.



G:\Projects\MUNI\60220849\HON\Maps\Fig 1-1 Honouliuli Sewer Basin.mxd

City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

Honouliuli Sewer Basin

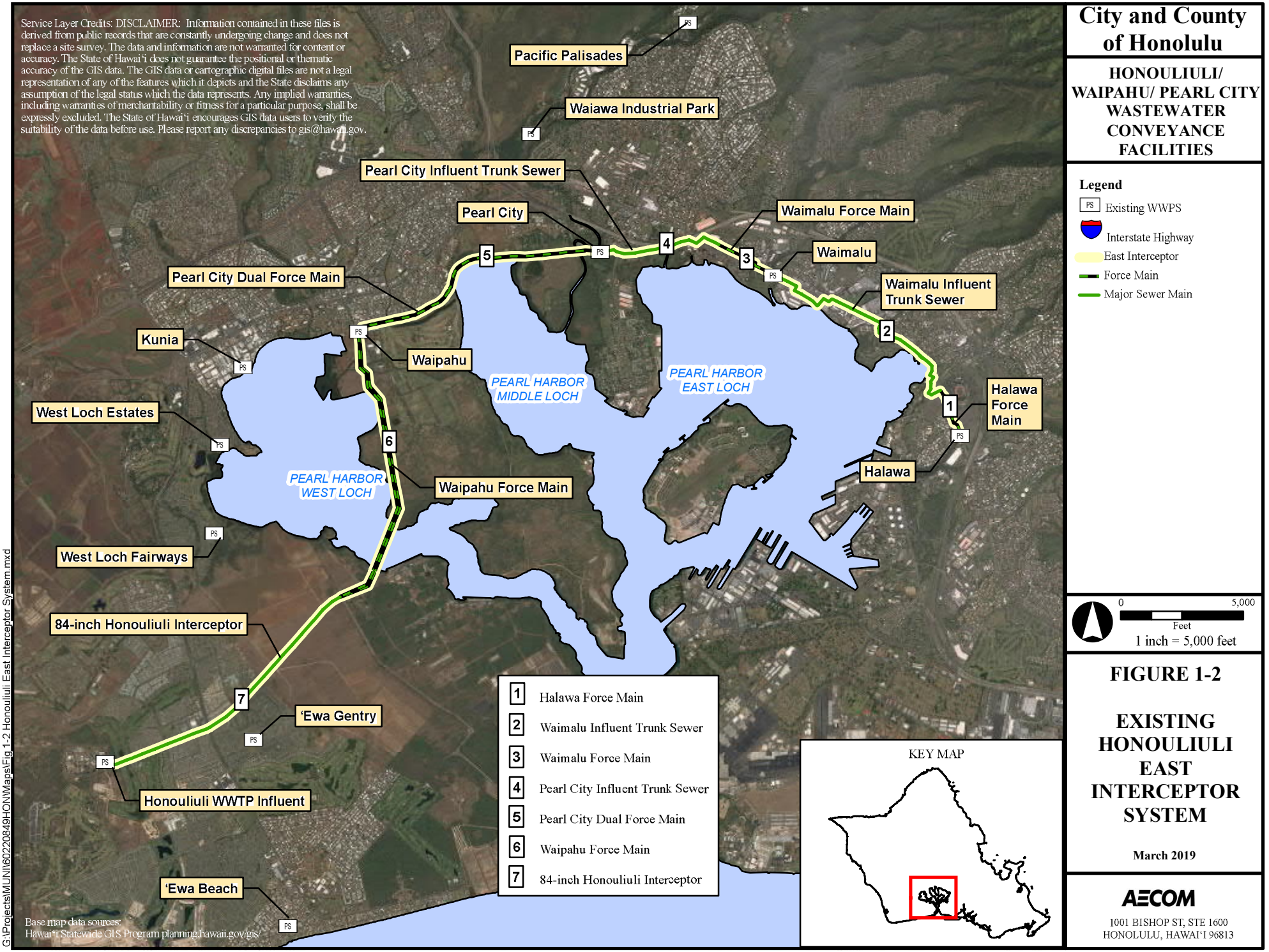
0 5
Miles
1 inch = 5 miles

FIGURE 1-1

HONOULIULI SEWER BASIN

March 2019

AECOM
1001 BISHOP ST, STE 1600
HONOLULU, HAWAI'I 96813



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS — Existing WWPS
- Interstate Highway
- East Interceptor
- Force Main
- Major Sewer Main

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 1-2

EXISTING HONOULIULI EAST INTERCEPTOR SYSTEM

March 2019

AECOM
1001 BISHOP ST, STE 1600
HONOLULU, HAWAI'I 96813

The proposed activities addressed in separate HRS Chapter 343 documents will not be detailed in this EISPN. However, their effects will be addressed and incorporated by reference as part of the Proposed Action in the EIS and considered in the evaluation of cumulative effects.

The environmental resources likely to be affected by the Proposed Action are identified in this EISPN and the potential environmental impacts will be evaluated in the Draft Environmental Impact Statement (DEIS). Findings from the EIS process will be used by the ENV in its decision-making. As the individual projects described in this EISPN are further developed, project-specific documents will be prepared as needed to meet HRS Chapter 343 obligations.

1.2 BACKGROUND

1.2.1 Consent Decree Mandates

CCH ENV previously developed a Capital Improvement Plan (CIP) that included recommendations from the *Final Sewer Infiltration and Inflow (I/I) Plan* (Fukunaga, 1999). The purpose of that plan was to develop the optimal approach to minimize sanitary sewer overflows (SSOs) and fulfill the requirements of a 1995 Consent Decree (Civil Number [no.] 94 00765 DAE) between the CCH, the State of Hawai‘i, and the Environmental Protection Agency (EPA). Subsequent planning for a long-range strategy for accommodating the collection, treatment, and disposal of wastewater in the basin resulted in the West Māmala Bay Facilities Plan (Wilson Okamoto & Associates and Brown and Caldwell, 2001). This plan proposed various planning recommendations for the collection system (addressing storage and conveyance of wet weather flows) and the WWTP.

The collection system recommendations emphasized upgrades of existing WWPSs, constructing large interceptor sewers, and collection system storage at major WWPSs. The intent of collection system storage was to provide flow equalization (EQ) adjacent to the four primary WWPSs (Hālawa, Waimalu, Pearl City, and Waipahu WWPSs). These improvements would reinforce the adequacy of the existing WWPSs.

On December 17, 2010, the EPA, State and CCH entered into a Consent Decree to replace the 1995 Consent Decree. The 2010 Consent Decree recognized the need to re-evaluate the projects remaining from the 1999 Final Sewer I/I Plan, including sewer relief line projects and wastewater pump station capacity upgrade projects. The 2010 Consent Decree also required upgrading the existing WWTP from partial secondary treatment to full secondary treatment by 2024.

On March 27, 2012, CCH entered into the First Amended Consent Decree (FACD) with the State and EPA, which included revisions related to the Kāne‘ohe-Kailua gravity sewer tunnel (GST) as a replacement for the Kāne‘ohe-Kailua Force Main and associated projects.

The East Interceptor System improvements required by the Consent Decree have been completed or are under construction. This EISPN addresses proposed

improvements that are beyond the Consent Decree requirements and, therefore, have no mandated Consent Decree deadlines.

1.2.2 Existing Facilities / Honouliuli East Interceptor System

1.2.2.1 HONOULIULI WWTP SEWER BASIN

The Honouliuli WWTP provides service to the developed areas in the region around Pearl Harbor, from Hālawa in the east to Ko ʻOlina in the west, and extending to Mililani in the north. The Honouliuli WWTP services the communities of Hālawa, ʻAiea, Waimalu, Pearl City, Pacific Palisades, Waiawa, Waipahu, Mililani, Waipiʻo, Village Park, Crestview, Waikele, Kunia, Kapolei, West Loch, Kalaeloa Community Development District (formerly known as Barbers Point Naval Air Station), ʻEwa Beach, Makakilo, and Ko ʻOlina. Currently the total service area includes approximately 22,000 acres of developed land.

Within the collection and transport system, wastewater flows by gravity or is pumped to the Honouliuli WWTP. Seventeen ENV-operated WWPSs are located throughout the Honouliuli basin, as well as an influent pump station at the WWTP. The ENV-operated WWPSs and their respective tributary areas are shown in Figure 1-3. A schematic of the connectivity of the tributary areas for each WWPS is shown in Figure 1-4.

1.2.2.2 WWPSS AND TRIBUTARY AREAS INCLUDED IN THE EAST INTERCEPTOR SYSTEM

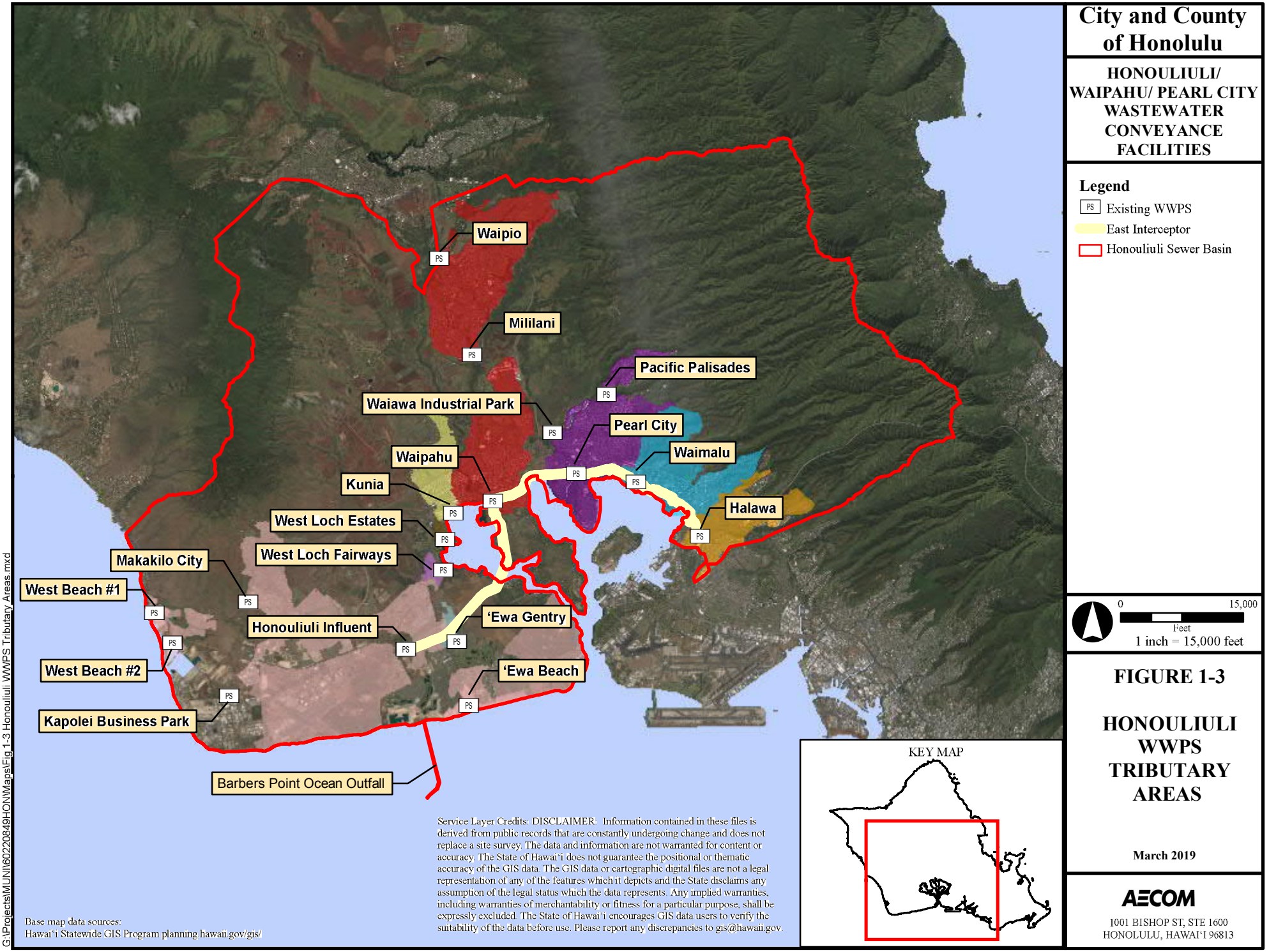
The Honouliuli Fac Plan and this EISPN focus on the East Interceptor System area which includes the Hālawa, Waimalu, Pearl City and Waipahu WWPSs and their associated sewers and force mains (shown in Figure 1-2). Also shown in Figure 1-2 are smaller WWPSs that may be affected by one or more of the proposed activities, including ʻEwa Gentry, ʻEwa Beach, Waiawa Industrial Park, Pacific Palisades, Kunia, West Loch Fairways and West Loch Estates WWPSs.

1.2.2.3 GRAVITY SEWERS AND FORCE MAINS

As a whole, the Honouliuli sewer basin gravity collection system is mainly made up of approximately 83 percent vitrified clay pipes and approximately 9 percent reinforced concrete pipes (RCP). The most common pipe size in the sewer basin is 8-inch diameter, which makes up approximately 65 percent of the total length of pipe. There is a total length of almost 494 miles of gravity sewers in the Honouliuli sewer basin and approximately 12 miles of force mains.

1.2.2.4 HONOULIULI WWTP

The Honouliuli WWTP is the second largest WWTP on Oʻahu. Since 1984 when it became fully operational, it has undergone numerous expansions and upgrades due to growth within the service area and additional treatment needs. The work to be completed at the WWTP was evaluated in the Final Environmental Impact Statement (FEIS) completed in 2017 and is not further assessed in this document (AECOM, 2017).



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS — Existing WWPS
- East Interceptor
- Honouliuli Sewer Basin

0 15,000 Feet

1 inch = 15,000 feet

FIGURE 1-3

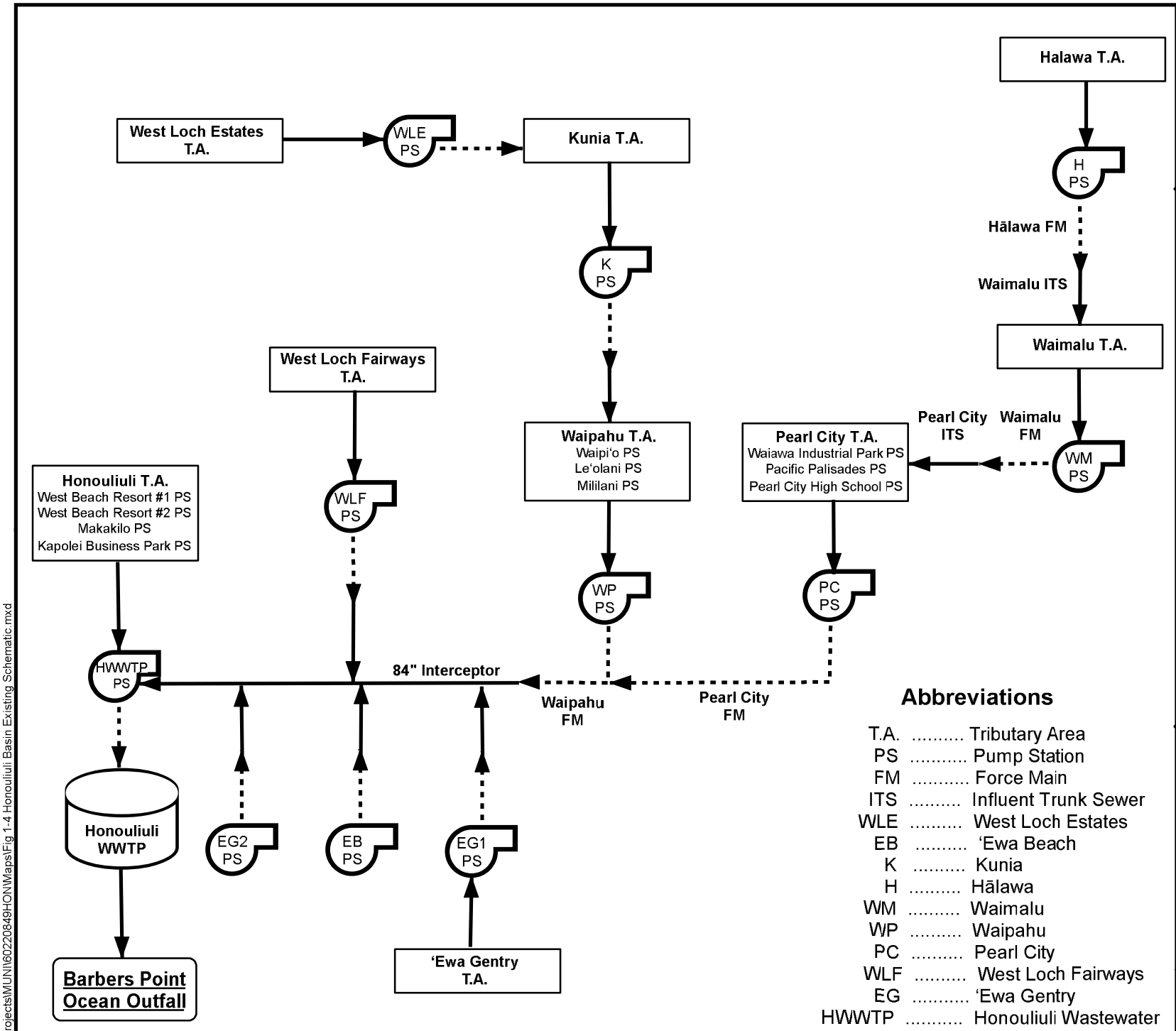
HONOULIULI WWPS TRIBUTARY AREAS

March 2019

AECOM
1001 BISHOP ST, STE 1600
HONOLULU, HAWAI'I 96813

Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

G:\Projects\MUNI\60220849\HON\Maps\Fig 1-3 Honouliuli WWPS Tributary Areas.mxd



Abbreviations

T.A.	Tributary Area
PS	Pump Station
FM	Force Main
ITS	Influent Trunk Sewer
WLE	West Loch Estates
EB	'Ewa Beach
K	Kunia
H	Hālawa
WM	Waimalu
WP	Waipahu
PC	Pearl City
WLF	West Loch Fairways
EG	'Ewa Gentry
HWWTP	Honouliuli Wastewater Treatment Plant

City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- T.A. — Tributary Area
- PS — Wastewater Pump Station
- Force Main Flow
- Gravity Flow
- WWTP — Wastewater Treatment Plant
- Ocean Outfall

FIGURE 1-4

HONOULIULI SEWER BASIN EXISTING COLLECTION SYSTEM FLOW SCHEMATIC

March 2019

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G:\Projects\MUNI\60220849\HON\Maps\Fig 1-4 Honouliuli Basin Existing Schematic.mxd

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

This Proposed Action (see Section 2.0 for detail) is needed to:

- Address the rehabilitation needs of existing wastewater infrastructure;
- Minimize the potential for sanitary sewer overflows (SSOs) and unscheduled maintenance problems;
- Provide new conveyance infrastructure to serve planned development and growth (including that related to Transit Oriented Development) in the wastewater tributary area, including proposed development in the Waiawa area;
- Increase the capacity of the existing Honouliuli East Interceptor System to address future flows through the 2050 planning period;
- Protect public health and safety; and
- Comply with the State wastewater regulations (Hawai‘i Administrative Rules (HAR) Chapter 11-62).

The purposes (objectives) of the Proposed Action are to:

- Obtain the most favorable long-term life-cycle expenditures, considering both capital and operations and maintenance costs;
- Adequately comply with environmental requirements and controls; and
- Minimize risks (e.g., delays to implementation) associated with large underground construction projects, land entitlements, and environmental liabilities.

1.4 ENVIRONMENTAL SCOPE OF AUTHORITY AND PURPOSE OF THIS EISPN

This EISPN was prepared by the ENV in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343, and HAR Title 11, Chapter 200. The ENV’s Proposed Action is an Agency Action subject to HRS Chapter 343 because it involves the following:

- Proposes the use of County and State lands and County funds;
- Proposes any use within any land classified as a conservation district by the state land use commission under HRS Chapter 205;
- Proposes any use within a shoreline area as defined in HRS Section 205A-41; and
- Proposes any wastewater facility, except an individual wastewater system or a wastewater facility serving fewer than fifty single-family dwellings or the equivalent.

Based on the above factors and the ENV's judgment and experience (see Section 6.0), the ENV is proceeding with development of an EIS for the Proposed Action. Pursuant to HRS Chapter 343, a proposing agency may choose not to prepare an environmental assessment when an EIS is likely to be required and proceed with preparation of a DEIS that is initiated with the preparation of an EISPN.

The purpose of the EISPN is to solicit comments that will set forth the scope of the EIS. The EISPN will be submitted to the Office of Environmental Quality Control (OEQC) for publication in The Environmental Notice and will be distributed to specific Federal, State, local, and other agencies. During the EISPN 30-day public comment period, agencies, groups, or individuals may request (in writing) to become a consulted party and may provide written comments regarding the environmental effects from the Proposed Action. Following the EISPN, a DEIS will be prepared to evaluate the potential environmental impacts of the Proposed Action. After a 45-day public comment period for the DEIS, substantive comments will be responded to in writing with copies included in the FEIS and addressed, as appropriate, in the FEIS. If the ENV, as the Mayor's delegated Accepting Authority (CCH, 2017), finds that the EIS meets the criteria in HAR 11-200-23, the ENV will issue acceptance of the EIS in the OEQC's The Environmental Notice.

The EIS is intended to provide environmental considerations that may assist the ENV in its decision-making. With the planning level of information currently available (e.g., wastewater conveyance facilities plan), the EIS evaluation is considered programmatic. When sufficient design details are available, separate project-specific HRS Chapter 343 documents will be prepared and compliance with special laws (e.g., HRS Chapter 6E Historic Preservation) will be demonstrated.

Federal funding is not anticipated for this project. However, the potential need for a federal action is anticipated with the work in water and the need for a U.S. Army Corps of Engineers (USACE) permit. Federal actions are also required for real estate actions (easements) for City projects on Navy property. These federal actions would require National Environmental Policy Act (NEPA) compliance and compliance with other federal special laws.

2.0 PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to rehabilitate, upgrade, and/or expand the existing Honouliuli major sewer conveyance system (East Interceptor System) to accommodate flows through 2050. The East Interceptor System covers a large area and consists of various components, and a number of options are being evaluated to successfully achieve the purpose and need. This section describes the East Interceptor System alternatives evaluated in the *Honouliuli Fac Plan Preliminary Engineering Report* (PER) (AECOM, 2016) and *Waiawa Master Plan Modeling Assistance Technical Memorandum* (AECOM, 2018) that are the subject of this EISPN. They include upgrades, modifications, and new facilities in the East Interceptor System area. Note: Alternatives carried forward for evaluation in this EIS are referred to as options hereinafter. Alternatives dismissed from further evaluation are referenced in Section 2.4.

