DEPARTMENT OF DEFENSE
Department of the Navy

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE U.S. ARMY WEST LOCH ORDNANCE FACILITIES AT JOINT BASE PEARL HARBOR-HICKAM (JBPHH), OAHU, HAWAII

Pursuant to the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act (NEPA) and Department of Navy (hereinafter, referred to as the Navy) NEPA regulations (32 CFR Part 775), the Navy gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement is not required for the U.S. Army's (hereinafter, referred to as the Army) construction of a new ordnance storage complex at West Loch Annex, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii. The action will be implemented as set out in Alternative 1 (Preferred Alternative).

Proposed Action: The Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the Army's Ammunition Supply Point on the island of Oahu, Hawaii.

Purpose and Need: The purpose of the Proposed Action is to provide sufficient storage space and improve operational efficiencies for the Army to meet its current and future ordnance storage requirements.

The need for the Proposed Action is to meet the mission of the Army to receive, maintain, store, and issue ammunition, weapons, and technical ordnance material for the Army commands in Hawaii. In this regard, the Proposed Action furthers the Army's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. section 3062.

Alternatives Analyzed: NEPA's implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and that meet the purpose and need require detailed analysis.

Potential alternatives that meet the purpose and need were evaluated against the following screening factors:

- Availability of developable land with adequate setbacks for ordnance storage
- Potential risk to public safety
- Minimal environmental impacts
- Cost efficiency, constructability, and ease of maintenance

Based on the reasonable alternative screening factors and meeting the purpose and need for the Proposed Action, the no action alternative and two action alternatives were carried forward for detailed analysis in the EA.

No Action Alternative: Under the No Action Alternative, the Proposed Action would not occur. The No Action Alternative would include continuing maintenance of the Lualualei Annex magazines and facilities, but it would not include any of the improvements proposed in Alternative 2 (Repair/Modernization). The No Action Alternative would not meet the purpose and need for the Proposed Action because without major repairs, the use of existing magazines would be discontinued as they reach the end of their useful life and no new magazines would replace them. However, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA.

Alternative 1 (Preferred Alternative): Under the Preferred Alternative, the Army would construct a new ordnance storage complex on Navy property at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The new munitions storage complex would include 27 new box Type D magazines, eight modular storage magazines, and administrative and operational support facilities. Secondary development would include adjacent accessory roads and concrete pads, utility service and distribution (i.e., electrical, communications, water, and wastewater), site drainage improvements, installation security features, and fire lines and hydrants. This alternative would relocate and consolidate Army munitions operations from Lualualei Annex to West Loch Annex which would also reduce the amount of personnel required to operate the facilities, significantly reduce current transportation time and costs, and preclude the Army from having to assume responsibility of the maintenance and utilities costs for Lualualei Annex.

Alternative 2: Under Alternative 2, the Army would repair and modernize existing magazines, infrastructure, and support facilities at Lualualei Annex to meet their ordnance storage requirements. The scope of the repairs and modernizations includes structural repairs to the ammunition storage facilities; installation of required security

fencing, lightning warning system and lightning protection systems; pavement repairs to the roadways and driveways; replacement of the existing entry control point, wastewater system, water, sewer, electrical, and communication lines and components; and environmental mitigation. No new magazines would be constructed. The repairs and modernizations would not change the layout of the structural columns in the magazines, and therefore, would not address the configuration limitations of the existing ammunition storage facilities. Alternative 2 would not change the existing logistical and safety issues of having a single access point for Lualualei through a busy public highway.

Environmental Effects: No significant direct, indirect, or cumulative environmental impacts would occur from implementing the Proposed Action. Airspace, air quality, geological resources, hazardous materials and wastes, infrastructure, marine biological resources, noise, transportation, visual resources, and water resources were not analyzed in detail in this EA because potential impacts to these resource areas were considered to be negligible or non-existent. Potential environmental impacts on cultural resources, terrestrial biological resources, land use, public health and safety, socioeconomics, and environmental justice were analyzed in the EA and are summarized here.

Cultural Resources: The Preferred Alternative would result in less than significant impacts to cultural resources. A portion of the Preferred Alternative is located in the Pearl Harbor National Historic Landmark (PHNHL), but no historic properties are present in the project area of potential effect (APE). In accordance with Stipulation IX of the 2012 Programmatic Agreement (PA) between the Navy, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Officer (SHPO), the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the National Historic Preservation Act (NHPA). Therefore, no further review under the PA or NHPA is required. Cultural resources at West Loch Annex would continue to be managed in accordance with the JBPHH Integrated Cultural Resources Management Plan (ICRMP).

Terrestrial Biological Resources: The Preferred Alternative would result in less than significant impacts to terrestrial biological resources. The construction of the Preferred Alternative would require the removal of existing cropland and scrub vegetation. If portions of the project footprint are landscaped as a result of the project, native Hawaiian plants would be employed to the maximum extent possible. The Preferred Alternative would have no effect on Hawaiian stilts. Stilts are unlikely to occur along the section of shoreline near the project footprint. The mangrove vegetation along the shoreline would buffer construction noise and human activity from impacting stilts. Short-term construction period impacts could affect the Hawaiian hoary bat, Hawaiian short-eared owl, migratory birds, and water birds. Avoidance and minimization measures would be implemented to mitigate potential impacts. Pursuant to Section 7 of the Endangered Species Act (ESA), the Navy determined and the U.S. Fish and Wildlife Service (USFWS) concurred that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat.

Land Use: The Preferred Alternative would result in less than significant land use impacts. The Preferred Alternative would be located on land temporarily leased for agricultural use at West Loch Annex. The land at West Loch Annex has long been set aside for national defense purposes, and the agricultural outlease is being permitted under a temporary waiver. The Preferred Alternative is within the Honolulu Urbanized Area as defined by the 2010 census so the provisions of the Farmland Protection Policy Act (FPPA) do not apply. Overall, the consolidation of ordnance storage facilities at West Loch Annex is consistent with federal, state, and county land use plans. The Preferred Alternative falls under the Navy/Marine Corp's De Minimis Activities List (State of Hawaii Coastal Zone Management Act letter, dated July 9, 2009). The Navy notified the Hawaii Coastal Zone Management Office that the Preferred Alternative is expected to have insignificant direct or indirect (cumulative and secondary) coastal effects and that the provisions of the De Minimis list applied.

Public Health and Safety: The Preferred Alternative would result in beneficial impacts to public health and safety. The proposed magazines would be constructed at West Loch Annex in accordance with United States Department of Defense Explosives Safety Board (DDESB) standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA). The project would comply with Anti-Terrorism/Force Protection (ATFP) standards and physical security requirements. The Naval Explosive Safety Improvement

Program's explosive-safety quantity-distance (ESQD) arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities.

Currently, ordnance arrives by sea and is offloaded at the West Loch Annex wharves in Pearl Harbor. The Army ordnance is then transported approximately 18 miles along public highways to Lualualei Annex (via Fort Weaver Road, H-1 Freeway, Farrington Highway, and Lualualei Naval Road). The implementation of the Preferred Alternative would eliminate the need for the Army to store ordnance at Lualualei Annex and the need to transport ordnance on public highways between West Loch Annex and Lualualei Annex. This would enhance public safety and security for those who live, work and travel along and adjacent to these public transit routes.

Socioeconomics: The Preferred Alternative would result in less than significant impacts to the socioeconomics of the local area or region. The Preferred Alternative would have a temporary beneficial impact on construction-related employment and spending.

Environmental Justice: Implementation of the Preferred Alternative would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Mitigation Measures: There were no significant impacts to the environmental resources, so no mitigation measures were required.

Public Outreach: The Navy implemented a range of public outreach initiatives to share information and solicit comments. In accordance with the NEPA, the 30-day public review period for the Draft EA was published in the Honolulu Star-Advertiser for three consecutive days beginning August 9, 2020. Notice was also posted in the State of Hawaii Office of Environmental Quality Control's semi-monthly publication, The Environmental Notice, Aug. 8, 2020. Per the advice of the Honolulu Neighborhood Commission, the chairs of the Neighborhood Boards that represent the residents of those neighborhoods located adjacent to the West Loch Annex and Lualualei Annex were emailed notice of the public review period and were mailed print copies of the Draft EA. Print copies of the Draft EA were also distributed to the Ewa, Waipahu, and Hawaii State Libraries. The Draft EA was accessible online through both Navy and Army public websites, and the public was encouraged to submit comments to the Navy by mail or email. Due to heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. Additionally, Joint Base Pearl Harbor-Hickam Community Planning and Liaison Officer engagements occurred at the Ewa Beach Neighborhood Board (NB) meeting on September 10, 2020 and the Maili-Nanakuli NB on September 15, 2020.

A total of thirty-six comment letters and emails were submitted from twenty-six individuals during the public comment period. Several commenters provided more than one submission. The Navy considered all comments prior to preparing the Final EA and this Finding of No Significant Impact (FONSI). The issues identified in the public comments and the Navy's responses have been summarized in Appendix C of the EA.

Finding: Based on the analysis presented in the EA, which has been prepared in accordance with the requirements of NEPA and Navy policies and procedures (32 CFR Part 775), and in coordination with the SHPO, USFWS, and Hawaii CZM Office, the Navy finds that implementation of the Proposed Action as set out by the Preferred Alternative will not significantly impact the quality of the human environment. Therefore, an EIS is not required.

Electronic copies of this EA and Finding of No Significant Impact may be obtained by written request to: Naval Facilities Engineering Systems Command Pacific, 258 Makalapa Drive, Suite 100, JBPHH, HI 96860-3134, Attention: EV21AS; or: U.S. Army Garrison Hawaii Public Affairs Office; usarmy.hawaii.pao@mail.mil.

DEPARTMENT OF DEFENSE
Department of the Navy

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE U.S. ARMY WEST LOCH ORDNANCE FACILITIES AT JOINT BASE PEARL HARBOR-HICKAM (JBPHH), OAHU, HAWAII

Concurring party:

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Rear Admiral, U.S. Navy
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25 MAY 2021
Date

FINAL

ENVIRONMENTAL ASSESSMENT

For

U.S. ARMY WEST LOCH ORDNANCE FACILITIES

At

JOINT BASE PEARL HARBOR-HICKAM, OAHU, HAWAII

DECEMBER 2020

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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	U.S. Army West Loch Ordnance Facilities
Project Location:	Joint Base Pearl Harbor-Hickam, West Loch Annex, Ewa Beach, Hawaii
Lead Agency for the EA:	Department of the Navy
Affected Region:	Ewa Beach, Hawaii
Action Proponent:	Joint Base Pearl Harbor-Hickam
Point of Contact:	Attn: EV21 Project Mgr. Army West Loch EA Naval Facilities Engineering Command, Pacific 258 Makalapa, Drive Suite 100 Joint Base Pearl Harbor-Hickam, HI 96860-3134
Date:	December 2020

Naval Facilities Engineering Command (NAVFAC), Pacific, has prepared this Environmental Assessment (EA) on behalf of Joint Base Pearl Harbor-Hickam (JBPHH) in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality regulations and Navy regulations for implementing NEPA. JBPHH proposes the U.S. Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the U.S. Army's Ammunition Supply Point on the island of Oahu, Hawaii. The Preferred Alternative would construct a new munitions storage complex for storage of military ordnance at West Loch Annex, and would take place over several phases of military construction projects, the first of which is scheduled to begin in 2022. This Environmental Assessment evaluates the potential environmental impacts associated with two action alternatives (including the Preferred Alternative), and the No-Action Alternative for the following environmental components: cultural resources, terrestrial biological resources, land use, public health and safety, socioeconomics, and environmental justice. Because potential impacts were considered to be negligible or nonexistent, the following resource areas were not analyzed in detail in this EA: airspace, air quality, geological resources, hazardous wastes and materials, infrastructure, marine biological resources, noise, transportation, visual resources, and water resources.

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EXECUTIVE SUMMARY

ES.1 Proposed Action

The Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the U.S. Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the U.S. Army's Ammunition Supply Point on the island of Oahu, Hawaii.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide sufficient storage space and improve operational efficiencies for the Army to meet its current and future ordnance storage requirements.

The need for the Proposed Action is to meet the mission of the Army to receive, maintain, store, and issue ammunition, weapons, and technical ordnance material for the Army commands in Hawaii. In this regard, the Proposed Action furthers the Army's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. section 3062.

ES.3 Alternatives Considered

Alternatives were developed for analysis based upon the following screening factors:

- Availability of developable land with adequate setbacks for ordnance storage
- Potential risk to public safety
- Minimal environmental impacts
- Cost efficiency, constructability and ease of maintenance

The Navy is considering two action alternatives that meet the purpose of and need for the Proposed Action and a No Action Alternative.

Alternative 1 (Preferred Alternative) would construct a new ordnance storage complex at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The new munitions storage complex would include 27 new box type D magazines, eight modular storage magazines, and a range of administration and operations support facilities. Secondary development would include adjacent accessory roads and concrete pads, utility service and distribution (i.e., electrical, communications, water, and wastewater), site drainage improvements, installation security features, and fire lines and hydrants. Construction site preparations would encompass an area of approximately 50 acres, and construction staging areas would be in areas within or adjacent to the proposed building footprints. The Preferred Alternative would include any removal and relocation of non-compatible facilities, roads, or structures within explosives safety quantity distance (ESQD) arcs associated with the new magazines. The ESQD arcs associated with the new magazines would fall within existing West Loch Annex ESQD arcs. This alternative would relocate and consolidate existing Army munitions operations from Lualualei Annex to West Loch Annex which would also reduce the amount of personnel required to operate the facilities, substantially reduce current transportation time and costs, and preclude the Army from assuming the responsibility of the maintenance and utilities costs for its existing ordnance magazines, administration and operations support facilities at Lualualei Annex.

Alternative 2 would involve the repair and modernization of the existing magazines, infrastructure, and support facilities at Lualualei Annex to meet the Army's ordnance storage requirements. The scope

includes structural repairs to existing ammunition storage facilities; installation of required security fencing, lightning warning system and lightning protection systems; pavement repairs to the roadways and driveways; replacement of the existing Entry Control Point, wastewater, water, sewer, electrical, and communication lines and components; and environmental mitigation.

Under the No Action Alternative, the Proposed Action would not occur. Additional magazines and support facilities would not be constructed at JBPHH West Loch Annex for Army use and current munitions storage for Army munitions would remain at Lualualei Annex. The No Action Alternative would include ongoing maintenance of the Lualualei Annex magazines and facilities, but it would not include any of the improvements proposed in Alternative 2 (Repair/Modernization). The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No-Action Alternative is carried forward for analysis in this EA. The No-Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

ES.4 Summary of Environmental Resources Evaluated in the EA

Council on Environmental Quality regulations, National Environmental Policy Act (NEPA), and Navy instructions for implementing the NEPA, specify that an Environmental Assessment (EA) should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been addressed in this EA: cultural resources, biological resources, land use, public health and safety, socioeconomics, and environmental justice. Because potential impacts were considered to be negligible or nonexistent, the following resource areas were not analyzed in detail in this EA: airspace, air quality, geological resources, hazardous wastes and materials, infrastructure, noise, transportation, visual resources and water resources.

ES.5 Summary of Potential Environmental Consequences of the Action Alternatives and Major Mitigating Actions

Table ES-1 provides a tabular summary of potential impacts to the resources associated with each of the alternative actions analyzed.

ES.6 Public Involvement

The Navy implemented a range of public outreach initiatives to share information and solicit comments. In accordance with the National Environmental Policy Act (NEPA), the 30-day public review period for the Draft EA was published in the Honolulu Star-Advertiser for three consecutive days beginning Aug. 9. 2020. Notice was also posted in the State of Hawaii Office of Environmental Quality Control's semi-monthly publication, The Environmental Notice, Aug. 8, 2020. Per the advice of the Honolulu Neighborhood Commission, the chairs of the adjacent Neighborhood Boards were emailed notice of the public review period and were mailed print copies of the Draft EA. Print copies of the Draft EA were also distributed to the Ewa, Waipahu, and Hawaii State Libraries. The Draft EA was accessible online through both Navy and Army public websites, and the public was encouraged to submit their comments to the Navy by mail or email. Due to heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. Additionally, Joint Base Pearl Harbor-Hickam Community Planning and Liaison Officer engagements occurred at the Ewa Beach Neighborhood Board (NB) meeting on September 10, 2020 and the Maili-Nanakuli NB on September 15, 2020.

A total of thirty-six comment letters and emails were submitted from twenty-six individuals during the public comment period. Several commenters provided more than one submission. The Navy fully considered all comments prior to preparing this Final EA and the associated Finding of No Significant Impact (FONSI). The issues identified in the public comments and the Navy's responses have been summarized in Appendix C.

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Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex*
Cultural Resources	No impact.	Less than significant impacts. A portion of the Preferred Alternative is located in the Pearl Harbor National Historic Landmark (PHNHL), but no historic properties are present in the project area of potential effect (APE). In accordance with Stipulation IX of the 2012 Programmatic Agreement (PA) between the Navy, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Officer (SHPO), the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the National Historic Preservation Act (NHPA). Therefore, no further review under the PA or NHPA is required. Cultural resources at West Loch Annex would continue to be managed in accordance with the Integrated Cultural Resources Management Plan (ICRMP).	Less than significant impact. Repair/modernization efforts would take place within the Lualualei Headquarters Historic Management Zone, and would include buildings and structures identified as listed or eligible for listing in the National Register of Historic Places (NRHP). However, the improvements would be conducted in compliance with the ICRMP.
Biological Resources	No impact	Less than significant impacts. The construction of the Preferred Alternative would require the removal of existing cropland and scrub vegetation. If portions of the project footprint are landscaped as a result of the project, native Hawaiian plants would be employed to the maximum extent possible. Short-term construction period impacts could affect the Hawaiian hoary bat, Hawaiian short-eared owl, migratory birds, and water birds. Avoidance and minimization measures would be implemented to mitigate potential impacts. Pursuant to Section 7 of the Endangered Species Act (ESA), the Navy determined and the U.S. Fish and Wildlife Service (USFWS) concurred that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat.	Less than significant impacts. Minor vegetation clearing may be required to provide adequate clearance for repair and modernization efforts, but vegetation types in the project area are typical of other urban areas around the island. Alternative 2 would not encroach on critical habitat for the endangered Oahu elepaio or the location of the endangered plant *Albutilon menziesii*. Short-term construction period impacts could affect the Hawaiian hoary bat, Hawaiian short-eared owl, and migratory birds. Avoidance and minimization measures would be implemented to mitigate potential impacts.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex*
Land Use	Less than significant impacts. The Army's ordnance storage operations would continue at Lualualei Annex. The No Action Alternative is inconsistent with federal and local land use plans and policies to consolidate Department of Defense (DoD) ordnance storage at West Loch Annex, but it would not create any new or additional land use compatibility issues in or around Lualualei Annex.	Less than significant impacts. The Preferred Alternative would be located on land temporarily leased for agricultural use at West Loch Annex. However, the land at West Loch Annex has long been set aside for national defense purposes, and the agricultural outlease is being permitted under a temporary waiver. The Preferred Alternative is within the Honolulu Urbanized Area as defined by the 2010 census. Thus, the provisions of the Farmland Protection Policy Act (FPPA) do not apply. Overall, the consolidation of ordnance storage facilities at West Loch Annex is consistent with federal, state, and county land use plans. The Navy notified the Hawaii Coastal Zone Management (CZM) Office of the De Minimis usage for the Preferred Alternative.	Less than significant impacts. Alternative 2 would continue the existing use of Lualualei Annex for ordnance storage. This is inconsistent with federal, state and county land use plans which call for the consolidation of ordnance storage facilities at West Loch Annex, but it would not create any new or additional land use compatibility issues in or around Lualualei Annex.
Public Health and Safety	No impact.	Beneficial impact. The proposed magazines would be constructed at West Loch Annex in accordance with United States Department of Defense Explosives Safety Board (DDESB) standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA). The project would comply with Anti-Terrorism/Force Protection (ATFP) standards and physical security requirements. The Naval Explosive Safety Improvement Program's explosive-safety quantity-distance (ESQD) arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities. The proposed storage of ordnance at West Loch Annex would reduce the transportation of ordnance on public roadways.	No impact. Ordnance storage facilities at Lualualei Annex would be restored/modernized in accordance with DoD standards, including ATFP and physical security features. The transportation of ordnance along public roadways to Lualualei Annex would continue.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex*
Socioeconomics	No impact.	Less than significant impacts. Temporary increases in employment and spending related to construction of the Preferred Alternative.	Less than significant impacts. Temporary increases in employment and spending related to construction repairs of Alternative 2.
Environmental Justice	No impact.	No impact. The Preferred Alternative would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations.	No impact. Alternative 2 would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations.

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Environmental Assessment

U.S. ARMY WEST LOCH ORDNANCE FACILITIES

Joint Base Pearl Harbor-Hickam, Oahu, Hawaii

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Abbreviations and Acronyms

Acronym	Definition
ACHP	Advisory Council on Historic Preservation
ADP	Area Development Plan
AGM	above-ground magazine
ALISH	Agricultural Lands of Importance to the State of Hawaii
APE	Area of Potential Effect
APZ	Accident Potential Zone
ASP	Ammunition Supply Point
ATFP	Antiterrorism Force Protection
BMP	best management practice
CAA	Clean Air Act
CDP	census designated place
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
CNRH	Commander, Navy Region Hawaii
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DBEDT	Department of Business, Economic Development, and Tourism
DDESB	Department of Defense Explosives Safety Board
DoD	United States Department of Defense
EA	Environmental Assessment
ECM	earth-covered magazine
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EMS	emergency medical services
EO	Executive Order
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
ESS	Explosives Safety Submission
ESS DR	Explosives Safety Submission Determination Request
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
ICRMP	Integrated Cultural Resources Management Plan
IDP	Installation Development Plan
INRMP	Integrated Natural Resources Management Plan
LCP	lead containing paint
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LOS	level of service
LUO	Land Use Ordinance
MBTA	Migratory Bird Treaty Act
MEC	Munitions and Explosives of Concern
MILCON	military construction
MPPEH	Materials Potentially Presenting an Explosive Hazard
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
NAGPRA	Native American Graves Protection and Reparation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

Acronym	Definition
NOA	notice of availability
NOSSA	Naval Ordnance Safety and Security Agency
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRHP	National Register of Historic Places
OEQC	Office of Environmental Quality Control
OP	Office of Planning
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
PHNHL	Pearl Harbor National Historic Landmark
PHNWR	Pearl Harbor National Wildlife Refuge
PV	photovoltaic
PVC	polyvinyl chloride
SHPO	State Historic Preservation Officer
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
SOI	Secretary of the Interior
TCP	traditional cultural properties
U.S.	United States
U.S.C.	United States Code
USAG-HI	U.S. Army Garrison - Hawaii
USARPAC	U.S. Army Pacific Command
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMT	Vehicle Miles Travelled
WAAF	Wheeler Army Airfield
WWII	World War II

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1 Purpose of and Need for the Proposed Action

1.1 Introduction

The Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the U.S. Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the U.S. Army's Ammunition Supply Point (ASP) on the island of Oahu, Hawaii. The Preferred Alternative would construct a new munitions storage complex for the storage of military ordnance at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The 402 Army Field Support Brigade (AFSB) would be the intended occupant/tenant of the new facilities on Navy-owned land.

The U.S. Navy has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality regulations, and U.S. Navy procedures for implementing NEPA.

1.2 Background

Primary functions at West Loch Annex include ordnance handling at the ammunition wharves, torpedo and missile shop maintenance and ordnance storage. Ordnance enters JBPHH via ship and is unloaded at West Loch Annex. Unloaded ordnance is stored at West Loch Annex or transported over public roadways for storage at Lualualei Annex.

The Lualualei Annex includes 270 earth-covered magazines (ECMs) and above-ground magazines (AGMs). The Army is assigned 110 of these magazines located throughout Lualualei Annex and interspersed with facilities used by other Department of Defense (DoD) branches. The magazines were constructed between 1932 and 1942. The Navy provides storage facilities at Lualualei Annex and U.S. Army Garrison-Hawaii (USAG-HI) provides transportation between Lualualei Annex and West Loch Annex for all DoD services. The existing Army Lualualei facilities are aging and unable to accommodate various modern munitions. Additionally, Farrington Highway is the only road connecting Lualualei Annex and West Loch Annex; when closed – as during a major traffic accident, no surface route is available to connect these two points, representing a single point of failure.

The facilities at Lualualei Annex are approaching the end of their useful life and need major revitalization work in order to make them suitable for today's weaponry. The existing facilities were constructed between 1932-1942 and were originally designed for a railway transport system. They have narrow doorways and raised platforms to accommodate rail car loading. Today, transportation of ammunition is accomplished by truck and forklifts and the narrow doorways and raised platforms make it challenging to perform loading/unloading operations. In addition, the layout of the structural columns in the magazines do not provide adequate space for storage of today's ammunition. The magazines are also not standardized, and the operations and maintenance of the facilities require customized plans. The infrastructure of Lualualei Annex does not meet current requirements. Due to the deteriorated condition of the facilities at Lualualei Annex, the Navy has begun relocating their ordnance operations to West Loch Annex.

The Hawaii Military Land Use Master Plan study was prepared in 1995 at the direction of U.S. Pacific Command per request of Hawaii Senator Daniel Inouye. The goal of the study was to reduce the DoD footprint in Hawaii. The study:

- Identified 11,000 acres of military-controlled land on Oahu, of which 7,500 acres are Lualualei Annex.
- Noted that releasing Lualualei Annex would require consolidating all Navy and Army ordnance storage operations at West Loch Annex.

The study's findings would require the Army to either relocate its Lualualei Annex functions or to assume management of the Annex. The Army does not wish to assume management of Lualualei Annex, and the Navy may have other future uses planned for the area. Both the Army and Navy agreed on a long-term plan to construct magazines and infrastructure at West Loch Annex to enable complete ordnance relocation from Lualualei Annex. There is enough vacant land at West Loch Annex to accomplish this without increasing the area encumbered by existing explosives safety quantity distance (ESQD) arcs. The U.S. Army Pacific Command (USARPAC) directed USAG-HI to plan Military Construction (MILCON) projects to co-locate Army munitions operations to the West Loch Annex.

Relocating the Army's ASP to West Loch Annex enables utilization of the vacated facilities at Lualualei Annex for other critical training or infrastructure requirements. Consolidating magazines at West Loch Annex reduces Army transportation costs and enhances public safety by substantially reducing movement of ordnance along public roads. This also improves Army efficiencies by keeping ordnance on site close to the ordnance wharves. While these benefits are compelling, there is no mandate currently in place for the Navy to relocate out of Lualualei Annex.

The Navy is concurrently proposing to construct new munitions storage at West Loch Annex in a phased plan, in order to meet current Navy requirements at West Loch Annex to receive, maintain, store and issue ammunition, weapons and technical ordnance material. This is apart from Army munitions storage requirements now met at Lualualei Annex.