Recent developments in tunneling technology, as demonstrated by ENV's successful completion of the Kanehoe-Kailua gravity sewer tunnel (GST), and ENV's re-evaluation of the long-term planning for the island-wide wastewater system presented the opportunity to consider a GST option. Use of a GST effectively replaces certain pumping and force main systems in the East Interceptor System. In addition to a GST option for the collection system, an option without tunnels was evaluated. This No-Tunnel option includes more traditional improvements, upgrades, and/or new facilities for the existing collection system to include trunk sewers, pump station upgrades, and force mains. Various combinations of GST and No-Tunnel projects are also being considered under the Hybrid option.

The Proposed Action is described in the following sections and organized under two main categories: East Interceptor Conveyance Options and Waiawa Area Conveyance Options. For some portions of the system, proposed activities are described as common projects to all options being assessed.

2.1 EAST INTERCEPTOR CONVEYANCE OPTIONS

Two East Interceptor conveyance options are presented below: No-Tunnel and Hybrid. The No-Tunnel option involves a more traditional approach utilizing gravity sewers, WWPSs, and force mains. For the Hybrid option, a GST would be constructed and certain existing (and/or rehabilitated) No-Tunnel facilities would continue operation. Both options include several common projects regardless of the option, which are described first.

2.1.1 Projects Common to Both East Interceptor Conveyance Options

The projects identified in Table 2-1 and described in the following sections would be required regardless of the conveyance option (i.e., No-Tunnel or Hybrid) that is

ultimately selected. They are presented in the order that the project is anticipated to be designed and constructed.

Table 2-1. Projects Common to Both East Interceptor Conveyance Options

1	Waipahu WWPS Force Main (New)
2	Waipahu WWPS Force Mains Rehabilitation
3	Pearl City Trunk Sewers – Rehabilitation/Replacement
4	Waimalu WWPS Force Main (New)
5	Waimalu WWPS – Reconstruct/Replace
6	Waimalu Trunk Sewers – Rehabilitation/Replacement
7	Hālawa WWPS Force Main (New)
8	Hālawa WWPS – Reconstruct/Replace

2.1.1.1 WAIPAHU WWPS FORCE MAIN (NEW)

A new third FM would be constructed for the Waipahu WWPS to convey flow to the Honouliuli 84-inch gravity interceptor sewer. This would increase the firm capacities of both the Pearl City WWPS and the Waipahu WWPS and continue to allow the flows from the two WWPSs to be separated and make the operation of the stations independent of each other. A new FM, approximately 12,510 LF, would be constructed following a similar alignment as the Waipahu Dual FMs, and would discharge to the east end of the existing Honouliuli Interceptor Sewer (Figure 2-1).

2.1.1.2 WAIPAHU WWPS FORCE MAINS REHABILITATION

The existing dual FMs for Waipahu WWPS would be rehabilitated, which may include slip-lining or replacement of sections of the FMs, or may include complete replacement. The dual FMs would discharge to the east end of the existing Honouliuli Interceptor Sewer (Figure 2-1). Total length of the rehabilitated or replacement FMs would be approximately 12,510 LF each.

2.1.1.3 PEARL CITY TRUNK SEWERS – REHABILITATION/REPLACEMENT

The Pearl City trunk sewer is recommended for upgrade/replacement within the planning period. Some sewer sections appear to be sagging and collecting sediment. Approximately 5,300 LF of new gravity sewer would convey wastewater flow from the Waimalu WWPS FM discharge/transition manhole to a new connection to the influent junction box at the Pearl City WWPS (Figure 2-2), or to the entrance structure for the new GST by the Pearl City WWPS under the Hybrid option.

LEGEND

- PS — Existing WWPS
- Existing East Interceptor
- Existing Waipahu Dual Force Mains
- Proposed Waipahu Third Force Main
- Proposed Waipahu Dual Force Main Replacement or Rehabilitation

0 750 1,500 Ft

1 inch = 750 feet

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FIGURE 2-1

WAIPAHU NEW FM AND EXISTING FM REHABILITATION

March 2019

G:\Projects\MUN\60220849\HON\Maps\Fig 2-1 Waipahu_Honouliuli.mxd

LEGEND

- PS — Existing WWPS
- Transition Manhole
- Existing East Interceptor
- Existing Pearl City Influent Trunk Sewer
- Existing Waimalu Force Main
- Proposed New Waimalu Force Main
- Proposed New Pearl City Influent Trunk Sewer

0 500 1,000 Ft

1 inch = 500 feet

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HONOULIULI / WAIPAHU / PEARL CITY WASTEWATER CONVEYANCE FACILITIES

FIGURE 2-2

PEARL CITY TRUNK SEWERS REHABILITATION/REPLACEMENT AND NEW WAIMALU WWPS FM

March 2019

G:\Projects\MUN\60220849\HON\Maps\fig 2-2 Waimalu_PearlCity.mxd

2.1.1.4 WAIMALU WWPS FORCE MAIN (NEW)

Replacement of the Waimalu FM is recommended at the estimated end of its economic life. The proposed replacement FM would be parallel and adjacent to existing lines as much as possible (see Figure 2-2). A new FM would convey wastewater flow from a new connection to the discharge junction box at the Waimalu WWPS to the discharge/transition manhole on the northwest corner of the intersection of Kuleana Road and Kamehameha Highway.

2.1.1.5 WAIMALU WWPS – RECONSTRUCT/REPLACE

The Waimalu WWPS is recommended for upgrade/replacement within the planning period as it reaches the end of its estimated useful economic life. A new WWPS can be constructed at the same location or at a new alternative location adjacent to the existing WWPS (Figure 2-3).

2.1.1.6 WAIMALU TRUNK SEWERS – REHABILITATION/REPLACEMENT

The Waimalu influent trunk sewer is recommended for upgrade/replacement within the planning period. Some sewer sections appear to be sagging and collecting sediment. Approximately 10,040 LF of new gravity sewer would convey wastewater flow from the Hālawa WWPS FM discharge to a new connection to the influent junction box at the Waimalu WWPS (Figure 2-4).

2.1.1.7 HĀLAWA WWPS FORCE MAIN (NEW)

A new FM would replace the existing FM and convey wastewater flow from a new connection to the discharge junction box at the new Hālawa WWPS to the discharge/transition manhole on the south end of the Aloha Stadium parking lot (Figure 2-4) or to an alternative discharge location in Salt Lake Boulevard. Approximate length for the proposed FM is 2,080 LF.

2.1.1.8 HĀLAWA WWPS – RECONSTRUCT/REPLACE

The Hālawa WWPS is recommended for replacement as it reaches the end of its estimated useful economic life (Figure 2-5). A new Hālawa WWPS with a capacity of 5.5 mgd is proposed. The location may remain the same or may be moved to a new alternative location as shown.

2.1.2 No-Tunnel Option

The preferred No-Tunnel option identified in the PER is comprised of a combination of projects including WWPS upgrades, additional force mains, relief sewers, and other near-surface conveyance projects to address overall system deficiencies. The No-Tunnel option would convey peak flows to the WWTP by increasing WWPS capacity, increasing force main capacity, and/or adding relief sewers. By increasing WWPS capacities as necessary to convey projected peak flows and providing dedicated force mains, storage tanks adjacent to the WWPSs would not be required to relieve predicted surcharging. As previously stated, increased capacity and treatment options at the Honouliuli WWTP were evaluated in a separate EIS and are not the subject of this EISPN (AECOM, 2017).

G:\Projects\MUNI\60220849\HON\Maps\Fig 2-3 Waimalu WWPS Replacement.mxd

City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS — Existing WWPS
- WWPS Boundary
- Wetlands
- 100-yr Flood Zone

Major Landowners

- Others
- City and County Honolulu
- Federal
- State of Hawai'i
- Tax Map Key Parcel Boundary

0 200
Feet
1 inch = 200 feet

FIGURE 2-3

WAIMALU WWPS - RECONSTRUCT/ REPLACE

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G:\Projects\MUNI\60220849\HON\Maps\fig 2-4 Halawa and Waimalu.mxd

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HONOULIULI / WAIPAHU / PEARL CITY WASTEWATER CONVEYANCE FACILITIES

FIGURE 2-4

WAIMALU TRUNK SEWERS AND NEW HĀLAWA FM

March 2019

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Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

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HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS — Existing WWPS
- WWPS Boundary
- Wetlands
- 100-yr Flood Zone

Major Landowners

- Others
- City and County Honolulu
- Federal
- State of Hawai'i
- Tax Map Key Parcel Boundary

0 200
Feet
1 inch = 200 feet

FIGURE 2-5

HALAWA WWPS - RECONSTRUCT/ REPLACE

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The No-Tunnel option projects are identified in Table 2-2 and described in the following sections.

Table 2-2. No-Tunnel Option Projects

1	Waipahu WWPS – Rehabilitation/Upgrade
2	Pearl City WWPS Force Main (New)
3	Pearl City WWPS Force Mains Rehabilitation
4	Pearl City WWPS – Reconstruct/Replace

2.1.2.1 WAIPAHU WWPS – REHABILITATION/UPGRADE

Although the existing Waipahu WWPS has hydraulic capacity to handle projected peak flows and is currently in structurally good condition without excessive O&M requirements, the WWPS will be near the end of the economic design life within the planning period for electrical, mechanical, architectural, and structural components. The rehabilitation option would make use of the existing station, but would provide new pumps and motors.

2.1.2.2 PEARL CITY WWPS FORCE MAIN (NEW)

A third FM for the Pearl City WWPS is recommended to convey flow to the Waipahu WWPS (Figure 2-6). The third FM would increase the firm capacity of the Pearl City WWPS and provide a backup FM to allow rehabilitation of the existing two FMs, one at a time.

A new FM, approximately 11,070 LF, would be constructed following the same alignment as the existing dual FMs.

2.1.2.3 PEARL CITY WWPS FORCE MAINS REHABILITATION

The existing Pearl City dual FMs would be rehabilitated, which may include slip-lining or replacement of sections of the FMs, or may include complete replacement due to their condition. The dual FMs would convey wastewater flow from the Pearl City WWPS and connect to the force mains coming from the Waipahu WWPS at a new connection box to be built near the Waipahu WWPS (Figure 2-6). The total length of the rehabilitated or replacement FMs would be approximately 11,440 LF.

2.1.2.4 PEARL CITY WWPS – RECONSTRUCT/REPLACE

The existing Pearl City WWPS is located within a flood zone. It has flooded in the past and will be near the end of its economic design life within the planning period for electrical, mechanical, architectural, and structural components. Three Pearl City WWPS replacement location alternatives are identified in Figure 2-7. The new WWPS would sufficiently pass projected peak flows.

Rehabilitation of the existing Pearl City WWPS was also evaluated and included elevating critical mechanical and electrical components above the 100-year flood elevation by remodeling or constructing a new electrical building and raising building entrances. The existing pumps and motors would be replaced with dry pit

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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Leeward Community College
HART Rail Operations Center
Waipahu High School
Proposed Pearl City New Third FM
Relocate or Rehabilitate Existing Pearl City WWPS
PS
Existing Pearl City Influent Trunk Sewer
Rehabilitate Existing Pearl City Dual FM
Pearl Harbor National Wildlife Refuge
PEARL HARBOR MIDDLE LOCH
Existing Waipahu WWPS
Ted Makalena Golf Course
Existing Waipahu Dual Force Mains
Farrington Hwy
Queen Liliuokalani Fwy
Waipio Point Access Rd
Waipuna Ave
Lehua Ave
Waiawa Rd
KEY MAP

G:\Projects\MUNI\60220849HONMaps\Fig 2-6 Waipahu_PearlCity.mxd

LEGEND

- PS Existing WWPS
- Existing East Interceptor
- Proposed Pearl City Dual Force Main Replacement
- Proposed New Pearl City Third Force Main
- Existing Pearl City Dual Force Mains

0 750 1,500 Ft

1 inch = 750 feet

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HONOULIULI / WAIPAHU / PEARL CITY WASTEWATER CONVEYANCE FACILITIES

FIGURE 2-6

PEARL CITY WWPS NEW FM AND FM REHABILITATION

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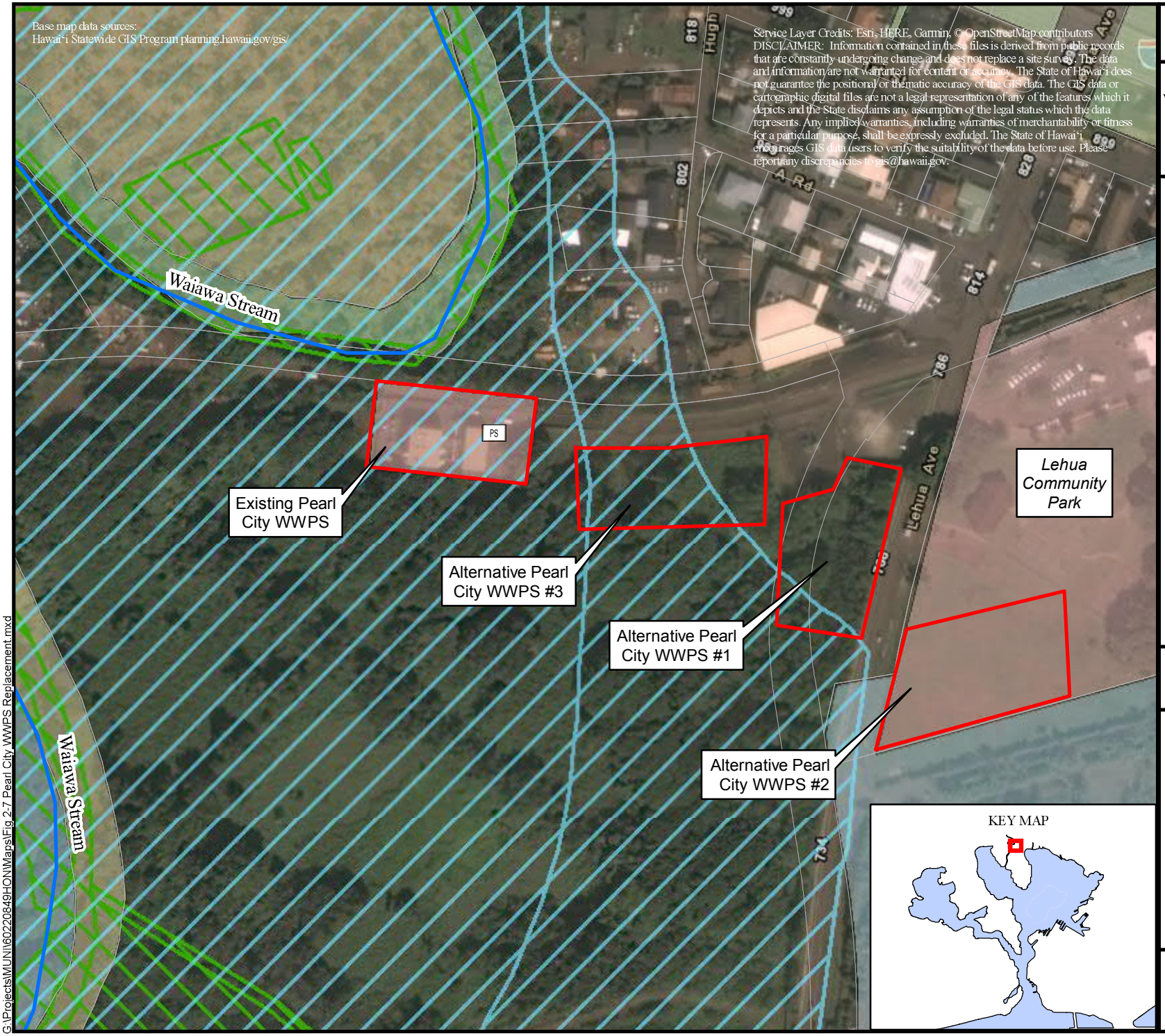

G:\Projects\MUNI\60220849HON\Maps\Fig 2-7 Pearl City WWPS Replacement.mxd

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HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS Existing WWPS
- WWPS Boundary
- Wetlands
- 100-yr Flood Zone

Major Landowners

- Others
- City and County Honolulu
- Federal
- State of Hawai'i
- Tax Map Key Parcel Boundary

0 200
Feet
1 inch = 200 feet

FIGURE 2-7

PEARL CITY WWPS - RECONSTRUCT/ REPLACE

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submersible pumps and motors. Some rehabilitation work would be done regardless of the options in order to maintain continued reliability.

2.1.3 Hybrid Option

The preferred Hybrid option identified in the PER focuses on replacing the Pearl City WWPS and dual FM system by constructing a GST between the Pearl City and Waipahu WWPSs. Otherwise, the Hybrid option is similar to the No-Tunnel conveyance option, in which the other WWPSs, associated sewers, and force mains along the East Interceptor System corridor would remain in service (with any needed rehabilitations/relocation). The new GST would route all Pearl City flows to a new Waipahu WWPS. Figure 2-8 presents the layout for the Hybrid option. Two alignments are under consideration by ENV and will be evaluated in the DEIS: deep tunnel alignment and microtunnel alignment.

The Hybrid option projects are identified in Table 2-3 and described in the following sections.

Table 2-3. Hybrid Option Projects

1	Pearl City-Waipahu Trunk Sewer
2	Waipahu WWPS No. 2
3	Pearl City WWPS – Demolition

2.1.3.1 PEARL CITY-WAIPAHU TRUNK SEWER

The proposed alignment of the new GST for the Pearl City-Waipahu trunk sewer is shown in Figure 2-8. Two tunneling options are available: either a bored tunnel or a microtunnel. The bored tunnel would be an estimated 96-inch diameter tunnel about 10,900 feet long which includes a launch shaft at the downstream end (Waipahu WWPS) and a tunnel boring machine retrieval shaft at the upstream end (Pearl City WWPS). The proposed vertical alignment would have an invert (i.e., elevation of the bottom of pipe below ground) at El -52.0 at the downstream end (Waipahu WWPS) and an invert at El -40.0 at the upstream end (Pearl City WWPS). The microtunnel would be an estimated 72-inch diameter pipe, about 11,500 feet long which includes an estimated 15 shafts and 14 individual microtunneling drives. The layout assumes typical drive lengths of 800 feet, although distances of 1,000 feet or more may also be feasible. The vertical alignment has been proposed to provide adequate soil cover beneath the Waiawa Stream, which is the lowest point along the corridor. The proposed vertical alignment has an invert at El -35.0 at the downstream end (Waipahu WWPS) and an invert at El -23.0 at the upstream end (Pearl City WWPS).

HART Rail Operations Center

Waipahu High School

Existing Pearl City WWPS

PS

30' Diameter Shaft

Existing Pearl City Influent Trunk Sewer

Pearl Harbor National Wildlife Refuge

PEARL HARBOR MIDDLE LOCH

Existing Waipahu WWPS

PS

30' Diameter Shaft

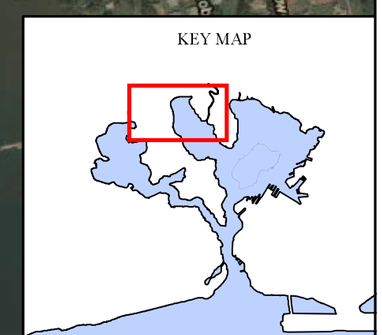
Ted Makalena Golf Course

Existing Waipahu Dual Force Mains

Waipio Peninsula Soccer Park

Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

KEY MAP



LEGEND

- PS — Existing WWPS
- Tunnel Shaft
- Existing East Interceptor
- Deep Tunnel Alignment
- Microtunnel Alignment

0 800 1,600 Ft
1 inch = 800 feet

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FIGURE 2-8

PEARL CITY - WAIPAHU TRUNK SEWER

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G:\Projects\MUNI\60220849\HON\Maps\Fig 2-8 Hybrid Option Alignment.mxd

2.1.3.2 WAIPAHU WWPS NO. 2 OR COMBINED FLOW WWPS

A GST from Pearl City to Waipahu would require a new pump station at the downstream end to accommodate the deeper tunnel flows. Figure 2-9 identifies the location of the existing Waipahu WWPS as well as two alternative locations for the new Waipahu WWPS No. 2. The new Waipahu WWPS No. 2 to pump GST flow or a Combined Flow WWPS to pump all Waipahu flow would be needed to accommodate tunnel flows and Waipahu WWPS tributary flows, to provide a firm capacity of about 67.4 mgd.

2.1.3.3 PEARL CITY WWPS – DEMOLITION

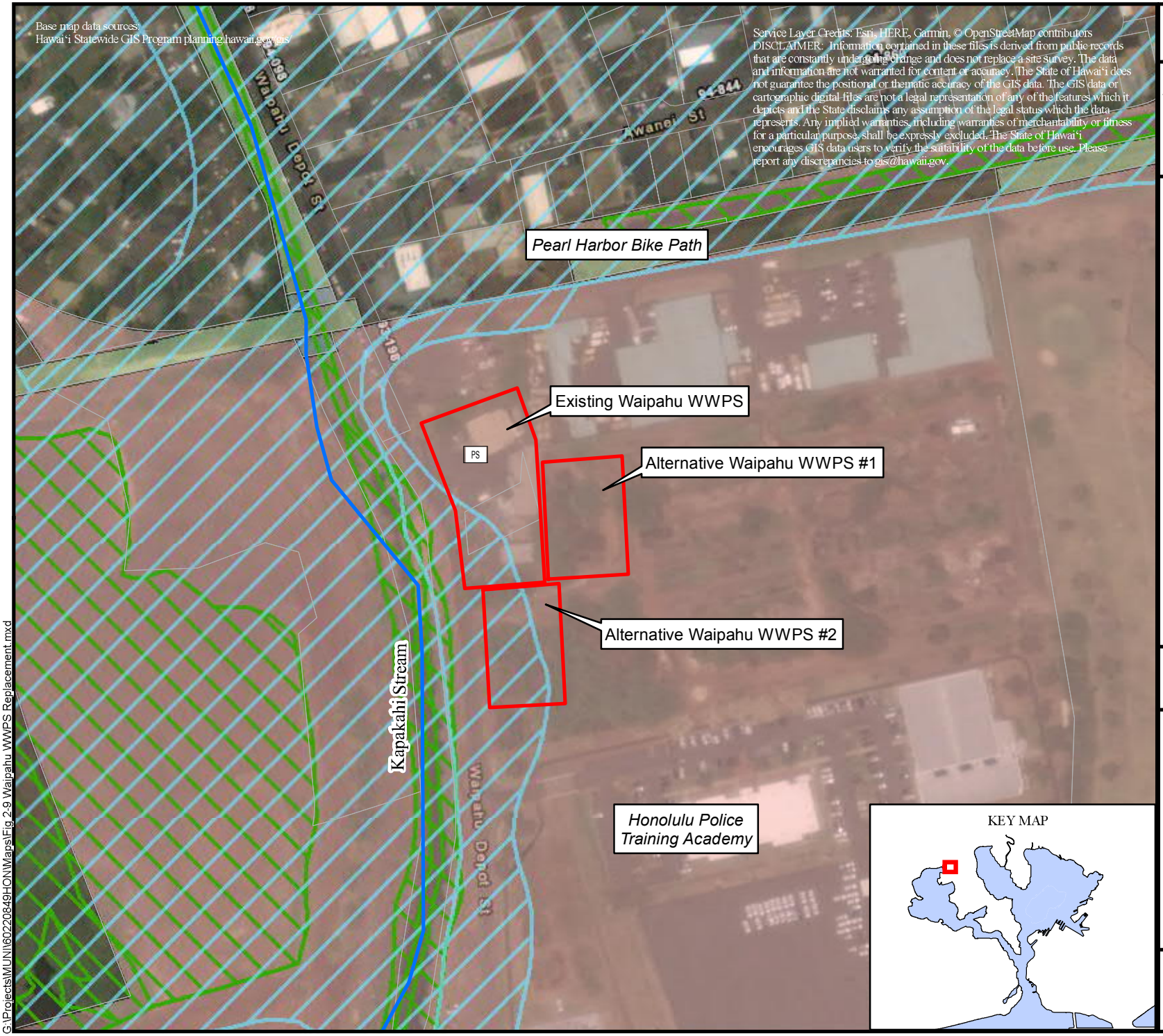
The Pearl City WWPS would be demolished since it would not be needed following completion of the GST.

2.2 WAIAWA AREA CONVEYANCE OPTIONS

The Waiawa Ridge development proposed by Waiawa Ridge Development, LLC will include approximately 12,000 residential units, industrial/commercial, commercial, golf courses, parks, schools, incorporated in the Gentry and the adjacent Castle & Cooke parcel (see **F**igure 2-10). The project as proposed is estimated to produce 7.48 mgd (which does not include the 0.78 mgd of dry weather flow from Pacific Palisades), a significant increase to the existing wastewater collection system. Conveyance requirements were determined, and three optional corridors have been identified by the ENV, as described in the following sections and identified in Figure 2-10. Only one corridor would ultimately be selected for use. All corridors would intercept flows to the Waiawa Industrial Park WWPS and allow them to flow by gravity to the downstream sewer system. This would allow the Waiawa Industrial Park WWPS to be removed from service. Gravity sewer options also may include a future new sewer to be constructed along Waihona Street to enable the Pacific Palisades WWPS to be removed from service. Regardless of the corridor, the construction would be a combination of cut and cover and microtunneling.

2.2.1 Corridor A

Corridor A consists of approximately 11,500 LF of new gravity sewer beginning at the Waiawa by Gentry development following Waihona Street to Kamehameha Highway then intercepting Lehua Avenue to either the Pearl City WWPS or the proposed Pearl City to Waipahu WWPS Tunnel. The corridor would collect additional wastewater flows from neighboring communities including: Waiawa Industrial Park, Pacific Palisades WWPS, Mānana, and Pearl City.



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- PS — Existing WWPS
- WWPS Boundary
- Wetlands
- 100-yr Flood Zone

Major Landowners

- City and County Honolulu
- Federal
- State of Hawai'i
- Tax Map Key Parcel Boundary

0 200
Feet
1 inch = 200 feet

FIGURE 2-9

WAIPAHU WWPS NO. 2

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G:\Projects\MUNI\60220849\HON\Maps\Fig 2-9 Waipahu WWPS Replacement.mxd

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HONOULIULI/ WAIPAHU/ PEARL CITY FACILITIES PLAN

Legend

- PS — Existing WWPS
- East Interceptor
- Corridor A
- Corridor D
- Corridor G
- Waiawa Ridge Parcel

0 1,500 Feet

1 inch = 1,500 feet

FIGURE 2-10

WAIAWA AREA CONVEYANCE CORRIDORS

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2.2.2 Corridor D

Corridor D consists of approximately 12,000 LF of new gravity sewer. Beginning at the Waiawa by Gentry development following Waihona Street to Kamehameha Highway then using the existing Navy water transmission easement and other public right of ways and easements to connect to either the Pearl City WWPS or the proposed Pearl City to Waipahu WWPS Tunnel. The corridor would collect additional wastewater flows from neighboring communities, to include: Waiawa Industrial Park, Pacific Palisades WWPS, Mānana, and Pearl City.

2.2.3 Corridor G

Corridor G consists of approximately 5,800 LF of new gravity sewer beginning at the Waiawa by Gentry development following Waihona Street and crossing Kamehameha Highway, the H-2 and H-1 freeways, and Farrington Highway, respectively, traveling south. The corridor would tie into the proposed Pearl City to Waipahu WWPS Tunnel.

2.3 PROJECT CONSTRUCTION SCHEDULE

The preliminary construction schedule for the No-Tunnel conveyance option and the Hybrid conveyance option are provided in Table 2-4 and Table 2-5, respectively. The projects unique to each conveyance option are in bold.

The schedule for the Waiawa Area conveyance options is dependent on several factors, including the schedule for planned development in the Waiawa area and Transit Oriented Development in the areas surrounding the Honolulu Authority for Rapid Transportation (HART) Rail Transit Stations. Connection of the Waiawa Area Conveyance option is dependent upon completion of the downstream upgrades/rehabilitation projects due to increased wastewater flows.

Table 2-4. No-Tunnel Conveyance Option Preliminary Construction Schedule

Project	Anticipated Years of Construction
Waipahu WWPS Force Main (New)	2022-2024
Waipahu WWPS Force Mains Rehabilitation	2025-2026
Waipahu WWPS – Rehabilitation/Upgrade	**2026-2029**
Pearl City WWPS Force Main (New)	**2026-2029**
Pearl City WWPS Force Mains Rehabilitation	**2029-2032**
Pearl City WWPS – Reconstruct/Replace	**2031-2033**
Pearl City Trunk Sewers – Rehabilitation/Replacement	2032-2035
Waimalu WWPS Force Main (New)	2032-2034
Waimalu WWPS – Reconstruct/Replace	2033-2036
Waimalu Trunk Sewers – Rehabilitation/Replacement	2036-2039
Hālawa WWPS Force Main (New)	2036-2038
Hālawa WWPS – Reconstruct/Replace	2037-2040

Table 2-5. Hybrid Conveyance Option Preliminary Construction Schedule

Project	Anticipated Years of Construction
Waipahu WWPS Force Main (New)	2022-2024
Waipahu WWPS Force Mains Rehabilitation	2025-2026
Pearl City-Waipahu Trunk Sewer	**2026-2029**
Waipahu WWPS No. 2	**2027-2030**
Waimalu WWPS Force Main (New)	2029-2031
Pearl City Trunk Sewers – Rehabilitation/Replacement	2029-2032
Waimalu WWPS – Reconstruct/Replace	2030-2033
Pearl City WWPS – Demolition	**2032-2034**
Waimalu Trunk Sewers – Rehabilitation/Replacement	2033-2036
Hālawa WWPS Force Main (New)	2033-2035
Hālawa WWPS – Reconstruct/Replace	2034-2037

2.4 ALTERNATIVES CONSIDERED

Alternatives considered but not carried forward for the purposes of further analysis in the DEIS will be identified and are anticipated to include the following.

- No Action.
- Alternatives of a significantly different nature that would provide similar benefits with different environmental impacts. The complete GST tunnel described in the Honouliuli Fac Plan (AECOM, 2016) is one such alternative.
- Alternatives related to different designs or details of the Proposed Action that would present different environmental impacts. Wastewater reclamation is one such example.
- Postponing the action pending further study.
- Alternative locations for the Proposed Action. Corridors previously considered in the Waiawa Master Plan (AECOM, 2018) are such alternatives.

3.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section includes preliminary descriptions of existing conditions in the project area as well as consideration of potential impacts (direct and indirect) resulting from the Proposed Action. Further consultation with appropriate agencies, additional studies, and more detailed analyses will be presented in the DEIS. Mitigation measures will also be identified, as appropriate. Cumulative impacts, considering other actions, will be addressed in Chapter 4.

3.1 CLIMATE AND CLIMATE CHANGE

3.1.1 Existing Setting

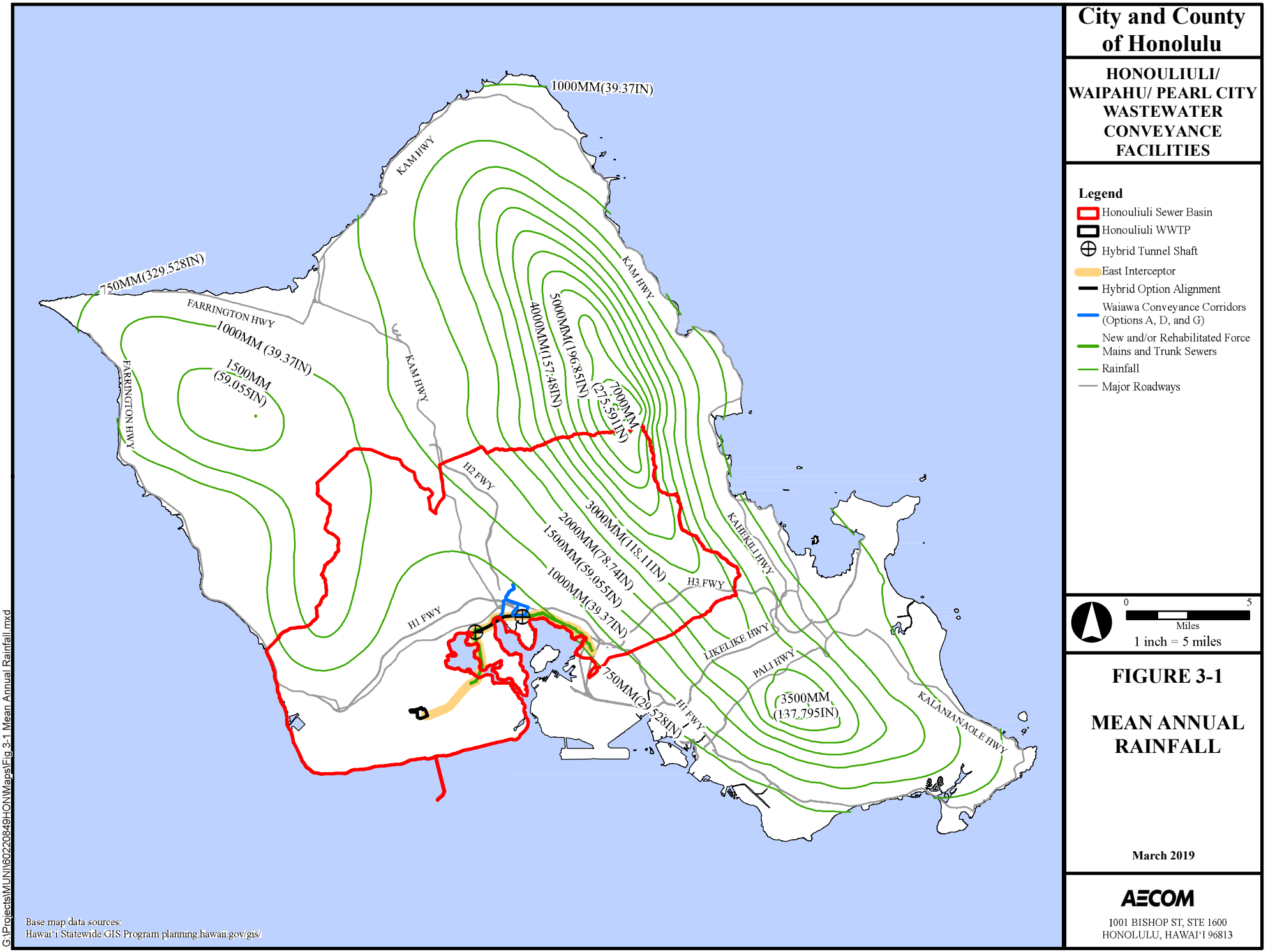
The climate in Hawai‘i is considered subtropical with annual temperatures in the project area ranging from 60°F to 85°F and mean monthly temperatures ranging from 73°F in January and February to 81°F in August. The mean annual rainfall in the Honouliuli Sewer basin ranges from less than 20 inches in the ‘Ewa Plains and coastal areas to over 200 inches near the summit of the Ko‘olau Range while the mean annual rainfall in the project area is less than 40 inches. Figure 3-1 shows the mean annual rainfall in the project area. The islands are exposed to trade and Kona winds. Trade winds are from the northeast and prevail approximately 70% of the time. Kona winds are from the south. Average wind in the area ranges from 15 to 25 mph with gusts over 35 mph.

Planning for climate change is challenging as there are several changing and unknown factors. The risks of climate change include changes in rainfall intensity, sea level rise, groundwater levels, and impacts from storm hazards.

The CCH Climate Change Commission adopted a Climate Change Brief in June 2018 to establish the factual basis and impacts of climate change for the City, and the CCH Mayor issued Directive 18-01 in July 2018 requiring each City department and agency to consider the need for both climate change mitigation and adaptation as pressing and urgent matters, to take a proactive approach in both reducing greenhouse gas emissions and adapting to impacts caused by sea level rise, and to align programs whenever possible to help protect and prepare the infrastructure, assets and citizens of the City for the physical and economic impacts of climate change.

The latest report addressing sea level rise vulnerability in Hawai‘i is the “Sea Level Rise Vulnerability and Adaptation Report” (Hawai‘i Climate Change Mitigation and Adaptation Commission, 2017), which was provided by CCH for consultant use and is hereinafter referred to as the 2017 Sea Level Rise Report.

This report discusses the sea level rise outlook and potential exposure for each island. The potential impacts in the sea level rise impact areas are documented and recommendations made to provide guidance for State and County agencies,



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli Sewer Basin
- Honouliuli WWTP
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Rainfall
- Major Roadways

0 5
Miles
1 inch = 5 miles

FIGURE 3-1

MEAN ANNUAL RAINFALL

March 2019

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G:\Projects\MUNI\60220849HON\Maps\Fig 3-1 Mean Annual Rainfall.mxd

communities and stakeholders. The following is a short summary of the report results. The 2017 Sea Level Rise Report says:

> Sea level is rising at increasing rates due to global warming of the atmosphere and oceans and melting of glaciers and ice sheets. Rising sea level and projections of stronger and more frequent El Niño events and tropical cyclones in water surrounding Hawai'i indicate a growing vulnerability to coastal flooding and erosion. While the IPCC's "business as usual" scenario, where GHG emissions continue at the current rate of increase, predicts up to 3.2 feet of global sea level rise by year 2100, (IPCC, 2014), recent observations and projections suggest that this magnitude of sea level rise could occur as early as year 2060 under more recently published highest-end scenarios (Sweet et al., 2017). As such, questions remain around the exact timing of that rise due largely to uncertainties around future behavior of Earth's cryosphere and global GHG emission trajectories. For this reason, it is vital that the magnitude and rate of sea level rise is tracked as new projections emerge, plan for 3.2 feet of sea level rise now, and be ready to adjust that projection upward. It is also important to recognize that global sea level rise will not stop at the year 2100, but will likely continue on for centuries.

The Hawai'i Sea Level Rise Viewer (https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/) is an online tool developed to support the 2017 Sea Level Rise Report that provides detailed maps of exposure and vulnerability to coastal hazards with up to 3.2 feet of sea level rise. This tool is intended to be used as a screening-level resource to support decision making. According to this viewer, none of the proposed project sites are located within mapped areas of passive flooding, annual high wave flooding, or coastal erosion under 3.2 feet of sea level rise conditions. The viewer does not depict projections for future hazard exposure for scenarios with greater than 3.2 feet of sea level rise, and storm surge with sea level rise is a possible hazard for portions of the project area.

Sea Level Rise Guidance adopted by the CCH Climate Change Commission in June 2018 utilized findings in the 2017 Sea Level Rise Report and other scientific literature to provide specific policy and planning guidance on responding to sea level rise by the City. The following is the summary of key findings:

A. Relative to the year 2000, the projected rise of global mean sea level (GMSL) by the end of the century is 1.0 to 4.3 feet (Church et al., 2013).

B. High tide flooding will arrive decades ahead of any GMSL rise scenarios (EIA, 2017).

    i. Based on the location of the Honolulu Tide Station, high tide flooding will occur by mid-century and as early as 2028, at least two dozen times per year, at certain locations in the 3.2 sea level rise-exposure area (Fletcher et al., 2012).

C. Modeling results, as mapped in the Hawai'i Sea Level Rise Viewer, reveal a critical elevation in GMSL rise between 2.0 and 3.2 feet relative to mean higher high water.

i. This is a critical range of rising sea level where there is rapid increase in the amount of land exposed to hazards on low-lying coastal plains, such as characterize the urbanized south shore of O'ahu.

ii. This is a dangerous elevation range, where reacting after the fact to establish adaption strategies is likely to be less successful and costlier than taking proactive measures.

Based on the collective findings of the report and previous scientific works, the CCH Climate Change Commission recommended the following:

- The research finds that it reasonable to set as a planning benchmark up to 3.2 feet (~1 m; 3.2SLR-XA) of GMSL rise by mid-century as it will be an area experiencing chronic high tide flooding.
- The research finds that it is reasonable to set as a planning benchmark up to 6 feet (1.8m; 6SLR) of GMSL in the later decades of the century, especially for critical infrastructure with long expected lifespans and low risk tolerance, as it will be an area experiencing chronic high tide flooding.
- That all City departments and agencies be directed to use the 2017 Sea Level Rise Report, the 3.2SLR-XA, and the 6SLR in their plans programs, policies, and capital improvement decisions, to mitigate impacts to infrastructure and critical facilities related to sea level rise.

Resiliency in withstanding future conditions, higher groundwater tables, and sea level rise will be appropriately addressed during the design phase in accordance with the standards that are in effect. New standards that will be developed in the future to address climate changes will affect the planning and design of future improvement projects.

3.1.1.1 POTENTIAL IMPACTS

No significant impacts on climate in the project area are anticipated as a result of construction or operation regardless of the option selected. State and City policies and regulations on climate adaptation are still in the process of development. The planning for long-range improvements to the conveyance facilities will need to appropriately address these issues and will be further explored in the DEIS.

CCH recognizes the threat of climate change and the importance of planning for its effects. Full support and cooperation will be provided towards the ongoing efforts to establish State-wide policies and regulations. ENV intends to work with other CCH and State agencies in the future as the guidance and policies to address climate change are further developed. Required adaptation measures (floodproofing, elevation of critical facilities, etc.) will be identified during the planning and design phase and incorporated into project designs as appropriate.

3.2 TOPOGRAPHY, GEOLOGY, AND SOILS

3.2.1 Existing Setting

The island of Oʻahu was created by two volcanoes, the Koʻolau and the Waiʻanae. The Koʻolau volcano is the younger of the two and located on the eastern side of the island and the Waiʻanae volcano is on the western side of the island. The Honouliuli sewer basin is bounded by the Schofield Plateau to the north, Koʻolau Range to the east, ʻEwa Plains and Pearl Harbor to the south and the Waiʻanae Range to the west. The Schofield Plateau was formed as lava from the Koʻolau volcano flowed to the Waiʻanae Range, which created a flat area between the two mountain ranges. Figure 3-2 shows the geological features in the sewer basin.

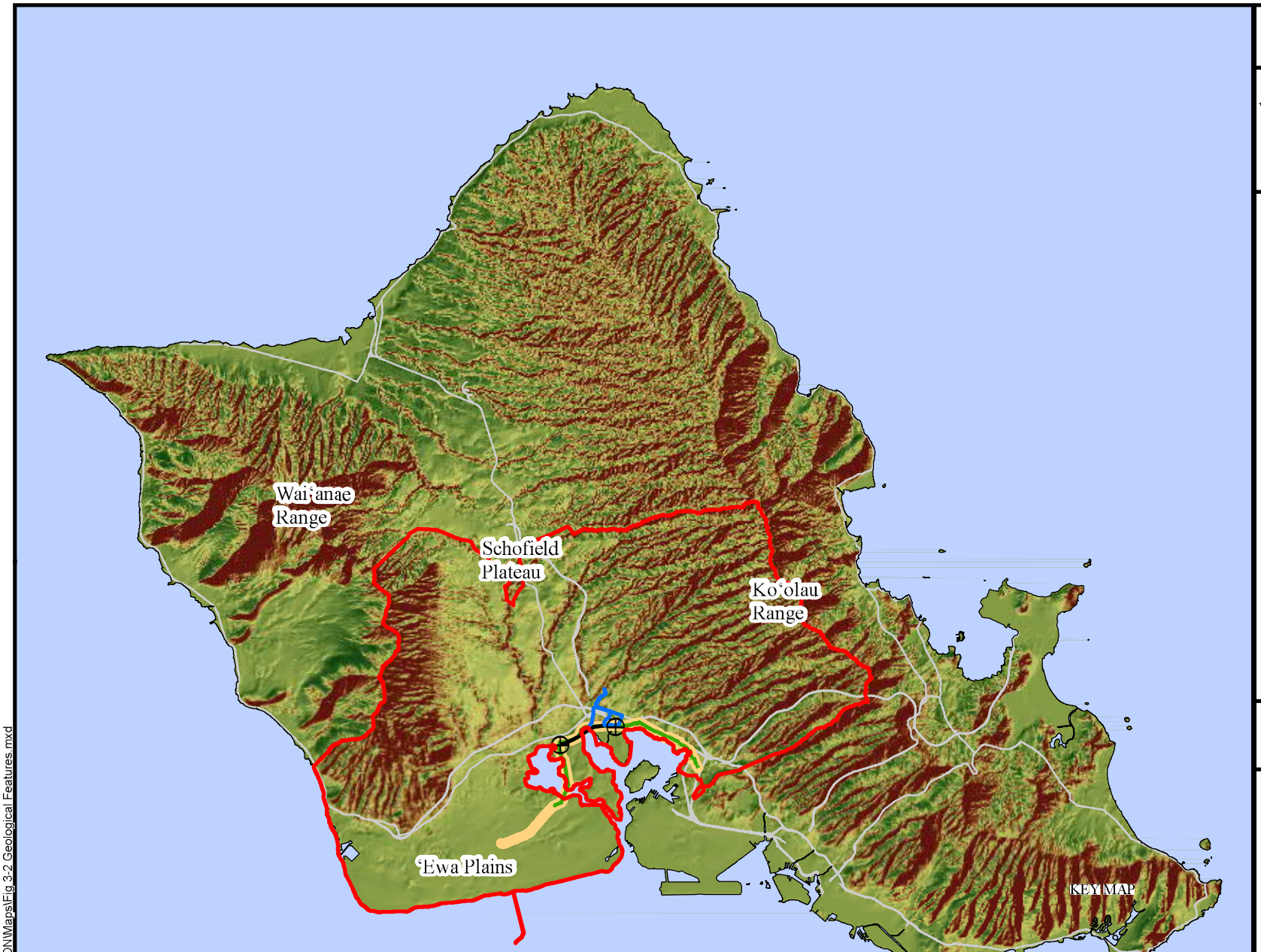
Topography within the sewer basin is gently sloping and relatively flat; however, there are steep areas near the mountain ranges. Elevation in the sewer basin ranges from zero to approximately 3,000 feet mean sea level (MSL). The majority of the project area facilities are located between 0 and 100 feet MSL with a small area between 100 and 200 feet MSL. The general topography within the sewer basin is shown in Figure 3-3.