1.3 Location

JBPHH encompasses approximately 28,000 acres of land and water, and includes land holdings at the main base, West Loch Annex, Pearl City Peninsula, Waipio Peninsula and other outlying areas. In 2010, Naval Station Pearl Harbor joined with Hickam Air Force Base to become JBPHH combining the two bases into a single joint installation to support both Air Force and Navy missions in the Pacific. The main base is host to Commander U.S. Pacific Fleet and Headquarters Pacific Air Forces. In addition, JBPHH hosts over 100 tenant commands that support the Navy, Air Force, and other missions in Hawaii and the Pacific.

Figure 1-1 Regional Location Map

The new magazines as part of the Preferred Alternative would be located at the West Loch Annex in the Ewa District of south-central Oahu (Figure 1-1). Access to West Loch Annex is via Fort Weaver Road, a divided four-lane State highway, and Iroquois Road, a two-lane State roadway. Land use to the south and west of West Loch Annex are characterized by large residential communities (Iroquois Point, Ewa Beach, Ewa Gentry, Ewa Villages) and various parks, schools, golf courses, and shopping centers.

Lualualei Annex is located 13 miles northwest of the Pearl Harbor entrance channel in the Waianae District of west Oahu (Figure 1-1). Access to Lualualei Annex is via Farrington Highway, a divided four-lane State highway, and Lualualei Naval Road, a two-lane roadway owned by the Navy but open for public use.

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide sufficient storage space and improve operational efficiencies for the Army to meet its current and future ordnance storage requirements.

The need for the Proposed Action is to meet the mission of the Army to receive, maintain, store, and issue ammunition, weapons, and technical ordnance material for the Army commands in Hawaii. In this regard, the Proposed Action furthers the Army's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. section 3062.

> 10 U.S.C. section 3062: "[The Army] shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land. It is responsible for the preparation of land forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war."

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with action alternatives and the No-Action Alternative. The environmental resource areas analyzed in this EA include: cultural resources, biological resources, land use, public health and safety, socioeconomics, and environmental justice. The study area for each resource analyzed may differ due to how the Proposed Action interacts with or impacts the resource.

1.6 Key Documents

Key documents are sources of information incorporated into this EA. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include:

- EA/FONSI for Magazines for Long Ordnance at West Loch Annex, Joint Base Pearl Harbor-Hickam, Honolulu, Hawaii, October 2019. This EA assessed the environmental impacts of the construction of new magazines for storage of Navy ordnance at JBPHH West Loch Annex, construction of a new security perimeter fence, and demolition/relocation of non-compatible facilities, roads or structures within ESQD arcs associated with the new magazines.
- EA/FONSI for Photovoltaic Systems, Joint Base Pearl Harbor-Hickam, Oahu, Hawaii, June 2015. This EA assessed the environmental impacts of leasing up to 380 acres of land at the West Loch

Annex of JBPHH for the construction, operation, and decommissioning of an up- to 50-megawatt photovoltaic system.

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 United States Code [U.S.C.] sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations parts 1500–1508)
- Navy regulations for implementing NEPA (32 Code of Federal Regulations part 775), which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Farmland Protection Policy Act (7 U.S.C. 4201 et seq.)
- Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13834, Efficient Federal Operations
- Hawaii Revised Statutes (HRS), Chapter 342B, Air Pollution Control
- Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1, Air Pollution Control (June 30, 2014)
- HAR, Title 11, Chapter 55, Water Pollution Control

A description of the Proposed Action's consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 (Table 5-1).

1.8 Public and Agency Participation and Intergovernmental Coordination

Regulations from the Council on Environmental Quality direct agencies to involve the public in preparing and implementing their NEPA procedures.

The Navy implemented a range of public outreach initiatives to share information and solicit comments. In accordance with the National Environmental Policy Act (NEPA), the 30-day public review period for the Draft EA was published in the Honolulu Star-Advertiser for three consecutive days beginning Aug. 9. 2020. Notice was also posted in the State of Hawaii Office of Environmental Quality Control's semi-

monthly publication, The Environmental Notice, Aug. 8, 2020. Per the advice of the Honolulu Neighborhood Commission, the chairs of the adjacent Neighborhood Boards were emailed notice of the public review period and were mailed print copies of the Draft EA. Print copies of the Draft EA were also distributed to the Ewa, Waipahu, and Hawaii State Libraries. The Draft EA was accessible online through both Navy and Army public websites, and the public was encouraged to submit their comments to the Navy by mail or email. Due to heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. Additionally, Joint Base Pearl Harbor-Hickam Community Planning and Liaison Officer engagements occurred at the Ewa Beach Neighborhood Board (NB) meeting on September 10, 2020 and the Maili-Nanakuli NB on September 15, 2020.

A total of thirty-six comment letters and emails were submitted from twenty-six individuals during the public comment period. Several commenters provided more than one submission. The Navy considered all comments prior to preparing this Final EA and the associated Finding of No Significant Impact (FONSI). The issues identified in the public comments and the Navy's responses have been summarized in Appendix C.

In accordance with Section 7 of the Endangered Species Act (ESA) the Navy conducted informal consultation with the United States Fish and Wildlife Service (USFWS) and determined that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat and that there will be no destruction or adverse modification of critical habitat. The Navy notified USFWS of its determination via letter dated May 1, 2020 and USFWS concurred with the Navy's determination via letter dated May 29, 2020 (see Appendix A).

In accordance with Stipulation IX of the 2012 Programmatic Agreement (PA) between the Navy, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Officer (SHPO), the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the National Historic Preservation Act (NHPA). Therefore, no further review under the PA or NHPA is required. Per Stipulation XII of the PA, the Navy has reported this undertaking and the application of the PA to the SHPO and interested parties.

The Preferred Alternative falls under the Navy/Marine Corp's De Minimis Activities List (State of Hawaii Coastal Zone Management Act [CZMA] letter, dated July 9, 2009). The Navy notified the State of Hawaii Coastal Zone Management (CZM) Program of the use of the list and the preparation of the EA, and the State CZM program acknowledged receipt of the Navy notification (see CZMA consultation correspondence in Appendix B).

2 Proposed Action and Alternatives

2.1 Proposed Action

The Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the U.S. Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the U.S. Army's Ammunition Supply Point on the island of Oahu, Hawaii.

2.2 Screening Factors

NEPA's implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and to meet the purpose and need require detailed analysis.

Potential alternatives that meet the purpose and need were evaluated against the following screening factors:

- Availability of developable land with adequate setbacks for ordnance storage
- Potential risk to public safety
- Minimal environmental impacts
- Cost efficiency, constructability and ease of maintenance

Various alternatives were evaluated against the screening factors. The alternatives considered include:

- No Action
- New construction of magazines and support facilities at West Loch Annex (Preferred Alternative)
- Repair/modernization of magazines at Lualualei Annex (Alternative 2)
- New construction of magazines and support facilities at an alternative location at West Loch Annex
- New construction of magazines and support facilities at Wheeler Army Airfield
- Repair/Restore Kolekole Pass to provide an alternative access route to Lualualei Annex

2.3 Alternatives Carried Forward for Analysis

Based on the reasonable alternative screening factors and meeting the purpose and need for the Proposed Action, the no-action alternative and two action alternatives were identified and will be analyzed within this EA.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Additional magazines and support facilities would not be constructed at JBPHH West Loch Annex for Army use and current munitions storage for Army munitions would remain at Lualualei Annex. The No Action Alternative would include continuing maintenance of the Lualualei Annex magazines and facilities, but it would not include any of the improvements proposed in Alternative 2 (Repair/Modernization). The No Action Alternative would not meet the purpose and need for the Proposed Action because without major repairs, the use of existing magazines would be discontinued as they reach the end of their useful life and no new magazines would replace them. However, as required by NEPA, the No-Action Alternative is

carried forward for analysis in this EA. The No-Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

Under the Preferred Alternative, the U.S. Army would construct a new ordnance storage complex on Navy property at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The new munitions storage complex would include 27 new box type D magazines, eight modular storage magazines, and a range of administration and operations support facilities (Figure 2-1 and Table 2-1). Secondary development would include adjacent accessory roads and concrete pads, utility service and distribution (i.e., electrical, communications, water, and wastewater), site drainage improvements, installation security features, and fire lines and hydrants. Construction site preparations would encompass an area of approximately 50 acres, and construction staging areas would be in areas within or adjacent to the proposed building footprints. The Preferred Alternative would include removal and relocation of non-compatible facilities, roads, or structures within ESQD arcs associated with the new magazines. The ESQD arcs associated with the new magazines would fall within existing West Loch Annex ESQD arcs.

This alternative would relocate and consolidate Army munitions operations from Lualualei Annex to West Loch Annex which would also reduce the amount of personnel required to operate the facilities, substantially reduce current transportation time and costs, and preclude the Army from having to assume responsibility of the maintenance and utilities costs for Lualualei Annex.

Table 2-1 New Construction Associated with the Preferred Alternative

New Construction Type	*Quantity*	*Estimated Footprint*	*Number of Stories*
Box Type “D” Magazines	27	8,000 square feet (ea)	2
Modular Storage Magazines	8	2,132 square feet (ea)	2
Administration & Ordnance Operations Building	1	6,000 square feet	1
Vehicle Holding Yard	1	86,828 square feet	Pavement
Field Return Facility	1	8,832 square feet	1
Surveillance Shop and Issue Point Facility	1	8,832 square feet	1
Inert and Residue Storage Warehouse	1	20,000 square feet	2
MILVAN Loading and Transfer Facility	1	3,600 square feet	1
Vehicle Inspection Area	1	50,000 square feet	Pavement

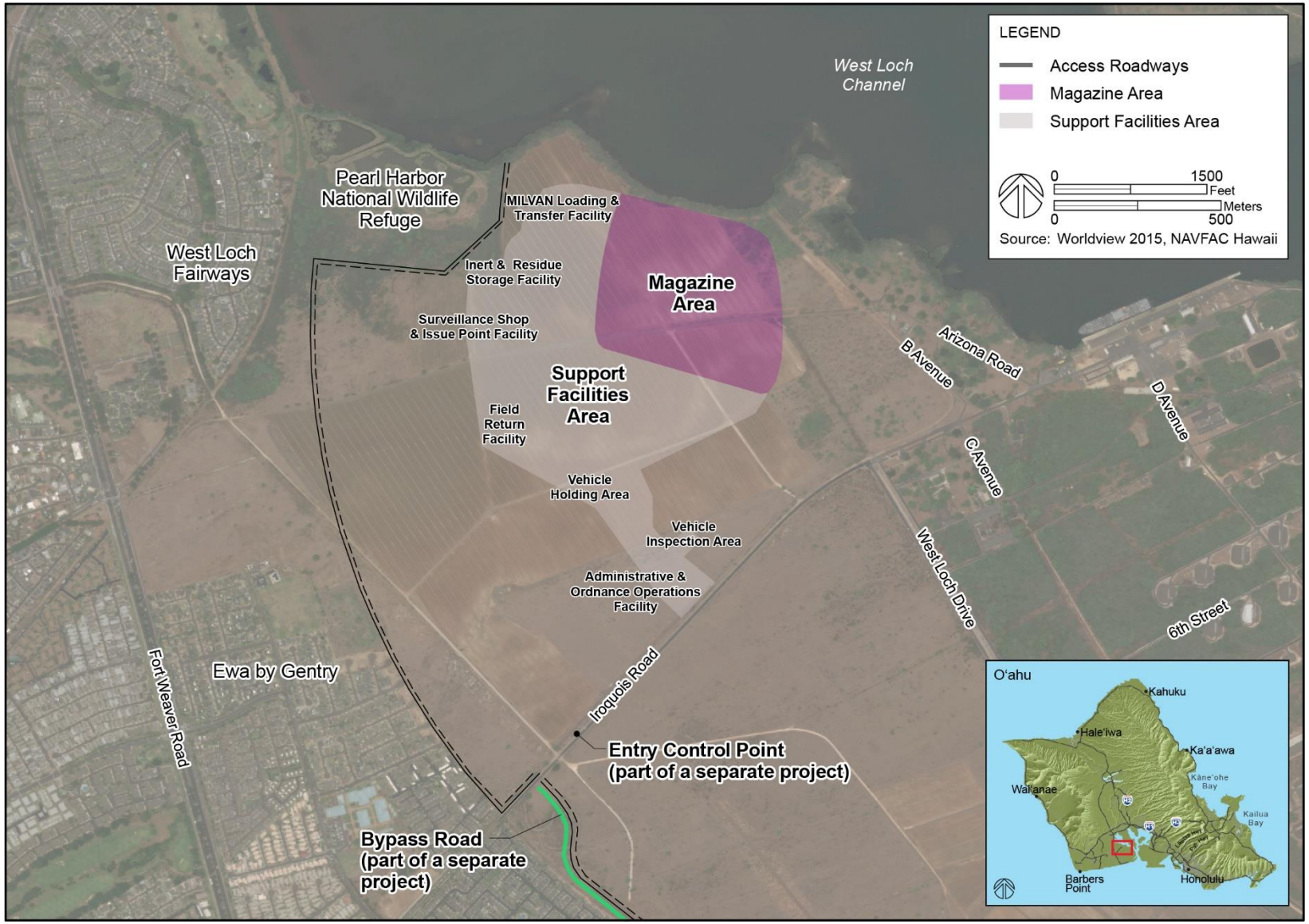

Figure 2-1 Project Location Map (Preferred Alternative)

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2.3.2.1 New Magazines

The Preferred Alternative would involve construction of 27 new box Type "D" magazines and eight modular storage magazines at West Loch Annex. The magazine structures consist of reinforced concrete covered by a minimum of two feet of earth. The magazines would be constructed and spaced in accordance with Navy standards for minimum separation distances and structural designs to prevent sympathetic explosion (e.g., chain reactions).

The box Type "D" magazine dimensions are approximately 160 feet wide by 50 feet long and 20 feet high (Figure 2-2). Each magazine would have five electronically operated doors at ground level and an intrusion detection system. Special foundation features would include concrete fill below the invert of the magazine foundation to the coral shelf. The modular storage magazine dimensions are approximately 26 feet wide by 82 feet long and 14 feet high (Figure 2-3). Each magazine would have doors made of blast-resistant steel and would be hinged, rolling, or sliding type.

Project work would also include installing a 60-foot wide concrete apron and access road to support new magazine loading and unloading operations. Electrical and communication improvements would include applicable connections to existing systems. Fire hydrants and applicable waterline improvements would be installed adjacent to the magazines in case of brush fire. Landscaping would also be installed.

The proposed magazines at West Loch Annex would be constructed and maintained in accordance with US Department of Defense Explosives Safety Board (DDESB) standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA), a field activity of the Naval Sea Systems Command. The expected operational life for buildings, including these magazines, is 45 years per DoD 7000.14-R Financial Management Regulation. Each proposed ordnance storage facility would undergo a system of inspections to ensure compliance with current explosive safety rules and regulations. This system includes regularly occurring inspections by the command that utilizes the facility, independent inspections by explosives safety specialists, and a comprehensive inspection every two years conducted by NOSSA. Additionally, the DoD's explosives handling operations utilize a layered safety system that includes highly trained personnel, detailed administration, and specifically designed equipment to ensure its handling of ordnance is safe and reliable.

The Naval Explosive Safety Improvement Program's explosive-safety quantity-distance (ESQD) arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. The ESQD arcs represent a safety buffer zone determined by the design of the magazines and amount of explosives permitted to be stored inside the magazines. The proposed magazines are designed and sited to not exceed the current ESQD arcs associated with ordnance handling operations at the West Loch ammunition wharves. ESQD arcs created by the newly constructed ordnance facilities are not permitted to expand (i.e., alter) the existing ESQD arcs, and construction cannot begin without DDESB Approval.

The ordnance to be stored at the proposed new magazines would continue to arrive by sea and be offloaded at the West Loch Annex wharves. Therefore, implementation of the Preferred Alternative would eliminate the need to transport ordnance from the West Loch Annex wharves to the current Lualualei facility for storage. As a result, ordnance stored in the proposed new magazines would not be transported on the 18 miles of public highways from West Loch Annex to Lualualei Annex, including Fort Weaver Road, H-1 Freeway, Farrington Highway, and Lualualei Naval Road.

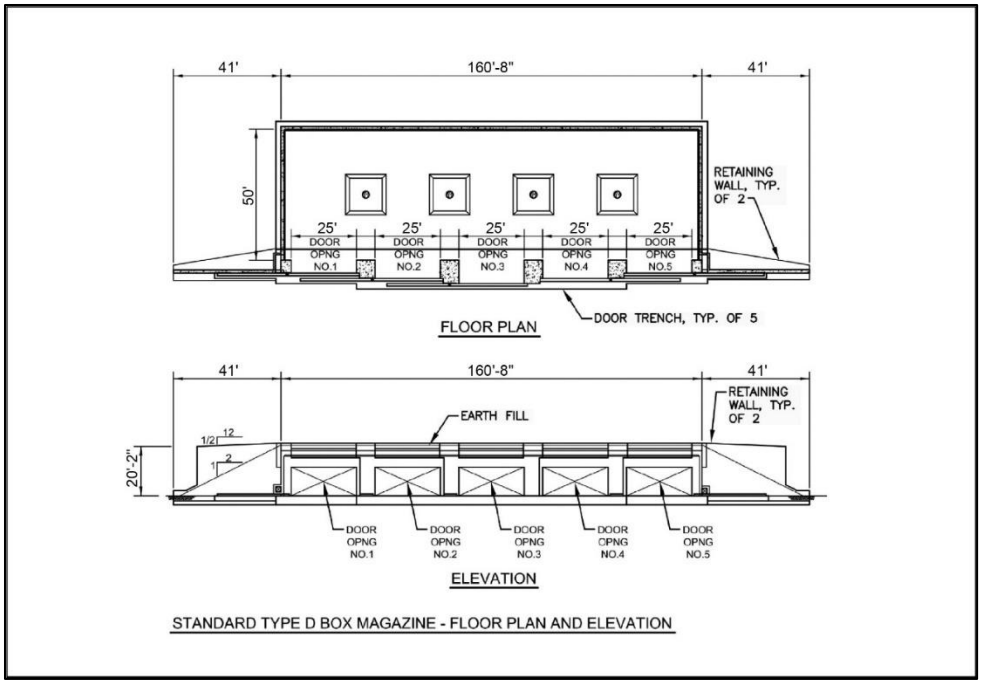

Figure 2-2 Floor Plan and Elevation of Type "D" Magazines

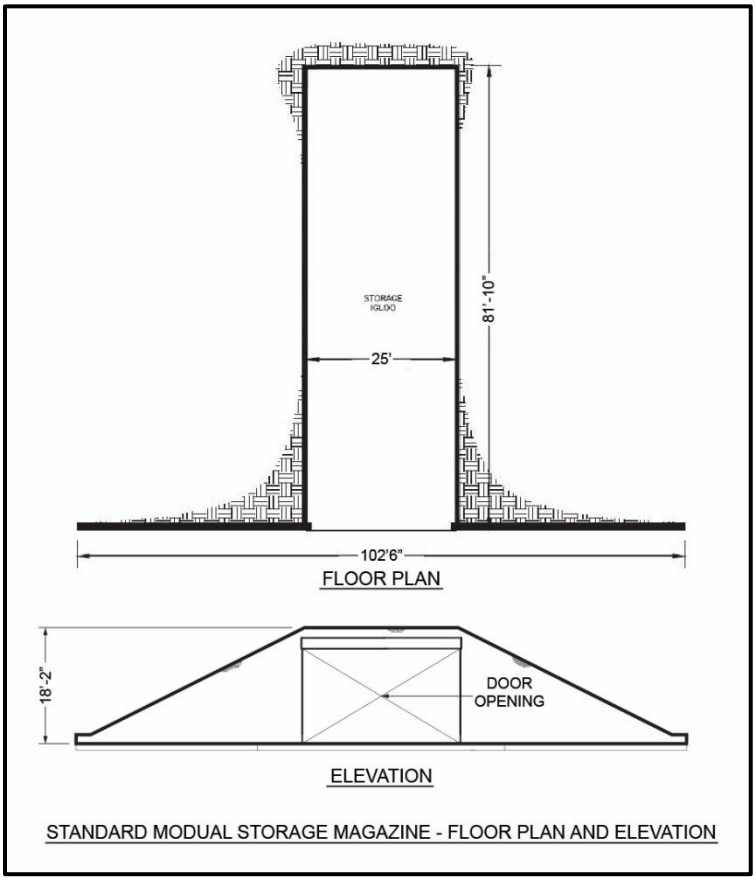

Figure 2-3 Floor Plan and Elevation of Modular Storage Magazines

2.3.2.2 Support Facilities

The Preferred Alternative would involve the construction of a range of support facilities to facilitate safe operations of the proposed magazines. The support facilities would include an admin/ordnance operations building, a vehicle holding yard, a field return facility, surveillance shop and issue point facility, inert and residue storage warehouse, military owned demountable container (MILVAN) loading and transfer facility, a vehicle inspection area and associated transportation infrastructure and utilities. At full build out, the operations of the proposed ordnance storage complex are anticipated to require approximately 56 full time personnel.

The project would comply with Anti-Terrorism/Force Protection (ATFP) standards and physical security requirements in accordance with DoD Minimum Anti-Terrorism Standards for Buildings. The intent of these building standards is to reduce collateral damage and casualties in buildings controlled by the DoD in the event of a terrorist attack. That philosophy affects the general practice of designing inhabited buildings. ATFP standards consist of restrictions for onsite planning, including standoff distances, building separation, unobstructed space, drive-up and drop-off areas, access roads, and parking; structural design; structural isolation; and electrical and mechanical design. ATFP standards will be incorporated into the design of the new Army administrative space, where applicable.

Facilities will be designed to meet or exceed the useful service life specified in DoD Unified Facility Criteria. Facilities will incorporate features that provide the lowest practical life cycle cost solutions satisfying the facility requirements with the goal of maximizing energy efficiency. The construction would incorporate Leadership in Energy and Environmental Design (LEED) and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Low Impact Development (LID) will be included in the design and construction of this project as appropriate.

2.3.2.3 Infrastructure and Site Improvements

Site preparation includes site clearing, grubbing and earthwork. Paving and site improvements include asphalt concrete access roadways and parking, concrete magazine apron, concrete circulation area for the issue point facility, site restoration, and percolation basin and collector drainage system. A perimeter security fence along the West Loch Annex installation boundary and a new entry control point on Iroquois Road (Figure 2-1) are planned for construction as part of a separate Navy project (see EA for Magazines for Long Ordnance at West Loch Annex in Section 1.3). Internal security fencing would be required surrounding a subset of the high security magazines.

Mechanical utilities include sewage and potable water distribution system and a sewage pump station. Points of connection and off-site improvements for potable water and sewer service are shown in Figure 2-4. Potable water service would be provided by connecting to a new water line along Iroquois Road that is being constructed as part of the Navy's separate munitions storage project. Sewer service would be provided to the proposed munitions complex by connecting to an existing sewer line and installing a new sewer pump station at the intersection of Iroquois Road and West Loch Drive. A new sewer line would be installed along Iroquois Road from the point of connection to the intersection with the access road for the proposed munitions storage complex. Within the proposed munitions storage complex, new water and sewer lines would be installed along the site access roads to service the necessary buildings and facilities.

Electrical utilities include primary and secondary electrical distribution systems, transformers, and primary and secondary communication distribution systems. Points of connection and off-site improvements for electrical and communications service are shown in Figure 2-4. The point of

connection for electrical service would be at the existing HECO substation on Arizona Road (Figure 2-4). Electrical service would be provided by installing overhead electrical lines on new utility poles. New communications lines would also be installed to service the project site. The point of connection for the communications lines would be at Building 52. The communications lines would be installed on existing utility poles from Building 52 to the intersection of Iroquois Road and West Loch Drive. From the intersection with West Loch Drive, the lines would continue along Iroquois Road to the intersection with the new project access road. For this stretch, the lines would be installed on utility poles that are being constructed as part of the Navy's separate munitions storage project. Within the proposed munitions storage complex, electrical and communications overhead distribution systems would be installed on new utility poles. Underground conduit would be installed to provide electric and communications service from the distribution system to the individual buildings and magazines.

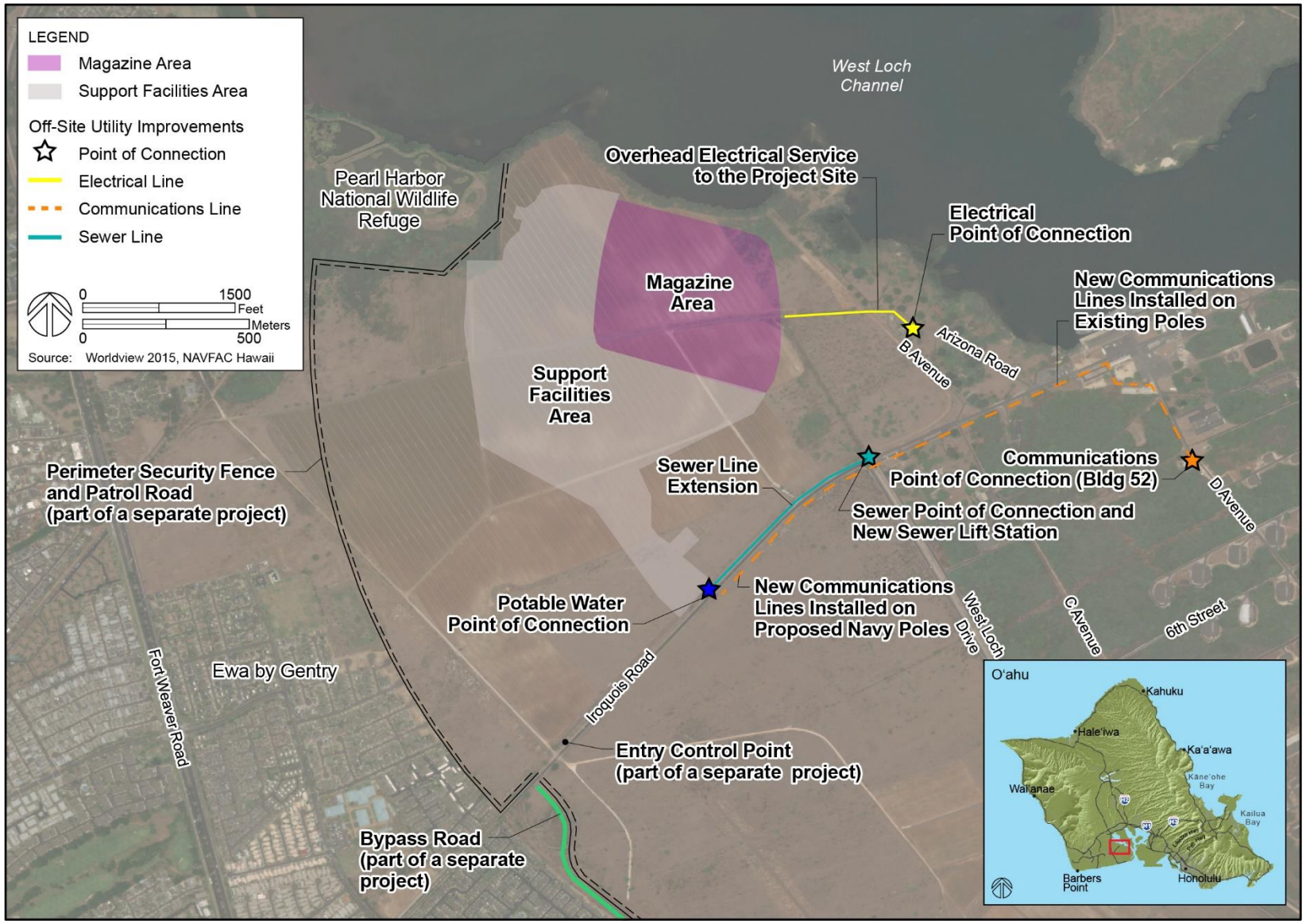

Figure 2-4 Infrastructure Points of Connection (Preferred Alternative)

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2.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

Under Alternative 2, the U.S. Army would repair and modernize existing magazines, infrastructure, and support facilities at Lualualei Annex to meet their ordnance storage requirements (Figure 2-5). The scope of the repairs and modernizations was derived from a U.S. Army Corps of Engineers study completed in July 2013. The scope includes structural repairs to the ammunition storage facilities; installation of required security fencing, lightning warning system and lightning protection systems; pavement repairs to the roadways and driveways; replacement of the existing entry control point, wastewater system, water, sewer, electrical, and communication lines and components; and environmental mitigation.