According to the Soil Survey of Islands of Kauaʻi, Oʻahu, Maui, Molokaʻi, and Lanaʻi, State of Hawaiʻi (1972), there are seven soil associations on Oʻahu, five of which are present in the project area (Figure 3-4):

- Lualualei-Fill land-ʼEwa: Deep, nearly level to moderately sloping, well-drained soils that have a fine textured or moderately fine textured subsoil or underlying material, and areas of fill land; on coastal plains
- Helemano-Wahiawā: Deep, nearly level to moderately sloping, well-drained soils that have a fine-textured subsoil; on uplands
- Tropohumults-Dystrandepts: Gently sloping to very steep, well-drained soils that are underlain by soft weathered rock, volcanic ash, or colluvium; on narrow ridges and side slopes.
- Rough mountainous land-Kapaʻa association: Very steep land broken by numerous drainage ways and deep, well-drained soils that have a fine textured or moderately fine textured subsoil; in gulches and on narrow ridges
- Rock land-Stony Steep Land: Steep to precipitous, well-drained to excessively drained, rocky and stony land.

3.2.2 Potential Impacts

Regardless of the option selected, construction of the project is not anticipated to significantly impact the topography or geology within the limit of work. The No-Tunnel option would encounter variations in topography and temporary disturbance would be anticipated due to open trench excavation. Similarly, temporary disturbance would result from excavation of the entry and exit shafts for the tunneling associated with the Hybrid option. Major permanent



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli Sewer Basin
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Major Roadways

0 5
Miles
1 inch = 5 miles

FIGURE 3-2

GEOLOGICAL FEATURES

March 2019

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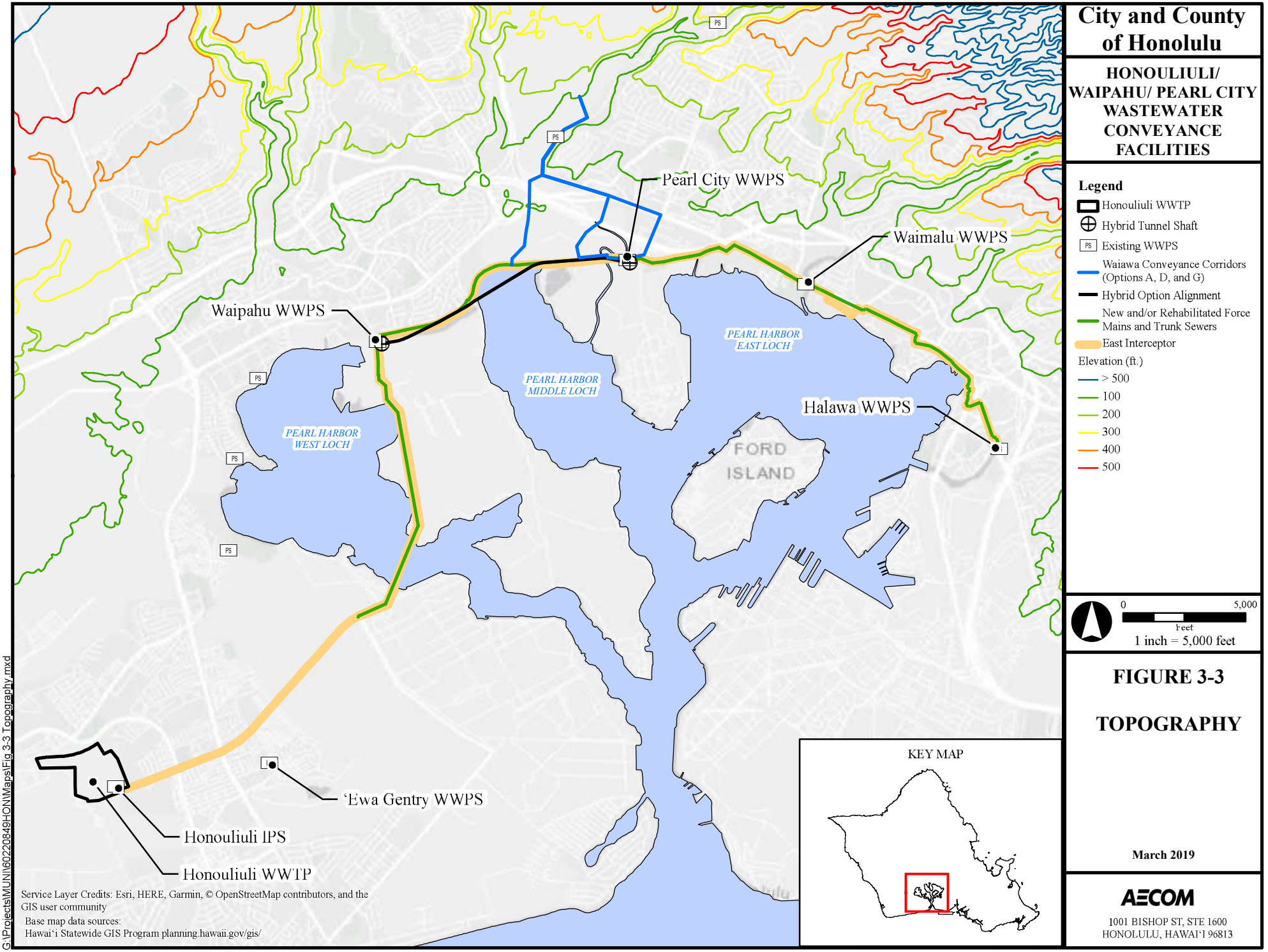
Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

G:\Projects\MUNI\60220849HON\Maps\Fig 3-2 Geological Features.mxd



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- Hybrid Tunnel Shaft
- PS Existing WWPS
- Waiawa Conveyance Corridors (Options A, D, and G)
- Hybrid Option Alignment
- New and/or Rehabilitated Force Mains and Trunk Sewers
- East Interceptor

Elevation (ft.)

- > 500
- 100
- 200
- 300
- 400
- 500

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-3

TOPOGRAPHY

March 2019

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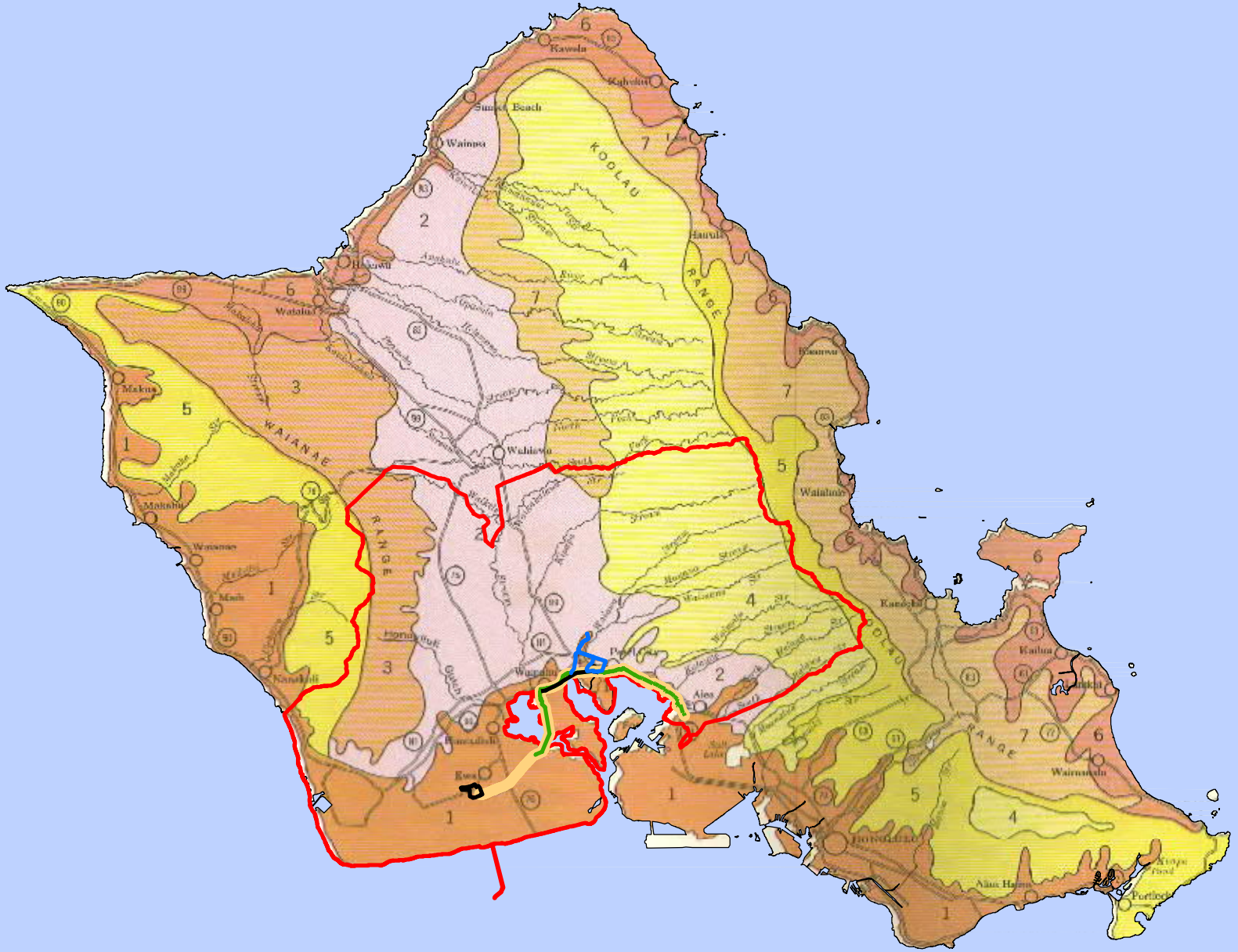
Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

G:\Projects\MUNI\60220849\HONIMaps\Fig 3-3 Topography.mxd



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli Sewer Basin
- Honouliuli WWTP
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers

1. Lualualei-Fill land-'Ewa
2. Helemano-Wahiawā
3. Tropohumults-Dystrandepts
4. Rough Mountainous land-Kapa'a
5. Rock land-Stony Steep Land
6. Ka'ena-Waialua
7. Loleka'a-Waikāne

0 5
Miles
1 inch = 5 miles

FIGURE 3-4

SOIL ASSOCIATIONS

March 2019

Source: Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai. State of Hawai'i (1972)

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G:\Projects\MUNI\60220849\HON\Maps\Fig 3-4 Soil Associations.mxd

modifications to the topography above the sewer line alignments for either option would not be anticipated and grade levels would be restored.

For both conveyance options, some impacts to the soils in the project area, including soil loss, are expected during construction. Open trench excavation would be necessary for construction of the No-Tunnel option, as well as the sewer connections associated with the Hybrid option, and both would result in removal of soil. Depending on the option selected, construction may include the removal of soils and tunnel muck in the area.

The primary objective of each option is to rehabilitate existing sewers and improve the carrying capacity of the existing Honouliuli wastewater system; thereby minimizing SSOs and contamination of soils in the project area. Soils stability inspections near the proposed facilities would need to be conducted periodically to make sure there are no issues with the foundation of the facilities.

3.3 HYDROLOGY

3.3.1 Groundwater

3.3.1.1 EXISTING SETTING

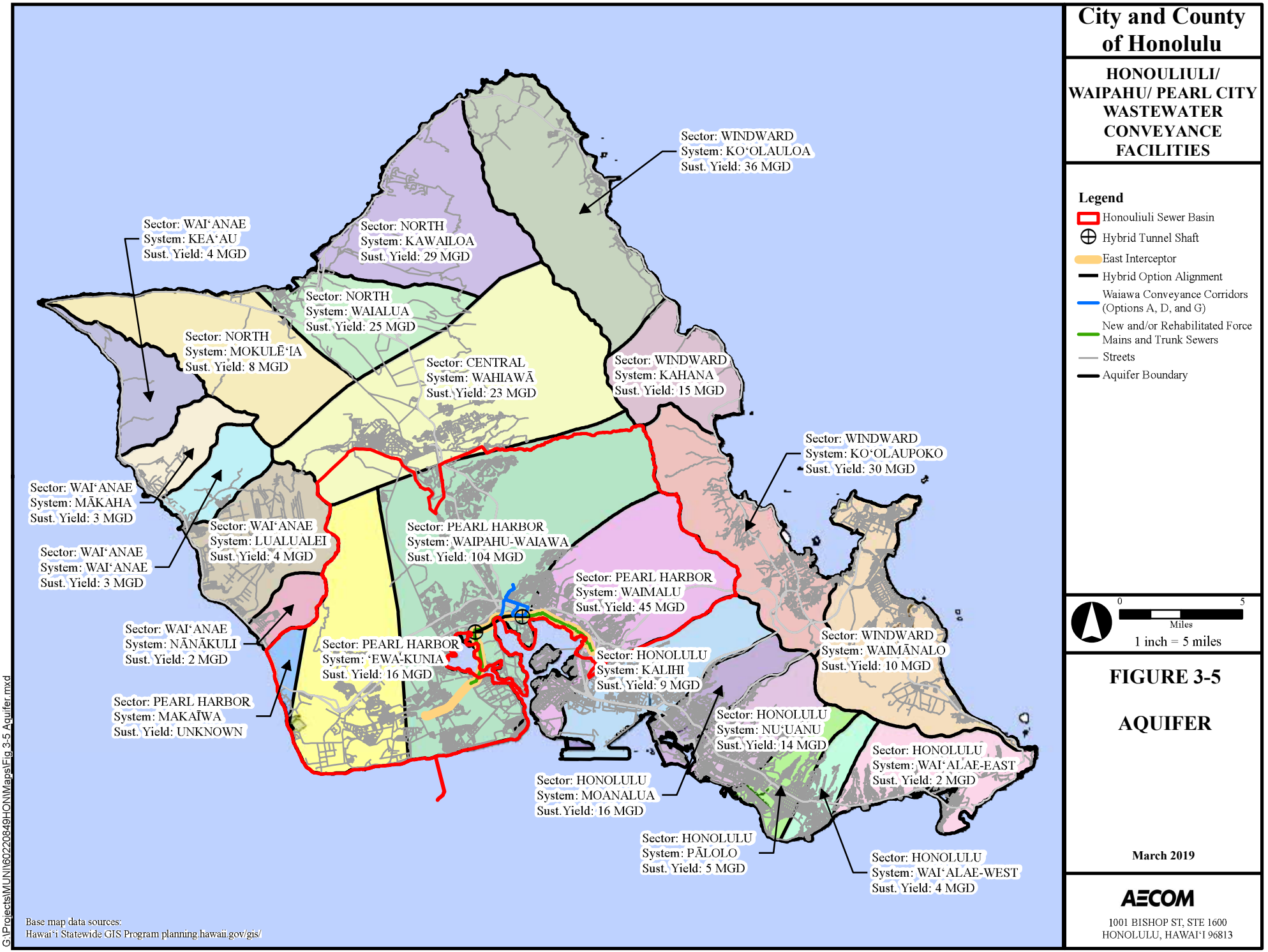
The Honouliuli sewer basin overlays the complete Pearl Harbor aquifer sector (with an additional small section of the sewer basin extending into the Central aquifer sector). The Pearl Harbor aquifer is divided into four systems: Maka‘iwa, ‘Ewa-Kunia, Waipahu-Waiawa, and Waimalu, with a total sustainable yield of approximately 165 mgd (Figure 3-5) (State of Hawai‘i Office of Planning, 2010). Additional information on the existing groundwater and geotechnical conditions will be provided in the forthcoming DEIS.

3.3.1.2 POTENTIAL IMPACTS

For both conveyance options, construction activities including excavation, trenching, drilling and tunneling would need to be designed to avoid adverse impacts to groundwater. This would include designs to avoid affecting existing sewer lines or force mains, and plans to prevent the accidental release of construction equipment fluids (e.g., oil and grease) that could contaminate groundwater. For the Hybrid option, drilling and tunneling could alter groundwater dynamics and quality in the event that tunneling encounters artesian water currently flowing to the surface. Similarly, adjacent streams, springs and wetlands could experience dewatering if the groundwater supply is interrupted.

Regardless of the option selected, the proposed project is being implemented to reduce the potential of SSOs by increasing capacity to the existing conveyance and treatment system for current and future needs. Improvements to the existing system would reduce the likelihood of breakage in sewerlines or force mains which could contaminate groundwater.

The increase in capacity could also enable and/or encourage currently unsewered areas to connect to a centralized system. This could result in a reduction to



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli Sewer Basin
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Streets
- Aquifer Boundary

0 5
Miles
1 inch = 5 miles

FIGURE 3-5

AQUIFER

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localized groundwater recharge in areas that currently have on-site wastewater treatment systems.

3.3.2 Surface Water

3.3.2.1 EXISTING SETTING

A combination of perennial and intermittent streams, as well as several springs and small dry gulches discharge into Pearl Harbor. There are eight perennial streams in the project area (Hālawa, ʻAiea, Kalauao, Waimalu, Waiawa, Waikele, Kapakahi, and Honouliuli) that discharge into Pearl Harbor. Table 3-1 lists the streams in the project area, if the stream is considered navigable, whether the stream is impaired (waterbodies that are not expected to meet State Water Quality Standards), and the confluence with Pearl Harbor.

Table 3-1. Streams Located in the Project Area

Stream	Navigable Waters[1]	Impaired Waterway[2]	Pearl Harbor Confluence
Hālawa	Yes	Yes	East Loch
ʻAiea	Yes	Yes	East Loch
Kalauao	No	Yes	East Loch
Waimalu	No	Yes	East Loch
Waiawa	No	Yes	Middle Loch
Waikele	No	Yes	West Loch
Kapakahi	No	Yes	West Loch
Honouliuli	No	No	West Loch

1 Navigable Waters as defined by the U.S. Coast Guard as waters subject to tidal influence and non-tidal streams that carry commercial traffic

2 State Department of Health 303(d) List of Impaired Waters; listed in 2018 State of Hawaiʻi Water Quality Monitoring and Assessment Report, Hawaiʻi DOH.

Inland streams in Hawaiʻi have two classifications for water use. According to Administrative Rules Title 11, Chapter 54 Water Quality Standards (HAR §11-54-3), the objective for Class 1 waters is "…that these waters remain in their natural state as nearly as possible with an absolute minimum of pollution from any human-caused source." The objective for 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." Class 1 streams are typically found in undeveloped areas near the Koʻolau summits; there are no Class 1 streams located within the project area.

3.3.2.2 POTENTIAL IMPACTS

Regardless of the option selected, there is a potential for surface water impacts to occur during construction. Excavation and land disturbance may contribute to sedimentation and runoff into nearby streams, particularly during rainfall events,

and tunneling could result in potential draining of or interruptions to surface water supplies. Additional assessment of potential impacts will be conducted as part of the DEIS.

3.3.3 Coastal Waters

3.3.3.1 EXISTING SETTING

Pearl Harbor is a natural estuary formed by successive periods of flooding during glacial epochs. It is divided into three main embayments or lochs (West, Middle, and East Loch) that join to form a single channel (Pearl Harbor Entrance Channel) that opens to the sea. It is recognized as Hawai'i's largest natural estuary and possesses a rich diversity of salt-tolerant aquatic species, many of which are important to recreational and subsistence fisheries. The waters of Pearl Harbor are considered an inland estuary and classified as Class 2 waters (HAR §11-54-6).

The open coastal waters in the project area extend from Ko 'Olina to outside the Pearl Harbor Entrance Channel (West Māmala Bay), and are classified as Class A. According to HAR §11-54-3, the objective for Class A marine waters is "…that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class."

3.3.3.2 POTENTIAL IMPACTS

If the Hybrid option is implemented, portions of the alignment could require tunneling beneath Pearl Harbor. In addition, during construction regardless of the option selected, there is a possibility of stormwater runoff carrying sediments and construction related pollutants into Pearl Harbor; however, construction controls required by NPDES permits will reduce this risk.

Operation of the proposed project is expected to result in a positive impact to coastal water by minimizing the potential for SSOs from the existing conveyance. The increase in the capacity would allow the connection of currently unsewered areas on individual wastewater systems into the CCH wastewater system; therefore reducing the chances of contamination to coastal waters.

3.4 NATURAL HAZARDS

3.4.1 Earthquakes

3.4.1.1 EXISTING ENVIRONMENT

O'ahu does not have any active volcanoes; therefore, the island is not subject to significant earthquakes from volcanic activity. However, earthquakes are not uncommon in Hawai'i. Most earthquakes in the Hawaiian Islands are caused by volcanic activity on the island of Hawai'i, the Big Island. Earthquakes that reach

O‘ahu are generally not strong and cause little or no damage. One of the larger and more recent earthquakes occurred offshore of Puakō, Hawai‘i in 2006. The earthquake measured 6.7 on the Richter scale and caused minor damages on the island of O‘ahu.

3.4.1.2 POTENTIAL IMPACTS

Regardless of the option selected, all applicable Federal, State and CCH requirements will be implemented to minimize impacts during the construction of the proposed project. In addition, as a long-term measure, the proposed wastewater management facilities would be designed and constructed to meet all applicable International Building Code (IBC) and Federal, State, and CCH requirements.

3.4.2 Tsunamis

3.4.2.1 EXISTING ENVIRONMENT

Tsunamis are a series of waves that are created by sea floor movements caused by earthquakes, landslides, or volcanic eruptions. The Hawaiian Islands are always at risk for tsunamis since the islands are susceptible to tsunamis generated from earthquake and volcanic activity from the area bordering the Pacific Ocean (also known as the “Ring of Fire”). The last major tsunami was the 1960 Hilo tsunami. Although this particular tsunami did not affect O‘ahu, tsunamis can be a hazard on O‘ahu.