The Army currently uses 110 magazines at Lualualei Annex including 25-foot wide arched ECMs, 44-foot-by-32-foot and 100-foot by-50-foot boxed ECMs, and 100- to 200-foot-long by 50-foot-wide AGMs. Alternative 2 proposes to conduct major repair and modernization work on existing magazines as described in the July 2013 report. No new magazines would be constructed. The repairs and modernizations would not change the layout of the structural columns in the magazines, and therefore, would not address the configuration limitations of the existing ammunition storage facilities. Alternative 2 would not change the existing logistical and safety issues of having a single access point for Lualualei through a busy public highway. This alternative assumes that the Army would assume operational control of Lualualei Annex as the primary tenant since the Navy is already in the process of relocating most of its munitions to West Loch Annex.

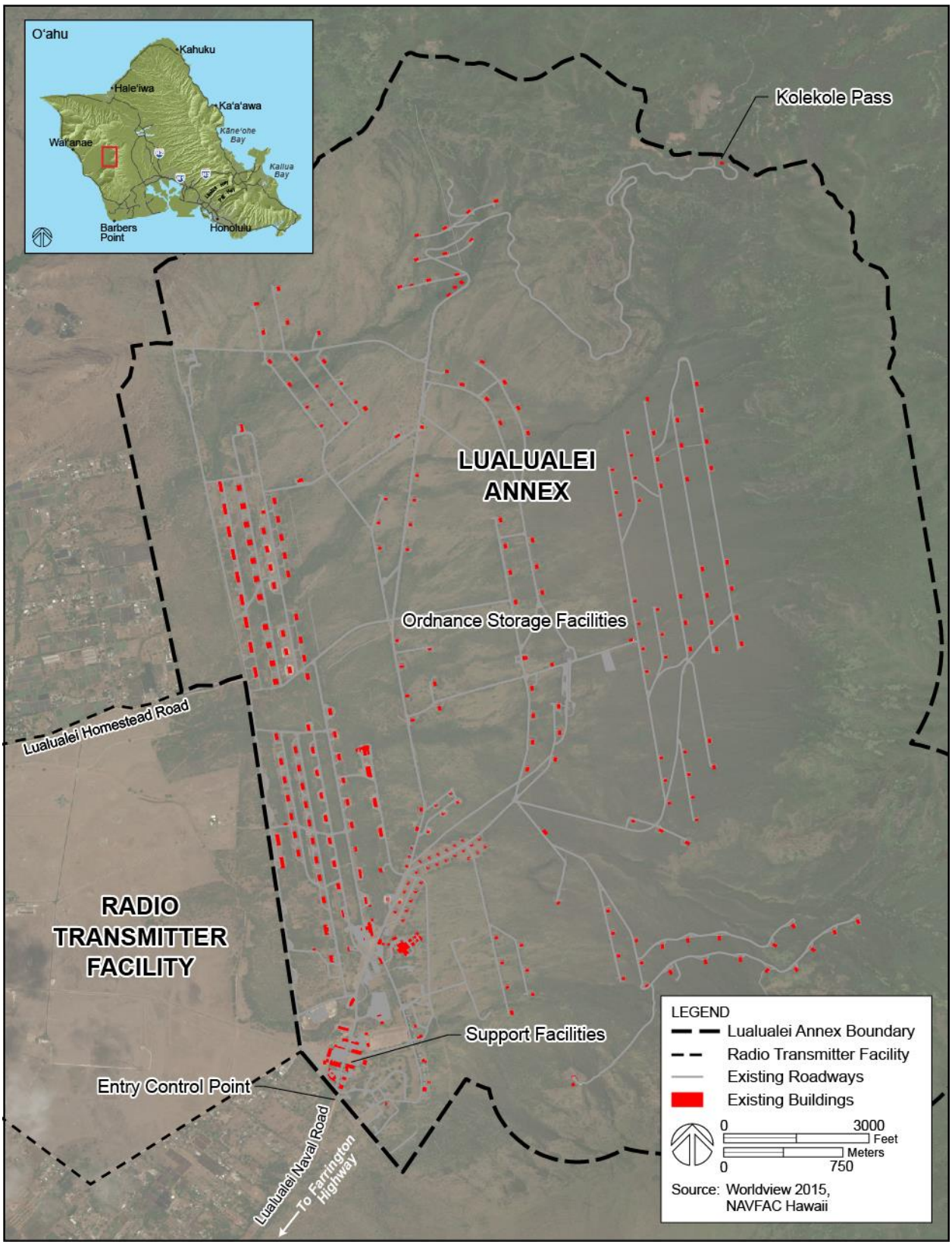

Figure 2-5 Project Location Map (Alternative 2)

2.3.3.1 Repairs to Existing Magazines

Based on the results of the July 2013 USACE report, a range of repair and/or modernization efforts are required to ensure efficient operations of the existing magazines into the future. These efforts include structural repairs to the magazine facilities, additional soil cover and headwall modification for the ECMs, electrical grounding improvements, and the installation of a lightning protection system. Due to the age of the existing magazines, special environmental considerations and potential mitigation efforts will likely be required for the repair and modernization efforts. These considerations include lead-based paint, asbestos-containing material, abandoned drums, and archaeological/historical resources.

2.3.3.2 Support Facilities

The operations and support facilities for Lualualei Annex are mostly located in the vicinity of the entry control point along Lualualei Naval Road in the southwest corner of the site (Figure 2-5). The support facilities are aging and require substantial levels of maintenance. Additional modernization efforts have been recommended as part of the July 2013 USACE report. These include upgrading all heating, ventilation, and air conditioning, replacing all windows, painting all interior and exterior surfaces, and replacing worn floor coverings.

Alternative 2 would also include the construction of a new entry control point further south from the existing current location on a portion of the existing federally owned Lualualei Naval Road. The new entry control point would include a standard approach zone, access control zone, response zone, and associated lighting and backup power in compliance with DOD's Unified Facilities Criteria.

2.3.3.3 Infrastructure and Site Improvements

Existing Infrastructure at Lualualei Annex consists of roadways, drainage, fencing, potable water service, wastewater service, electrical utilities, and communications utilities. Due to the age of the existing infrastructure, major repair/modernization efforts would be required. Roadways and driveways would be repaved, and erosion at roadway low-water crossings would be addressed.

The potable water and wastewater systems require large-scale replacement due to age. Water piping would be replaced with ductile iron for larger pipes, and wastewater piping would be replaced with new polyvinyl chloride (PVC) piping. Portions of the systems that do not serve a current use would be capped and abandoned as they fail. A new septic tank and drain field would be constructed.

The electric power distribution system is also in need of modernization. The existing switching station 2,400-volt distribution is obsolete and unsafe to operate. Alternative 2 would include the replacement of the switching station with a modern switching device and improvements to overhead electrical distribution. Improvements to communication systems would include installation of overhead communications lines and the modernization of communications support infrastructure.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward for detailed analysis in this EA because they did not meet the purpose and need for the project and satisfy the reasonable alternative screening factors presented in Section 2.2.

2.4.1 New Construction of magazines and support facilities at an alternative location within West Loch Annex

Siting the Army's ASP at another location within West Loch Annex was considered as an alternative. However, there are safety, operational, and land use constraints that limit the potential locations for the ASP. To meet safety standards, the new magazines are required to be located at a calculated distance from adjacent residential housing areas. From an operational/security standpoint, the Army ASP needs to be physically separate from existing and planned Navy facilities and operations. Additionally, there are new projects that have been recently constructed or are being planned at West Loch Annex. The new utility scale solar photovoltaic (PV) array has been constructed along the West Loch Annex boundary to the south of Iroquois Road. Additionally, the Navy is planning to construct new magazines at West Loch Annex. In the recently completed EA for Magazines for Long Ordnance, the Navy considered two alternative locations for the construction of the magazines within West Loch Annex. The preferred location of the Navy magazines for long ordnance is located to the east of West Loch Drive near other existing Navy magazines. The EA also considered an alternative location near the intersection of West Loch Drive and Iroquois Road, however, the Army ASP includes more magazines and additional support facilities so it would not fit within this site. For these reasons, alternative locations within West Loch Annex were determined to be infeasible at this time and are not being carried forward for further analysis in this EA.

2.4.2 New Construction of magazines and support facilities at Wheeler Army Airfield

Wheeler Army Airfield (WAAF) currently provides some relatively minor ordnance storage facilities for the Army. This alternative would collocate the proposed ordnance storage facilities with existing ordnance storage at WAAF. This alternative was considered but is not being carried forward for detailed analysis in the EA because there is not sufficient space within or around the existing WAAF ordnance storage facilities to provide the capacity of ordnance storage that would be required to relocate the Army's Ammunition Supply Point. It was determined that it would be impracticable for the Army to purchase additional property around WAAF to accommodate the required ESQD arcs, so this alternative was dismissed from further analysis.

2.4.3 Repair/Restore Kolekole Pass as an alternative access route to Lualualei Annex

Kolekole Pass provides a direct roadway connection between Schofield Barracks and Lualualei Annex over the Waianae mountain range, but it has been damaged by rockslides and is currently closed. The Army considered reopening the pass as an alternative to provide a secondary ordnance hauling route to and from Lualualei Annex. However, the Army determined it to be impractical because even with the necessary repairs, it would not be a safe ordnance hauling route due to the weight of the ordnance and the size of the trucks required for transport. Therefore, it was eliminated from consideration.

2.5 Best Management Practices Included in Proposed Action

This section presents an overview of the best management practices (BMPs) that are incorporated into the Proposed Action in this document. BMPs are existing policies, practices, and measures that the Navy would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action

and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Table 2-2 includes a list of BMPs. Mitigation measures are discussed separately in Chapter 3.

Table 2-2 Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
Implement appropriate construction noise abatement measures	A contractor-prepared Construction Noise Mitigation and Management Plan is recommended as a local best practice.	Minimize construction noise impact on adjacent areas
Sustainability and Energy Building Requirements	Engineering Construction Bulletin 2014-02 provides overall NAVFAC policy and guidance on sustainability and energy requirements, to include application of third-party certification (such as Leadership in Energy and Environmental Design [LEED]) for new construction greater than or equal to $2,500,000 in construction cost.	Minimization of facility operation and maintenance costs, including minimization of energy/power requirement
Low Impact Development (LID)	LID refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat.	Minimization of runoff and protection of water quality.
Implement construction dust control plan	Example BMPs include watering of active work areas, using wind screens, keeping adjacent paved roads clean, covering of open-bodied trucks, limiting the area that is disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Other potential BMPs include paving and landscaping of project areas early in the construction schedule and moving construction equipment and workers to and from the project site during off-peak traffic hours.	Prevents or minimizes fugitive particulate emissions from being transported away from the project area
Erosion control	Compliance with National Pollutant Discharge Elimination System provisions including Storm Water Pollution Prevention Plans; erosion and sediment control measures, such as protection of erodible soils; control of storm water runoff from the construction site; use of sediment basins; use of vegetation and mulch on soil exposed by grading; use of silt fencing and barriers around excavated and cleared areas; and fugitive dust control measures.	Prevents or minimizes water quality impacts on receiving waters
Management of Historic Properties	In the event that there are inadvertent discoveries of cultural resources during the project, work must cease to allow the find to be assessed by Navy archaeologists. If the resource is determined to be significant, the Navy will initiate Section 106 consultation.	Protection of historic properties

Table 2-2 Best Management Practices

BMP	*Description*	*Impacts Reduced/Avoided*
Tree removal	No cutting of trees 15 feet or higher would occur during bat pupping season (June 1 to September 15).	To prevent disturbance to Hawaiian hoary bats
Pre-construction nest surveys of protected bird species	Conduct nest surveys for protected bird species before construction. Active nests would be left in place and undisturbed until chicks have fledged. A qualified biologist would monitor active nests during construction activities to reduce the chances of nest abandonment by temporarily shutting down construction activities that disrupt the normal daily patterns of the birds.	To prevent adverse impacts to protected avian species.
Shielded lighting	Use of shielded and Migratory Bird Treaty Act compliant outdoor lights	To prevent disorientation, disturbance, and/or injury to protected avian species
Construction activity stoppage	If Hawaiian stilts are observed in the project area during construction activities, all activities within 100 feet of the species would cease, and work would not continue until the species leaves the area on its own accord.	To prevent disturbance to Hawaiian Stilts
Management of biological resources	Implement habitat management measures outlined in the JBPHH Integrated Natural Resources Management Plan	Protect and benefit threatened and endangered species on JBPHH -controlled lands
Hazardous Waste Management	Handle, transport, dispose of and/or remediate hazardous materials or waste encountered during construction in accordance with applicable federal and state regulations.	Protection of construction workers/community members from any hazardous material encountered during construction.

3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and Department of Navy guidelines; the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

"Significantly," as used in NEPA, requires considerations of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would be expected to be significant.

This section includes cultural resources, biological resources, land use, public health and safety, socioeconomics, and environmental justice.

The potential impacts to the following resource areas are considered to be negligible or non-existent so they were not analyzed in detail in this EA:

Airspace: Construction and operation of the Preferred Alternative does not involve impacts to military or civilian airspace. The proposed magazines and related improvements are low-rise and constructed to applicable safety standards. Alternative 2 would repair and modernize existing facilities and would have no impacts to military or civilian airspace.

Air Quality: The Action Alternatives are in an attainment area as designated by the National Ambient Air Quality Standards (NAAQS). Construction associated with the Preferred Alternative and Alternative 2 would generate short-term impacts on air quality associated with the emission of fugitive dust and emissions from construction vehicles. To avoid or minimize potential impacts from fugitive dust, the construction contractor would prepare a dust control plan in compliance with Section 11-60.1-33(b) of the Hawaii Administrative Rules (HAR). Generation of greenhouse gas emissions associated with construction activities would be temporary and would not likely contribute to global warming to a discernible extent. During the operational period, the Preferred Alternative would have a negligible impact on air quality. Vehicle trips to and from West Loch Annex would increase due to the operations of the proposed munitions supply point, but there would be an overall reduction in vehicle miles traveled (VMT) by relocating ammunition storage from Lualualei Annex to West Loch Annex (located adjacent to the West Loch Ammunition Wharves). Alternative 2 would continue existing ammunition storage operations at Lualualei Annex. Backup power would be provided by a generator for the entry control point, but it would only be run during temporary situations when electrical service is down.

Therefore, Alternative 2 would have negligible impacts on air quality and greenhouse gas emissions during the operational period.

Geological Resources: The Action Alternatives do not involve work that would affect major geological characteristics such as topography, bedrock material, or mineral deposits. Ground-altering construction activities would comply with all applicable regulations, and the Contractor would be responsible for implementing BMPs to control soil erosion and sedimentation during construction activities.

Hazardous Materials and Wastes: Construction of the Preferred Alternative would take place in existing agricultural fields and would not disturb any hazardous waste sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). There is a very low likelihood of encountering Munitions and Explosives of Concern (MEC) and/or Material Potentially Presenting an Explosive Hazard (MPPEH). Therefore, an Explosives Safety Submission (ESS) or Explosives Safety Submission Determination Request (ESS DR) is not required. In the event that hazardous wastes and/or materials are unexpectedly encountered during construction, they would be handled, transported, disposed of and/or remediated in accordance with applicable federal and state regulations. Construction activities associated with Alternative 2 would include the repair and modernization of existing structures that are likely to contain lead-containing paint (LCP), and asbestos-containing materials (ACM). In accordance with all federal and state regulations, BMPs would be employed to avoid or minimize potential impacts associated with LCP and ACM. During the operational period, limited quantities of hazardous materials and wastes typical of operating the proposed facilities would be stored, used, and or generated. All hazardous materials, wastes, special hazards would be transported, stored, handled, and disposed of in accordance with federal and state regulations.

Infrastructure: For the Preferred Alternative, no major infrastructure beyond the utility points of connection within the project limits of construction would be impacted. Operations of the proposed munitions storage facilities would have a negligible effect on the overall demand for utility service at West Loch Annex (i.e., electricity consumption, water supply, or wastewater treatment). Alternative 2 would involve improvements to infrastructure within Lualualei Annex, but there would be no impact on public infrastructure located outside of Lualualei Annex. The Army would continue its ordnance storage operations at Lualualei Annex so there would be no change to the overall demand for utility service. For both alternatives, non-hazardous construction and demolition waste that cannot be recycled would be disposed off-site at an approved sanitary landfill.

Marine Biological Resources: At the nearest point, the Preferred Alternative is located approximately 100 feet away from the West Loch Shoreline at an elevation of approximately 30 feet above mean sea level. In accordance with Section 438 of the Energy Independence and Security Act (EISA), drainage improvements associated with the new facilities would be designed based on the principles of low impact design (LID), and would not increase stormwater runoff from the project site into adjacent areas including the marine environment. Alternative 2 is in an upland location approximately 2.3 miles from the ocean. Drainage improvements undertaken as part of repair and modernization efforts would be conducted in accordance the EISA and the principles of LID, and would have no impact on the marine environment.

Noise: The Preferred Alternative would be located at least 1,500 feet from the nearest noise sensitive uses, single family homes in West Loch Fairways and Ewa Gentry. At that distance, construction related noise would be attenuated to permissible levels. A contractor-prepared Construction Noise Mitigation and Management Plan is recommended as a local best practice. Alternative 2 would generate

construction-period noise associated with the repair and modernization of the facilities at Lualualei Annex. Due to the existing safety setbacks from these munitions storage facilities to any inhabited structure, the potential impacts of this construction period noise would be negligible. Operations of either alternative would have no discernable impact on the surrounding noise environment.

Transportation: The Preferred Alternative would have a minor beneficial impact on traffic associated with a reduction in trips to store munitions at Lualualei Annex. The Preferred Alternative would require approximately 56 full-time staff at the proposed facilities, but these commuters would be traveling in the opposite direction of the major town bound commuting traffic flow. Alternative 2 would continue the storage of munitions at Lualualei Annex and would have no discernable impacts on transportation or traffic.

Visual Resources: The Preferred Alternative would be located fully within West Loch Annex and behind the perimeter security fence that will be constructed as part of a separate Navy action. The proposed munitions storage facilities would be low-lying and would not have a significant impact on public views into West Loch Annex or regional view planes. Alternative 2 would restore/modernize existing facilities at Lualualei Annex and would not have any discernable impact on the visual resources of the project area.

Water Resources: Construction associated with the Preferred Alternative or Alternative 2 would not directly impact groundwater, surface waters, marine waters, wetlands, or floodplains. As applicable, construction activities would comply with the National Pollutant Discharge Elimination System (NPDES) and HAR Section 11-55 (Water Pollution Control) to avoid and/or minimize potential impacts associated with temporary discharges of storm water relating to construction activities. In accordance with Section 438 of the EISA, drainage improvements associated with the new facilities would be designed based on the principles of low impact design (LID), and would not increase stormwater runoff from the project site. There is a zone VE floodplain along the West Loch shoreline adjacent to the project area. Zone VE is defined as an area inundated by 1% annual chance flooding with velocity hazard (wave action) for which base flood elevations (BFEs) have been determined. The BFE for the VE flood zone along the West Loch Shoreline in the vicinity of the Preferred Alternative is three feet above sea level, and the project area is at approximately elevation thirty feet above sea level. There are cliffs along the West Loch shoreline in this area, so the project is located well above the floodplain. Therefore, the Preferred Alternative would have no impact on the floodplain and is not subject to EO 11988, Floodplain Management. The Hawaii Sea Level Rise Vulnerability and Adaptation Report assumes 3.2 feet of sea level rise by the year 2100 (Hawaii Climate Change Mitigation and Adaptation Commission, 2017). The Preferred Alternative is well above and outside the projected sea level rise exposure area for the 3.2 foot sea level rise scenario. The proposed ordnance storage facilities for the Preferred Alternative is outside of the tsunami evacuation zone (the evacuation zone limits are based on distant tsunami events that have impacted the State of Hawaii and Island of Oahu in the past 100 years). A portion of the proposed ordnance storage facilities is within the extreme tsunami risk zone (evacuation zone for a tsunami that exceeds the historic distant Tsunami Evacuation Zone).

3.1 Cultural Resources

Cultural resources may include archaeological and historic sites and artifacts; traditional religious, ceremonial, and social sites, funerary and other sacred objects; and buildings, structures, or material remains resulting from, or associated with, human cultural activity. Cultural resources can be divided into four major categories:

- Archaeological resources are any material remains of past human life or activities which are at least 50 years of age that are of archaeological interest.
- Architectural resources include buildings and structures, and other built-environment resources of historic or aesthetic significance, but not including roads, railroads, and landscapes.
- Historic properties are historically important cultural resources that are included, or potentially eligible for inclusion, in the National Register of Historic Places (NRHP) because they possess integrity and meet one or more of the four National Register criterion, pursuant to 36 C.F.R. Sec. 60.4.
- Traditional Cultural Properties (TCPs) are historic properties that are included, or eligible for inclusion in the NRHP because they possess integrity and meet one or more of the four National Register criterion, pursuant to 36 C.F.R. Sec. 60.4. A historic property is considered a TCP when it is a place that a living community regards as important for its association with cultural practices, beliefs, traditions, lifeways, arts, crafts, or social institutions. TCPs are rooted in a community's history and are important in maintaining the continuing cultural identity of the community.

Cultural resources listed in the NRHP or eligible for listing in the NRHP are "historic properties" as defined by the National Historic Preservation Act (NHPA). The list was established under the NHPA and is administered by the National Park Service (NPS) on behalf of the Secretary of the Interior (SOI). The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by the SOI or by a federal agency official with concurrence from the applicable State Historic Preservation Office (SHPO). A NRHP-eligible property has the same protections as a property listed in the NRHP. The historical properties include archaeological and architectural resources and TCPs.

3.1.1 Regulatory Setting

There are a variety of laws that protect certain types of cultural resources: the NHPA of 1966 as amended in 2006 (currently codified in 54 U.S.C. 306108), the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. The Advisory Council on Historic Preservation (ACHP) further guides treatment of archaeological and architectural resources through the regulations detailed in protection of historic properties (36 C.F.R. part 800). The category of "historic properties" is a subset of cultural resources that is defined in the NHPA (54 U.S.C. 306108) as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP), including artifacts, records, and material remains related to such a property or resource.

Under Section 106 of NHPA, federal agencies must review the effects of an undertaking within the area of potential effects (APE), defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The identification of cultural resources in a given APE is generally the first step in the review of effects. Once an APE has been defined, a reasonable and good faith effort is made to identify

historic properties (listed or eligible for listing in the NRHP) within the APE. Cultural Resources that are not included in the NRHP, such as sites listed in the State Inventory of Historic Properties (SIHP) are reviewed, but not considered in the identification process. However, the agency official may either treat a cultural resource as a historic property, or, the agency official may determine whether the resource meets any of the National Register criteria and if SHPO concurs, the resource may be considered eligible for the NRHP for Section 106 purposes of a given undertaking. To assist in identification of historic properties and the effects determination regarding the proposed actions, the regulations implementing Section 106 (36 C.F.R Part 800) specify a consultation process with the appropriate SHPO, the ACHP, Native Hawaiian organizations, the public, state and federal agencies. For the area being considered in the Proposed Action, all cultural resources have been identified during previous investigations of the area as detailed in the following paragraphs.

Cultural resources information relevant to this Environmental Assessment was derived from a variety of sources, including previous environmental documents, management plans related to cultural resources, the NRHP Information System, information repositories associated with State Historic Preservation Offices, online maps and data, and published sources, as cited. Environmental documents used include the Integrated Cultural Resources Management Plan (ICRMP) for Commander Navy Region Hawaii (CNRH, 2008) and the reports from various archaeological surveys, historic building inventories and traditional cultural property assessments (Davis, 1988; Davis and Burtchard, 1991; Goodman and Cleghorn, 1991; Jayatilaka et al., 1992; Kennedy and Denham, 1992; Jensen and Head, 1997; Magnuson et al, 2002; O'Hare et al., 2006; Rieth, 2011; Sholin et al., 2012; Tuggle and Tomonari-Tuggle, 2004; Filimoehala et al., 2015; Vernon et al., 2016).

3.1.2 Affected Environment

The APE for historic properties is the geographic area or areas within which an undertaking (project, activity, program or practice) may cause changes in the character or use of any historic properties present. The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking. Only the Preferred Alternative was considered in the NHPA Section 106 consultation for this Proposed Action. Still, NEPA requires objective evaluation of all reasonable alternatives, and the following discussion describes the APE for the Preferred Alternative (West Loch Annex), as well as the APE for Alternative 2 (Lualualei Annex).

West Loch Annex

For the Preferred Alternative, the proposed APE comprises the area of the proposed magazines, support facilities, access roads, site improvements, and utility work (Figure 3-1).

Lualualei Annex

For the Alternative 2, the proposed APE comprises the area of the repair/modernization efforts for the 110 Army magazines, access roads, support facilities, site improvements, and utility work (Figure 3-2).

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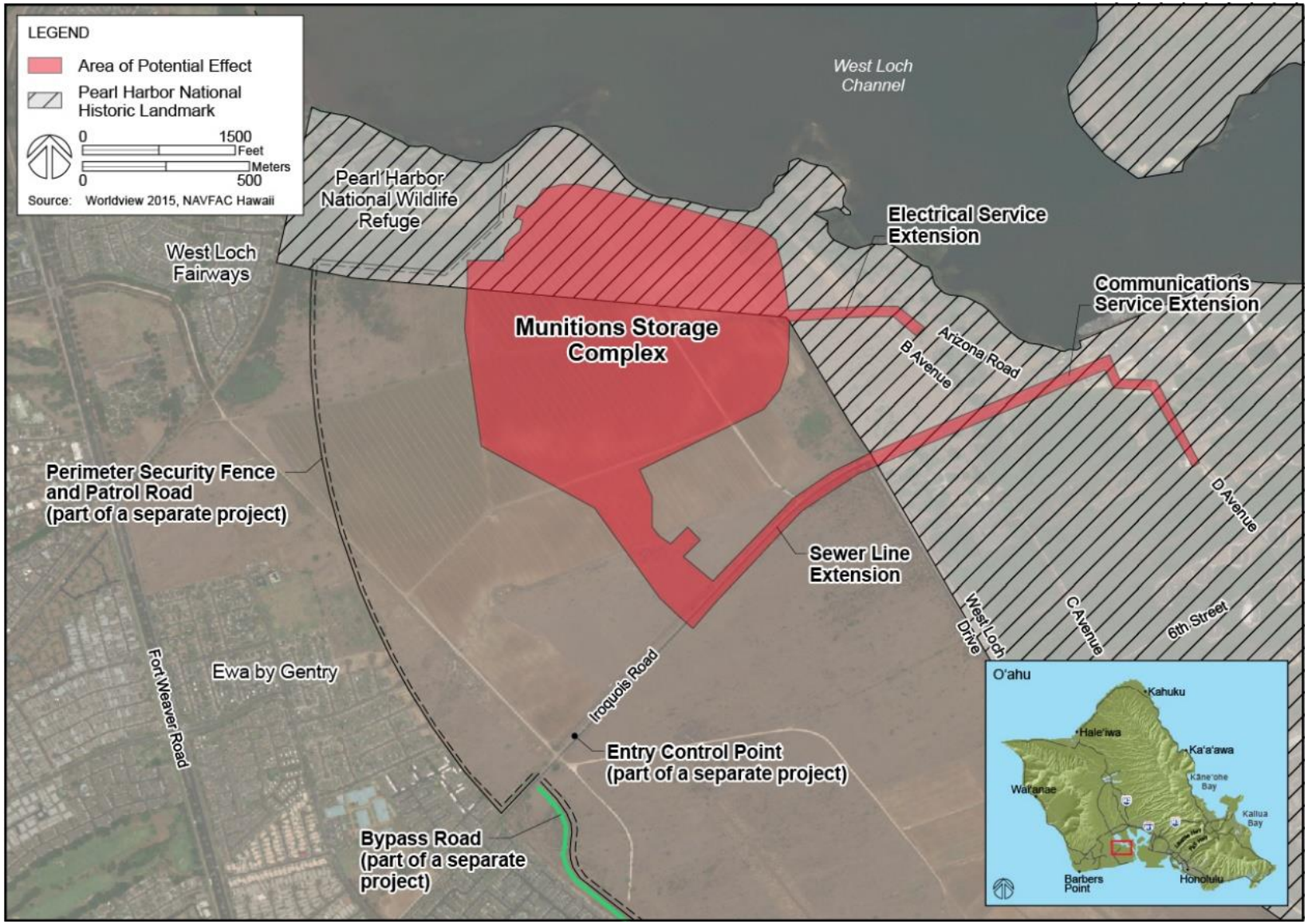

Figure 3-1 Area of Potential Effect (Preferred Alternative)

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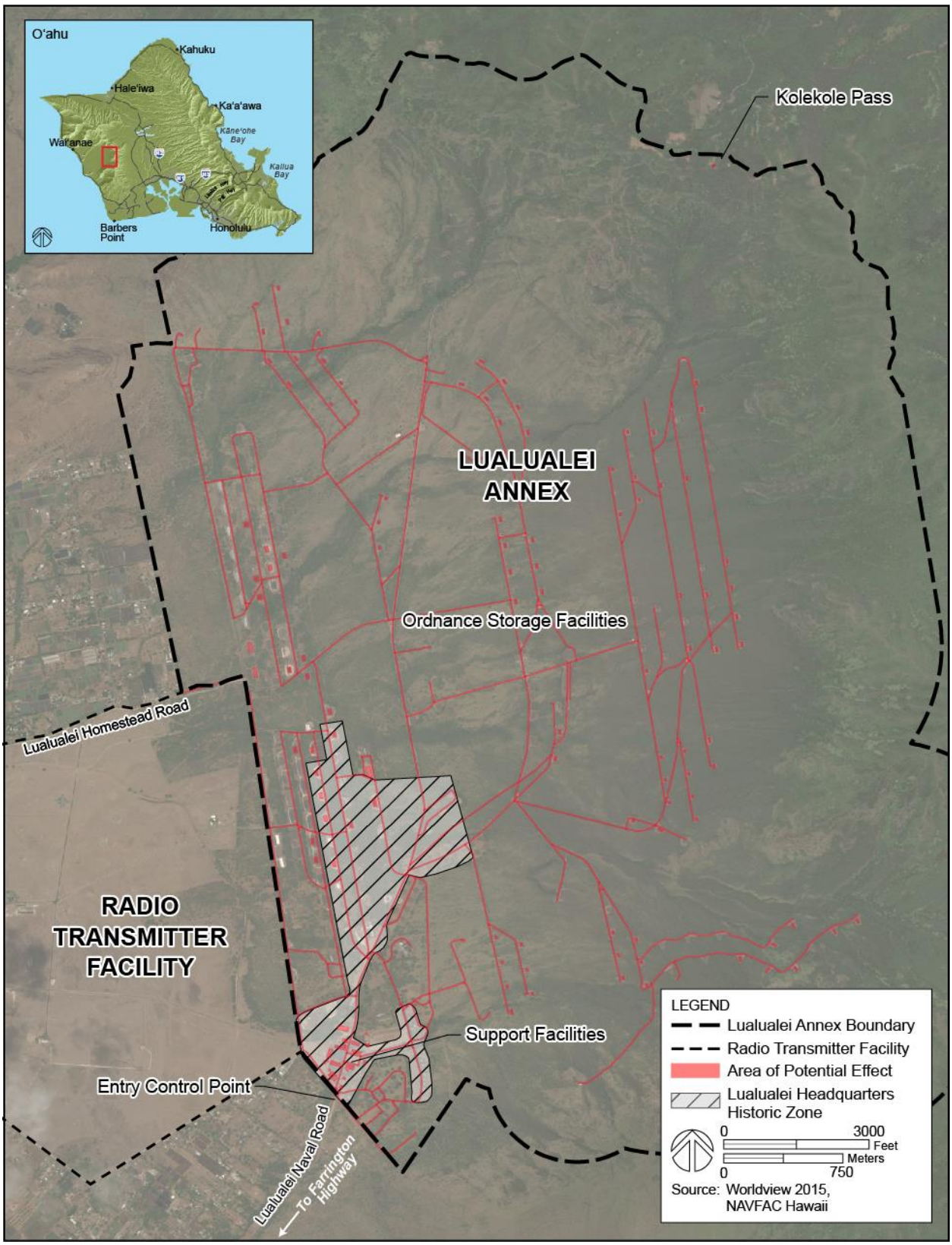

Figure 3-2 Area of Potential Effect (Alternative 2)

3.1.2.1 Archaeological Resources

West Loch Annex

The project area is located in the *moku* (traditional district) of *ʻEwa* and the *ahupuaʻa* (subdistrict land division) of *Honouliuli*. The traditional district of *ʻEwa* encompassed the southwestern quadrant of the island of Oahu and included all of Pearl Harbor and its contributing watershed. It is a much noted place in Hawaiian traditions (Tuggle and Tomonari-Tuggle 2004). The district of *ʻEwa* was a place associated with the *aliʻi* (royalty or chiefs) of Oahu, and ʻEwa chiefs were important political personages from the early 14th to 18th centuries (Filimoehala et al., 2015:6).

However, the portion of the Ewa Plain where the Preferred Alternative is located, "always had limited occupation and it was seen traditionally as a forbidding place. Known by the Hawaiian place name of Kaupea, this was a place where the souls of dead who had no *aumakua* (family god or deified ancestors) wandered endlessly, and this belief continued through the 19th century (Tuggle and Tomonari-Tuggle, 2004:50-51)." By 1825, historical maps depict the area containing the proposed site as a "low uncultivated plain". Small clusters of houses, presumably fishing camps, dotted the southern shore of the plain and trails in the area were well to west and south of the project area.

By the late 1700s, settlement was concentrated at the village in Honouliuli Gulch (to the northwest of the current APE), with smaller, scattered settlements along the coastal margins of West Loch and the southern coastline, as well as the inland upland ʻEwa Plain. These settlements were primarily associated with exploitation of marine resources, particularly fishponds and fish weirs, and dryland agriculture, with wetland taro cultivation limited to Honouliuli Gulch, which had the only source of permanent surface water for irrigation.

During the late 19th century and the first half of the 20th century, the landscape of the Ewa Plain was dominated by commercial industry, including salt works, ranching, and sugar. The Oahu Rail and Land Company provided a transportation link from rural Ewa to the shipping center in Honolulu (Filimoehala et al., 2015:11). In the 1920's, West Loch was chosen as one of two sites that would replace the Navy's ammunition depot. The West Loch Branch of the Naval Ammunition Depot, Oahu was officially commissioned in 1934, and military expansion into the Ewa Plain continued through World War II (CNRH, 2008). Much of this expansion was associated with the construction of the Advance Base Construction Depot (ABCD) Annex (Filimoehala et al., 2015:18).

The Preferred Alternative area was not affected by the military expansion and remained under cultivation. The rail lines to fields at Puuloa were graded in 1900 and continued in operation throughout the pre-World War II history of the plantation (Condé and Best 1973:279, 285) (the alignment of this track bisects the present project area). In 1947, hauling of cane was converted from railroad to large trucks, with rail lines used wherever possible as truck roads (Condé and Best 1973:284).

The entire terrestrial surface of West Loch Annex has been surveyed and inventoried for archaeological sites. Based on the results of the terrestrial surface inventory (in combination with a data search of old maps, oral histories/*moʻolelo*, ethnographic interviews, and ethnohistoric accounts) certain areas have been identified as areas requiring subsurface archaeological testing or monitoring. The lands of West Loch have been delineated into the following two archaeological site management areas:

1. **Known and/or High Potential Areas** are those that have known significant archaeological sites or have the potential to contain as yet unidentified significant archaeological sites, and

subsurface deposits. High potential areas also include areas with the possibility of the presence of human remains.

2. **No and/or Low Potential Areas** are those with little or no possibility of site preservation due to intensive ground disturbance or modern development. Areas that have been archaeologically tested and found to not contain buried cultural deposits; known disturbed sites and sites ineligible for the National Register are mapped as a subcategory of this management area.

The entire project area of the Preferred Alternative would be located within an area with no and/or low potential for archaeological sites.

Lualualei Annex

The archaeological terrain at Lualualei contains the most intact and best-preserved archaeological landscapes within the Navy's jurisdiction in the Hawaiian Islands. Traditional Hawaiian site types previously recorded in Lualualei include heiau of various sizes, permanent and temporary habitations, agricultural features of several types, and special use sites such as lithic workstations. Lualualei Annex encompasses characteristics of both agricultural and settlement systems. In the somewhat enclosed inland portion of the valley containing the permanent watercourse of Puhawai Stream, a total of 163 irrigated taro pondfields (or *lo'i*) were located below the spring heads, with permanent or primary settlement concentrated nearby (Kelly and Major in Haun, 1991).

Previous archaeological reconnaissance of Lualualei (Haun, 1991) confirms that the lower elevation slopes from 5 to 15 degrees contained stone agricultural features such as contour terraces, planting mounds, clearing piles, garden enclosures, field walls, and swale modifications presumably used for planting sweet potatoes and other dryland crops. Higher elevation slopes from 15 to 35 degrees contained more irregularly spaced features such as modified depressions, presumably used for planting ki (*ti*), *wauke* or paper mulberry (*Broussonetia papyrifera*), bananas or sugar cane, and dryland taro.

Approximately 80 percent of Lualualei Annex has been surveyed as part of previous archaeological studies, and over 400 archaeological sites have been recorded (CNRH, 2008). These archaeological site types have been categorized into eight basic types: 1) permanent or primary habitation sites, 2) temporary or secondary habitation sites, 3) ritual sites, 4) burial sites, 5) petroglyph sites, 6) agricultural sites, 7) lithic sites, and 8) historic ranching sites.

3.1.2.2 Architectural Resources

West Loch Annex

West Loch Annex had three general construction stages during the historic period (pre-1950) plus the Cold War-era. Buildings of the first phase were designed in 1930 and 1931, and constructed in 1932 through 1934. These structures were built of cast-in-place concrete construction, many with a Renaissance Revival style, with housing and administration buildings often having rusticated corner quoins and other decorative details. Most buildings have steel frame pivot or wood double-hung windows, and flat roofs with built-up-roofing over concrete, while pitched roofs used steel or wood construction.

Some buildings constructed during the second phase, from 1942 through 1945, were built in the same style as the 1930s buildings, but most were not as decorative. Many structures, other than the magazines, were constructed of more temporary materials such as wood or steel frame construction and wood or metal finishes. Exterior wood siding used in this period often had a rabbeted edge detail.

The third phase consisted of structures built after World War II, from 1946 through 1950. These structures also were commonly built with wood and steel, rather than concrete. Very few structures from this period still exist.

Buildings from the Cold War-era (post 1950) were primarily magazines and shops supporting strategic weapons storage and maintenance.

The West Loch historic management zone encompasses nearly all the significant structures that were built during the original base construction in 1932-33 and during World War II and the Cold War. It extends north and west from West Loch Drive and Bravo Road to the shoreline. The Preferred Alternative site is located to the west and outside of the historic management zone.

The eastern portion of West Loch Annex, including the West Loch historic management zone and the entire West Loch shoreline is located within the Pearl Harbor National Historic Landmark (PHNHL). The northern edge of the project area for the Preferred Alternative lies within the PHNHL boundary (Figure 3-1). The PHNHL boundary was delineated to “include those water and land areas historically, intimately, and directly associated with its function” as an active naval base with mission to support the Pacific Fleet (CNRH, 2008).

Lualualei Annex

Between 1929 and 1931 the military purchased and condemned over 8,300 acres of the McCandless cattle ranch in Lualualei Valley to establish the new ammunition depot headquarters. Buildings constructed in the initial phase of the Lualualei Headquarters' development included the administration facility, enlisted men’s quarters, limited community support facilities, shops and storehouses, ordnance operations buildings, and numerous magazines. Fourteen housing quarters were built to accommodate the Commanding Officer, warrant officers, and civilians stationed at the ammunition depot.

Lualualei Annex was greatly expanded during the World War II (WWII) era including the construction of magazines, barracks, officers’ quarters, mess halls, storage buildings, garages, roads, walks, and 15 miles of railroad track. Most of the WWII facilities near the housing area have since been demolished. Additional facilities were constructed at Lualualei Annex during the Cold War era, including a laboratory, Quonset huts, and a new housing development.

Buildings at Lualualei Annex can be grouped into three general phases of construction. Buildings in the pre-war era were completed between 1931 and 1938. The second phase is comprised of buildings built in the WWII era, between 1939 and 1945. The third phase is comprised of buildings built in the Cold War era, between 1946 and 1989. The magazines were constructed during the pre-war and WWII eras. There are two primary types of magazines: above-ground magazines (AGM) and earth-covered magazines (ECM). The ECMs have two primary designs: semi-cylindrical reinforced concrete structures and structures built of rectilinear concrete walls supported by interior columns. They also have variations in their type (or lack) of blast walls. Variations to the storehouse magazines are primarily found in exterior details such as the presence of concrete pilasters and the type (or lack) of windows and ventilation methods.

As part of the ICRMP, the Navy delineated the Lualualei Headquarters Zone as a historic management zone. It consists of a cluster of facilities in the southwest corner of the installation adjacent to the main gate (Figure 3-2). The Lualualei Headquarters Zone encompasses most of the extant resources built during the original base construction and is representative of the three historic functional areas of the ammunition depot: administrative/industrial, housing, and ordnance operations/storage. Seven Army

magazines and nearly all the support facilities associated with Alternative 2 are located within the Lualualei Headquarters Historic Management Zone.

3.1.2.3 Traditional Cultural Properties

West Loch Annex

There are no known TCPs in the APE. Two studies were conducted by the Navy to identify potential TCPs on Pearl Harbor (Tuggle and Tomonari-Tuggle, 2004; Vernon et al., 2016). The studies identified places that were mentioned in *mo'olelo,* traditional legends or stories; historic documents such as maps and newspaper articles; and interviews with members of the community. Three places associated with *mo'olelo*—Kumomoku, Kaupea, and Kanehili—and described by Emerson (1915), Fornander (1916), and Kamakau (1964 [1869-1870]) are thought to be in the general vicinity of the APE, however, precise locations are unknown (Table 3-1).

Table 3-1 Place Names Referenced in the General Vicinity of the Preferred Alternative APE

Place Name	*Description/Location*	*Text Source*	*Translation*
Kumomoku	Point? Entrance to salt works?	Fornander, (1916:390)	
Kaupea	Plain; portion of the Ewa Plain	Kamakau, (1964:47 [1869-1870]) Emerson, (1915:167-168) Kapaahulani, in Fornander, (1916:390) Keonaona and Desha et al., (1927)	Crisscross, interwoven *bat's perch* (possible reference to the southern cross ?)
Kanehili	Plain; portion of the Ewa Plain, may be part of Kaupea; may also be the name of a trail	Emerson, (1915:167) Kapaahulani in Fornander, (1916:390) Keonaona and Desha et al., (1927)	

Kumomoku (or Kumumoku) is at or near the mouth of the drainage into the former Puuloa salt production area. It is a traditional name that occurs in Kapaahulani's chant for Kualii, Moolelo o Kualii (Fornander, 1916:390); it is one of many names in the Puuloa area that are mentioned in the chant. Fornander's presentation of the chant includes a footnote (possibly by C.J. Lyons) that says Kumomoku (and another place called Leleiwi, location unknown) was "near Puuloa, Ewa, where the land breezes were said to be peculiarly cold." Kumomoku appears on the Metcalf 1850 map, as well as on maps dating from the turn of the century.

The plain of Kaupea is one of many named "plains" of the Ewa region (others include the plains of Puuloa, Puuokapolei, Kanehili, Pee-kaua, and Kaiona) (see Emerson, 1915:167; Keonaona and Desha Sr. et al., 1927, February 22, in Maly 1992, 1997, and 1998). However, the locations of these plains are generally undefined, and it is unclear if they are distinct areas, or whether some are alternative names for the same locality. For more detail regarding Kaupea and Kanehili see Tuggle and Tomonari-Tuggle, (2004).

Guidance for identifying TCPs is provided in NRHP Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (Parker and King 1998). Bulletin 38 defines a TCP as a historic property such as a site, district, building, structure, or object that possesses integrity, meets criteria for the NRHP and is associated with the cultural practices and beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of that community. None of the places named in the aforementioned references and studies meet the criteria for a TCP.

Lualualei Annex

There are no known TCPs in the Lualualei Annex.

3.1.3 Environmental Consequences

While the NHPA considers the impacts to historic properties, NEPA considers the impacts to cultural resources in general. Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a resource, altering characteristics of the surrounding environment that contribute to the importance of the resource, introducing visual, atmospheric, or audible elements that are out of character for the period the resource represents (thereby altering the setting), or neglecting the resource to the extent that it deteriorates or is destroyed.

Cultural Resources Potential Impacts:

- Potential undiscovered eligible cultural resources

3.1.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to cultural resources. Therefore, no impact to cultural resources would occur with implementation of the No Action Alternative.

3.1.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The study area for the analysis of effects to cultural resources associated with the Preferred Alternative includes areas of West Loch Annex which would be altered by:

- the proposed 27 box Type "D" magazines, eight modular storage magazines, and support facilities (Figure 2-1 and Table 2-1);
- infrastructure and site improvements; and
- adjacent construction staging areas and roadway access.

In preparation of the 2008 ICRMP, the Navy consulted with the SHPO on the eligibility of sites within West Loch Annex. Sites in areas with no and/or low potential for archaeological sites were determined to not be eligible for inclusion in the NRHP. The current APE is within said area.

Disturbed remains of the Ewa Plantation narrow gauge railway spur (Hawaii State Register of Historic Places 50-80-12-7414) have been identified within the project APE, paralleling the north side of Arizona Road. Only a few isolated lengths of track remain intact and those have been moved from their original location. The site lacks integrity and has been assessed as not eligible for the National Register of Historic Places. No traditional Hawaiian or other cultural remains have been identified within the APE.

The 1935 U.S. Army Corps of Engineers terrain map has a flume in or nearby the project area. No components of the flume are now present and intact. Test excavations (52) found terrestrial fill material over coral or limestone generally, with only one location having natural silty clay loam underlying the fills (Sholin et al 2013). Laulaunui Island and its fishpond are roughly 700 m north across the loch.

No traditional Hawaiian or other cultural properties or sites are located within the APE, however a portion of the APE is within a non-contributing portion of the Pearl Harbor National Historical Landmark (50-80-13-9992).

In July 2012, the Commander Navy Region Hawaii (CNRH) entered into a Programmatic Agreement (PA) with the ACHP and the SHPO to identify stipulations the Navy must meet to satisfy its responsibilities under Section 106 of the NHPA. Per Stipulation IX of the PA, professionals meeting the requirements under Stipulation II.B of the PA reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the NHPA. Therefore, no further review under the PA or NHPA is required. The Preferred Alternative would not involve ground disturbance in archaeologically sensitive areas, and it would not involve historic buildings or structures. Per Stipulation XII of the PA, the Navy has reported this undertaking and the application of the PA to the SHPO and interested parties. In the event that NAGPRA cultural items are discovered, all work in the vicinity will stop and the remains will be stabilized and protected. Treatment will proceed under the authority of NAGPRA.

Implementation of the Preferred Alternative would result in less than significant impacts to cultural resources.

3.1.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The study area for the analysis of effects to cultural resources associated with Alternative 2 includes areas of Lualualei Annex which would be altered by:

- Repair/modernization of existing Army magazines and support facilities;
- infrastructure and site improvements; and
- adjacent construction staging areas and roadway access.

The 2008 ICRMP identified all lands having been disturbed for the construction of building magazines, and roads, as well as a 20-meter zone around the magazines, as being considered to have low to no potential for archaeological sites. The support facilities are focused in the southwest corner of the installation near the main gate in an area identified as having no and/or low potential for archaeological sites. Additionally, infrastructure improvements would be focused around existing roadway corridors that have been previously altered. Therefore, it is unlikely that the repair and modernization efforts would encounter archaeological remains.

Seven Army magazines and nearly all of the support facilities are located within the Lualualei Headquarters Historic Management Zone. However, the repair and modernization of those facilities is consistent with the intent of the historic management zone, and would adhere to the general planning guidelines identified in the 2008 ICRMP.

Many of the magazines at Lualualei Annex that would be repaired/modernized as part of Alternative 2 are identified as eligible for inclusion in the NRHP. However, the repair/modernization of magazines within Lualualei is covered under the Program Comment for World War II and Cold War Era (1939-1974)

Ammunition Storage Facilities. Therefore, Alternative 2 is consistent with the management plan for these historic resources.

Implementation of Alternative 2 would result in less than significant impacts to cultural resources.

3.2 Terrestrial Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are discussed in the following categories: (1) terrestrial vegetation and (2) terrestrial wildlife. Threatened, endangered, and other special status species are discussed in their respective categories.

3.2.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA).

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186 (Migratory Bird Conservation). Under the MBTA it is unlawful by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the DoD to take migratory birds in such cases includes a requirement that the Armed Forces must confer with USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the Proposed Action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species.

3.2.2 Affected Environment

The biological resources study area for the Preferred Alternative includes the portion of West Loch Annex to be affected by the construction of the new magazines and support facilities. The biological resources study area for Alternative 2 includes the portion Lualualei Annex to be affected by the repair and modernization of the existing Army magazines and support facilities. The following discussion

provides separate descriptions of the existing conditions for terrestrial vegetation, terrestrial wildlife, and special-status species in the study areas at West Loch Annex and Lualualei Annex.

3.2.2.1 Terrestrial Vegetation

West Loch Annex

Vegetation includes terrestrial plants as well as freshwater aquatic communities and constituent plant species.

The inland vegetation at West Loch Annex is vegetated with non-native dryland vegetation, primarily kiawe (*Prosopis pallida*) that range in size but with a maximum height of 20 feet. Koa haole (*Leucaena leucocephala*) and opiuma (*Pithecellobium dulce*) is interspersed within and at the edges of the forest. Buffel grass (*Cenchrus ciliaris*) is the only vegetation below the kiawe trees creating an open understory. Buffel grass also fills in the forest edges. There are also open fields of koa haole and buffel grass that surrounds the kiawe forest.

Both actively tilled and fallow cropland occur within the leased agricultural land (AECOS, 2016). Most of the plant diversity within developed areas or former residential areas is a result of landscape plantings (AECOS, 2016). Mangrove (*Rhizophora mangle*) trees are scattered along the eastern coastline of West Loch Annex, occupying steep shores, fishponds, and mudflats (AECOS, 2016). In areas where mangrove trees have been removed, pickleweed (*Batis maritima*) has become established (AECOS, 2016). Most plants recorded in and around the study area can be found in similar habitats throughout Hawaii.

Lualualei Annex

A total of 365 species of vascular plants and ferns have been observed in Lualualei Valley including 133 endemic, 37 indigenous, 181 alien species, and 14 species of unknown origin. Like other lowland areas throughout Hawaii, much of the vegetation in Lualualei Valley has been considerably altered by human activities, especially by farmers and herders who used much of the lowlands for cattle grazing. The areas surrounding the magazines and support facilities are generally characterized by the following vegetation types: urban or built up land, mixed shrub and grass, koa haole dominant, and kiawe dominant. Lualualei Annex includes critical habitat for the Oahu Elepaio, and four special management areas which are located on steep slopes and close to the ridges of the valley. Most of the native flora in Lualualei Valley is limited to higher elevations where it was too steep for ranchers to graze their cattle.

3.2.2.2 Terrestrial Wildlife

Wildlife includes all animal species (i.e., insects and other invertebrates, freshwater fish, amphibians, reptiles, birds, and mammals) focusing on the species and habitat features of greatest importance or interest.

West Loch Annex

Birds

In all, seven species observed at the study area had no federal or state protection, while 12 of the observed species are protected under the MBTA (SWCA, 2015; NAVFAC, 2019) (Table 3-2).