The CCH Department of Emergency Management (DEM) has developed maps that depict tsunami evacuation zones for public safety as part of its emergency management program. Portions of the project area are located within these evacuation zones, including the following existing wastewater facilities:

- Waimalu WWPS
- Waipahu WWPS
- Hālawa FM
- Pearl City FM
- Pearl City Trunk Sewer
- Waimalu FM
- Waimalu Trunk Sewer
- Waipahu FM

The following proposed facilities are also located within tsunami evacuation zones:

- Pearl City FM Rehabilitation
- Pearl City FM (New)
- Waipahu FM Rehabilitation
- Waipahu FM (New)
- Waimalu FM (New)
- Pearl City-Waipahu Trunk Sewer
- Waimalu Trunk Sewers – Rehabilitation/Replacement
- Waimalu WWPS – Reconstruct/Replace
- Waipahu WWPS – Rehabilitation/Upgrade

3.4.2.2 POTENTIAL IMPACTS

Regardless of the option selected, in the event that a tsunami alert is given, construction equipment would be secured and all applicable Federal State and CCH requirements would be implemented to reduce potential damage. In addition, as a long-term measure, the wastewater management facilities would be designed and constructed to meet all applicable IBC and Federal, State and CCH requirements to help protect against potential structural impacts resulting from a tsunami.

3.4.3 Hurricanes

3.4.3.1 EXISTING ENVIRONMENT

Hurricanes are storm systems that have sustained winds of 74 miles per hour or greater that form in warm tropical waters near the equator. In Hawai‘i, hurricane season runs from June 1st to November 30th. The last hurricane to impact the state was Lane in August 2018. While Hurricane Lane did not make landfall, the storm resulted in extensive flooding, landslides, and road closures on the island of Hawai‘i. Maui and Moloka‘i were also impacted, while Kaua‘i and O‘ahu were not as greatly affected.

3.4.3.2 POTENTIAL IMPACTS

Regardless of the option selected, construction equipment will be secured and all applicable Federal, State and CCH requirements will be implemented to reduce potential damage. In addition, as a long-term measure, the wastewater management facilities would be designed and constructed to meet all applicable IBC and Federal, State, and CCH requirements to help protect against potential structural impacts resulting from a hurricane.

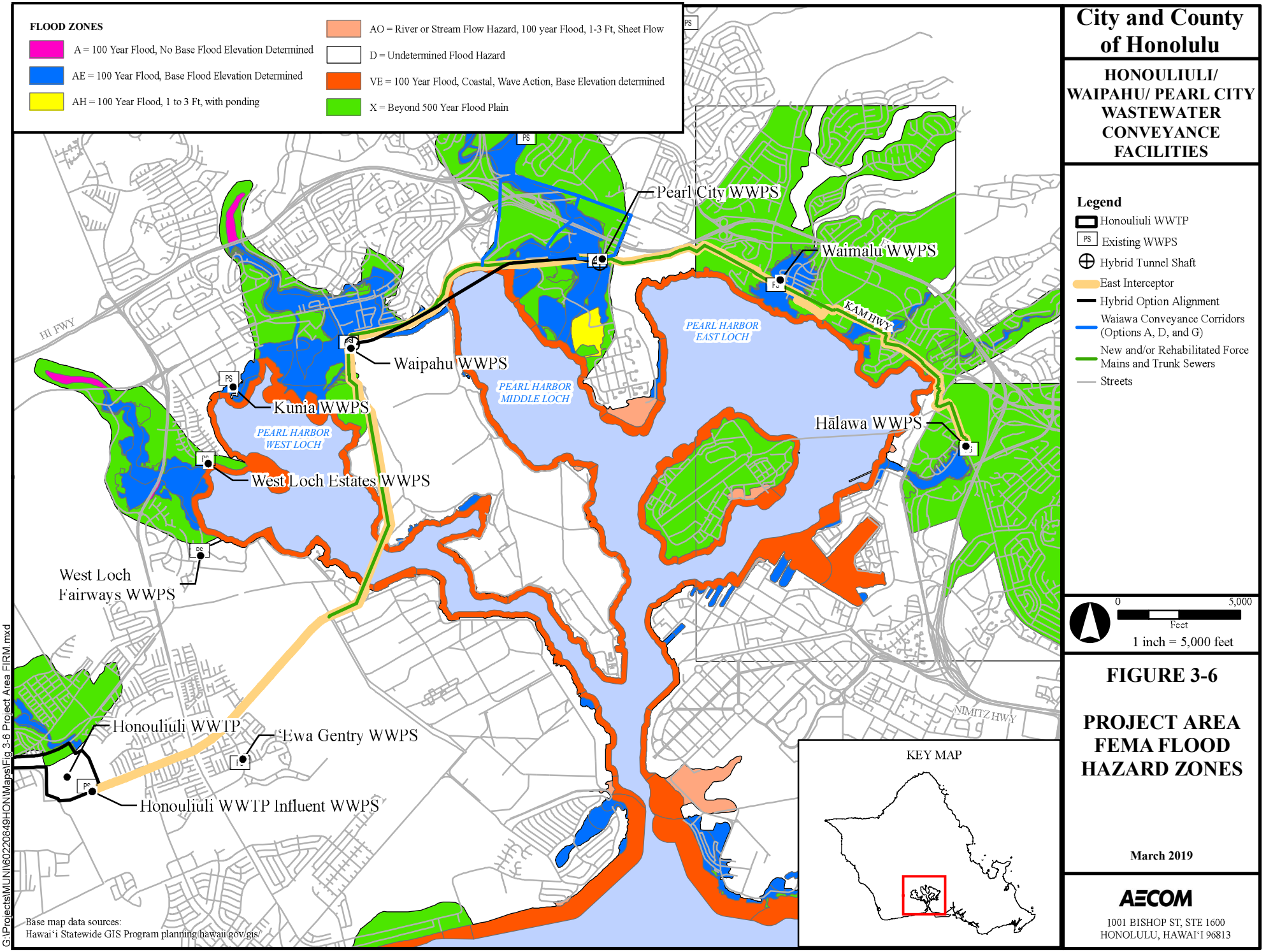
3.4.4 Flood Hazard

3.4.4.1 EXISTING ENVIRONMENT

The Honouliuli sewer basin is located along the southwestern coastline on the island of O‘ahu and includes several streams. The CCH DPP has digitized the Federal Emergency Management Agency’s (FEMA’s) flood insurance rate maps into a GIS flood zone layer. According to the digitized flood zone layer, the only existing above-grade facility in the project area that is located in flood prone areas is Pearl City WWPS. The Pearl City WWPS is located adjacent to Waiawa Stream and in Zone AE, a 100-year flood zone with base elevation determined. Figure 3-6 shows the flood prone areas in the project area.

3.4.4.2 POTENTIAL IMPACTS

The No-Tunnel option involves the relocation and/or rehabilitation of the Pearl City WWPS, which would result in temporary impacts to Flood Zone AE due to required re-grading and stockpiling of excavated materials. The construction access points and staging areas would result in temporary local increases in stormwater runoff to the Flood Zone AE area surrounding the Pearl City WWPS due to a decrease in surface permeability and removal of vegetation. All potential locations in which the



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Streets

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-6

PROJECT AREA FEMA FLOOD HAZARD ZONES

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Pearl City facility could be relocated are partially or completely out of the flood zone. As a result, there could be an overall positive impact on flood hazards since the existing facility currently occupies flood storage area. Replacement locations for the Waipahu WWPS and Waimalu WWPS (see Figure 2-9 and Figure 2-3, respectively) are also located within or partially within a mapped flood zone.

The Hybrid option involves a significant amount of tunneling, which would be completed underground with the exception of the entry and exit shafts. Depending on the location and finish grade of the entry and exit shafts, this construction activity could temporarily impact flood zones. The Hybrid option also would involve the demolition of the Pearl City WWPS, which would eliminate a structure that is currently located within a flood zone. These potential impacts will be evaluated further in the DEIS.

3.5 BIOLOGICAL RESOURCES

3.5.1 Flora

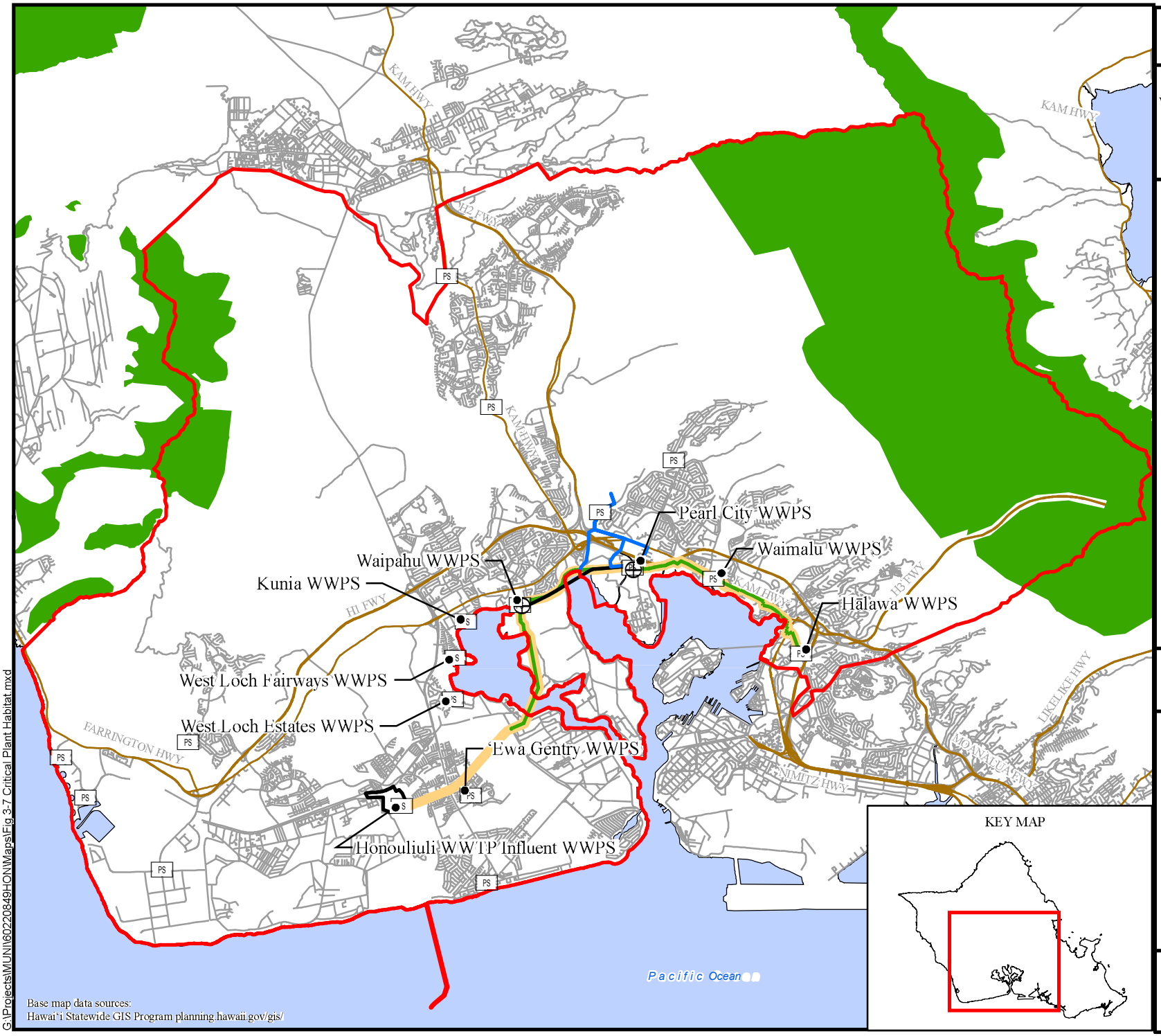
3.5.1.1 EXISTING SETTING

The entire East Interceptor System area has been intensively disturbed by a myriad of activities, notably agriculture and urbanization. Previous studies, including the West Māmala Bay Facilities Plan, 2001, determined that the developed areas within the project area are landscaped with plants typically found in urban areas; natural vegetation found in the undeveloped lower elevations include kiawe (*Prosopis pallida*), koa haole (*Leucaena leucocephala*), finger grass (*Chloris virgata*), and pili grass (*Heterogpogon contortus*) and higher elevation scrub forest vegetation includes guava (*Psidium guajava*), koa haole, lantana (*Lantana camara*), Spanish clover (*Desmodium incanum*) and Bermuda grass (*Cynodon dactylon*). According to the Threatened and Endangered Plants layer from the Hawai‘i Statewide GIS Program, there are no known threatened or endangered plants in the project area. Critical plant habitats are located in the sewer basin. However, as indicated on Figure 3-7, these critical habitats are located in undeveloped areas of the sewer basin and not in close proximity to any of the proposed activities. An updated assessment of the protected biological resources (including habitats/wetlands) will be conducted as part of the DEIS. This will include a literature review and coordination with resource agencies for the presence of state and federally protected species.

National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, Pacific Islands Regional Office has indicated in the past that there may be seagrass in the marine nearshore environment. Seagrass provides an important habitat for marine animals and can help stabilize sediment. The presence of seagrass in these areas will be further investigated in the upcoming DEIS.

3.5.1.2 POTENTIAL IMPACTS

Regardless of the option selected, the proposed routes are generally located in previously disturbed and /or developed areas. The open excavation areas and the tunnel shafts would be located at multiple surface locations and the



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli Sewer Basin
- Honouliuli WWTP
- PS Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Critical Plant Habitat
- Major Roadways
- Streets

0 12,000 Feet

1 inch = 12,000 feet

FIGURE 3-7

CRITICAL PLANT HABITAT

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Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/

G:\Projects\MUNI\60220849\HON\Maps\Fig 3-7 Critical Plant Habitat.mxd

construction associated with these may impact flora in the area. However, all disturbed vegetation would be restored as appropriate. The proposed above ground, permanent wastewater management facilities are also expected to be located within previously disturbed areas, and are likely to be landscaped following construction. An assessment of potential impacts to protected flora resources will be conducted as part of the DEIS. This will include a literature review and coordination with resource agencies for the presence of state and federally protected species.

3.5.2 Fauna

3.5.2.1 EXISTING SETTING

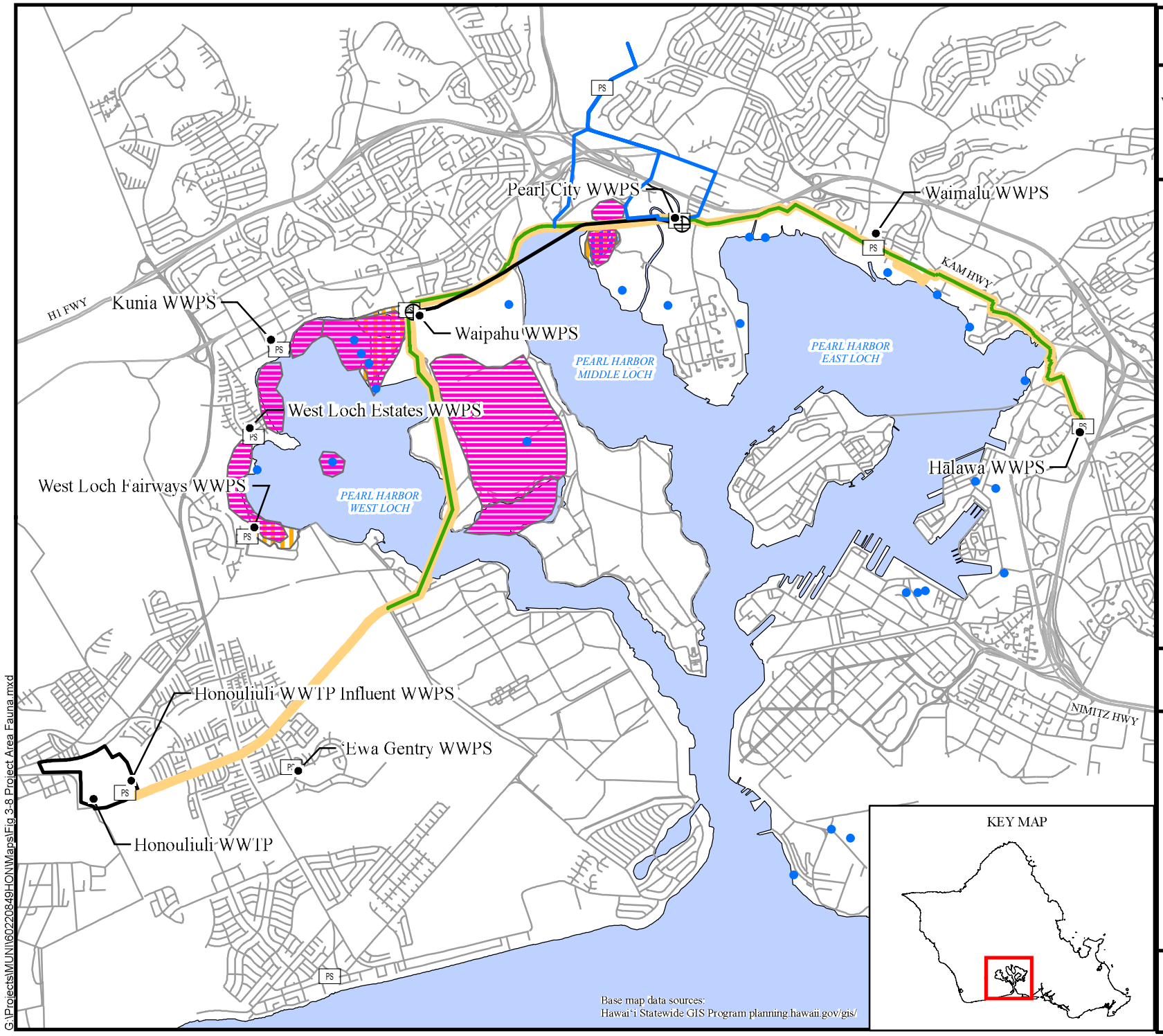
Based on Bird Habitat and Critical Habitat layers from the Hawai'i Statewide GIS Program, there are numerous critical habitats, water bird habitats, fish ponds and reserves located in the Honouliuli sewer basin. According to GIS information from the HOLIS and DBEDT website, the wildlife reserves in the project area include: the 'Aiea Bay State Recreation Area, the Pearl Harbor National Wildlife Refuge (Middle Loch), the Pouhala Marsh Water Bird Sanctuary and the Pearl Harbor National Wildlife Refuge (West Loch). Several of the water bird habitats, fish ponds and reserves coincide with each other (Figure 3-8). The forthcoming DEIS will further investigate whether threatened or endangered species are likely to be present in the project area.

According to the Department of Aquatic Resources, the East Interceptor System project area traverses a number of potentially sensitive habitats that encompass a broad spectrum of aquatic environments including streams, Pearl Harbor and the shoreline area in 'Ewa. Pearl Harbor is a large, sheltered nursery area for a number of species of marine fish.

As noted in the West Māmala Bay Facilities Plan, feral mammals found in the sewer basin include mongoose, mice, rats, wild pigs, dogs and cats. The report states that lower elevations provide natural habitat and feeding areas for cardinals (*Cardinalis cardinalis*), doves (*Columba livia*), mynas (*Acridotheres tristis*), ricebirds (*Lonchura oryzivora*), sparrows (*Passer domesticus*) and white-eyes (*Zosterops japonicas*), while the migratory golden plover (*Pluvialis fulva*), a common winter resident, can be found foraging in lawns and golf courses in urbanized areas.

3.5.2.2 POTENTIAL IMPACTS

The proposed routes for the conveyance facilities are anticipated to have minimal potential short- and long-term impacts to fauna in the project area, including within critical habitats, fish ponds, and reserves. Nonetheless, open excavation areas and construction of tunnel shafts and WWPSs may temporarily affect wildlife habitat. All work would be conducted in accordance with Federal, State and CCH regulatory requirements including, but not limited to the Migratory Bird Act and the Endangered Species Act. Overall, it is expected that there would be minimal construction impacts to fauna within the project area. In addition, no long-term impacts to fauna are anticipated from operation and maintenance regardless of the option implemented. An assessment of potential impacts to protected fauna



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- PS Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Waterbird Habitat
- Wildlife Reserves
- Fishponds
- Streets

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-8

PROJECT AREA FAUNA

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resources will be conducted as part of the DEIS. This will include a literature review and coordination with resource agencies for the presence of state and federally protected species.

3.5.3 Wetlands

3.5.3.1 EXISTING SETTING

The USACE has regulatory jurisdiction under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act and reviews and approves construction activities on or near wetlands. According to the USACE *Wetlands Delineation Manual* (1987), wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The types of wetlands in the project area include estuarine and marine deepwater, estuarine and marine wetland, freshwater emergent wetland, freshwater pond and freshwater forested/shrub wetland. Figure 3-9 illustrates wetlands within the project area as identified by the U.S. Fish and Wildlife Survey's (USFWS) National Wetland Inventory (NWI).

Nearly the entire margin of Pearl Harbor is identified as a wetland under the NWI. The largest and most biologically significant of the Pearl Harbor wetlands is the 70-acre Pouhala Marsh, which lies at the West Loch between the terminal reaches of Waikele and Kapakahi streams. Additional significant wetland habitats adjacent to the areas affected by the proposed construction include the Honouliuli Unit and the Waiawa Unit of the Pearl Harbor National Wildlife Refuge.

3.5.3.2 POTENTIAL IMPACTS

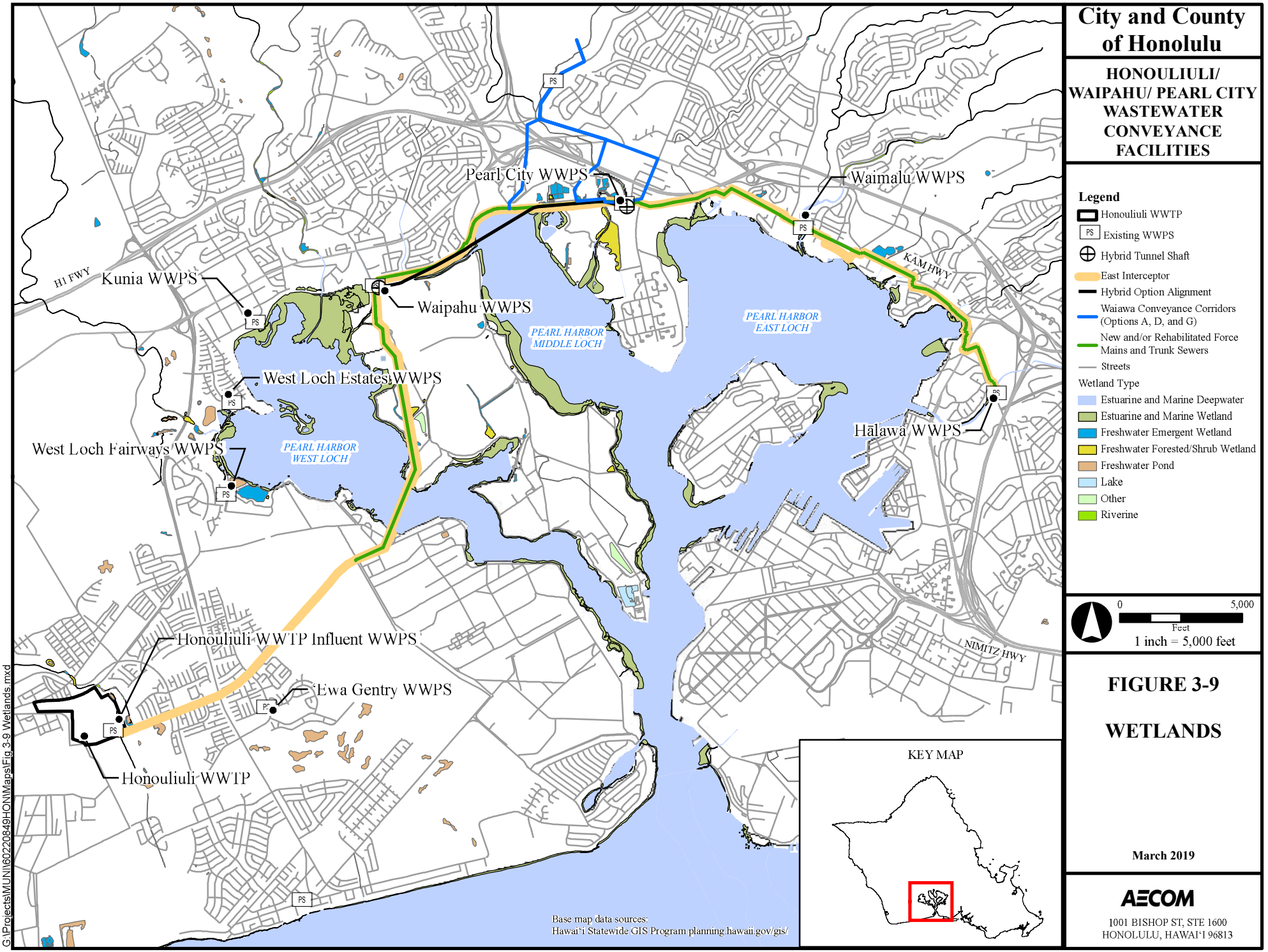
The proposed routes for the conveyance facilities are anticipated to have minimal potential short- and long-term impacts to wetlands in the project area. The project will be designed to comply with regulatory requirements and necessary permits will be obtained. The DEIS will further assess potential impacts to wetlands.

3.6 ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES

3.6.1 Archaeological and Historic Resources

3.6.1.1 EXISTING SETTING

Based on previously conducted archaeological research, the margins of Pearl Harbor were highly productive lands, owing to the availability of marine resources, riparian resources, well-watered bottom lands for *lo'i kalo* (taro field) cultivation and other forms of agriculture, and the generally sheltered conditions. These lands responded rapidly to human endeavor, and the many fishponds, irrigation ditches, and pond-fields of the region supported a substantial pre-contact and early post-contact population. The richness of the margins of Pearl Harbor also attracted later settlement by ethnic groups throughout the early post-contact period.



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- PS Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Streets

Wetland Type

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-9

WETLANDS

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G:\Projects\MUNI\60220849\HON\Maps\Fig 3-9 Wetlands.mxd

Since the Pearl Harbor area was developed prior to the establishment of legislation requiring cultural resource management efforts, there have been relatively few archaeological studies conducted in the vicinity of the current study area. The archaeological studies that have been conducted in the vicinity generally lack significant findings, which have been attributed to extensive disturbance from prior development activities. However, these previous archaeological studies were generally conducted on previously developed parcels adjacent to Kamehameha Highway, with little or no subsurface testing undertaken.

Intact subsurface cultural deposits, features, and/or human skeletal remains, relating to both pre-contact and early post-contact traditional Hawaiian habitation and agriculture, may be encountered beneath fill sediments associated with the construction of Kamehameha Highway and development of the surrounding area. Traditional Hawaiian cultural deposits or features could include: pond and *loʻi* (irrigated terrace) sediments; *kuāuna* (embankments) that served as boundaries of ponds or *loʻi*; and buried land surfaces containing midden, artifacts, or hearth features. The likelihood of such finds is suggested to be higher in the vicinity of known Land Commission Awards, and in close proximity to streams, springs, and the coast. Historic cultural resources, associated with post-contact habitation, commercial agricultural interests, or military development, may also be encountered throughout the study area. Post-contact cultural deposits or features could include: isolated artifacts; trash pits; privies; and building foundations or other subsurface structural features.

3.6.1.2 Potential Impacts

Neither of the conveyance options is believed to involve construction activities in the immediate vicinity of previously identified historical or archaeological sites listed or determined as eligible on the State or National Register of Historic Sites. The majority of the construction would be along or near existing transportation corridors. Construction may require excavation of the affected areas to a sufficient width and depth which may potentially encounter subsurface archaeological sites, especially in previously undeveloped or less developed areas. Potential impacts to any archaeological, cultural, or historic properties that may be affected with the proposed improvements would be addressed by complying with HRS Chapter 6E, Historic Preservation.

3.6.2 Cultural Resources

3.6.2.1 Existing Setting

The *ahupuaʻa* (traditional Hawaiian land divisions) of the ʻEwa District were traditionally known as *momona* (“fat”, “fertile”, “rich”) lands in reference to the well-watered bottom lands at the mouths of the many streams suitable for ponded taro field (*loʻi kalo*) cultivation, and for the wealth of marine resources that could be acquired from the many fishponds, fish traps, and the protected waters of the lochs of Pearl Harbor. Other ethnic communities, including Japanese and Filipino, have also developed and maintained their cultural traditions in the sewer basin.

Regardless of the selected option, the majority of the proposed construction would be along or near existing roadway easement and utility corridors, and the vast majority of the East Interceptor System project area has been affected by more than a century of commercial agriculture and urban and suburban development. A relatively small percentage of the sewer basin is undeveloped or under-developed. This history of land use and western patterns of land ownership may have altered or destroyed many of the Native Hawaiian cultural features and cultural practices that once existed.

3.6.2.2 POTENTIAL IMPACTS

It is the policy of the State of Hawai'i under Chapter 343 HRS to require an evaluation of project impacts to cultural practices and cultural features in order to promote and preserve the cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups. Consultations will be conducted during the DEIS to identify whether resources or practices relating to Native Hawaiian or other ethnic practices for subsistence, medicinal, religious and cultural purposes are present or on-going (particularly in less developed portions of the project area).

As part of the DEIS, the Cultural Impact Assessment that was conducted for the East Interceptor project area in 2011 (Cruz et al., 2011) will be supplemented by a Cultural Impact Assessment for the Waiawa area and a discussion of potential impacts to cultural resources will be prepared.

3.7 AIR QUALITY

3.7.1 Existing Setting

The State of Hawai'i DOH, Clean Air Branch (CAB) has four air monitoring stations within, and adjacent to, the Honouliuli sewer basin. The air monitoring stations in the sewer basin are Kapolei, Pearl City, Honolulu, and Sand Island. Sources of air pollution in the sewer basin include industrial activities, vehicular emissions and natural sources (dust and vog). Table 3-2 presents the state and national standards, and Table 3-3 summarizes the air quality data at the four monitoring stations in the year 2015. The data shows that there were no occurrences exceeding the standards in 2015.

3.7.2 Potential Impacts

Regardless of the option selected, short-term impacts to air quality would result from the proposed project either directly or indirectly as a consequence of project construction. Anticipated construction impacts to air quality include, but are not limited to, increases in particulate matter or dust from vehicle movement on the construction site, excavation activities, spoils removal activities and emissions from construction vehicles and equipment. Construction activities shall comply with the HRS, Chapter 342B, Air Pollution Control, the HAR, Title 11, Chapter 60.1, Air Pollution Control and Federal, State and CCH laws and regulations.

Table 3-2. National and State Ambient Air Quality Standards

Air Pollutant	Averaging Time	Standards		
		Hawai'i State Standard	Federal Primary Standard[a]	Federal Secondary Standard[b]
Carbon Monoxide	1-hour	9 ppm	35 ppm	None
	8-hour	4.4 ppm	9 ppm	
Nitrogen Dioxide	1-hour	---	0.100 ppm	---
	Annual	0.04 ppm	0.053 ppm	0.053 ppm
PM_{10}	24-hour	150 µg/m^3	150 µg/m3	---
	Annual[c]	50 µg/m^3	---	---
$PM_{2.5}$	24-hour	---	35 µg/m^3	35 µg/m^3
	Annual		12 µg/m^3	15 µg/m^3
Ozone	8-hour	0.08 ppm	0.070 ppm	0.070 ppm
Sulfur Dioxide	1-hour	---	0.075 ppm	---
	3-hour	0.5 ppm	---	0.5 ppm
	24-hour	0.14 ppm	---	---
	Annual	0.03 ppm	---	---
Lead	Rolling 3-month	1.5 µg/m^3 [d]	0.15 µg/m^3	0.15 µg/m^3
Hydrogen Sulfide	1-hour	0.025 ppm	None	None

Source: State of Hawai'i, Department of Health, State of Hawai'i Annual Summary 2015 Air Quality Data, December 2016.

[a] Primary Standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children and the elderly.

[b] Secondary Standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

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

[d] The state standard is based on calendar quarter.

If the No-Tunnel option is selected fugitive dust would temporarily affect air quality in the vicinity of the open trenching and near the existing facilities. Similarly, localized areas of fugitive dust would also occur at locations where construction shafts are necessary for tunneling activities as part of the Hybrid option. The Hybrid option would likely result in less fugitive dust during construction as a majority of the work requires drilling underground.

A qualitative investigation will be conducted as part of the DEIS to assess the potential long-term impacts on air quality, including potential for odor impacts, from project operations.

Table 3-3. 2015 Air Quality Data at the Air Monitoring Stations

Monitoring Station	Location	Monitoring Objective	Land Use	24-hr PM_{10} ($\mu g/m^3$)	24-hr $PM_{2.5}$ ($\mu g/m^3$)	1-hr CO (ppm)	8-hr CO (ppm)	3-hr SO_2 (ppm)	24-hr SO_2 (ppm)	1-hr NO_2 (ppm)
Kapolei	2052 Lauwiliwili Street	Population Exposure	Suburban	32	17.4	2.4	1.7	0.015	0.004	0.031
Pearl City	860 4th Street	Population Exposure	Urban and Center City	46	14.0	-	-	-	-	-
Honolulu	1250 Punchbowl Street	Population Exposure	Urban and Center City	36	17.3	1.4	1.0	0.007	0.003	-
Sand Island	1039 Sand Island Pkwy	Maximum Concentration (O_3) Transport ($PM_{2.5}$)	Urban and Center City	-	15.7	-	-	-	-	-

Source: State of Hawai'i Annual Summary 2015 Air Quality Data (December 2016)

PM_{10} - Particulate matter that is 10 microns or less in aerodynamic diameter

$PM_{2.5}$ - Particulate matter that is 2.5 microns or less in aerodynamic diameter

3.8 NOISE

3.8.1 Existing Setting

There are currently many sources of noise in the project area associated with vehicular traffic, industrial facilities and residential activities. The State DOH has limits on the level of noise allowed in different zoning districts. Table 3-4 shows the maximum permissible sound levels in Hawai'i. Noise levels shall not exceed the maximum permissible sound levels for more than ten percent of the time within any twenty minute period, at any time except by permit or variance.

Table 3-4. Maximum Permissible Sound Levels in dBA

Zoning Districts	Zoning Equivalent	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Class A	Residential, Conservation, Preservation, Public Space, Open Space, or Similar Type	55	45
Class B	Multi-family Dwellings, Apartment, Business, Commercial, Hotel, Resort, or Similar Type	60	50
Class C	Agriculture, Country, Industrial, or Similar Type	70	70

Source: HAR Title 11, Department of Health, Chapter 46 Community Noise Control

3.8.2 Potential Impacts

Regardless of the option selected, construction activity is expected to generate the most significant source of potential noise impacts associated with the project. The adverse noise impacts resulting from the proposed project may include increased vehicular noise due to additional vehicles traveling to and from the facilities, and increased stationary noise resulting from additional equipment at the facilities. Construction activities would be carried out in accordance with HRS Chapter 342F, Noise Pollution, HAR Title 11, Chapter 46, Community Noise Control and all Federal, State and CCH laws and regulations. Assessments of potential noise impacts associated with the construction and operation of the project will be made.

3.9 TRANSPORTATION

3.9.1 Existing Setting

There are both State and CCH roadways in the vicinity of the project area. Existing State roadways near the project area include Lunalilo Freeway, Salt Lake Boulevard, Kamehameha Highway, Farrington Highway, and Fort Weaver Road. CCH roadways include Lehua Avenue, Waihona Street, Waiawa Road, Ala ʻIke Street, Waipahu Depot Street, Geiger Road, and Iroquois Road. These roadways range in size from one to four lanes in each direction. In addition to these roadways, there are also some dirt roads in the project area.

3.9.2 Potential Impacts

Both the No-Tunnel and Hybrid option would result in construction related impacts to transportation routes. Construction-related vehicles near the work sites would increase and may, in some cases, produce localized traffic delays. There is expected to be increased traffic in localized areas near the tunnel shafts for the Hybrid option during construction where trucks would be required to carry tunnel spoils (or muck) from the construction site to the designated disposal area. Construction vehicles would be used to transport construction equipment and may also add to the congestion. Construction at the entrance shaft near the new Hālawa WWPS, and the associated Hālawa force main, would affect traffic and parking at or near Aloha Stadium. Some parking spaces would be lost during construction. Short-term transportation impacts during construction also include inconvenience to bicyclists, pedestrians, joggers, residents, and businesses.

The DEIS will discuss the effects of construction and operation of the proposed project on transportation and traffic in further detail.

3.10 VISUAL AND AESTHETIC RESOURCES

3.10.1 Existing Setting

Visual and aesthetic resources within the project area include view planes of the Koʻolau and Waiʻanae Ranges, the ocean, and various other natural landmarks. The project area also includes a wide range of buildings, neighborhoods, and public utilities, such as high-rise apartments; single family homes; commercial buildings;

industrial areas; a university campus; agricultural farmland, military property, the Honouliuli WWTP, multiple WWPSs, Aloha Stadium, and HECO power plant. There is a great deal of planned development in the ʻEwa and Kapolei areas; therefore, additional structures are anticipated in the project area.

3.10.2 Potential Impacts

Construction of the proposed conveyance system improvements may have some short term impact on the visual aesthetics in the area. During construction, fencing surrounding construction sites may be provided as needed to provide a visual screen. Any construction impacts regarding visual aesthetics are expected to be short-term and would cease after construction.

Regardless of the option selected, new above grade facilities would be constructed, including the Waimalu and Hālawa WWPSs. The area around the new facilities is likely to be landscaped, and the structures themselves are not expected to significantly impact visual aesthetics in the area. Under the Hybrid option, the Pearl City WWPS would be demolished which would benefit the visual aesthetics. However, a new Waipahu WWPS would be required. Also, the Waiawa Industrial Park WWPS and possibly the Pacific Palisades WWPS would be removed as part of the Waiawa area conveyance improvements.

Anticipated indirect impacts to visual aesthetics are associated with increased capacity in the collection system to allow future developments (residential, commercial, and industrial) in the sewer basin to connect to the existing wastewater system. These future developments are expected to result in a more urbanized look in the area of the East Interceptor System project.

3.11 SOCIOECONOMICS

3.11.1 Existing Setting

Based on U.S. Census data, the estimated population within the Honouliuli sewer basin is over 330,000 (U.S. Census, 2017). The proposed activities span several communities, and portions of the Primary Urban Center, Central Oʻahu, and ʻEwa Development Plan Areas are considered as the social context for this project. Table 3-5 provides population and employment projections for these Development Plan Areas, as prepared by CCH Department of Planning and Permitting (DPP). The projections show that each area will see strong growth through 2035, with the ʻEwa Development Plan Area projected to have the largest increases in both population and employment.

Table 3-5. Population and Employment Projections for the Honouliuli Sewer Basin

Development Plan Area	2000		2010		2020		2030		2035	
	Resident Population	Employment (jobs)	Resident Population	Employment (jobs)	Resident Population	Employment (jobs)	Resident Population	Employment (jobs)	Resident Population	Employment (jobs)
Primary Urban Center	419,333	362,840	418,664	388,084	432,487	408,343	442,994	424,314	447,715	433,339
ʻEwa	68,696	19,938	94,504	46,176	123,101	72,794	151,332	94,091	164,556	103,434
Central Oʻahu	148,208	50,525	158,965	62,615	166,078	72,655	177,029	80,184	181,423	83,586
Total	636,237	433,303	672,133	496,875	721,666	553,792	771,355	598,589	793,694	620,359

Source: City and County of Honolulu Department of Planning and Permitting, Socioeconomic Projections, 2000 to 2035. September 2009.

The majority of the Honouliuli sewer basin lies within an urban or agricultural land district. The main industry sectors of the sewer basin include tourism, military and government, and agriculture.

3.11.2 Potential Impacts

The proposed project would allow the wastewater system to safely and efficiently accommodate projected flows and provide an adequate wastewater system to support the needs of the population and economy in the service area. A socioeconomic impact analysis will be conducted as part of the DEIS that will describe the socioeconomic impacts and mitigation measures associated with the options.

3.12 INFRASTRUCTURE AND UTILITIES

3.12.1 Water

3.12.1.1 EXISTING SETTING

The emergency fire and potable water supply for the island of Oʻahu is provided by the CCH Board of Water Supply (BWS), which is a semi-autonomous agency that constructs, operates, and maintains the pumping stations and associated distribution network throughout the project area. BWS relies solely on groundwater for potable water supply. BWS operates three non-potable water distribution systems, two of which are in the project area (Halawa and ʻEwa). BWS also operates the Honouliuli Water Recycling Facility that recycles wastewater for non-potable uses.

3.12.1.2 POTENTIAL IMPACTS

Construction drawings will be submitted to BWS for review as part of the building permit application process to confirm if there are any conflicts with existing BWS

water infrastructure and the new sewer meets the clearances specified in the BWS standards. The availability of any additional water required during operation would be confirmed during the review and approval of the building permit application. Potential impacts to the BWS water system and appropriate mitigation measures will be included in the DEIS.

3.12.2 Wastewater

3.12.2.1 Existing Setting

The existing wastewater infrastructure in the project area is described in Section 1. Improvement of the existing wastewater collection system is the focus of the ongoing evaluation and the subject of this EISPN. Wastewater is collected throughout the Honouliuli sewer basin and conveyed by gravity sewers and pumping to the Honouliuli WWTP, where it is treated and discharged through the Barbers Point Deep Ocean Outfall, located approximately 1.7 miles offshore at a depth of 200 feet.

3.12.2.2 Potential Impacts

The project would result in short-term impacts to the existing wastewater collection system during construction of the proposed improvements and rehabilitation activities, including potential temporary interruptions to service. Ultimately, implementation of the proposed project would result in rehabilitation of the existing wastewater infrastructure and increase capacity of the Honouliuli East Interceptor System to address future flows through the planning period.

Additional detail regarding potential impacts to the existing wastewater system will be provided in the DEIS.

3.12.3 Solid Waste Disposal

3.12.3.1 Existing Setting

The CCH ENV Refuse Division provides collection, disposal, and recycling services to the island of Oʻahu. Solid waste, excluding construction debris, is transported by the ENV or by private haulers to the HPower waste-to-energy facility; to a recycling center; to a composting center; or directly to the Waimānalo Gulch Landfill in Kahe Valley. Construction debris is transported to the PVT Land Company located in Nānākuli by private haulers.

3.12.3.2 Potential Impacts

During construction, both the No-Tunnel and Hybrid options will have some impact on solid waste disposal within the project area. The quality and quantity of construction-related solid waste to be disposed will be discussed in further detail in the forthcoming DEIS. Coordination with local landfills and recycling centers for the disposal of construction debris and/or hazardous materials may be required. Disposal would be in accordance with appropriate regulations and standards.

The proposed wastewater system additions and modifications are expected to have minimal long-term impact on the solid waste disposal operations within the project area.

3.12.4 Electrical and Communication Services

3.12.4.1 EXISTING SETTING

Hawaiian Electric Company (HECO) supplies electricity to the majority of O'ahu. One of HECO's major facilities, the Waiau Power Plant, is located within the Honouliuli East Interceptor sewer basin (Figure 3-10). Telephone and internet services within the project area are provided by Hawaiian Telcom and Spectrum (Oceanic Time Warner Cable). Spectrum also provides cable services within the project area. These services are transmitted through underground and aerial lines located in the project area.

3.12.4.2 POTENTIAL IMPACTS

Regardless of the option selected, coordination with HECO, Hawaiian Telcom, and Spectrum would be conducted to minimize and/or avoid potential conflicts with any underground and overhead utility lines in the project area. Proposed improvements, including staging areas would be designed to avoid significant impacts to existing electrical and communication lines, or otherwise include appropriate mitigation measures. Construction of the project would require electricity mostly generated by the burning of fossil fuels and imported fuels for powering equipment and vehicles during construction.

The proposed improvement options, including the upgrade, relocation, or construction of wastewater facilities, may require additional electrical power consumption and/or communication services for operation. The need for additional resources and/or services will be analyzed in the DEIS.