Table 3-2 Birds Observed at West Loch Annex

Species	*Common Name*	*Status*
Amandava amandava	Strawberry finch	Non-native
Cettia diphone	Japanese bush warbler	Non-native
Acridotheres tristis	Common mynah	Non-native
Paroaria coronata	Red-crested cardinal	Non-native
Columba livia	Rock dove	Non-native
Copsychus malabaricus	White-rumped shama	Non-native
Geopelia striata	Zebra dove	Non-native
Bubulcus ibis	Cattle egret	Non-native, MBTA
Arenaria interpres	Ruddy turnstone	MBTA
Pluvialis fulva	Pacific golden plover	MBTA
Tringa incana	Wandering tattler	MBTA
Spatula clypeata	Northern shoveler	MBTA
Aythya affinis	Lesser scaup	MBTA
Anas wyvilliana-Anas platyrhynchos	Koloa-mallard hybrid duck	MBTA
Nycticorax nycticorax	Black-crowned night heron	MBTA
Mareca americana	American widgeon	MBTA
Anas acuta	Northern pintail	MBTA
Aythya collaris	Ring-necked duck	MBTA
Pandion haliaetus	Osprey	MBTA

Source: SWCA 2015, NAVFAC Hawaii 2019.

Non-Native Mammals and Reptiles

Though mammal and reptile surveys were not conducted in the West Loch Annex study area, a survey was conducted on the Waipio Peninsula in 2006 by NAVFAC PAC (CNRH, 2011). Vegetation on the Waipio Peninsula is similar to the vegetation in the study area, so mammals and reptiles occurring in Waipio could also occur in the study area. The Waipio Peninsula survey documented three mammal species: feral cat (*Felis catus*), mongoose (*Herpestes auropunctatus*), and rat (*Rattus rattus*). Two reptiles were also reported, the house gecko (*Hemidactylus frenatus*) and mourning gecko (*Lepidodactylus lugubrus*). None of these species are indigenous to Hawaii or are threatened or endangered. All can be found throughout urbanized areas of Oahu.

Lualualei Annex

Birds

A 2004 flora and fauna survey of Lualualei Annex observed 29 bird species including one federally listed endangered bird species, the Oahu Elepaio, and one State of Hawaii-listed endangered bird species, the Hawaiian short-eared owl. In addition, there are two MBTA-protected bird species that are present: white-tailed tropicbird; and Pacific golden plover. Alien or exotic, introduced birds are the most visible and conspicuous wildlife at the installation. The most frequently observed alien bird species include: house finch; Japanese white-eye; zebra dove; spotted dove; northern cardinal; and red-vented bulbul. Game birds have been observed at the installation including: Erckel's francolin; common peafowl; and rock dove.

Non-Native Mammals and Reptiles

The only mammals observed at Lualualei Annex are alien species including: mongoose (*Herpestes auropunctatus*), feral cats (*Felis catus*), feral dogs (*canis lupus*), feral pigs (*sus scrofa*), and several species of introduced rodents (CNRH, 2011). The house gecko (*Hemidactylus frenatus*) and mourning gecko (*Lepidodactylus lugubrus*) were also found during surveys of Lualualei Valley (CNRH, 2011).

3.2.2.3 Special-Status Species

There are federally-listed and state-listed species known to occur or potentially occur in the study areas at West Loch Annex and Lualualei Annex (described below in Table 3-3).

Table 3-3 Threatened and Endangered Species Known to Occur or Potentially Occur in the West Loch Annex and/or Lualualei Annex Study Areas

Common Name	*Scientific Name*	*Federal Listing Status*	*State Listing Status*	*Applicable Project Area*	*Critical Habitat Present?*
Hawaiian owl	Asio flammeus	NL	SE	WL & LLL	No
Hawaiian stilt	Himantopus mexicanus knudseni	FE	SE	WL	No
Oahu Elepaio	Chasiempis sandwichensis ibidis	FE	SE	LLL	Yes, at Lualualei Annex. Only on forested ridgetops with native forest.
Hawaiian hoary bat	Lasiurus cinereus	FE	SE	WL & LLL	No
n/a	Abutilon menziesiis	FE	SE	LLL	No

Notes: FE = federal endangered, NL = not listed, SE = state endangered,
WL = West Loch Annex, LLL = Lualualei Annex, n/a = not applicable

West Loch Annex

Hawaiian Short-Eared Owl

Hawaiian short-eared owls are active during the day and occur in a variety of habitats, including wet and dry forests, grasslands, and shrublands (Mitchell et al., 2005). Owls could forage and nest within the study area's grasslands or open-canopy kiawe forests with grassy understories. The owl's diet consists of small mammals and birds (Holt and Leasure, 2006). Owls have occasionally been observed transitioning through the study area (NAVFAC HI surveys 2017-2020).

This species is listed by the state as endangered on Oahu and can be found throughout the main Hawaiian Islands from sea level to 8,000 feet. Little is known about the breeding biology of the Hawaiian short-eared owl, but nesting occurs throughout the year (USFWS, 2013). Nests are made on the ground and are lined with grasses and feathers.

Hawaiian Stilt

The Hawaiian Stilt is known to occur or potentially occur at West Loch Annex, but not Lualualei Annex. Habitat for the birds exist along portions of shallow shorelines at West Loch Annex and birds are known to nest at the West Loch Oxidation Pond near the project area. Most of the shoreline along West Loch Annex is tall, shoreline cliffs that separate the proposed facilities from the waters' edge. Hawaiian stilt abundance varied between 1,100 and 1,783 individuals between 1997 and 2007, and the statewide population has been increasing over the past 30 years (Reed et al., 2011; USFWS, 2011). Hawaiian stilts use a variety of aquatic habitats, but they prefer to loaf in open mudflats, sparsely vegetated pickleweed mats, and open pasturelands. Specific water depths of 5 inches (12.7 centimeters [cm]) are required for optimal foraging. Nest sites are frequently separated from feeding sites, and they are adjacent to or on low islands within bodies of fresh, brackish, or saltwater.

Hawaiian Hoary Bat

The Hawaiian hoary bat is a solitary species that has been recorded on the islands of Kauai, Oahu, Maui and Hawaii, with the largest populations thought to be on Kauai and Hawaii Island (USFWS, 1998). Accurate estimates of the population are not available but estimates for all islands have ranged from hundreds to a few thousand (USFWS, 1998).

The Hawaiian hoary bat uses a wide variety of habitats including native, non-native, and agricultural areas. Vegetation cover and structure appear to be more important than a particular vegetation species. Transition area or forest breaks are generally considered good Hawaiian hoary bat habitats (Koob, 2012).

Seasonal elevation movements have been documented in Hawaiian hoary bats on Hawaii Island and Kauai (Gorresen et al., 2013; Bonaccorso and Pinzari, 2011). On Hawaii, bats move to higher elevations from January through April. It is believed that bats move to cooler temperatures in higher elevations to achieve a lower metabolic rate while roosting (Pacific Rim, 2013).

The United States Geological Survey (USGS) conducted bat detection surveys on Navy installations on Oahu at Wahiawa Gulch, Wahiawa Housing, Waiawa Watershed, Ford Island, and Hickam near Ahua Reef from February to July of 2012. Bats were detected at only two sites, Wahiawa Gulch and Wahiawa Housing area on the slopes of the Koolau Mountains (Bonaccorso et al., 2012). More recent USGS data resulted in detections at six sites: Wahiawa Gulch, Wahiawa Housing, Ford Island, Ahua Wetland at Hickam, Kolekole Pass (located at Lualualei Annex), and Red Hill (USGS, 2015). The Navy received additional bat survey results from USFWS for surveys conducted from December 2016 to May 2019 at the Honouliuli National Wildlife Refuge next to West Loch (USFWS, personal communication, September

9, 2019). The Hawaiian hoary bat was detected at Honouliuli and Waiawa wildlife refuges in very low frequencies (less than 4 calls per station over 2 years).

Lualualei Annex

Hawaiian Short-Eared Owl

In 2020, NAVFAC Hawaii documented Hawaiian owl nest within the Naval Radio Telemetry Facility, the neighboring installation to Lualualei Annex (NAVFAC Hawaii, personal communication, 2020). Lualualei Annex supports pockets of Hawaiian owl nesting and nesting could occur at the site.

Hawaiian Hoary Bat

Descriptions are the same as those provided for these species for the West Loch Annex study area. Surveys conducted by the USGS in 2015 detected Hawaiian hoary bats at six sites around Oahu including Kolekole Pass at Lualualei Annex.

Oahu Elepaio

The Oahu elepaio is a federally-listed, endemic, monarch flycatcher (bird species). Once widespread, these birds now are thought to occupy less than four percent of their original range. Formerly, these birds were found in a variety of forest types at all elevations of the island but are now only found in mid-elevation forests in portions of the Koolau and Waianae Mountains. Within these forests, they are found mostly in habitat along stream beds that support trees offering a tall canopy, with lower vegetation providing a well-developed understory. Oahu elepaio has adapted relatively well to disturbed forests dominated by introduced plants. The reasons for the Oahu elepaio decline include disease (predominantly avian pox and malaria) and predation of eggs, nestlings, and incubating females by introduced mammals, especially rats.

The Oahu elepaio has been observed in two locations within the upper Lualualei Valley: Kauhiuhi subdivision of the north facing slopes of Puu Kaua; and pocket *pāpala kēpau* (*Pisonia sp.*) forest in the Puu Hapapa Special Management Area upper unit. In addition, the birds have also been observed on the high-altitude ridgeline on the eastern border of the installation (CNRH, 2011). Recent surveys of the Oahu elepaio have been conducted by JBPHH natural resource staff and birds have not been detected since 2008 (CNRH, 2011). JBPHH natural resources staff contracted surveys in 2015, 2018, 2019. No Oahu elepaio were detected in Lualualei Annex, but Oahu elepaio were observed in 3 locations on State land adjacent to Lualualei Annex.

Sp. Albutilon menziesii

Abutilon menziesii is a federally endangered plant species with no common name that is known to occur within the Lualualei Annex study area in a protected wildlife management area. It is a diffusely branched shrub in the mallow family that grows up to 4 to 7 ft with light green, heart-shaped leaves with serrated edges. When in bloom, *A. menziesii* produces small flowers that hang upside down. The color of the flowers differs from population to population from maroon to pale yellow and red. The habitat for the *A. menziesii* includes dry coastal and lowland areas. The plants at Lualualei are the only wild *A. menziesii* plant discovered thus far on Oahu aside from plants in the Ewa Plains area (CNRH, 2011).

A. menziesii occurs in two populations within Lualualei Annex near the main gate. Both populations are found in sparse kiawe forest, with buffelgrass as the predominant ground cover. They generally seed throughout the year if they receive enough water. During the dry season *A. menziesii* sheds its leaves and becomes dormant to survive dry conditions. Plants will become vegetated again during the rainy season (CNRH, 2011).

3.2.3 Environmental Consequences

This analysis focuses on wildlife or vegetation types that are important to the function of the ecosystem or are protected under federal or state law or statute.

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to biological resources. Therefore, no impact to biological resources would occur with implementation of the No Action Alternative.

3.2.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The study area for the analysis of effects to biological resources associated with the Preferred Alternative includes areas of West Loch Annex which would be altered by:

- the proposed 27 box Type "D" magazines, eight modular storage magazines, and support facilities (Figure 2-1 and Table 2-1);
- infrastructure and site improvements; and
- adjacent construction staging areas and roadway access.

Vegetation

The construction of the Preferred Alternative would require the removal of vegetation from the proposed project footprint, which is mostly currently in use as farmland. Two relatively small (approximately five acres in total), forested areas along the northern edge of the proposed project footprint would also need to be cleared. Vegetation in those areas generally consists of non-native kiawe trees, non-native koa haole trees and non-native grasses. In accordance with JBPHH green waste policy, all green waste will be delivered to the in-vessel/bio-solid composting system or Air Curtain Burner sites for disposal to prevent the potential spread of the Coconut Rhinoceros Beetle to other parts of Oahu. All applicable air permitting requirements would be complied with. The implementation of the Preferred Alternative would displace the current agricultural uses at West Loch Annex. With the removal of agricultural activities, it is likely that the farmland would eventually return to scrub vegetation similar to other unused portions of West Loch Annex.

Using off-island equipment or introducing landscaping vegetation could introduce invasive species to the study area. To minimize the potential for invasive species introduction, all construction equipment, vehicles, and materials that have been sourced off-island would be inspected and decontaminated of any excessive debris or plant material. Inspection and cleaning activities would be conducted at a designated location. If portions of the project footprint are landscaped as a result of the project, native Hawaiian plants would be employed for landscaping around the study area to the maximum extent possible. If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive would be substituted.

Terrestrial Wildlife

Most of the habitat removed by the Preferred Alternative would be in existing cultivated areas. Two relatively small, forested areas along the northern edge of the proposed project footprint would also need to be cleared. In the short term, the noise and human activity associated with construction of Alternative 1 would displace wildlife from an area greater than the project footprint. In the long term, wildlife would return to the habitat remaining in the study area but would be permanently displaced

from the project footprint. However, the observed species are expected to use suitable nearby habitats for temporary relocation and foraging. Displacement of these individuals from the project footprint would not be expected to affect the survival of individuals or populations.

MBTA-Protected Birds

MBTA-protected birds would be impacted if active nests are disturbed or damaged during vegetation removal. Construction at the study area may potentially displace some MBTA species temporarily, and tree-nesting and forest-dwelling species could permanently lose nesting and foraging habitat. The temporary displacement of these individuals is not expected to affect individuals' survival or the overall species' populations.

To minimize impacts to MBTA-protected birds, nest surveys would be conducted a maximum of 7 days before construction and reported to the JBPHH Natural Resources Manager. Active nests would be left in place and undisturbed until chicks have fledged. A qualified biologist would monitor active nests during construction activities to reduce the chances of nest abandonment by temporarily shutting down construction activities that disrupt the normal daily patterns of the birds.

To minimize effects on nocturnal seabirds, Navy policy is to avoid all night lighting not needed to comply with Anti-Terrorism/Force Protection (ATFP) standards or for personnel safety. For all new construction, whenever possible exterior lights should be LED lights with full cut-off fixtures for compliance with MBTA. Lights that are International Dark Sky Association certified, are preferred but not required.

Threatened and Endangered Species

No federal- or state-threatened or endangered plants occur in the study area.

Federal- and state-listed species of birds were observed, but no critical habitat has been designated within the study area (CNRH, 2011). Temporary impacts to threatened and endangered terrestrial species could occur from noise or habitat disturbances associated with construction activities. However, threatened and endangered species in the study area are already habituated to high levels of noise associated with military use, harbor and air traffic, and urban development. Increases in noise levels from construction activities to the ambient noise environment would be negligible and temporary.

Construction activities would not threaten the existence of any protected species or critical or sensitive habitats. Additionally, installation personnel would continue to manage habitats according to the INRMP, which is designed to protect and benefit threatened and endangered species.

Hawaiian Stilt

Hawaiian stilts are known to occur along the shorelines of the installation. However, the shoreline closest to the project site consists of heavy vegetation and a steep cliff not favorable for foraging stilts. Therefore, stilts are unlikely to occur along this section of shoreline. The mangrove vegetation along the shoreline would buffer construction noise and human activity from impacting stilts. Therefore, temporary displacement due to project construction would not be reasonably certain to occur and would not be expected to affect individuals' foraging patterns. In the unlikely event Hawaiian stilts are observed in the project area during construction activities, all activities within 100 feet of the species would cease, and work would not continue until the species leaves the area on its own accord. There would be no in-water construction for the project and with the use of BMPs, all direct and indirect impacts will be avoided and the action would have no effect on the listed species.

Hawaiian Short-Eared Owl

In the short term, the human noise and disturbance associated with construction activities could temporarily displace owls from roosting or foraging habitats. This displacement could alter an individual's typical foraging and roosting patterns, forcing it to expend energy to search for new foraging and roosting locations.

The permanent removal of roosting and foraging habitat would constitute a long-term indirect impact. Hawaiian short-eared owls create nests on the ground, and a direct impact would occur if young owls that are unable to fly are disturbed. Chicks may fledge from the nest before being able to fly and are dependent on their parents for approximately two months (Mitchell et al., 2005; USFWS, 2013).

Approximately 5 acres of potential roosting, foraging, and nesting habitat would be removed under the Preferred Alternative; however, there is available roosting and nesting habitat with similar vegetation nearby.

To minimize impacts to the Hawaiian short-eared owl, nest surveys would be conducted by JBPHH Natural Resources staff a maximum of seven days prior to construction. Regular on-site staff would be trained to identify this species and know the appropriate measures to be taken if the species are present. If a Hawaiian short-eared owl is observed in the area during construction activities, all activities within 100 feet of the species would cease, and work would not continue until the species leaves the area on its own accord. If a Hawaiian short-eared owl nest is discovered, all activities within 100 feet of the nest would cease and the JBPHH Natural Resources Manager would be contacted. Work would not resume until directed by the JBPHH Natural Resources Manager.

Hawaiian Hoary Bat

Vegetation structure within the forested areas along the northern edge of the proposed project footprint could provide habitat for bats including trees to roost and forest edges to forage. The Navy received additional bat survey results from USFWS for surveys conducted from December 2016 to May 2019 near West Loch. The Hawaiian hoary bat was detected at Honouliuli and Waiawa wildlife refuges in very low frequencies (less than 4 calls per station over 2 years).

The Preferred Alternative does not involve the installation of barbed wire fencing that could pose a threat to hoary bats. Clearing vegetation would have the greatest potential to impact hoary bats from loss of habitat and harming pups that are unable to fly. The project area has some non-native trees greater than 15 feet tall, potentially providing suitable habitat for bats to roost. Tree removal may take away bat roosting sites, but it is assumed adult bats could find other roosting locations nearby. However, young bats (pups and/or fledglings) would not be able to escape if disturbed. Conservation measures will be implemented to clear taller vegetation (greater than 15 feet) outside of the bat pupping season (June 1 through September 15). This measure will avoid pupping bats that cannot escape if vegetation is cleared. Once vegetation clearing is finished, bats would be able to occupy surrounding vegetation within West Loch Annex.

ESA Determinations Summary

In accordance with Section 7 of the Endangered Species Act (ESA) the Navy conducted informal consultation with USFWS and determined that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat and that there will be no destruction or adverse modification of critical habitat. The Navy notified USFWS of its determination via letter dated May 1, 2020 and USFWS concurred with the Navy's determination via letter dated May 29, 2020 (see Appendix A).

With the implementation of the foregoing management measures designed to protect and benefit threatened and endangered species, implementation of the Preferred Alternative would result in less than significant impacts to biological resources.

3.2.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The study area for the analysis of effects to cultural resources associated with Alternative 2 includes areas of Lualualei Annex which would be altered by:

- Repair/modernization of existing Army magazines and support facilities;
- infrastructure and site improvements; and
- adjacent construction staging areas and roadway access.

Vegetation

Alternative 2 is not expected to have a substantial, adverse effect on vegetation. Repair/modernization would take place at existing facilities, and in previously developed areas of the installation. Minor vegetation clearing may be required to provide adequate clearance for repair and modernization efforts, but vegetation types in the project area are typical of other urban areas around the island.

Terrestrial Wildlife

The proposed repair/modernization efforts are focused on previous developed portions of Lualualei Annex that do not provide unique or important habitat for terrestrial wildlife. Most observed species in the study area are common throughout urban Oahu and would be able to use suitable nearby habitats for temporary relocation and foraging. Displacement of terrestrial species individuals from the project footprint would not be expected to affect the survival of individuals or populations.

MBTA Protected Birds

MBTA-protected birds could be impacted if active nests are disturbed or damaged during vegetation removal. Vegetation clearing for Alternative 2 is anticipated to be relatively minor, however, should the action require the clearing of any forested areas, avoidance and minimization measures would be implemented as described for the Preferred Alternative.

To minimize effects on nocturnal seabirds, Navy policy is to avoid all night lighting not needed to comply with ATFP standards or for personnel safety. For all new construction, whenever possible exterior lights should be LED lights with full cut-off fixtures for compliance with MBTA. Lights that are International Dark Sky Association certified, are preferred but not required.

Threatened and Endangered Species

Hawaiian Short-Eared Owl, and Hawaiian Hoary Bat

Hawaiian short-eared owls and Hawaiian hoary bats could occur in the project area, but vegetation clearing would be very limited. Should the action require the clearing of any forested areas with vegetation greater than 15 feet in height, the avoidance and minimization measures would be implemented as described for the Preferred Alternative.

Oahu Elepaio

The project area for Alternative 2 is located well outside of the critical habitat delineated for the Oahu elepaio. Additionally, the Oahu elepaio has not been documented on Lualualei since 2008.

Sp. Abutilon menziesii

One population of *Abutilon menziesii* is in a protected wildlife area outside of Alternative 2. No effects to this population are expected. An additional plant is at the edge of Lualualei Annex and the Navy Radio Telemetry Facility properties near existing magazine facilities of Alternative 2. To minimize effects to the plant, any construction to facilities near the plant should not be expanded to prevent disturbance. A buffer of 30 feet between the managed plant area and construction should be stablished. Construction personnel will be notified of potential impacts to the species to prevent disturbance.

In general, vegetation clearing and associated impacts to protected species are expected to be minor because Alternative 2 would involve the repair/modernization of existing facilities. Should vegetation clearing be required for any forested areas, avoidance and minimization measures would be implemented as described for Alternative 1. Therefore, Alternative 2 would result in less than significant impacts to biological resources.

3.3 Land Use

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

3.3.1 Regulatory Setting

In many cases, land use descriptions are codified in installation master planning and local zoning laws. Office of the Chief of Naval Operations Instruction (OPNAVINST) 11010.40 establishes an Encroachment Management Program to ensure operational sustainment for installations, air and water operating areas, test and training ranges, military training routes, and special use airspace. The Encroachment Management Program seeks to ensure that the surrounding land use and activities; including state and local land use regulations, are compatible with the Navy Mission. Additionally, the joint instruction OPNAVINST 11010.36C and Marine Corps Order 11010.16 provides guidance administering the Air Installation Compatible Use Zone program, which recommends land uses that are compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield operations. OPNAVINST 3550.1A and Marine Corps Order 3550.11 provide guidance for a similar program, Range AICUZ. This program includes range safety and noise analyses and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations.

Through the Coastal Zone Management Act of 1972 (CZMA), Congress established national policy to preserve, protect, develop, restore, or enhance resources in the coastal zone. This Act encourages coastal states to properly manage use of their coasts and coastal resources, prepare and implement coastal management programs, and provide for public and governmental participation in decisions affecting the coastal zone. To this end, CZMA imparts an obligation upon federal agencies whose actions or activities affect any land or water use or natural resource of the coastal zone to be carried out in a

manner consistent to the maximum extent practicable with the enforceable policies of federally approved state coastal management programs. However, federal lands, which are "lands the use of which is by law subject solely to the discretion of the Federal Government, its officers, or agents," are statutorily excluded from the State's "coastal uses or resources." If, however, the proposed federal activity affects coastal uses or resources beyond the boundaries of the federal property (i.e., has spillover effects), the CZMA Section 307 federal consistency requirement applies. As a federal agency, the Navy is required to determine whether its proposed activities would affect the coastal zone. This takes the form of a consistency determination, a *De Minimis* determination, or a determination that no further action is necessary.

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but lands that are currently in or committed to urban development or water storage are not subject to the requirements of the FPPA.

3.3.2 Affected Environment

The following discussions provide a description of the existing conditions under land use resources at West Loch Annex and Lualualei Annex.

3.3.2.1 Land Use Compatibility

West Loch Annex

The Preferred Alternative is located within the approximately 2,640-acre JBPHH West Loch Annex. The primary land use within West Loch Annex is regional ordnance storage. An ESQD arc has been established that defines the western border of West Loch Annex. Navy administrative uses are located near the southeast corner of West Loch Annex.

Approximately 825 acres of land within West Loch Annex between West Loch Drive and the edge of the ESQD arc is currently leased under JBPHH's agricultural outlease program. These areas have been leased until December 2024. Lands included in the agricultural outlease are currently operating under an Explosives Safety Exemption.

An Environmental Assessment/Finding of No Significant Impact (EA/FONSI) was approved for a Hawaiian Electric Company (HECO) photovoltaic (PV) farm in June 2015 for up to 380 acres for lands located west of West Loch Drive. The lease for the first phase of the PV system, approximately 200 acres, has been executed and were formerly included in the agricultural outlease. With the execution of the first phase lease, the current remaining lands in the West Loch Annex agricultural outlease total approximately 825 acres. Phase II of the solar farm would encumber up to 180 additional acres of the agricultural outlease. While current and future phases of the PV farm would displace portions of land included as part of the agricultural outlease, the approved purpose of the PV farm is to reduce energy costs and fuel oil dependency, and increase the energy security, operational capability, strategic flexibility and resource availability of Navy installations in general.

The surrounding communities of Kapilina, Ewa Gentry, Ewa Villages, and Ewa Beach are characterized mainly by single family residential areas. Commercial areas serving these communities are focused along Fort Weaver Road, approximately one-mile southwest of the project area. There are several

schools located in the region including James Campbell High School, Ilima Intermediate School, Ewa Beach Elementary School, Pohakea Elementary School, Keoneula Elementary School, Ewa Makai Middle School, and Holomua Elementary School. The closest of the schools, Holomua Elementary, is located approximately 700 feet away from the western border of West Loch Annex near Iroquois Road. Golf courses represent the other major land use in the area. The Hawaii Prince Golf Club and the Ewa Beach Golf Club are both located directly southwest of the project site.

Lualualei Annex

Alternative 2 is located within the approximately 7,500-acre Lualualei Annex. The primary land use within Lualualei Annex is ordnance storage. Buffers have been established around the ordnance storage magazines to ensure safety. Lualualei Annex is bordered to the north, east, and south by mountain ridges. To the west lies the Lualualei Radio Transmitter Facility, and agricultural land uses.

3.3.2.2 Land Use Plans, Policies, and Controls

Federal

Hawaii Military Land Use Master Plan
The goal of the study was to reduce the DoD footprint in Hawaii. The plan recommends the potential release of Lualualei Annex on the leeward coast of Oahu, pending construction of replacement facilities at West Loch Annex. The plan noted that West Loch has sufficient land to site all storage and headquarters requirements, and that land at Lualualei could become available for other Navy or DoD purpose.

JBPHH Installation Development Plan
The JBPHH Installation Development Plan (IDP) (NAVFAC, 2013) is a planning document intended to guide and shape development across the entire JBPHH installation (including West Loch Annex). It illustrates planning actions that guide development at the installation and establishes a strategy for executing the planning vision and describes the implementation of planning principles at 11 planning districts within the installation. The IDP comprises installation-wide network plans and more specific Area Development Plans (ADP) for each of the JBPHH's planning districts. The planning vision for West Loch is to create a multi-purpose site made up of a regional munitions storage area and a mixed-use cantonment campus that preserves the natural and cultural qualities. The planning vision for Lualualei is to create a secure and flexible installation with compact development connected by complete streets that enhance the natural environment and the historic character.

Farmland Protection Policy Act
Federal actions that affect prime or unique farmlands are subject to the federal Farmland Protection Policy Act (FPPA, subtitle I of Title XV, Section 1539-1549) administered by the NRCS, if they may irreversibly convert farmland (directly or indirectly). For the purpose of FPPA, important farmland includes lands which are considered prime, unique or locally important. Farmland already in or committed to urban development or water storage are not subject to FPPA requirements. The Preferred Alternative is located on land at West Loch that is identified as prime agricultural land or other agricultural land by the Agricultural Lands of Importance to the State of Hawaii (ALISH). However, the Preferred Alternative and the entire West Loch Annex is located within the Honolulu Urbanized Area as defined by the 2010 census. Lualualei Annex also includes land that is identified as ALISH prime or other.

Coastal Zone Management Act

The National Coastal Zone Management Act (CZMA) of 1972, as amended, authorizes a national program for the management, beneficial use, protection and development of the natural resources in the nation's coastal zone. However, lands owned, leased, held in trust, or whose use is otherwise subject solely to the discretion of the federal government, its officers, or agents are excluded from the coastal zone area. While this area is excluded from the State's CZM area, the CZMA Section 307 federal consistency provision requires federal agency activities and development projects affecting any coastal use or resource to be undertaken in a manner consistent to the maximum extent practicable with the state's CZM program. The State of Hawaii Department of Business, Economic Development and Tourism Office of Planning (DBEDT/OP) is the lead agency for coastal management and is responsible for enforcing the State's federally approved coastal management plan.

City and County of Honolulu

Ewa Development Plan

The project area for the Preferred Alternative is located within the Ewa Development Plan area. The Ewa Development Plan, revised in 2013, establishes policy to shape the growth and development of the Ewa region through 2035 (City and County of Honolulu, 2013). The Ewa region is designated as the secondary urban center for Oahu and contains an increasing number of residential, commercial, industrial and institutional uses. According to the Ewa Development Plan Urban Land Use Map, there are two land use designations within the project area: (1) Military and (2) Agricultural and Preservation Area. One of the elements of the Plan is to promote diversified agriculture on prime agricultural lands along Kunia Road and surrounding the West Loch Naval Magazine. The plan also recognizes that West Loch Annex is proposed to be the principal site where U.S. Department of Defense ordnance handling and storage for Oahu is consolidated (City and County of Honolulu, 2013).

Waianae Sustainable Communities Plan

The project area for Alternative 2 is located in the Waianae Sustainable Communities Plan Area. The Plan does not propose major development, instead it envisions Waianae as a relatively stable community where public programs will focus on supporting existing populations. The Plan recognizes the Federal Government's footprint in Lualualei Valley and supports the planned consolidation of ordnance storage from Lualualei Annex to West Loch Annex (City and County of Honolulu, 2012).

City and County of Honolulu Land Use Ordinance

The Land Use Ordinance (LUO) of the City and County of Honolulu regulates land use in accordance with adopted land use polices from the General Plan and Development Plans. The provisions of the LUO are intended to provide reasonable development and design standards. The project areas for both the Preferred Alternative and Alternative 2 are located within land zoned F-1, Federal and Military.

City and County of Honolulu Special Management Area and Shoreline Setback

Established in 1975 with the enactment of Act 176, the special management area (SMA) permit is also known as the Shoreline Protection Act. The SMA, conferred by HRS Chapter 205A, is designed to preserve, protect, and restore the natural resources of Hawaii's coastal zone. The project area for the Preferred Alternative would encroach into the SMA along the West Loch shoreline. The project area for Alternative 2 is located well outside of the SMA.

3.3.3 Environmental Consequences

The location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses, restrictions on public access to land, or change in an existing land use that is valued by the community. Other considerations are given to proximity to a proposed action, the duration of a proposed activity, and its permanence.

3.3.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur, and the Army's ordnance storage operations would continue at Lualualei Annex. The No Action Alternative is inconsistent with federal and local land use plans and policies to consolidate DoD ordnance storage at West Loch Annex, but it would not create any new or additional land use compatibility issues in or around Lualualei Annex. Therefore, the No Action Alternative would result in less than significant impacts to land use.

3.3.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The site proposed for the Preferred Alternative and adjacent lands define the study area for land use analyses.

Land Use Compatibility

The Preferred Alternative would construct new ordnance storage facilities at West Loch Annex, but all necessary safety buffers from the new magazines would be fully contained within the existing ESQD arcs at West Loch Annex. Implementation of the Preferred Alternative would be located on lands that are currently in use for agricultural production, but this agricultural outlease is only permitted under a temporary waiver. Therefore, the Preferred Alternative is compatible with existing and planned land uses in and around the project area.

Federal Land Use Plans, Policies, and Controls

The consolidation of ordnance storage facilities associated with the Preferred Alternative would be consistent with the planning guidance provided by the Hawaii Military Land Use Master Plan and the JBPHH Installation Development Plan. The project area is part of JBPHH and the land at West Loch Annex has long been set aside for national defense purposes. ESQD arcs have been established up to the western border of West Loch Annex.

The Farmland Policy Protection Act (FPPA) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. The Preferred Alternative would be located on land that is currently in agricultural use, but this agricultural use is only permitted under a temporary waiver. Per the Final Rules and Regulations of the FPPA (7 C.F.R. § 658.2), "Farmland" does not include land already in or committed to urban development or water storage. Farmland already in urban development includes lands identified as "urbanized area" on the Census Bureau Map. The Preferred Alternative and the entire West Loch Annex is located within the Honolulu Urbanized Area as defined by the 2010 census maps. Thus, the provisions of the FPPA do not apply to this project. It is emphasized that safety and security measures as part of the Proposed Action are necessary and essential.

The Hawaii CZM Program reviewed and concurred that New Construction activities, when within Navy/Marine Corps controlled areas that is similar to present use and when completed, the use or

operation of which complies with existing regulatory requirements, is expected to have insignificant direct or indirect (cumulative and secondary) coastal effects and should not be subject to further review by the Hawaii CZM Program on the basis and condition that the activities are subject to project mitigation/general conditions (see section 5.1.1). Pursuant to general condition 16 of the CZMA *De Minimis* list, the Navy notified the Hawaii CZM Office of the *De Minimis* usage for the Preferred Alternative (see CZMA correspondence in Appendix B).

City and County of Honolulu Land Use Plans, Policies, and Controls

The implementation of the Preferred Alternative is generally consistent with the planning guidance provided by the Ewa Development Plan and the Waianae Sustainable Communities Plan. The Ewa Development Plan identifies part of the proposed project area for agriculture and preservation, but the plan also recognizes that the West Loch Annex is proposed to be the principal site where U.S. Department of Defense ordnance handling and storage for Oahu is consolidated. The Preferred Alternative's safety and security improvements are within an established ESQD arc and necessary to protect public safety and encourage growth and development in the Ewa region in accordance with established Plan provisions. The Waianae Sustainable Communities Plan calls for the relocation of ordnance storage operations from Lualualei Annex to West Loch Annex as would be accomplished with the Preferred Alternative.

Under the LUO, the F-1 Military and Federal Preservation District permits all military and federal uses and structures. The entire project area is located within the F-1 zoning district, and therefore, the Preferred Alternative is consistent with the City and County of Honolulu LUO.

Most of the proposed project is not located within the SMA. However, a portion of the proposed magazines do encroach into the SMA boundary near the West Loch shoreline. As a federal agency, the Navy considers City and County of Honolulu special management area and shoreline setback provisions as local best practices. The Navy will exert best efforts to comply with applicable City and County of Honolulu special management area and shoreline setback provisions.

The Preferred Alternative is a compatible land use and is consistent with federal and local land use plans, policies, and controls. Therefore, the preferred Alternative would result in less than significant impacts to land use.

3.3.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The site proposed for the Alternative 2 and adjacent lands define the study area for land use analyses.

Land Use Compatibility

Alternative 2 would continue existing ordnance storage operations at Lualualei Annex. The ordnance storage facilities would be restored and modernized, but all necessary safety buffers and arcs would remain unchanged, and there would be no effect on existing land uses in and around the project area.

Federal Land Use Plans, Policies, and Controls

The implementation of Alternative 2 is not consistent with the planning guidance provided by the Hawaii Military Land Use Master Plan and the JBPHH Installation Development Plan. Alternative 2 would continue ordnance storage operations at Lualualei Annex, which is contrary to the planning recommendations to consolidate DoD ordnance storage operations at West Loch Annex.

City and County of Honolulu Land Use Plans, Policies, and Controls

The implementation of the Alternative 2 is inconsistent with the planning guidance provided by the Waianae Sustainable Communities Plan, which calls for the relocation of ordnance storage operations from Lualualei Annex to West Loch Annex.

Under the LUO, the F-1 Military and Federal Preservation District permits all military and federal uses and structures. The entire project area is located within the F-1 zoning district, and therefore, the Preferred Alternative is consistent with the City and County of Honolulu LUO. Alternative 2 project area is not located in the SMA.

Alternative 2 is compatible with existing land uses in and around the project area, but it is inconsistent with federal and local land use plans, policies, and controls. The continuation of ordnance storage operations at Lualualei Annex is similar to what would occur under the baseline scenario (No Action Alternative), therefore, the Alternative 2 would result in less than significant impacts to land use.

3.4 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. The primary goal is to identify and prevent potential accidents or impacts on the general public. Public health and safety within this EA discusses information pertaining to community emergency services, construction activities, operations, and environmental health and safety risks to children.

Community emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency service functions include police, fire and rescue service, and emergency medical service.

Public health and safety during construction, demolition, and renovation activities is generally associated with construction traffic, as well as the safety of personnel within or adjacent to the construction zones.

Operational safety may refer to the actual use of the facility or built-out proposed project, or training or testing activities and potential risks to inhabitants or users of adjacent or nearby land and water parcels. Safety measures are often implemented through designated safety zones, warning areas, or other types of designations.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

3.4.1 Regulatory Setting

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to “make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

3.4.2 Affected Environment

West Loch Annex

The project area is located in Sector 3 of Honolulu Police Department's District 8 – Kapolei/Waianae. The Kapolei Police Station is located at 1100 Kamokila Boulevard approximately 5 miles from the project site. The Navy fire station is located within the north-central portion of West Loch Annex. The City and County of Honolulu Fire Department is also available to provide assistance as appropriate. Ewa Beach Fire Station 24, located at 91-995 Kaileolea Drive, is approximately 3 miles from the project site. The City and County of Honolulu has emergency medical services (EMS) advance life support ambulance units located throughout the community. The closest units are located in Ewa Beach and Makakilo.

Lualualei Annex

The project area is located in Sector 1 of Honolulu Police Department's District 8 – Kapolei/Waianae. The Waianae Police Station is located at 85-939 Farrington Highway approximately 7 miles from the project site. The City and County of Honolulu Nanakuli Fire Station 28, located at 89-334 Nanakuli Avenue, is approximately 3.5 miles from the project site. The City and County of Honolulu has emergency medical services (EMS) advance life support ambulance units located throughout the community. The closest units are located in Waianae and Nanakuli.

3.4.3 Environmental Consequences

The safety and environmental health analysis contained in the respective sections addresses issues related to the health and well-being of military personnel and civilians living on or in the vicinity of the project area. Specifically, this section provides information on hazards associated with construction and operation of the proposed project. Additionally, this section addresses the environmental health and safety risks to children.

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to public health and safety. Therefore, no impacts to public health and safety would occur with implementation of the No Action Alternative.

3.4.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The study area for the analysis of effects to public health and safety associated with the Preferred Alternative includes the communities near the West Loch Annex and along the current ordnance hauling route between West Loch Annex to Lualualei Annex.

Currently, ordnance arrives by sea and is offloaded at the West Loch Annex wharves in Pearl Harbor. The Army ordnance is then transported approximately 18 miles along public highways to Lualualei Annex (via Fort Weaver Road, H-1 Freeway, Farrington Highway, and Lualualei Naval Road). The implementation of the Preferred Alternative would eliminate the need for the Army to store ordnance at Lualualei Annex and the need to transport ordnance on public highways between West Loch Annex and Lualualei Annex. This would enhance public safety and security for those who live, work and travel along and adjacent to these public transit routes.

The proposed magazines at West Loch Annex would be constructed and maintained in accordance with DDESB standards and the Navy's implementing standards promulgated by NOSSA. All individual

magazines are sited in accordance with minimum separation distances and structural designs to prevent sympathetic explosion (e.g., chain reactions). In addition, each magazine would have an intrusion detection system to protect against unauthorized access and would comply with ATFP standards. As part of a separate Navy action, West Loch Annex would be secured by a new perimeter security fence and patrol road along its western boundary. A new entry-control point along Iroquois Road would control public access into West Loch Annex.

Each proposed ordnance storage facilities would undergo a system of inspections to ensure compliance with current explosive safety rules and regulations. This system includes regularly occurring inspections by the command that utilizes the facility, independent inspections by explosives safety specialists, and a comprehensive inspection every two years conducted by NOSSA. Additionally, the DoD's explosives handling operations utilize a layered safety system that includes highly trained personnel, detailed administration, and specifically designed equipment to ensure its handling of ordnance is safe and reliable. All personnel that handle explosives must be fully trained through an in-depth certification program that requires handlers to complete required reading, professional and on the job training, and medical screenings.

The ESQD arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. The ESQD arcs represent a safety buffer zone determined by the design of the magazines and amount of explosives permitted to be stored inside the magazines. The proposed magazines are designed and sited to not exceed the current ESQD arcs associated with ordnance handling operations at the West Loch ammunition wharves. ESQD arcs created by the newly constructed ordnance facilities are not permitted to expand (i.e., alter) the existing ESQD arcs, and construction cannot begin without DDESB Approval. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities.

In the unlikely event that an explosive incident was to occur, explosive hazards would be confined to the area within the current ESQD arc on Navy land. The DoD maintains contingency plans and conducts regular emergency response training to ensure rapid and effective actions in the unlikely event of an accident. Additionally, the Navy also conducts command wide drills to simulate various scenarios of different types of explosive incidents that could occur and evaluate the emergency response actions that should be taken. The West Loch Annex Base Fire Station is located approximately one mile from the proposed new magazines, and a response time of ten minutes or less is required in the event of an emergency.

Since the Preferred Alternative would be located in a secure location within West Loch Annex, and it would not expand existing ESQD arcs, the Navy has determined that there are no environmental health and safety risks associated with the Preferred Alternative that would disproportionately affect children.

The Proposed Action would improve public safety by providing modern munitions handling technology and by significantly reducing the movement of ordnance on roadways across West Oahu and through surrounding neighborhoods. Therefore, implementation of the Preferred Alternative would result in beneficial impacts to public health and safety.

3.4.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The study area for the analysis of effects to public health and safety associated with Alternative 2 includes the communities near the Lualualei Annex and along the current ordnance hauling route

between West Loch Annex to Lualualei Annex. Similar to the No Action Alternative, the implementation of Alternative 2 would continue the need for the Army to transport ordnance along public highways from West Loch Annex to Lualualei Annex. The Army follows strict protocol to ensure the safe handling and transport of ordnance, and this would continue under Alternative 2.

Alternative 2 would restore and modernize the existing magazines at Lualualei Annex and the supporting facilities, but the ESQD arcs cast by the magazines would not change. Physical security at the magazine would be enhanced through the proposed infrastructure improvements. The Navy has determined that there are no environmental health and safety risks associated with Alternative 2 that would disproportionately affect children.

Therefore, implementation of Alternative 2 would result in no impacts to public health and safety.

3.5 Socioeconomics

This section discusses population demographics, education, housing, and related data providing key insights into the socioeconomic conditions that might be affected by a proposed action.

3.5.1 Regulatory Setting

Socioeconomic data shown in this section are presented at the U.S. Census Designated Place, county and state levels to characterize baseline socioeconomic conditions.

3.5.2 Affected Environment

Table 3-4 presents socioeconomic data for several census-designated places (CDP) near West Loch and Lualualei Annex, the island of Oahu, and the State of Hawaii. The information was collected from the 2018 American Community Survey, and ongoing survey conducted by the U.S. Census Bureau. Data are presented for the West Loch Estate and Ewa Gentry CDPs near West Loch Annex (Figure 3-3); the Waianae, Maili, and Nanakuli CDPs near Lualualei Annex (Figure 3-4); the Island of Oahu (i.e., City and County of Honolulu); and the State of Hawaii.

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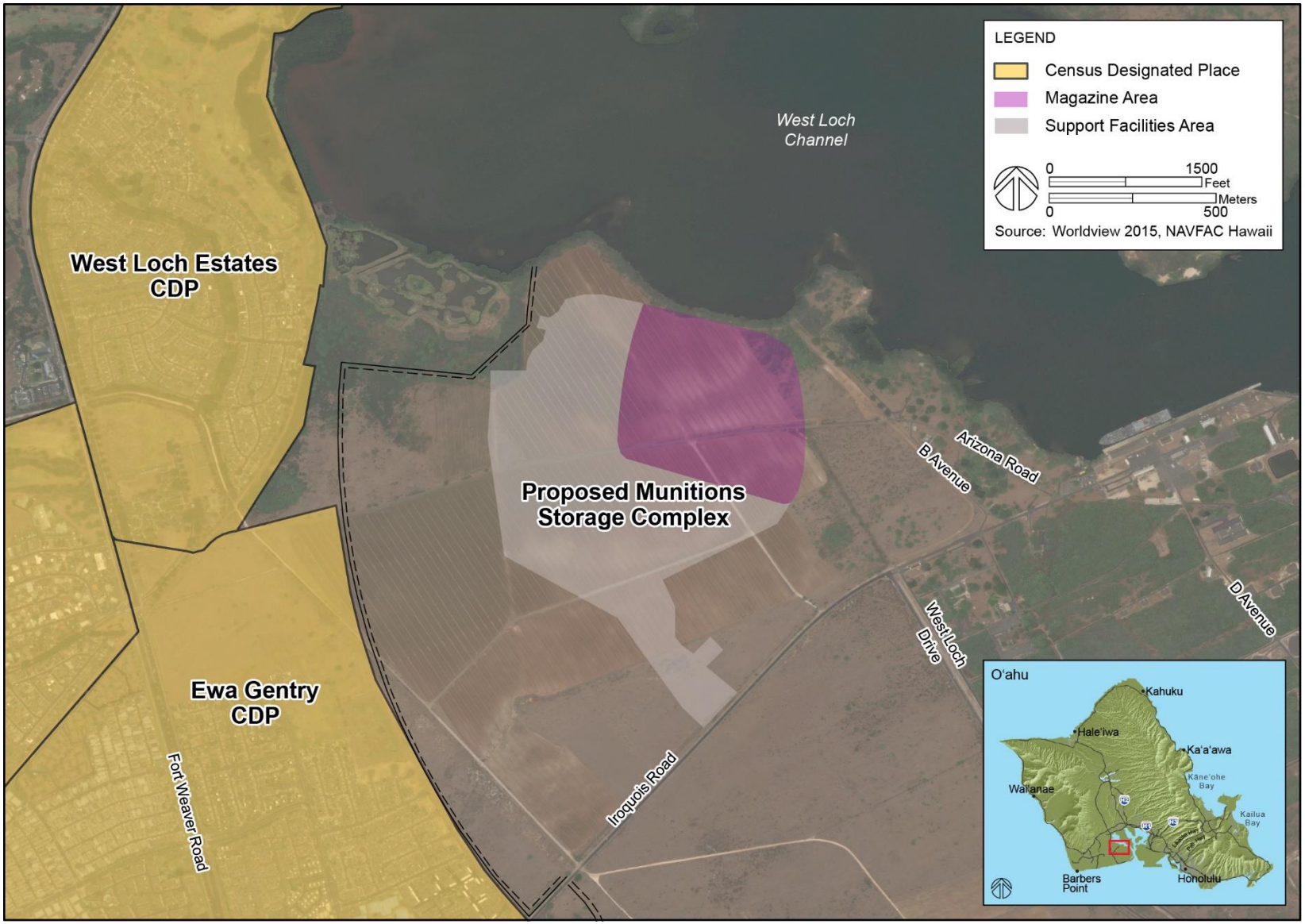

Figure 3-3 Census Designated Places Near West Loch Annex

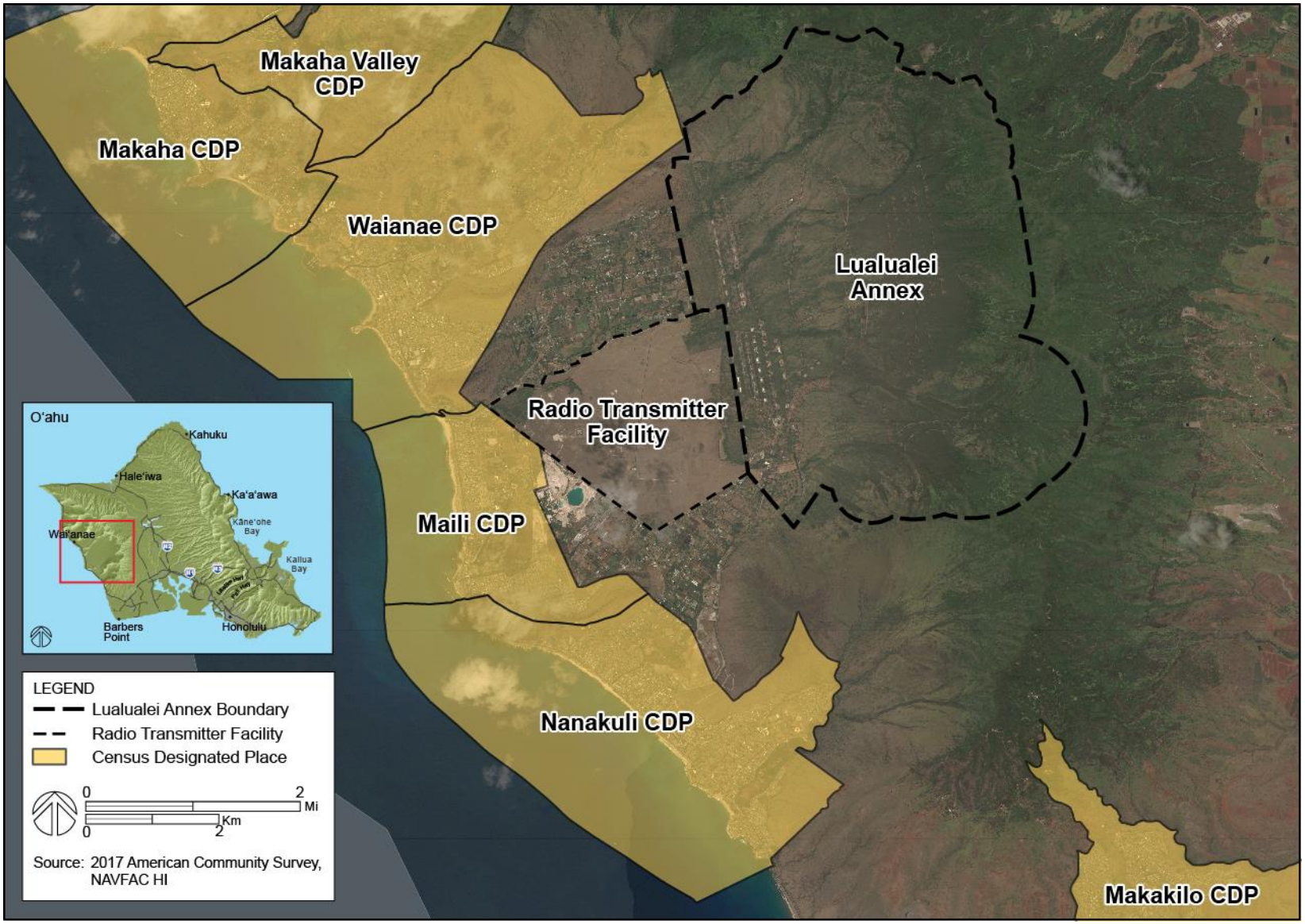

Figure 3-4 Census Designated Places Near Lualualei Annex

Table 3-4 Selected Socioeconomic Data for CDPs Near West Loch Annex, Lualualei Annex, Island of Oahu, and State of Hawaii

	Near West Loch Annex		*Near Lualualei Annex*			*Island of Oahu*	*State of Hawaii*
	Ewa Gentry CDP	*West Loch Estate CDP*	*Waianae CDP*	*Maili CDP*	*Nanakuli CDP*		
Population (2017 ACS)	25,752	5,177	14,054	10,792	11,742	987,638	1,422,029
Persons under 5 years	8.2%	3.6%	8.1%	9.6%	8.7%	6.3%	6.2%
Persons under 18 years	26.4%	20.8%	29.7%	30.1%	29.1%	21.2%	21.4%
Persons 65 years and over	9.0%	15.1%	11.5%	10.6%	11.7%	17.7%	18.4%
Owner-occupied housing unit rate	74.5%	73.6%	60.9%	66.7%	68.8%	55.8%	58.3%
Persons per household	3.55	3.36	4.24	3.7	4.32	3.05	3.02
High school graduate or higher	94.9%	94.3%	88.1%	89.3%	90.7%	91.7%	91.8%
Bachelor's degree or higher	27.7%	29.5%	11.2%	17.2%	9.9%	34.3%	32.5%

Source: U.S. Census Bureau, 2018 American Community Survey

West Loch Annex

The data show that the CDPs near West Loch Annex are split in terms of the proportion of youth population. Ewa Gentry has higher rates of youth, but West Loch Estates has lower rates of youth residents when compared with the cumulative data for the Island of Oahu and the State of Hawaii. Both CDPs have lower rates of residents 65 years or older when compared with the island and State as a whole. In terms of housing, both CDPs have higher rates of owner-occupied housing as well as a higher number of persons per households than the island of Oahu and the State of Hawaii. Both CDPs have slightly higher high school graduation rates, but lower rates of bachelor’s degrees when compared with the cumulative data for the island and the State.

Lualualei Annex

The data show that the CDPs near Lualualei Annex have higher proportions of youth residents and lower proportion of senior residents when compared with the cumulative data for the Island of Oahu and the State of Hawaii. In terms of housing, both CDPs lag behind the island and State average rates of owner-occupied housing, and both CDPs have a higher number of average persons per household than the cumulative data for the island and the State. Both CDPs have similar high school graduation rates, but lower rates of bachelor’s degrees when compared with the cumulative data for the island and the State.

3.5.3 Environmental Consequences

Analysis of impacts to socioeconomics focuses on the effects of the alternatives on population, income, tax revenue, and housing.

3.5.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to the socioeconomics of the local area or region. Therefore, no impact to socioeconomics would occur with implementation of the No Action Alternative.

3.5.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The study area for the analysis of effects to environmental justice associated with the Preferred Alternative includes the communities near the West Loch Annex, including the Ewa Gentry and West Loch Estates CDPs.

The Preferred Alternative would not substantially alter population and demographic characteristics, nor would it result in inconsistent population growth or have any disproportionate impacts upon housing and employment markets. Construction-related employment would have a positive impact on the local economy due to spending by those employed in construction jobs and businesses providing goods and services to the construction industry. Construction-related spending would also benefit businesses in other commercial sectors (e.g., stores, restaurants), while construction-related tax revenues would benefit the local economy. After completion of construction, there would be ongoing purchase of goods and services needed for operation and maintenance.

Therefore, implementation of the Preferred Alternative would result in less than significant impacts to the socioeconomics of the local area or region. Construction-related employment and spending would, however, benefit the local economy.