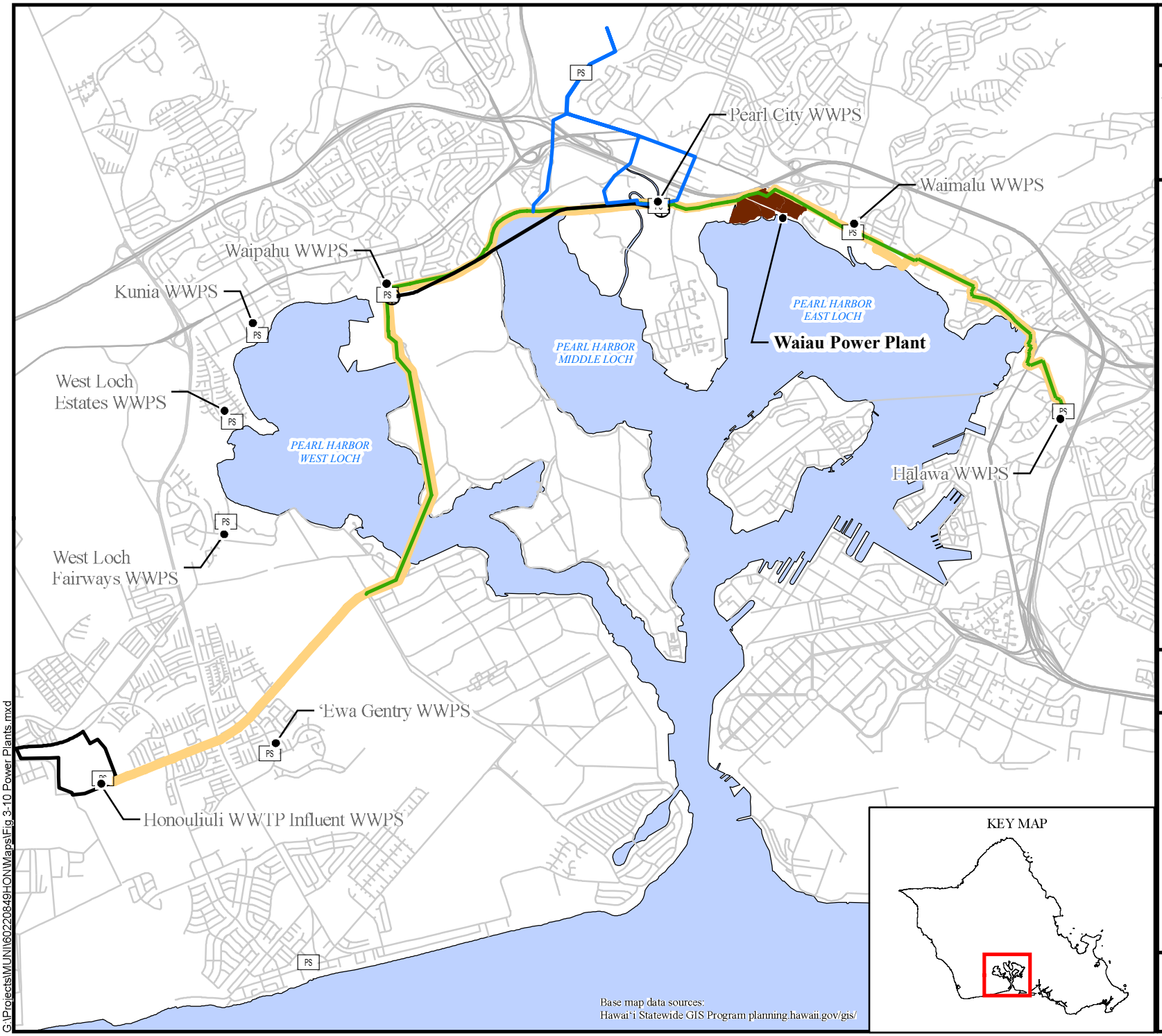
3.12.5 Gas

3.12.5.1 EXISTING SETTING

Hawai'i Gas maintains underground utility gas mains which serve commercial and residential customers in the project area.

3.12.5.2 POTENTIAL IMPACTS

Regardless of the option selected, coordination with Hawai'i Gas during construction would be necessary to minimize and/or avoid potential conflicts with the existing gas utilities. The proposed improvement options including the upgrade, relocation, or construction of wastewater conveyance facilities are not likely to require gas lines for operation.



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- PS Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Power Plants
- Streets

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-10

POWER PLANTS

March 2019

AECOM
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3.13 PUBLIC SERVICES AND FACILITIES

3.13.1 Police and Fire Protection Services

3.13.1.1 EXISTING SETTING

The Honolulu Police Department (HPD) and Honolulu Fire Department (HFD) provide emergency services to the island of O'ahu. The HPD has divided the island into eight patrol districts with five district stations. The Pearl City and Kapolei district stations are located within the project area, and the Honolulu Police Training Academy is located south of the Waipahu WWPS.

3.13.1.2 POTENTIAL IMPACTS

Coordination with the HPD and/or HFD during construction would be necessary to manage traffic congestion and promote public safety. As noted above, the Honolulu Police Training Academy is located south of the Waipahu WWPS, where work is proposed as part of the Proposed Action. Coordination with the HFD for the safe design of new or upgraded structures would also be necessary. Construction operations that require HPD or HFD involvement will be assessed in the DEIS. The operation of the proposed wastewater system improvements is expected to have minimal impact on the HPD and HFD. Construction or operational components that may require HPD or HFD involvement will be identified in the DEIS.

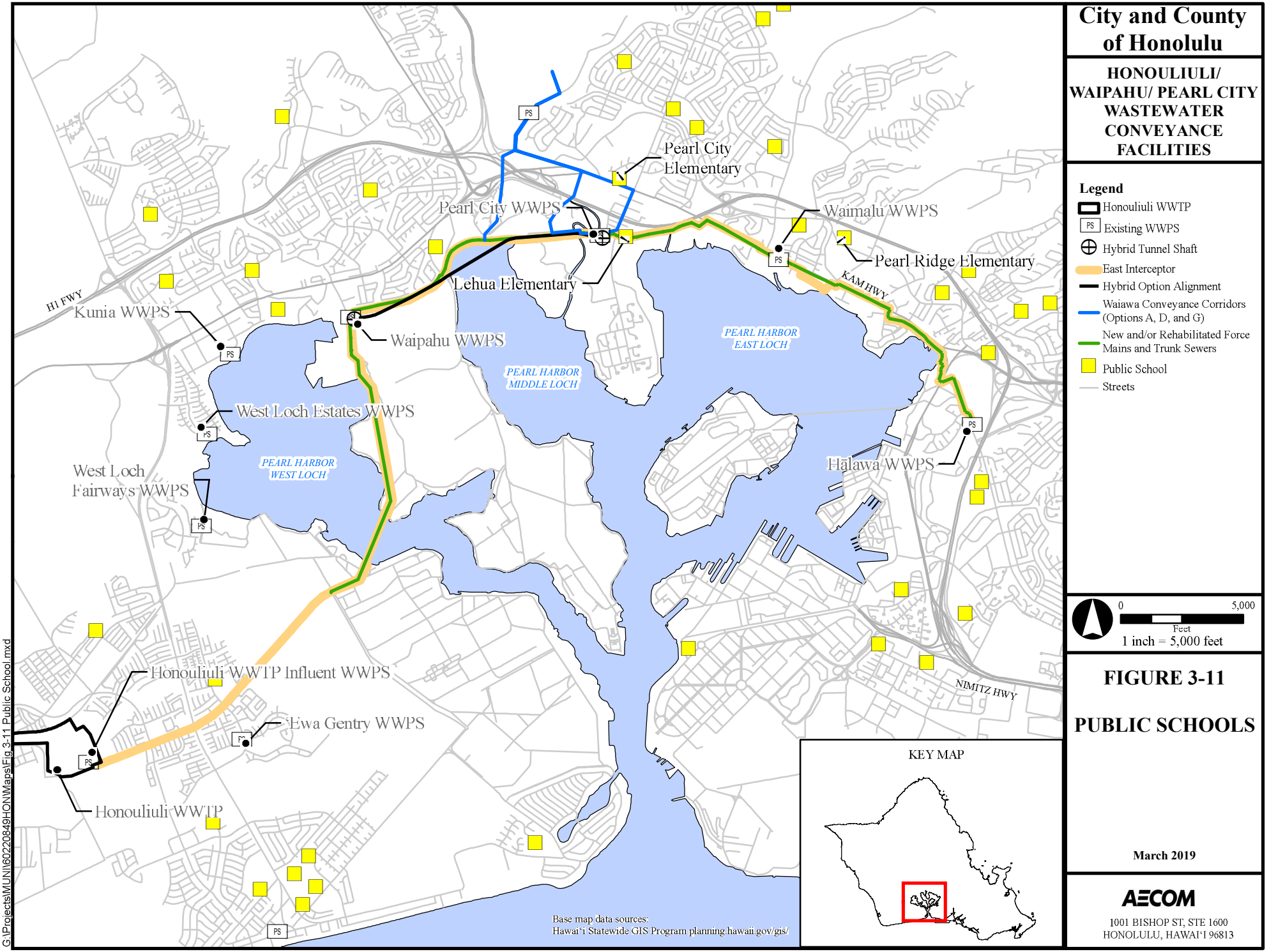
3.13.2 Public Schools

3.13.2.1 EXISTING SETTING

There are numerous public schools in the vicinity of the project area including:

- 'Aiea Elementary School
- 'Aiea High School
- 'Aiea Intermediate School
- Alvah A. Scott Elementary School
- August Ahrens Elementary School
- 'Ewa Elementary School
- Holomua Elementary School
- Lehua Elementary School
- Keone'ula Elementary School
- Pearl City Elementary School
- Pearl Ridge Elementary School
- Waimalu Elementary School
- Waipahu Elementary School
- Waipahu High School
- Waipahu Intermediate School

Figure 3-11 shows the public schools within, and adjacent to, the project area. Of the fifteen public schools listed, only Lehua Elementary, Pearl City Elementary, and Pearl Ridge Elementary are anticipated to be directly affected by at least one of the options. The alternative proposed sites for a relocated Pearl City WWPS are located in the vicinity of Lehua Avenue and the Lehua Elementary School. The entrance to a GST associated with the Hybrid option would also be located near Lehua Elementary School. The Alignment A option for the Waiawa Area Conveyance Corridor would occur along Kamehameha Highway fronting Pearl City Elementary School.


Pearl City Elementary
Pearl City WWPS
Waimalu WWPS
Pearl Ridge Elementary
Lehua Elementary
H1 FWY
KAM HWY
Kunia WWPS
Waipahu WWPS
PEARL HARBOR EAST LOCH
PEARL HARBOR MIDDLE LOCH
West Loch Estates WWPS
PEARL HARBOR WEST LOCH
West Loch Fairways WWPS
Hālawa WWPS
NIMITZ HWY
Honouliuli WWTP Influent WWPS
Ewa Gentry WWPS
Honouliuli WWTP
PS
KEY MAP
Base map data sources:
Hawai'i Statewide GIS Program planning.hawaii.gov/gis/
City and County of Honolulu
HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES
Legend
Honouliuli WWTP
Existing WWPS
Hybrid Tunnel Shaft
East Interceptor
Hybrid Option Alignment
Waiawa Conveyance Corridors (Options A, D, and G)
New and/or Rehabilitated Force Mains and Trunk Sewers
Public School
Streets
0
5,000
Feet
1 inch = 5,000 feet
FIGURE 3-11
PUBLIC SCHOOLS
March 2019
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HONOLULU, HAWAI'I 96813
G:\Projects\MUNI\60220849\HON\Maps\Fig 3-11 Public School.mxd

3.13.2.2 POTENTIAL IMPACTS

State Department of Education and the individual schools in the area would be consulted to coordinate work in the vicinity from inception to construction if all parties concur with the project. During construction, there may be additional noise and traffic at or near the schools. Construction related impacts would be short term and are not anticipated to have any significant impacts. No operational effects to schools are anticipated, other than periodic inspection and/or maintenance of proposed wastewater management facilities located on or near school property.

3.13.3 Parks and Recreational Areas

3.13.3.1 EXISTING SETTING

There are numerous parks and recreational areas in the vicinity of the project area. Only Lehua Community Park, Pacheco Neighborhood Park, Neal S. Blaisdell Park, Waipi'o Peninsula Sports Complex, 'Aiea Bay State Recreation Area, Pearl Harbor Bike Path, and Ted Makalena Golf Course are expected to be directly affected by at least one of the options (Figure 3-12). One project objective is to avoid impairment of public use of the existing parks or to replace in-kind taking of park land. This will be the planning and design objective to the maximum extent feasible. Any unavoidable impacts will be reviewed in consultation with the Department of Parks and Recreation for acceptability before proceeding further.

3.13.3.2 POTENTIAL IMPACTS

The State DLNR Division of State Parks and CCH Department of Parks and Recreation would be consulted to coordinate work in the vicinity of potentially affected park land. During construction, there may be additional noise and traffic at or near the parks and recreational areas. No operational long-term impacts to park land are anticipated, other than periodic inspection and/or maintenance of adjacent proposed facilities.

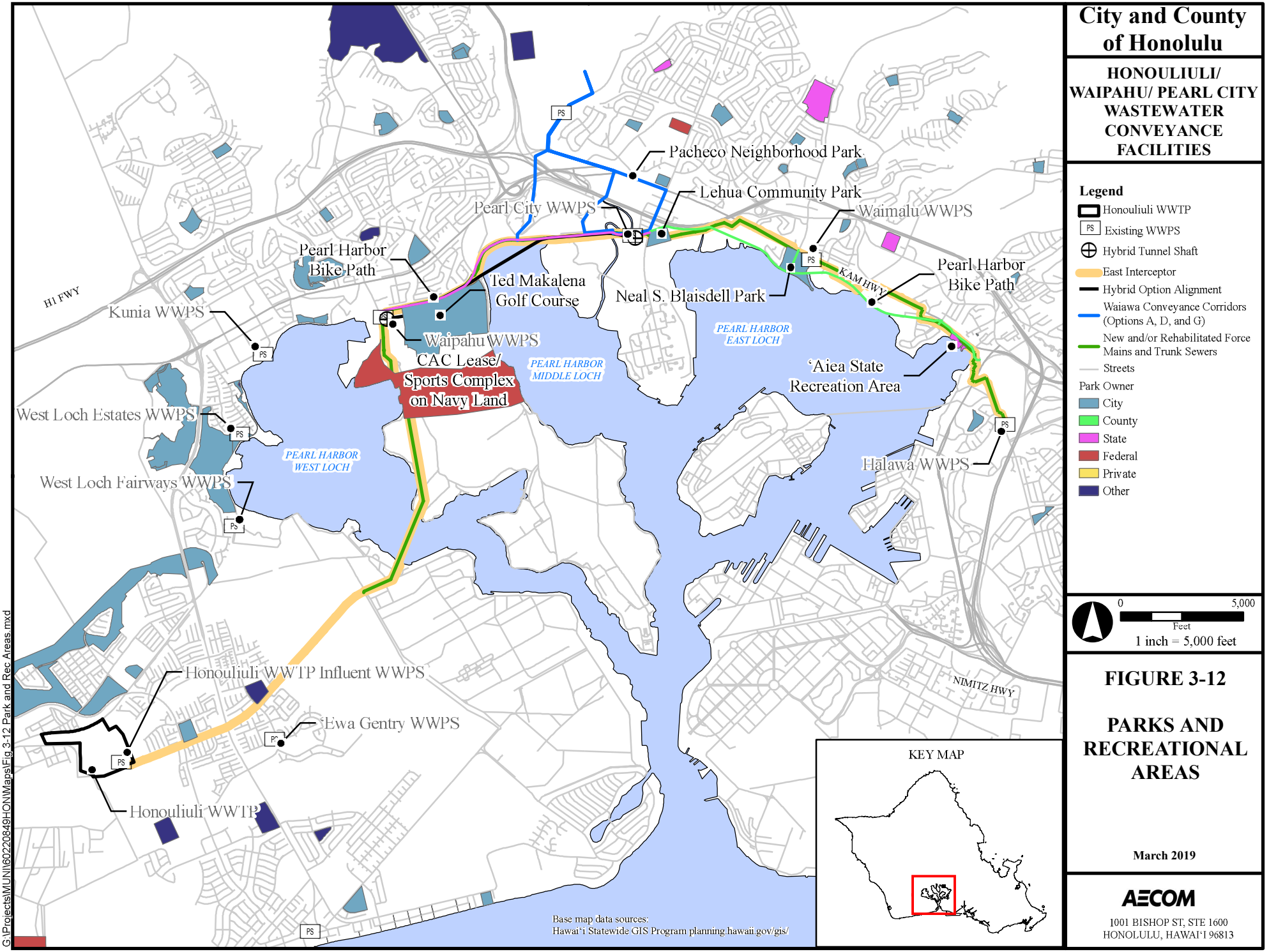
3.14 LAND OWNERSHIP

3.14.1 Existing Setting

The project area is located in TMK Zone 9 Sections 1 through 4 and 6 through 9, and spans multiple properties. Figure 3-13 shows government land ownership within and adjacent to the existing system utilities and the proposed project including State, State Department of Hawaiian Home Lands (DHHL), County, and Federal lands.

3.14.2 Potential Impacts

Regardless of the selected option, the majority of the proposed construction would be along or near existing roadway easements and utility corridors associated with the East Interceptor. However, construction of the proposed Waiawa conveyance corridors may require new permanent easements. In addition, temporary easements and right-of entry will most likely be required throughout the project



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- PS Existing WWPS
- Hybrid Tunnel Shaft
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Streets

Park Owner

- City
- County
- State
- Federal
- Private
- Other

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-12

PARKS AND RECREATIONAL AREAS

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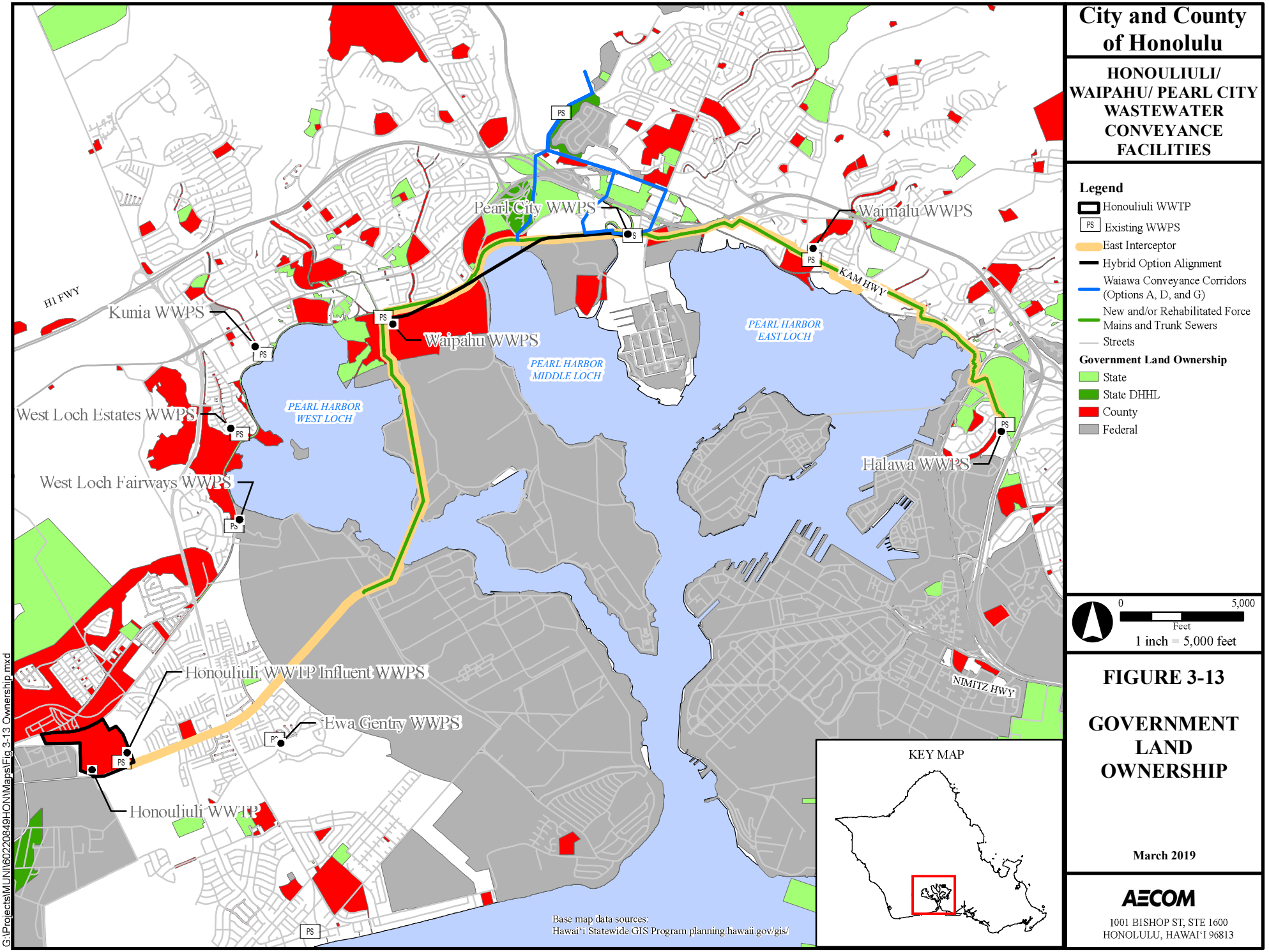

City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY WASTEWATER CONVEYANCE FACILITIES

Legend

- Honouliuli WWTP
- PS Existing WWPS
- East Interceptor
- Hybrid Option Alignment
- Waiawa Conveyance Corridors (Options A, D, and G)
- New and/or Rehabilitated Force Mains and Trunk Sewers
- Streets

Government Land Ownership

- State
- State DHHL
- County
- Federal

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 3-13

GOVERNMENT LAND OWNERSHIP

March 2019

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G:\Projects\MUNI\60220849\HON\Maps\Fig 3-13 Ownership.mxd

area during construction. The DEIS will identify potential land acquisition and easement requirements for the proposed project options.

4.0 CUMULATIVE IMPACTS

According to HAR Chapter 200, cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time.

The Proposed Action, when considered in conjunction with past, present and reasonably foreseeable future actions to the environment, may result in cumulative impacts. Other past, present and reasonably foreseeable future actions likely to impact environmental resources and issues impacted by the Proposed Action will be identified.

5.0 RELATIONSHIP OF ACTION TO LAND USE PLANS AND POLICIES

Development within the State of Hawai‘i is guided through a combination of land use plans, policies and controls set at the State level and tiered down to the CCH level. This section addresses the various guidance documents, rules, and regulations that will be analyzed in the preparation of the DEIS. The plans will be reviewed to assess consistency of the proposed project options with development, plans, zoning, and special management area goals and requirements. The project area includes potential development activity within three of the eight planning areas of O‘ahu: ‘Ewa, Central O‘ahu, and the Primary Urban Center. This section of the DEIS will also be used to identify land acquisition and easement requirements for the proposed project options.

5.1 STATE OF HAWAI‘I

The State of Hawai‘i maintains a statewide planning system that includes State and County Land Use Plans, Policies and Controls to provide standards and guidelines for development. At the State level, the DEIS will assess the project’s compliance and consistency with the Hawai‘i State Plan, State Functional Plans, Hawai‘i 2050 Sustainability Plan, State Land Use Classification, Coastal Zone Management Program, and Ocean Resources Management Plan. The DEIS will reference the appropriate Plans, Policies, and Controls to assist in evaluating the options to best meet future needs.

5.1.1 Hawai‘i State Plan

The Hawai‘i State Plan sets forth overall goals, objectives, policies, and priorities for the State to guide future long-range development. In accordance with HRS 226-14 and 226-15, the DEIS will evaluate the Honouliuli wastewater system to maintain basic public health and sanitation standards, plan to accommodate the needs of Hawai‘i’s people through coordination of facility systems, and to promote the adequate development of sewerage facilities that complement planned growth.

5.1.2 State Functional Plans

State Functional Plans provide the framework for implementation of the Hawai‘i State Plan by establishing policies and guidelines for specific activities. State Functional Plans are developed by the agency responsible for the functional area, including agriculture, conservation lands, education, energy, higher education, health, historic preservation, housing, recreation, tourism, and transportation. The DEIS will provide a summary of the various planning objectives and whether the project is consistent, and indicate where the subject is addressed in the DEIS.

5.1.3 Hawai‘i 2050 Sustainability Plan

Act 8 Special Session Laws of Hawai‘i 2005 established the Hawai‘i Sustainability Task Force and directed the Task Force to develop a Hawai‘i 2050 Sustainability Plan to address the vital needs of Hawai‘i through the year 2050 and beyond.

The Hawai‘i 2050 Sustainability Plan was published in 2008 by the State Auditor and the Hawai‘i 2050 Sustainability Task Force and served as a long-range plan for Hawai‘i to prepare for global warming, climate impact planning, and sustainability planning. The plan encourages the use of renewable energy, reducing Hawai‘i’s greenhouse gases, promoting water conservation and reuse, advocating for waste reduction, increasing Hawai‘i’s food security, supporting clean transportation, promoting pedestrian and bicycle accessibility, encouraging smart-growth, planning for sea level rise, stressing the need for affordable housing, encouraging a diversified economy, and supporting our indigenous Native Hawaiian culture. The DEIS will provide a review of the proposed project to confirm consistency with this plan.

5.1.4 Coastal Zone Management Program

The purpose of the Hawai‘i Coastal Zone Management (CZM) Program is to “provide for the effective management, beneficial use, protection, and development of the coastal zone”. Hawai‘i’s CZM Program was established through Chapter 205A, HRS, and is administered by the Hawai‘i Office of Planning. Chapter 205A requires compliance with CZM objectives and policies outlined in Chapter 205A-2(b). The DEIS will examine the applicable the CZM objectives and policies as listed in HRS § 205A-2 to confirm project consistency.

5.1.5 Ocean Resources Management Plan

The Hawai‘i Ocean Resources Management Plan (ORMP) is a statewide plan mandated by HRS, Chapter 205A. The Hawai‘i CZM Program in the State Office of Planning, DBEDT, is charged with reviewing and periodically updating the ORMP, as well as coordinating its overall implementation. Developed in collaboration with government agencies, and with input from non-governmental organizations, private sector, community groups, and other stakeholders, the ORMP calls for substantive changes in the State’s approach to natural and cultural resources management. It recommends an integrated approach to managing natural and cultural resources, building on traditional Hawaiian management principles, that considers the impacts of land based activities on ocean resources and fosters collaboration and stewardship.

Management priorities are designed to strengthen ongoing efforts to manage ocean resources and demonstrate new integrated management approaches. These management priorities are organized under three perspectives to provide a focused framework for action: Perspective 1, Connecting Land and Sea; Perspective 2, Preserving Our Ocean Heritage; and Perspective 3, Promoting Collaboration and Stewardship. The DEIS will provide a review of the proposed project to confirm consistency with the ORMP management priorities.

5.1.6 State Land Use Classification

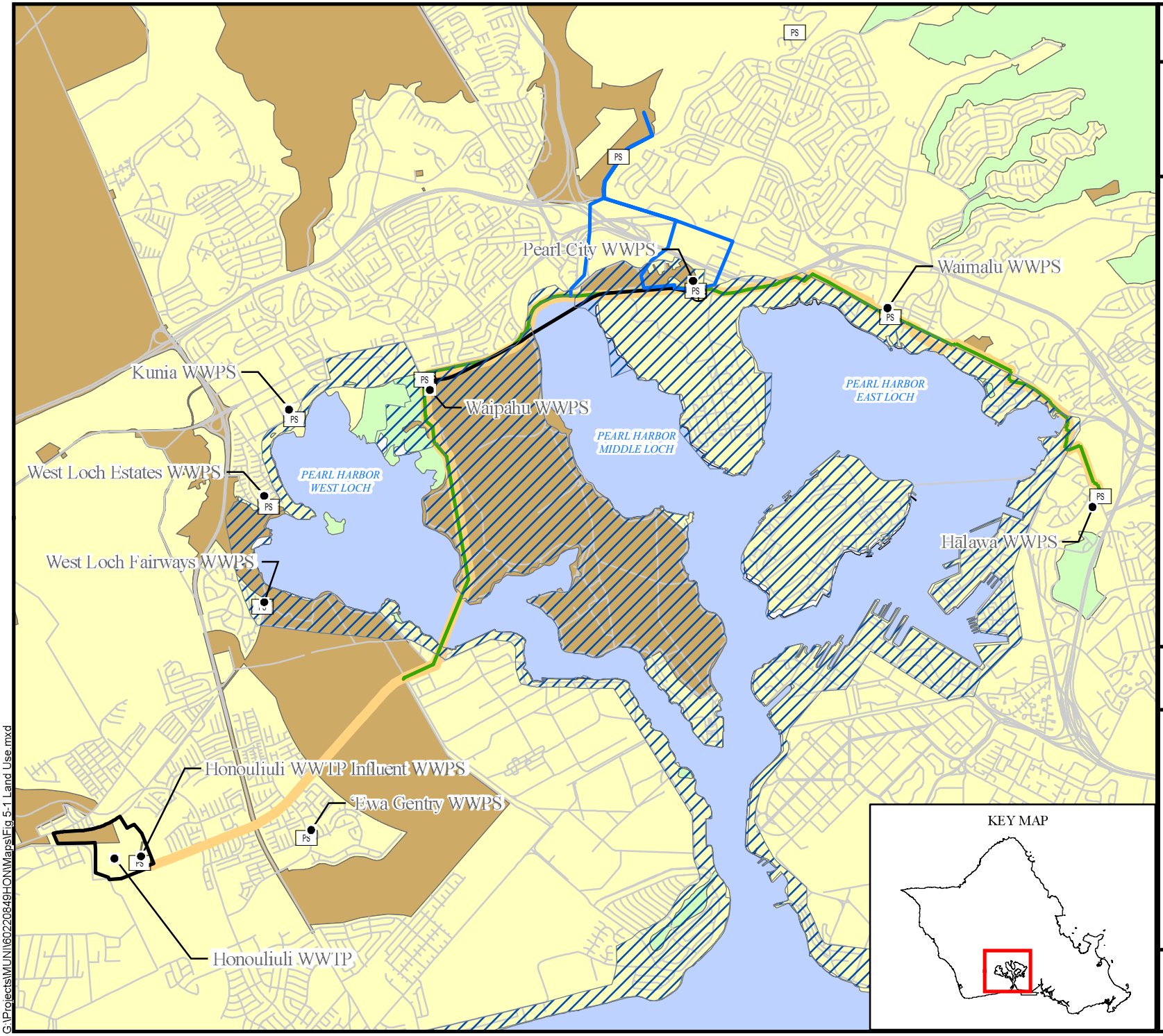
The Land Use Commission (LUC) administers the state wide zoning law as outlined in Chapter 205 of the HRS and Title 15, Chapter 15 of the HAR. The purpose of the LUC is to designate all lands in the state into one of four land use districts: Urban, Rural, Agricultural, and Conservation to preserve, protect and encourage development and preservation of lands for those uses to which they are best suited in the interest of public health and welfare of the people. The project area extends over portions of land within three of the four land use districts, with a majority of the project area within urban and agricultural districts:

- Urban District - areas with "city-like" concentrations of people, structures and services and vacant areas for future development. Jurisdiction lies with the respective county through ordinances and rules.
- Agricultural District – includes lands for cultivation of crops, aquaculture, raising livestock, wind energy facility, timber cultivation, agriculture support activities and land with significant potential for agriculture uses. Uses permitted within the district are based on the Land Study Bureau's productivity categories. Lands in the highest productivity categories (A or B) are governed by statute and uses in the lower categories (C, D, E or U) are established by the commission stated in HRS 205-4.5.
- Conservation District – lands comprised of existing forest and water reserve zones and area necessary to protect watersheds and water resources, scenic and historic areas, parks, wilderness, open space, recreational areas, habitats of endemic plants, fish and wildlife, and all submerged lands seaward of the shoreline. These areas are governed by the State DLNR.

A portion of the new conveyance facilities will be located within or adjacent to land within a conservation district near the Waipahu WWPS (see Figure 5-1). Permissible Uses within each district are defined in HAR Title 15, Chapter 15-24. Conservation districts, governed by the DLNR, are further divided into subzones. A portion of the Hybrid option would be located within a 'protective' subzone. If necessary, a temporary variance may be requested for the proposed work.

5.2 CITY AND COUNTY OF HONOLULU

The CCH DPP manages anticipated future population and land use growth through policies, planning principles, guidelines and regulations set forth in the O'ahu General Plan, Development and Sustainable Community Plans, and implementing ordinances and regulations. At the CCH level, the DEIS will assess the project's compliance consistency with the CCH General Plan, Development Plans, Land Use Ordinance / Zoning, Special Management Area, and Shoreline Setback. The DEIS will be prepared in conformance with the guidelines set forth in these documents for analysis on the advantages and disadvantages of the Proposed Action for the CCH.



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY FACILITIES PLAN

Legend

- PS Existing WWPS
- Hybrid Tunnel Shaft
- Honouliuli WWTP
- Special Mgmt Area
- Waiawa Conveyance Corridors (Options A, D, and G)
- Hybrid Option Alignment
- New and/or Rehabilitated Force Mains and Trunk Sewers
- East Interceptor
- Streets

State Landuse District

- Agricultural
- Conservation
- Urban

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 5-1

LAND USE DISTRICT AND SPECIAL MANAGEMENT AREA

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5.2.1 General Plan

The General Plan was adopted in 1977 with subsequent amendments leading to the 2018 Proposed Revised General Plan. The work associated with updating the Honouliuli Fac Plan is consistent with the objectives within the General Plan. These objectives include planning for anticipated future population growth and the increased demands for future sewerage, and solid waste disposal services. Policies contained in the General Plan are implemented by the CCH through ordinances and resolutions as well as rules and regulations. Development Plans for each community provide for the land use and public facilities planning and the sequence in which the development would occur in accordance with the objectives and policies outlined in the General Plan.

5.2.2 Development Plans

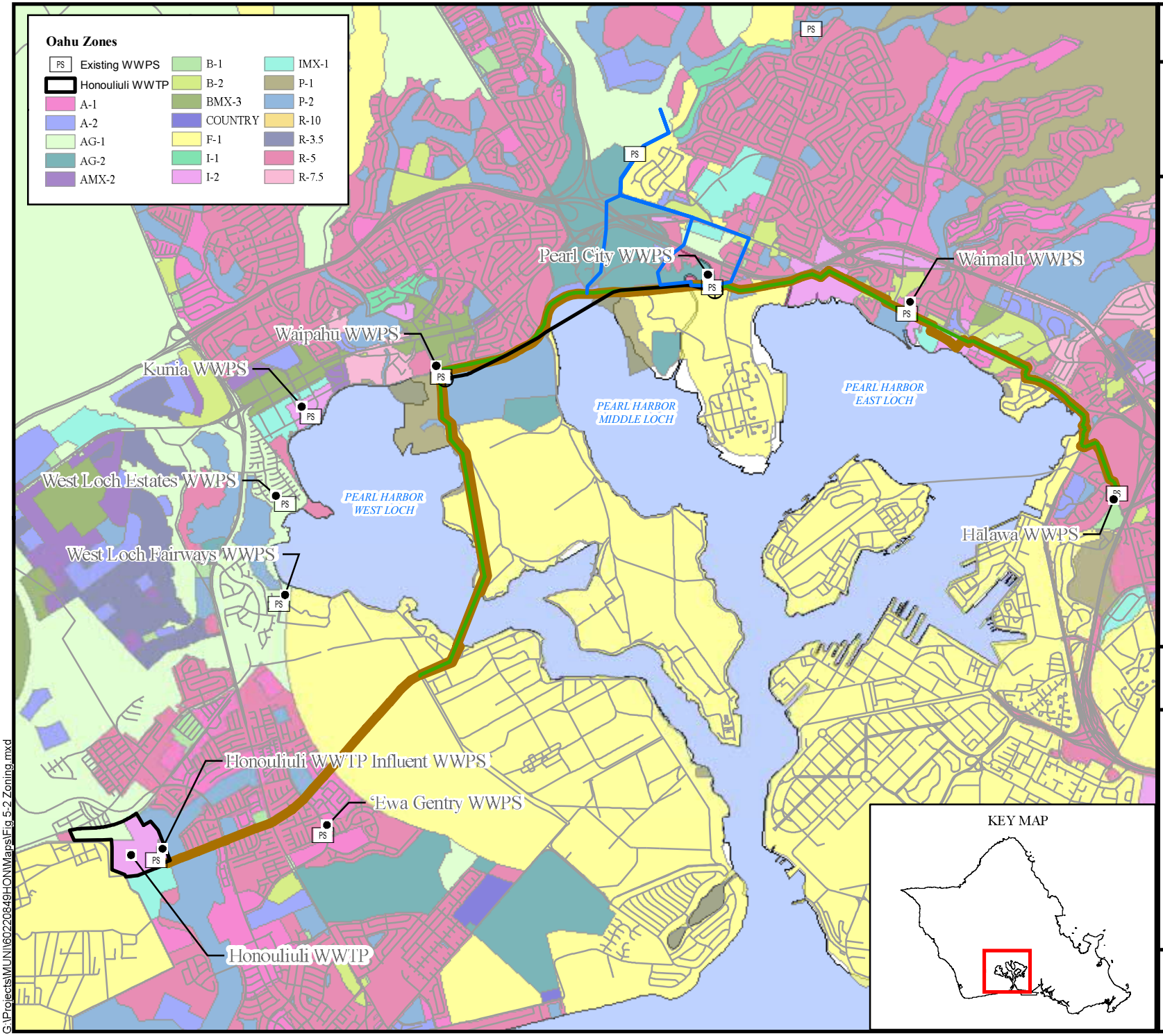
Development Plans (DPs) and Sustainable Communities Plans (SCPs) are required by CCH Charter. Together with the General Plan, they guide O‘ahu’s population growth and land use development over a 20+ year time span. The future growth and plans for the areas of ‘Ewa, Central O‘ahu, and the Primary Urban Center are a vital element in determining the appropriate alternative for the upgrade and expansion of the Honouliuli wastewater system. A major revision to these plans was completed in 2004, and the revised plans are reviewed every 5 years to revalidate the overall goals and make appropriate adjustments. As of March 2018, the ‘Ewa Revised Development Plan was adopted in July 2013; the Central O‘ahu Revised Sustainable Communities Plan was considered by the Planning Board in July 2017 and transmitted to the CCH Council with recommendation for approval with three amendments; and Review of the Primary Urban Center Revised DP was initiated in September 2017.

The development plans for ‘Ewa and the Primary Urban Center are directed toward considerable growth and significant progress to provide a Secondary Urban Center for O‘ahu, centered in the Kapolei area, and to guide development decisions and actions needed to support the growth. The goals of the Central O‘ahu SCP are directed toward public actions to support the existing population.

Future projects described in these community plans include but are not limited to the Transit Oriented Development Program to expand the transit system in the ‘Aiea-Pearl City, East Kapolei and Waipahu Neighborhoods; pedestrian ways and bike paths, and community centers; and master-planned new communities in Royal Kunia, Koa Ridge Makai, and Waiawa. The DEIS will evaluate the system upgrades and expansion in conjunction with the Revised Community Plans and projects.

5.2.3 Land Use Ordinance / Zoning

The Land Use Ordinance (LUO), Chapter 21, also referred to as the Zoning Ordinance, regulates land to encourage orderly development in accordance with policies including the O‘ahu General Plan and development plans. Figure 5-2 shows zoning in the project area. The DEIS will evaluate the proposed options for any potential conflicts with zoning within the 11 different designated zone types



City and County of Honolulu

HONOULIULI/ WAIPAHU/ PEARL CITY FACILITIES PLAN

Legend

- PS Existing WWPS
- Honouliuli WWTP
- Hybrid Tunnel Shaft
- Waiawa Conveyance Corridors (Options A, D, and G)
- Hybrid Option Alignment
- New and/or Rehabilitated Force Mains and Trunk Sewers
- East Interceptor
- Streets

0 5,000 Feet

1 inch = 5,000 feet

FIGURE 5-2

CITY AND COUNTY OF HONOLULU ZONING

March 2019

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throughout the project area (Table 5-1). The zones include districts associated with apartment, agricultural, business, federal and military, preservation, or residential uses. The analysis will identify zoning amendments that may be necessary to allow implementation of the proposed options.

Table 5-1. Zoning District Classifications and Map Designations (LUO Sec. 21-3.10)

Map Designation	Description
A-1	Low-density Apartment District
A-2	Medium-density Apartment District
AG-1	Restricted Agriculture District
AG-2	General Agriculture District
B-1	Neighborhood Business District
B-2	Community Business District
BMX-3	Community Business Mixed Use District
C	Country District
F-1	Federal and Military Preservation District
I-1	Limited Industrial District
I-2	Intensive Industrial District
IMX-1	Industrial Mixed Use District
P-1	Restricted Preservation District
P-2	General Preservation District
R-3.5	Residential District
R-5	Residential District
R-7.5	Residential District
R-10	Residential District

Source: City and County of Honolulu, Department of Planning and Permitting

5.2.4 Special Management Area

Portions of the project area lie within the Special Management Area (SMA) pursuant to HRS Chapter 205A (see Figure 5-1). Regulations and procedures within the SMA are further defined in Chapter 25 of the revised Ordinances of Honolulu to preserve and protect the natural resources of the coastal zone of Hawai‘i. No development shall be allowed in any county within the special management area without obtaining a permit in accordance with HRS 205A-28; therefore, a SMA Major Use permit would be obtained prior to construction, as needed.

5.2.5 Shoreline Setback

Portions of the project area lie within the shoreline setback pursuant to HRS Chapter 205A. Regulations and procedures within the shoreline setback are further defined in Chapter 23 of the Revised Ordinances of Honolulu to protect and

preserve the natural shoreline and to reduce hazards to property from coastal floods. No development shall be allowed in any county within the shoreline setback without obtaining a shoreline setback variance; therefore, a shoreline setback variance may need to be obtained prior to construction.

6.0 SIGNIFICANCE CRITERIA AND DETERMINATION

In accordance with HRS Chapter 343-5(b), the ENV has determined, through its judgment and experience, that an EIS is likely to be required and has chosen not to prepare an EA and instead prepare an EIS that begins with the preparation of this EISPN. The Proposed Action involves maintenance, rehabilitation, and new construction activities planned in a large urban area spanning more than 30 years. As individual projects referenced in the EIS are designed, additional details will be finalized and project-specific EAs will be completed. While it is the ENV's intent to undertake each activity in a manner that avoids or minimizes environmental impacts, certain activities may result in individually significant effects on the environment and the activities in total may result in cumulatively significant effects on the environment.

The DEIS will evaluate the environmental impacts of the Proposed Action based on the following criteria established in the HAR, Chapter 200 (Environmental Impact Statement Rules) to determine if the project will have a significant adverse impact on the environment. The evaluation will consider overall and cumulative effects of the project by examining construction, operational, and secondary effects of the Proposed Action.

1. Involves irrevocable commitment to loss or destruction of any natural or cultural resource.

2. Curtails the range of beneficial uses of the environment.

3. Conflicts with the state's long-term environmental policies or goals and guidelines as expressed by Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.

4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.

5. Substantially affects public health.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities.

7. Involves a substantial degradation of environmental quality.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.

9. Substantially affects a rare, threatened, or endangered species, or its habitat.

10. Detrimentally affects air or water quality or ambient noise levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies.

13. Requires substantial energy consumption.

7.0 CONSULTATION

Pursuant to HRS, Chapter 343 and Title 11, Chapter 200, HAR, consultation with agencies and other stakeholders during the preparation of the EIS is required to inform the affected area of the Proposed Action and solicit input in scoping the analyses to be conducted to evaluate potential impacts and identify required mitigation measures. Following below is a list of Federal, State, CCH, and other organizations that have been or will be consulted during the preparation of the EIS. This list is not final, and additional stakeholders may be identified and consulted with as part of the review process.

7.1 FEDERAL

- U.S. Congressional Delegates (senators and representatives)
- NAVFAC Hawai‘i
- U.S. Army Corp of Engineers
- U.S. Coast Guard, 14th C.G. District
- U.S. Environmental Protection Agency
- U.S. National Ocean and Atmospheric Administration, Pacific Islands Regional Office
- U.S. Fish and Wildlife Service, Pacific Division
- U.S. National Marine Fisheries Service
- U.S. Natural Resources Conservation Services
- U.S. Navy, Joint Base Pearl Harbor-Hickam

7.2 STATE OF HAWAI‘I

- Department of Agriculture
- Department of Accounting and General Services (Director and Stadium Authority)
- Department of Business, Economic Development and Tourism (Director, Hawai‘i Housing Finance and Development Corporation, Office of Planning, and Energy Office)
- Department of Defense
- Department of Education
- Department of Hawaiian Home Lands
- Department of Health (CWB, EMD, OEQC, WB)
- Department of Human Services
- Department of Labor and Industrial Relations

- Department of Land and Natural Resources (CWRM, DBOR, DSP, OCCL, LD, SHPD, DOFAW, DAR)
- Department of Transportation (Director and Right-of-Way Branch)
- Office of Hawaiian Affairs
- University of Hawai‘i, Environmental Center
- Elected Officials (House of Representatives Districts 30-44 and Senate Districts 14-20 and 22)

7.3 CITY AND COUNTY OF HONOLULU

- Board of Water Supply
- Department of Design and Construction
- Department of Enterprise Services
- Department of Facility Maintenance
- Department of Land Management
- Department of Parks and Recreation
- Department of Planning and Permitting
- Department of Transportation Services
- Fire Department
- Honolulu Authority of Rapid Transit
- Police Department
- Emergency Services Department
- Office of the Mayor
- City Council (Districts 1, 2, 5, 6, 7, 8, and 9)
- Neighborhood Boards:
  - ‘Aiea Neighborhood Board #20
  - Āliamanu/Salt Lake/Foster Village Neighborhood Board #18
  - ‘Ewa Neighborhood Board #23
  - Makakilo/Kapolei/Honokai Hale Neighborhood Board #34
  - Mililani Mauka/Launani Valley Neighborhood Board #35
  - Mililani/Waipi‘o/Melemanu Neighborhood Board #25
  - Pearl City Neighborhood Board #21
  - Waipahu Neighborhood Board #22

7.4 NONGOVERNMENTAL ORGANIZATIONS

- ‘Ahahui Siwila Hawai‘i O Kapolei

- Coral Creek Golf Course
- ʻEwa Beach Community Association
- ʻEwa by Gentry Community Association
- ʻEwa Beach Lions Club
- ʻEwa Task Force
- Hawaiʻi Gas
- Hale Pono - Boys & Girls Club, formerly ʻEwa Beach Boys & Girls Club
- Hawaiʻi Audubon Society
- Hawaiian Electric Company
- Hawaiʻi Farm Bureau Federation
- Hawaiʻi Natural Heritage Program
- Hawaiian Railway Society
- Hawaiian Telecom Company
- Hawaiʻi's Thousand Friends
- Kamehameha Schools
- Kapolei Chamber of Commerce
- Outdoor Circle
- Spectrum
- Waipahu Community Association
- West Oʻahu Economic Development Association

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