3.5.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The study area for the analysis of effects to environmental justice associated with the Alternative 2 includes the communities near the Lualualei Annex, including the Maili and Nanakuli CDPs.

Alternative 2 also would not result in any substantial change to socioeconomic parameters in the communities around Lualualei Annex. Construction-related employment and spending are anticipated to be similar to the Preferred Alternative. After completion of construction, there would be ongoing purchase of goods and services needed for operation and maintenance.

Therefore, implementation of Alternative 2 would result in less than significant impacts to the socioeconomics of the local area or region.

3.6 Environmental Justice

USEPA defines Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (USEPA, 2011).

3.6.1 Regulatory Setting

Consistent with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), the Navy's policy is to identify and address any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations.

3.6.2 Affected Environment

Table 3-5 presents data on race for several CDPs adjacent to West Loch Annex, Lualualei Annex, the island of Oahu, and the State of Hawaii. In general, the data show that the CDPs near the West Loch Annex project area are similar in racial diversity to the cumulative data for the island of Oahu and the State of Hawaii. The CDPs near Lualualei Annex are characterized by lower rates of White, African American, and Asian residents, and higher rates of Native Hawaiian and other Pacific Islanders. Therefore, the communities around the Lualualei Annex do represent minority populations as described in EO 12898.

Table 3-5 Data on Race for CDPs Near West Loch Annex, Lualualei Annex, Island of Oahu, and State of Hawaii

	Near West Loch Annex		***Near Lualualei Annex***			***Island of Oahu***	***State of Hawaii***
	Ewa Gentry CDP	***West Loch Estate CDP***	***Waianae CDP***	***Maili CDP***	***Nanakuli CDP***		
White alone, percent	16.1%	20.6%	8.2%	14.7%	4.2%	21.7%	25.6%
Black or African American alone, percent	4.2%	0.6%	0.7%	1.2%	0.7%	2.8%	2.2%
American Indian and Alaska Native alone, percent	0.2%	0.0%	0.3%	0.9%	0.3%	0.3%	0.4%
Asian alone, percent	42.0%	54.0%	12.5%	15.6%	8.0%	43.0%	37.6%
Native Hawaiian and Other Pacific Islander alone, percent	6.1%	8.0%	38.0%	31.3%	49.5%	9.6%	10.2%
Two or More Races, percent	30.1%	16.3%	40.0%	34.6%	37.3%	22.6%	24.0%

Source: U.S. Census Bureau, 2018 American Community Survey

Table 3-6 presents income and poverty data for several CDPs adjacent to West Loch Annex, Lualualei Annex, the island of Oahu, and the State of Hawaii. The data show that the CDPs near the West Loch Annex project area have slightly higher median incomes, similar per capita incomes, and lower poverty rates than the cumulative data for the island of Oahu and State of Hawaii. For the CDPs near the Lualualei Annex, median household income and per capita income is lower, and poverty rates are much

higher than the island and State as a whole. Therefore, the communities around the Lualualei Annex do represent low-income populations as described in EO 12898.

Table 3-6 Income and Poverty Data for CDPs Near West Loch Annex, Lualualei Annex, Island of Oahu, and State of Hawaii

	Near West Loch Annex		*Near Lualualei Annex*			*Island of Oahu*	*State of Hawaii*
	Ewa Gentry CDP	*West Loch Estate CDP*	*Waianae CDP*	*Maili CDP*	*Nanakuli CDP*		
Median Household Income	$104,755	$103,704	$59,213	$84,717	$64,229	$82,906	$78,084
Per Capita Income	$34,085	$32,868	$18,967	$23,126	$20,133	$35,202	$34,035
Persons in Poverty	3.8%	2.7%	27.8%	17.0%	17.6%	7.7%	8.8%

Source: U.S. Census Bureau, 2018 American Community Survey

3.6.3 Environmental Consequences

This analysis focuses on the potential for a disproportionate and adverse exposure of specific off-base population groups to the projected adverse consequences discussed in the previous sections of this chapter.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to environmental justice parameters. Therefore, no impact to environmental justice would occur with implementation of the No Action Alternative.

3.6.3.2 Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The study area for the analysis of effects to environmental justice associated with the Preferred Alternative includes the communities near the West Loch Annex, including the Ewa Gentry and West Loch Estates CDPs. Data from the CDPs in close proximity to West Loch Annex are relatively mixed in terms of race and national origin. Household median incomes are higher, and poverty rates are lower in the CDPs near West Loch Annex compared to Oahu and the State of Hawaii as a whole. Based on this information, the Ewa Gentry and West Loch Estates CDPs do not have disproportionate minority or low-income populations.

Additionally, the Preferred Alternative is not anticipated to generate significant environmental impacts that would affect these communities. The Preferred Alternative would involve the construction of new magazines and support facilities at West Loch Annex, but they would be built to current DoD standards with adequate buffer space for safety and security reasons.

Implementation of the Preferred Alternative would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations resulting in no impacts.

3.6.3.3 Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

The study area for the analysis of effects to environmental justice associated with the Alternative 2 includes the communities near the Lualualei Annex, including the Waianae, Maili, and Nanakuli CDPs. Data from the CDPs in close proximity to Lualualei Annex suggests that these communities could be characterized as having disproportionate populations of low-income and minority residents. However, Alternative 2 is not anticipated to generate significant environmental impacts that would affect these communities. The ordnance storage facilities at Lualualei Annex are buffered from the surrounding community by established ESQD arcs. Alternative 2 would continue existing ordnance storage operations at Lualualei Annex, and potential environmental impacts associated with construction would be avoided or minimized through the use of BMPs and mitigation measures.

Implementation of the Alternative 2 would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations resulting in no impacts.

3.7 Summary of Potential Impacts to Resources and Impact Avoidance and Minimization

A summary of the potential impacts associated with each of the action alternatives and the No Action Alternative and impact avoidance and minimization measures are presented in Tables 3-7 and 3-8, respectively.

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Table 3-7 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines at Lualualei Annex*
Cultural Resources	No impact.	Less than significant impacts. A portion of the Preferred Alternative is located in the PHNHL, but no historic properties are present in the project APE. In accordance with Stipulation IX of the 2012 PA between the Navy, the ACHP, and the SHPO, the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the NHPA. Therefore, no further review under the PA or NHPA is required. Cultural resources at West Loch Annex would continue to be managed in accordance with the ICRMP.	Less than significant impact. Repair/modernization efforts would take place within the Lualualei Headquarters Historic Management Zone, and would include buildings and structures identified as listed or eligible for listing in the NRHP. However, the improvements would be conducted in compliance with the ICRMP.
Biological Resources	No impact.	Less than significant impacts. The construction of the Preferred Alternative would require the removal of existing cropland and scrub vegetation. If portions of the project footprint are landscaped as a result of the project, native Hawaiian plants would be employed to the maximum extent possible. Short-term construction period impacts could affect the Hawaiian hoary bat, Hawaiian short-eared owl, migratory birds, and water birds. Avoidance and minimization measures would be implemented to mitigate potential impacts. Pursuant to Section 7 of the ESA, the Navy determined and the USFWS concurred that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat.	Less than significant impacts. Minor vegetation clearing may be required to provide adequate clearance for repair and modernization efforts, but vegetation types in the project area are typical of other urban areas around the island. Alternative 2 would not encroach on critical habitat for the endangered Oahu elepaio or the location of the endangered plant *Albutilon menziesii*. Short-term construction period impacts could affect the Hawaiian hoary bat, Hawaiian short-eared owl, and migratory birds. Avoidance and minimization measures would be implemented to mitigate potential impacts.

Table 3-7 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines at Lualualei Annex*
Land Use	Less than significant impacts. The Army's ordnance storage operations would continue at Lualualei Annex. The No Action Alternative is inconsistent with federal and local land use plans and policies to consolidate DoD ordnance storage at West Loch Annex, but it would not create any new or additional land use compatibility issues in or around Lualualei Annex.	Less than significant impacts. The Preferred Alternative would be located on land temporarily leased for agricultural use at West Loch Annex. However, the land at West Loch Annex has long been set aside for national defense purposes, and the agricultural outlease is being permitted under a temporary waiver. The Preferred Alternative is within the Honolulu Urbanized Area as defined by the 2010 census. Thus, the provisions of the FPPA do not apply to this project. Overall, the consolidation of ordnance storage facilities at West Loch Annex is consistent with federal, state, and county land use plans. The Navy notified the Hawaii CZM Office of the *De Minimis* usage for the Preferred Alternative.	Less than significant impacts. Alternative 2 would continue the existing use of Lualualei Annex for ordnance storage. This is inconsistent with federal, state and county land use plans which call for the consolidation of ordnance storage facilities at West Loch Annex, but it would not create any new or additional land use compatibility issues in or around Lualualei Annex.
Public Health and Safety	No impact.	Beneficial impact. The proposed magazines would be constructed at West Loch Annex in accordance with DDESB standards and the Navy's implementing standards promulgated by NOSSA. The project would comply with ATFP standards and physical security requirements. The Naval Explosive Safety Improvement Program's ESQD arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities. The proposed storage of ordnance at West Loch Annex would reduce the transportation of ordnance on public roadways.	No impact. Ordnance storage facilities at Lualualei Annex would be restored/modernized in accordance with DoD standards, including ATFP and physical security features. The transportation of ordnance along public roadways to Lualualei Annex would continue.

Table 3-7 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex*	*Alternative 2: Repair/Modernization of Magazines at Lualualei Annex*
Socioeconomics	No impact.	Less than significant impacts. Temporary increases in employment and spending related to construction of the Preferred Alternative.	Less than significant impacts. Temporary increases in employment and spending related to construction of Alternative 2.
Environmental Justice	No impact.	No impact. The Preferred Alternative would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations.	No impact. Alternative 2 would not cause disproportionately high and adverse human health or environmental effects on minority or low-income populations.

Table 3-8 Impact Avoidance And Minimization Measures

Measure	*Anticipated Benefit / Evaluating Effectiveness*	*Implementing and Monitoring*	*Preferred Alternative*	*Alternative 2*
As a federal agency, the Army considers DoH construction noise provisions as local best practices and will exert best efforts to conform to limits that would apply if State construction noise regulations were applicable.	Minimize construction noise impact	Noise	x	x
Implement construction period air emissions BMPs, including HAR 11-60.1-33 (Fugitive Dust)	Reduce fugitive dust and other particulate emissions	Air Quality	x	x
Off-island construction equipment, vehicles and material which are sourced off-island would be inspected and decontaminated of any excessive plant debris and material	Minimize potential for invasive species introduction	Biological Resources	x	x
Use of native Hawaiian plants for landscaping or plants with a low risk of becoming invasive	Minimize spread of invasive plants	Biological Resources	x	x
Conduct nest surveys of MBTA protected birds a maximum of 7 days before construction. Active nests would be left in place and undisturbed until chicks have fledged.	Qualified biologist would monitor effective nests during construction activities to reduce chances of nest abandonment.	Biological Resources	x	x
Conduct nest surveys for Hawaiian short-eared owl a maximum of 7 days prior to construction. Regular on-site staff would be trained to identify this species and know the appropriate measures to be taken if the species are present. If a Hawaiian short-eared owl is observed in the area during construction activities, all activities within 100 feet of the species would cease, and work would not continue until the species leaves the area on its own accord.	If a Hawaiian short-eared owl nest is discovered, all activities within 100 feet of the nest would cease and the NAVFAC Hawaii natural resources staff would be contacted. Work would not resume until directed by NAVFAC Hawaii.	Biological Resources	x	x

Table 3-8 Impact Avoidance And Minimization Measures

Measure	*Anticipated Benefit / Evaluating Effectiveness*	*Implementing and Monitoring*	*Preferred Alternative*	*Alternative 2*
No trees taller than 15 feet would be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.	Minimize or avoid impacts to Hawaiian hoary bat	Biological Resources	x	x
If Hawaiian stilts are observed in the project area during construction activities, all activities within 100 feet of the species would cease, and work would not continue until the species leaves the area on its own accord.	Minimize or avoid impacts to Hawaiian stilts	Biological Resources	x	
Implement construction period stormwater quality BMPs and applicable NPDES permit conditions	Avoid and minimize storm water transport of sediments and pollutants to receiving waters	Water Resources	x	x
In accordance with the JBPHH green waste policy, all green waste will be delivered to the in-vessel/bio-solid composting system or Air Curtain Burner sites for disposal. All applicable air permitting requirements would be complied with.	Helps to prevent the spread of the Coconut Rhinoceros Beetle to other parts of Oahu.	Biological Resources	x	x

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4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the proposed action may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 C.F.R. section 1508.7 as "the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled *Considering Cumulative Impacts Under NEPA* (1997) states that cumulative impact analyses should

"…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area will include those areas previously identified in Chapter 3 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Impact Statements (EIS) and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 4-1 and briefly described in the following subsections.

Table 4-1 Cumulative Action Evaluation

Action	***Level of NEPA Analysis Completed***
Past Actions	
Environmental Assessment for Photovoltaic Systems JBPHH, Oahu, Hawaii	NEPA EA/FONSI
Environmental Assessment MCON P-181 Dredge Channel for T-AKE Naval Magazine	NEPA EA/FONSI
MCON P182 Missile Magazines (5), West Loch	Categorical Exclusion
B559, B559A, B559B – Upgrade fuel station	Categorical Exclusion
Building 489 – Re-roof	Categorical Exclusion
Building 547 – Construct shelter for EOD	Categorical Exclusion
Building 603 - Construction of disability ramp and parking stalls	Categorical Exclusion
Group 24 W 2-5 Magazines roof repair	Categorical Exclusion
W 1-5 Minor shops - Locate and paint bents	Categorical Exclusion
Building 440 – Replace chillers	Categorical Exclusion
Building 562, 563 – Duct Cleaning	Categorical Exclusion

Table 4-1 Cumulative Action Evaluation

Action	*Level of NEPA Analysis Completed*
Present and Reasonably Foreseeable Actions	
Navy Magazines for Long Ordnance	NEPA EA/FONSI
Incremental increase in magazines to meet increased storage needs	To be determined
Various buildings West Loch Annex – Roof replacement	Categorical Exclusion
Building 440 – Repair roof, paint, repair walls	To be determined
Bathroom renovation (B1, B4, B399) at pier	Categorical Exclusion
Building B 204- B13 – Install Chain Link Fence	To be determined
RM17-0006 Pier Repair	To be determined
MK46/MK48 Torpedo Shop	To be determined
Building 543 – Replace ACCU	To be determined
Building 440 – Replace fire alarm panel	To be determined
Building 547 – Replace septic tank	To be determined
Building 563 – Lighting and climate control improvements	To be determined
Buildings 562, 580, 563, 603, 600 – Generator improvements	To be determined
Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities	HRS 343 EIS
PVT Integrated Solid Waste Management Facility Relocation	HRS 343 EIS
Ewa by Gentry new construction	HRS 343 EIS

4.3.1 Past Actions

JBPHH has plans to lease up to 380 acres of Navy land at West Loch Annex to Hawaiian Electric Company (HECO), for the construction, operation and decommissioning of a photovoltaic (PV) system with up to 50-megawatt capacity (Navy, 2015). The project implements the following executive order and statutes:

- Executive Order (EO) 13834, Efficient Federal Operations affirms “that agencies shall meet such statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment.”
- Energy Policy Act of 2005 (42 U.S.C. 15852): Section 203 of the Act requires that the federal government consume not less than 7.5 percent of its electricity from renewable sources in FY 2013 and each fiscal year thereafter.
- Title 10 U.S.C. 2911(e). This statute requires the submission of an energy performance master plan and performance goals, including the goal to produce or procure 25 percent of the total quantity of energy consumed within its facilities from renewable sources by 2025 and each fiscal year thereafter.

The photovoltaic system is located on lands which were previously part of an agricultural outlease (Figure 4-1). The land underlying the PV site is being leased to HECO for up to 37 years after which time the lease may be renewed or the facility could be decommissioned. Phase I has been constructed and covers approximately 102 acres of land. Phase II is under negotiation.

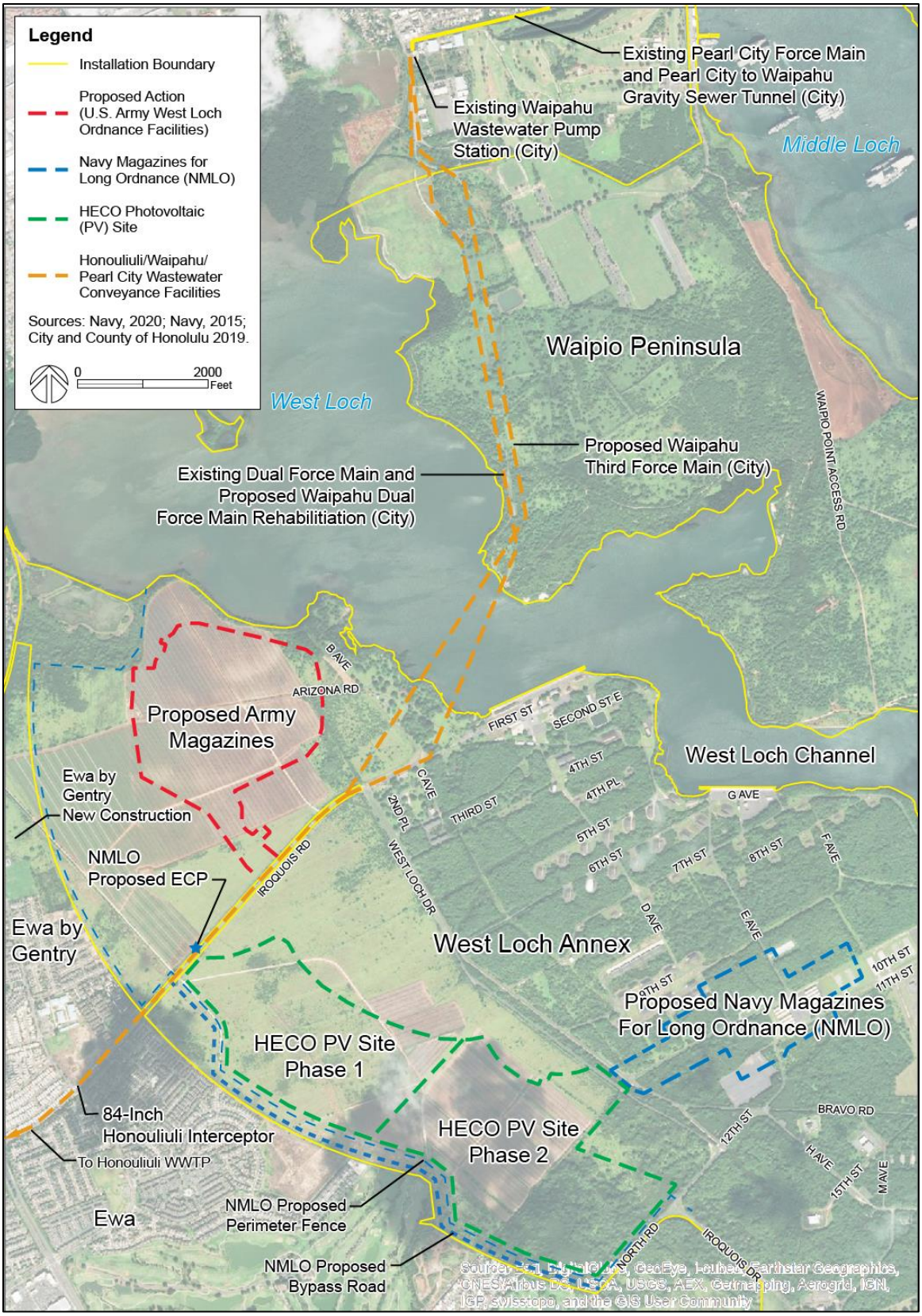

Figure 4-1 Past, Present, and Reasonably Foreseeable Actions Near West Loch Annex

The Navy also performed construction dredging and widening of portions of the West Loch Channel (Figure 4-1). The purpose is to provide berthing facilities for the Advanced Auxiliary Dry Cargo Ships (T-AKE). The previous depth and width of West Loch Channel had been inadequate for T-AKE vessels to navigate to Wharves 1-3. The T-AKE is a relatively new Combat Logistics Force Underway Replenishment Naval vessel which is larger than previous ships used to transport ordnance and ammunition. Thus, portions of West Loch Channel were dredged and widened in order to supplement and facilitate ordnance re-supply in support of Navy mission requirements.

In 2012, the Navy constructed 5 Type "C" box magazines. The preferred alternative site is located approximately 1.3 miles northwest of the Navy magazines.

The remaining projects noted under Past Actions are generally maintenance improvements throughout West Loch Annex. These involved repair or replacement of existing equipment or improvements. The improvements do not increase capacity or existing functions to a substantial degree. Affected resource areas of the Proposed Action have a negligible interaction with the affected resource areas of past or present actions.

4.3.2 Present and Reasonably Foreseeable Actions

The Navy has completed an EA and is preparing to move forward with the construction of 24 new Box Type “D” magazines and related improvements to provide sufficient storage space for JBPHH to meet its long ordnance storage requirements (Figure 4-1). The new Navy Magazines for Long Ordnance would be located at West Loch Annex, approximately 1.5 miles east-southeast from the Army’s proposed ordnance storage magazines.

The City and County of Honolulu has published a Chapter 343, HRS, Environmental Impact Statement Preparation Notice (EISPN) for the Honouliuli/Waipahu/Pearl City Wastewater Conveyance Facilities. The EIS preparation notice was published for public review by the State Office of Environmental Quality Control on May 8, 2019. The project proposes the improvement, rehabilitation and/or upgrade of the existing East Interceptor Wastewater Collection System, which includes the system of sewer lines, pump stations, and force mains conveying flows from Halawa, Waimalu, Pearl City and Waipahu to the Honouliuli Wastewater Treatment Plant.

Portions of the project involve Navy property at West Loch Annex. There are existing Waipahu Wastewater Pump Station (WWPS) dual force mains which extend from the Waipio Peninsula across West Loch to West Loch Annex. The City force mains extend to 1st Street and connect to the existing Honouliuli Interceptor Sewer Line within the Iroquois Road right of way. The City and County of Honolulu proposes the rehabilitation of the Waipahu WWPS dual force mains. A new Waipahu WWPS third force main would follow a similar alignment as the dual force mains and discharge into the Honouliuli Interceptor Sewer Line. Since the construction would be located on Navy property, compliance with NEPA and other federal agency provisions including Navy permits and approvals would be required.

A portion of Iroquois Road which is included in the Navy’s Magazines for Long Ordnance project is owned by the State of Hawaii. Since the Navy project would close Iroquois Road to public access, necessary and appropriate real estate rights will be obtained by the Navy. Appropriate disposition of the Honouliuli Interceptor Sewer Line within the Iroquois Road right of way would be arranged with the City and County of Honolulu.

The residential community directly to the west of the of the ESQD arc that forms the West Loch Annex Boundary is known as Ewa by Gentry (Figure 4-1). The development of this community has been ongoing since the 1990s, and the environmental impact statement was published in 1988. Construction is ongoing in the parcel of land that is bound by the West Loch Annex Boundary to the east, Renton Road to the north, Fort Weaver Road to the west, and the Thomas H. Gentry Community Park to the South.

Remaining reasonably foreseeable actions at West Loch Annex pertain to ongoing replacement or upgrade of existing equipment and/or buildings. These projects are in various stages of design, awaiting funding, in conceptual planning, induction or scoping. As details of each individual project become known, applicable environmental requirements will be complied with.

No present or reasonably foreseeable projects have been identified at Lualualei Annex, but there is one major project that is located in the Lualualei Valley. PVT Land Company, Ltd. (PVT) is proposing to expand their landfill operations to an additional 179 acres of land across Lualualei Naval Road from their existing landfill site (PVT Land Company, Ltd., 2019). This project is located approximately 1.5 miles from the main gate of Lualualei Annex.

4.4 Cumulative Impact Analysis

The following analysis of cumulative impacts is organized by resource area in the same order presented in Chapter 3. Only the resource areas that have the potential to have cumulative impacts resulting from the Preferred Alternative are addressed. Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

4.4.1 Cultural Resources

4.4.1.1 Description of Geographic Study Area

The study area for cultural resources cumulative impacts for the Preferred Alternative includes the project footprints for the Preferred Alternative and Alternative 2, the project area of the HECO PV system, the project area of the Navy's proposed magazines for long ordnance at West Loch Annex, and the project area of other past, present, and future projects within West Loch Annex and Lualualei Annex.

4.4.1.2 Relevant Past, Present, and Future Actions

The project area of the HECO PV system is located in an area formerly utilized for sugar cane cultivation. It is presently part of the agricultural outlease area. The Navy determined that there would be "no historic properties affected" by the PV project. The dredging of the West Loch Channel was determined to not adversely affect the characteristics of the Pearl Harbor National Historic Landmark or individual historic properties that qualify for the NRHP.

The project area of the Navy's proposed magazines for long ordnance includes an approximately 310-acre APE at West Loch Annex. The Navy determined the appropriate finding of effect was no historic properties affected. The Navy consulted with the SHPO on the finding of no historic properties affected.

The SHPO did not concur with the Navy's finding of "no historic properties affected," and instead maintained that the Proposed Action warrants an effect determination of "no adverse effect."

Relevant past actions have received necessary cultural resource clearances. Present and future actions involve generally maintenance-type improvements to existing facilities and City wastewater conveyance facility work. Applicable present and future actions would be required to undergo cultural resource review as timing and project details are clarified for these individual projects.

4.4.1.3 Cumulative Impact Analysis

Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The Preferred Alternative would result in less than significant impacts to cultural resources because no sites eligible for listing in the NRHP would be affected by the Preferred Alternative. In accordance Stipulation IX of the PA between the Navy, the ACHP, and the SHPO, the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the National Historic Preservation Act (NHPA). Therefore, no further review under the PA or NHPA is required.

Additionally, none of the other past, present, or reasonably foreseeable projects have been identified as having adverse effects on historic properties, and cultural resources at JBPHH would continue to be managed in accordance with the ICRMP.

Therefore, cumulative impacts to cultural resources resulting from the Preferred Alternative and other past, present and reasonably foreseeable projects would be less than significant.

Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

Alternative 2 would involve the repair and modernization of seven magazines and several support facilities within the Lualualei Headquarters Historic Management Zone. However, the repair and modernization of those facilities is consistent with the intent of the historic management zone, and would adhere to the general planning guidelines identified in the 2008 ICRMP. Therefore, Alternative 2 would result in less than significant impacts to cultural resources.

Additionally, none of the other past, present, or reasonably foreseeable projects have been identified as having adverse effects on historic properties, and cultural resources at JBPHH would continue to be managed in accordance with the ICRMP.

Therefore, cumulative impacts to cultural resources resulting from the Alternative 2 and other past, present and reasonably foreseeable projects would be less than significant.

4.4.2 Biological Resources

4.4.2.1 Description of Geographic Study Area

The study area for biological resources cumulative impacts for the Preferred Alternative is West Loch Annex comprising the approximately 2,640 acres on the western side of Pearl Harbor.

The study area for biological resources cumulative impacts for Alternative is Lualualei Annex comprising of approximately 7,500 acres in the back of Lualualei Valley in west Oahu.

4.4.2.2 Relevant Past, Present, and Future Actions

Land within West Loch Annex has been heavily disturbed for more than a century, from sugar plantations to U.S. Navy uses. There are currently operations and maintenance buildings, community and personnel support facilities, magazines, wharves for the loading and unloading of military ordnance, and a considerable amount of open land which provides safety buffers to surrounding uses. There is an existing agricultural outlease of approximately 825 acres to the west of West Loch Drive. A lease of 200 acres for a PV system has been executed for Phase I of the system on lands formerly part of the agricultural outlease. Phase 2 on approximately 180 acres, also to the west of West Loch Drive, is still to be negotiated, and would affect lands within the existing agricultural outlease. In addition to grading and grubbing which occurred within West Loch Annex, the dredging of West Loch involved short-term construction impacts to terrestrial and marine biological resources. BMPs were employed to minimize construction impacts such as siltation and sediment loading. Areas were recolonized and stabilized after completion of construction. The City's rehabilitation of dual force mains and new third force main involve work across West Loch as well as portions within West Loch Annex.

The impacts to biological resources of the Navy's proposed magazines for long ordnance at West Loch Annex were found to be less than significant. The Navy determined in consultation with USFWS that the first phase of the long ordnance magazines project will have no effect on the Hawaiian hoary bat. The Navy will enter into formal consultation with USFWS regarding potential effects to the Hawaiian hoary bat for subsequent phases of the project. The planned location of the Long Ordnance project is not designated as critical habitat for any federally listed threatened or endangered species. The project footprint extends to within approximately 200 feet of a unit of the Pearl Harbor National Wildlife Refuge at its nearest point.

In Lualualei Valley, PVT has found that their landfill expansion project would have no impacts on biological resources. Hawaiian short-eared owls and Hawaiian hoary bats could be present at the project site, but none were detected during biological surveys. As a precaution, a qualified biologist would conduct nesting surveys for Hawaiian short-eared owls prior to clearing and grading. The biological survey found no trees suitable for Hawaiian hoary bat roosting within the project site.

4.4.2.3 Cumulative Impact Analysis

Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The Preferred Alternative would result in temporary, less than significant impacts to biological resources associated with construction period impacts. Vegetation that would be cleared for the preferred alternative consists of mainly introduced and alien species, the project footprint is not located within critical habitat, and management measures will be in place to avoid or minimize potential impacts to endangered species and MBTA species.

Cumulative biological resource impacts from past, present, and future actions at West Loch Annex would be less than significant. Vegetation within the study area consists primarily of common, introduced and alien species. No federal- or state-listed threatened or endangered plants are located within the study area. No critical habitat has been designated within the study area. Management measures similar to those described for the Preferred Alternative would be implemented to avoid or minimize potential impacts associated with the Navy magazines for long ordnance project. Additionally,

the past, present, and future actions would be implemented in accordance with the guidance provided in the INRMP.

Therefore, cumulative impacts to biological resources resulting from the Preferred Alternative and other past, present and reasonably foreseeable projects would be less than significant.

Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

Alternative 2 would result in temporary, less than significant impacts to biological resources associated with construction period impacts. Vegetation that would be cleared for the preferred alternative consists of mainly introduced and alien species, the project footprint is not located within critical habitat, and management measures will be in place to avoid or minimize potential impacts to endangered species and MBTA species.

The past, present, and future actions at Lualualei Annex would be implemented in accordance with the guidance provided in the INRMP, and the proposed PVT landfill expansion is expected to have no impact on biological resources. Therefore, cumulative impacts to biological resources resulting from the Alternative 2 and other past, present and reasonably foreseeable projects would be less than significant.

4.4.3 Land Use

4.4.3.1 Description of Geographic Study Area

The study area for cumulative impacts to land use includes West Loch Annex, Lualualei Annex, and the adjacent lands.

4.4.3.2 Relevant Past, Present, and Future Actions

Most of the past, present, and reasonably foreseeable projects are located within the existing secured area of West Loch Annex and would not impact land use on or around the installation. The recently installed PV project to the West of West Loch Drive is located on federally-owned land set aside as a safety buffer for the ordnance storage operations at West Loch Annex. The first phase of the PV project has been completed without disturbing the adjacent agricultural outlease, but the Environmental Assessment for the project identified a potential second phase for the project that would displace the agricultural outlease. Additionally, the Navy magazines for long ordnance project would install a new perimeter security fence which would displace the current agricultural outlease to the north of Iroquois Road (the location of the Preferred Alternative). Ewa by Gentry is currently constructing new homes directly to the west of the West Loch Annex boundary between Renton Road and Thomas H. Gentry Community Park.

4.4.3.3 Cumulative Impact Analysis

Alternative 1 (Preferred Alternative): New Construction of Magazines and Support Facilities at West Loch Annex

The current agricultural outleases at West Loch Annex are allowed through temporary waivers. These outleases would be displaced due to the implementation of the Preferred Alternative, the Navy magazines for Long Ordnance, and the PV project. There are approximately 128,000 acres of lands in the State Agricultural District on Oahu (DBEDT, 2016), and approximately 44,000 acres are currently being farmed (City and County of Honolulu, 2014). In total, approximately 350 acres of land in agricultural production would be displaced representing approximately 0.27 percent of lands in the State

Agricultural District on Oahu and approximately 0.8 percent of lands. This represents a less than significant reduction in the availability of agricultural land for farming. The ongoing construction of homes in the Ewa by Gentry community is taking place on residentially zoned property and is in compliance with existing State and County land use plans. The homes are located beyond the ESQD arcs that establish the western border of the West Loch Annex, and they would not be impacted by the implementation by the Preferred Alternative.

Therefore, cumulative impacts to land use resulting from the Preferred Alternative and other past, present and reasonably foreseeable projects would be less than significant.

Alternative 2: Repair/Modernization of Magazines and Support Facilities at Lualualei Annex

Alternative 2 would continue existing ordnance storage operations at Lualualei Annex and would not contribute to cumulative impacts to land use.

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with 40 Code of Federal Regulations (C.F.R.) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 5-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	***Status of Compliance***
National Environmental Policy Act (NEPA); CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA	EA in progress
Clean Air Act; Hawaii Revised Statutes, Chapter 342B, Air Pollution Control; Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control (June 30, 2014)	Proposed project in attainment area. To avoid or minimize potential impacts from fugitive dust, the construction contractor would prepare a dust control plan in compliance with Section 11-60.1-33(b) of the Hawaii Administrative Rules (HAR).
Clean Water Act; HAR, Title 11, Chapter 55, Water Pollution Control	NPDES permit to be obtained for temporary discharge of stormwater during construction.
Coastal Zone Management Act	The Navy notified the Hawaii CZM Office of the *De Minimis* usage for the Preferred Alternative.
National Historic Preservation Act	In accordance Stipulation IX of the 2012 PA between the Navy, the ACHP, and the SHPO, the Navy has reviewed the Preferred Alternative and determined that the undertaking would result in no historic properties affected under Section 106 of the NHPA. Therefore, no further review under the PA or NHPA is required. Per Stipulation XII of the PA, the Navy has reported this undertaking and the application of the PA to the SHPO and interested parties.
Endangered Species Act	The Navy conducted informal consultation with USFWS and determined that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat and that there will be no destruction or adverse modification of critical habitat. The USFWS concurred with the Navy's determination via letter dated May 29, 2020 (see Appendix A).
Migratory Bird Treaty Act	Nest surveys of MBTA-protected birds would be conducted a maximum of seven days before construction. Night lighting avoided where not needed.
Comprehensive Environmental Response, Compensation, and Liability Act	Construction of the Preferred Alternative would not disturb any hazardous waste sites regulated under CERCLA.

Table 5-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	*Status of Compliance*
Farmland Protection Policy Act	The project area is part of JBPHH and the land at West Loch Annex has long been set aside for national defense purposes. The agricultural outlease is being permitted under a temporary waiver. The Preferred Alternative is within the Honolulu Urbanized Area as defined by the 2010 census. Thus, the provisions of the FPPA do not apply to this project.
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	No high and adverse human health or environmental effects that would disproportionately affect minority and low-income populations.
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	No environmental health and safety risks associated with the Action Alternatives that would disproportionately affect children.
Executive Order 13834, Efficient Federal Operations	Facilities will incorporate features that provide the lowest practical life cycle cost solutions satisfying the facility requirements with the goal of maximizing energy efficiency. The construction would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. LID will be included in the design and construction of this project as appropriate to minimize stormwater runoff and protect water quality.

5.1.1 Coastal Zone Management Act

The National Coastal Zone Management Act (CZMA) of 1972, as amended, authorizes a national program for the management, beneficial use, protection and development of the natural resources in the nation's coastal zone. However, lands owned, leased, held in trust, or whose use is otherwise subject solely to the discretion of the federal government, its officers, or agents are excluded from the coastal zone area. While this area is excluded from the State's CZM area, the CZMA Section 307 federal consistency provision requires federal agency activities and development projects affecting any coastal use or resource to be undertaken in a manner consistent to the maximum extent practicable with the state's CZM program. The State of Hawaii Department of Business, Economic Development and Tourism Office of Planning (DBEDT/OP) is the lead agency for coastal management and is responsible for enforcing the State's federally approved coastal management plan.

The Hawaii CZM Program reviewed and concurred that New Construction activities, when within Navy/Marine Corps controlled areas that is similar to present use and when completed, the use or operation of which complies with existing regulatory requirements, is expected to have insignificant direct or indirect (cumulative and secondary) coastal effects and should not be subject to further review by the Hawaii CZM Program on the basis and condition that the activities are subject to and bound by the full compliance to project mitigation/general conditions 1, 3, 6, 8, 9, 10, 11, 13, 14, and 16:

1. Navy/Marine Corps controlled property refers to land areas, rights of way, easements, roads, safety zones, danger zones, ocean and naval defensive sea areas under active Navy/Marine Corps control.

3. Turbidity and siltation from project related work shall be minimized and contained to within the vicinity of the site through appropriate use of effective silt containment devices and the curtailment of work during adverse tidal and weather conditions.

6. No project-related materials (fill, revetment rock, pipe, etc.) should be stockpiled in the water (intertidal zones, reef flats, stream channels, wetlands, etc.).

8. No contamination (trash or debris disposal, alien species introductions, etc.) of adjacent marine/aquatic environments (reef flats, channels, open ocean, stream channels, wetlands, etc.) shall result from project-related activities.

9. Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project shall be developed. Absorbent pads and containment booms shall be stored on-site, if appropriate, to facilitate clean-up of accidental petroleum releases.

10. Any under-layer fills used in the project shall be protected from erosion with stones (or core-loc units) as soon after placement as practicable.

11. Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.).

13. Navy/Marine Corps shall evaluate the possible impact of the action on species and habitats protected under the Endangered Species Act (ESA).

14. The National Environmental Policy Act (NEPA) review process will be completed.

16. Navy or Marine Corps staff shall notify State CZM of de minimis usage for projects which require an Environmental Assessment (EA).

Pursuant to general condition 16 of the CZMA *De Minimis* list, the Navy notified the Hawaii CZM Office of the *De Minimis* usage for the Preferred Alternative. The Hawaii CZM Office acknowledged receipt of the notification on May 15, 2020 (see CZMA correspondence in Appendix B).

5.2 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Implementation of the Proposed Action would involve human labor; the consumption of fuel, oil, and lubricants for construction vehicles. Existing vegetation would be removed in the area of project construction. However, the vegetation in the West Loch Annex and Lualualei Annex project areas is primarily common, introduced, and alien vegetation species. Moreover, the Action Alternatives would not alter the remaining substantial acreages of West Loch Annex and Lualualei Annex. Management measures would be implemented to protect and benefit MBTA-protected birds, waterbirds, the Hawaiian short-eared owl, and the Hawaiian hoary bat.

Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

5.3 Relationship between Short-Term Use of the Environment and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short-term, effects to the human environment with implementation of either of the Action Alternatives would primarily relate to the construction activity itself. Clearing resulting from the project would result in loss of primarily dryland vegetation. However, no critical or sensitive habitats would be threatened. Management measures would also be implemented to protect and benefit threatened and endangered species. The construction of the facilities and operation would not significantly impact the long-term natural resource productivity of the area. The Action Alternatives would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

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7 List of Preparers

This EA was prepared collaboratively between the Navy and contractor preparers.

U.S. Department of the Navy

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Appendix A
Endangered Species Act Documentation

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DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
JBPHH, HAWAII 96860-5101

5000-45C
N45
May 1, 2020

Ms. Kasia Mullett
Field Supervisor
U.S. Fish and Wildlife Service,
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard
Room 3-122, Box 50088
Honolulu, Hawaii 96850

Dear Ms. Mullett:

SUBJECT: SECTION 7 INFORMAL CONSULTATION FOR THE U.S. ARMY ORDNANCE FACILITIES AT WEST LOCH, JOINT BASE PEARL HARBOR-HICKAM, OAHU

Pursuant to Section 7(a)(2) of the Endangered Act (ESA) and its implementing regulations [50 CFR Part 402], Joint Base Pearl Harbor-Hickam (JBPHH) requests informal consultation related to the U.S. Army ordnance storage and facilities at West Loch, JBPHH. The proposed action will add magazines, construct new structures, as well as add roads and utilities for the Army to store ordnance on Navy property.

JBPHH has developed this Biological Evaluation (BE) to assess potential impacts to the Hawaiian hoary bat (*Lasiurus cinereus semotus*) listed as endangered under the ESA. Based on the evaluation presented in this BE, JBPHH has made the determination that the proposed construction activities and additional structures may affect, but are not likely to adversely affect (NLAA) the Hawaiian hoary bat. JBPHH requests your concurrence with our finding based on information provided in the attached BE.

Please direct correspondence regarding this matter to Corrina Carnes, Natural Resource Manager, at (808) 471-0378 or via email at corrina.carnes@navy.mil.

Sincerely,

LEFEBVRE.JEFFREY.S.1228521821 Digitally signed by LEFEBVRE.JEFFREY.S.1228521821 Date: 2020.05.01 16:55:15 -10'00'

JEFFREY S. LeFEBVRE
Acting Director
Regional Environmental Department
By direction of the
Commander

Enclosure: Biological Evaluation for the U.S. Army Ordnance Facilities at West Loch, Joint Base Pearl Harbor-Hickam, Oahu

Biological Evaluation for the U.S. Army Ordnance Facilities at West Loch, Joint Base Pearl Harbor-Hickam, Oahu.

Prepared by:
Naval Facilities Engineering Command, Pacific
Environmental Planning, Natural Resources
258 Makalapa Dr Suite 100
Pearl Harbor Hi 96860

Prepared for:
Naval Facilities Engineering Command, Hawaii
Natural Resources

April 2020

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1.0 Purpose of and Need for the Proposed Action

The purpose of the action is to provide sufficient storage space and improve operational efficiencies for the Army to meet its current and future ordnance storage requirements. The need for the action is to meet the mission of the Army to receive, maintain, store, and issue ammunitions, weapons, and technical ordnance material for the Army commands in Hawaii. In this regard, the action furthers the Army's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. section 3062.

Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the construction of new magazines and associated facilities to serve as the U.S. Army's Ammunition Supply Point for the island of Oahu, Hawaii. The action would construct a new munitions storage complex, which includes 35 munitions magazines and 7 associated buildings at the West Loch Annex. The U.S. Army Pacific Command (USARPAC) would be the intended occupant/tenant of the new facilities on Navy-owned land.

The U.S. Navy is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). Naval Facilities Engineering Command (NAVFAC) Pacific, and JBPHH, hereinafter referred to as the Navy is the action proponent and USARPAC, Department of the Army, hereinafter referred to as the Army is the intended customer for the action. The FONSI for the EA is scheduled for 2020 and construction is planned to commence in 2022.

1.1 Action Location

The action is located at West Loch Annex, a branch of JBPHH in the Ewa district of Oahu. The Annex is located on the shoreline of Pearl Harbor's West Loch Channel at the edge of the Ewa plane. Neighboring properties to the north include the shoreline of Pearl Harbor's West Loch Channel and the U.S. Fish and Wildlife Service's National Wildlife Refuge Honouliuli Unit. West Loch Annex Facilities are to the east, Ewa Gentry to the south, and the community of West Loch Fairways to the west. Access to the West Loch Annex action area is via Iroquois Road. Land use at the annex currently consists of agriculture outlease (Figure 1).

1.2 Species Addressed in this Biological Evaluation

The Navy consulted with the United States Fish and Wildlife Service (USFWS) to obtain a list of species known to occur in the action area. Based on information provided by the USFWS, the endangered species known to be within the action area and covered in the scope of this BE are listed below.

Table 1. Species and affects determination covered under this consultation.

Common Name	Scientific Name	ESA Status	Affects Determination
Hawaiian hoary bat	*Lasiurus cinereus semotus*	Endangered	May affect, not likely to adversely affect

Our determination of may affect, but not likely to adversely affect (NLAA) for this species was based on our effects determination that the action is insignificant and the effects will not reach the scale in which take would occur.

2.0 Details of the Proposed Action

The Army currently holds ordnance at Lualualei Annex and is assigned 110 magazines for storage. The U.S. Army Garrison-Hawaii (USAG-HI) and Navy Munitions Command Pacific, have a longstanding memorandum of agreement (MOA) under which the Navy provides Storage facilities at Lualualei Annex and USAG-HI provides transportation between Lualualei Annex and West Loch Annex for all DoD services. The existing Army Lualualei facilities are aging and unable to accommodate various modern munitions.

The facilities at Lualualei Annex have reached the end of their useful life and need major revitalization work in order to make them suitable for today's weaponry. The existing facilities were constructed between 1932-1942 and were originally designed for a railway transport system. Today, transportation of ammunitions is accomplished by truck and forklifts; the narrow doorways and raised platforms make it challenging to perform loading/unloading operations. In addition, the layout of the structural columns in the magazines do not provide adequate space for storage of today's ammunition and the infrastructure of Lualualei Annex does not meet current Anti-Terrorist, Force Protection (ATFP) requirements. Due to the deteriorated condition of the facilities at Lualualei Annex, the Navy has begun relocating their ordnance operations to West Loch Annex.

Both the Army and Navy agreed on a long-term plan to construct magazines and infrastructure at West Loch Annex to enable complete ordnance relocation from Lualualei Annex. There is enough vacant land at West Loch Annex to accomplish this without increasing the area encumbered by existing Explosives Safety Quantity Distance (ESQD) arcs.

Consolidating magazines at West Loch Annex reduces Army transportation costs and enhances public safety by significantly reducing movement of ordnance along public roads. This also improves Navy efficiencies by keeping ordnance on site, close to loading and unloading sites for naval ships.

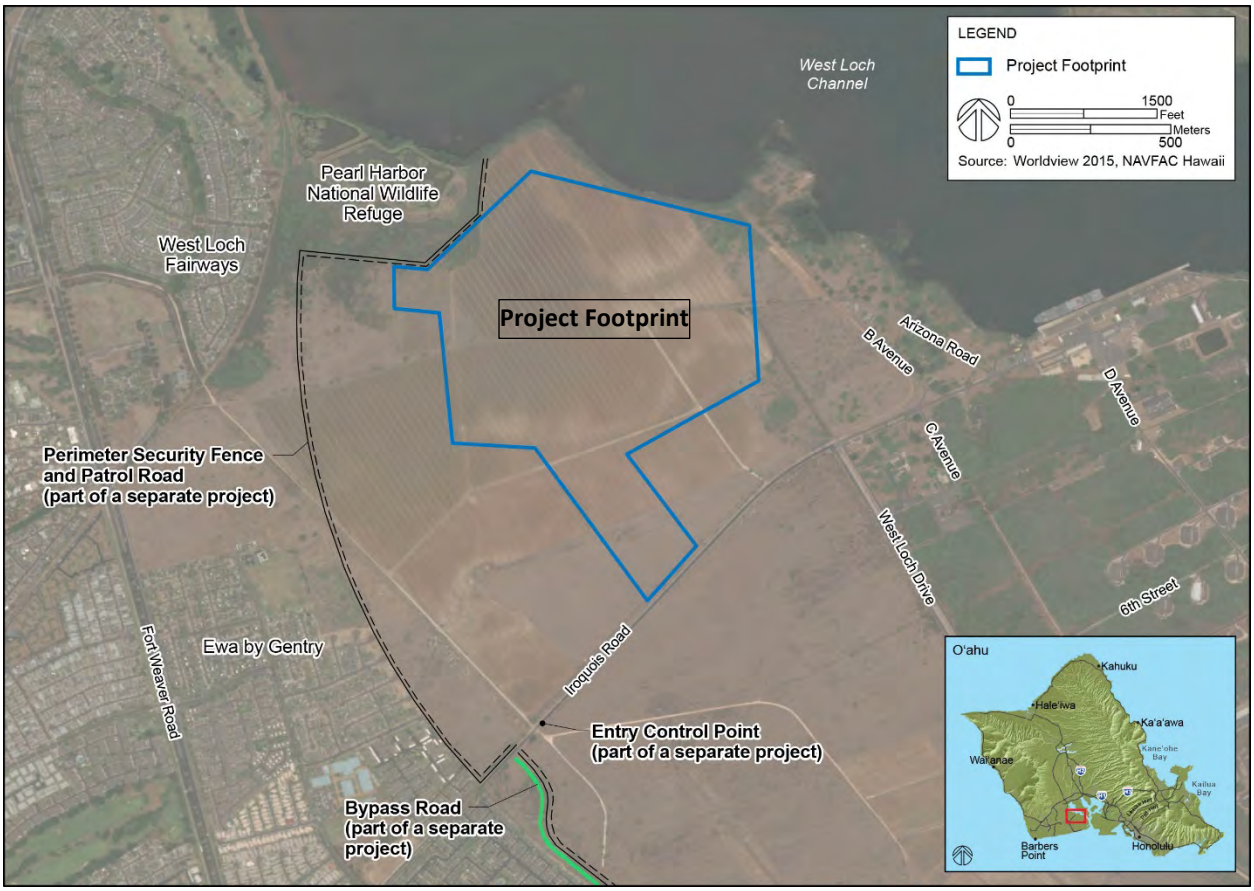

Figure 1. Action area location and the project footprint at West Loch.

2.2 Construction Details

The Navy would construct a new ordnance storage complex at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The new munitions storage complex would include 27 new box type D magazines, 8 modular storage magazines, and 7 administration and operations support facilities (Figure 1). Secondary development would include adjacent accessory roads and concrete pads, utility service and distribution (i.e., electrical, communications, water, and wastewater), site drainage improvements, installation security features, as well as fire lines and hydrants. Construction site preparations would encompass an area of approximately 50 acres, and construction staging areas will be within or adjacent to the proposed building footprints. This project does not include installation of barbed wire fencing. The ESQD arcs associated with the new magazines would fall within existing West Loch Annex property boundary.

The support facilities would include an admin/ordnance operations building, a vehicle holding yard, a field return facility, a surveillance shop and issue point facility, an inert and residue storage warehouse, a military owned demountable container (MILVAN) loading and transfer facility, a vehicle inspection area and associated transportation infrastructure and utilities.

Site Preparations

The action will include demolition and relocation of non-compatible structures, facilities, and roads within the project footprint. Site preparation also includes clearing and grubbing of the existing agricultural area used for row crops. Approximately 7 acres of primarily kiawe (*Prosopis pallida*), opiuma (*Pithecellobium dulce*), and koa haole (*Leucaena leucocephala*) trees will be cleared, denoted by blue polygons in Figure 2.

Figure 2. Vegetation clearing areas for the army magazines and support facilities at West Loch.

3.0 Description of the Species

The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only ESA-listed species that may be present within the action area. The Hawaiian hoary bat was listed as federally endangered on October 13, 1970 and a recovery plan for the species was completed in 1998 (USFWS 1998). Critical habitat for this species has not been designated. The Hawaiian hoary bat is a solitary species that has been recorded on all the main Hawaiian Islands, with the largest populations thought to be on Kauai and Hawaii Island (Amlin and Siddiqi 2015). Accurate estimates of the population are not available, but estimates for all islands have ranged from hundreds to a few thousand (USFWS 1998). Most observations of bats have been made between sea level and 7,500 feet in elevation, but their presence has been documented up to 13,198 feet in elevation (Gon et al. 1993).

3.1 Habitat Use and Ecology

The Hawaiian hoary bat uses a wide variety of habitats including native, non-native, and agricultural areas. Vegetation cover and structure appear to be more important than a particular vegetation species. As an example, Hawaiian hoary bats have been known to use eucalyptus (*Eucalyptus globulus*), albizia (*Albizia falcataria*), ironwood (*Casuarina equisetifolia*), ohia (*Metrosieros polymorpha*), koa (*Acacia koa*), and mamane-naio forest (*Sophora*

chrysophylla – Myoporum sandwicense) for foraging and roosting (Koob 2012). Rangelands near forest edges, rural yards, agriculture windbreaks, and croplands may also be used for foraging. Transition areas or forest breaks are generally considered good hoary bat habitats (Koob 2012). Hoary bats forage at night, on native and non-native insects such as moths, beetles, termites, leafhoppers, and flies (USFWS 1998).

Breeding has been documented on all islands except for Niihau and Kahoolawe (Pacific Rim Conservation 2013). Breeding occurs in the fall when adults congregate in the lowlands and prepare for mating in what is termed "fall swarming" (Bonaccorso et al. 2012). Females give birth to two pups or occasionally one, in mid-June and the pups are typically dependent on their mother and are unable to fly until late August/earl September (USFWS 1998). Roosting primarily occurs in woody vegetation exceeding 15 feet in height (Amlin and Siddiqi 2015).

3.3 Detections on Oahu

United Stated Geological Survey (USGS) conducted bat detection surveys on Navy installations across Oahu at Wahiawa Gulch, Wahiawa Housing, Pearl Harbor National Wildlife Refuge, Waiawa Watershed, Ford Island, Hickam Air Force Base near Ahua Reef, Red Hill Storage Facility, Naval Magazine Lualualei, and Naval Telecommunication Facility Lualualei from February 2012 to February 2015. Bats were detected at all of the sites except for three locations - Telecommunication Facility Lualualei, Pearl Harbor National Wildlife Refuge, and Waiawa Watershed (Bonaccorso et al. 2012). The West Loch Annex itself was not surveyed during this study, but two sample sites nearby (Ahua Reef and Ford Island, 2.5 miles and 3 miles away respectively) did detect bats from a period between November 2012 and March 2013. Pearl Harbor National Wildlife Refuge is 3.4 miles away but bat detections were not made there. In a separate study, the USFWS placed a detector at the Honouliuli Wildlife Refuge Unit from December 2016 to May 2019. Over the 877 nights of sampling, four bats detections was recorded, three in October 2017 and one in February 2018 (Wolfe, unpublished data 2019).

Bats have been detected in the northern Koolau mountain range from studies associated with the Kahuku wind turbines (Gorresen et al. 2015). Peak detections of bats were from March through September. Although seasonal elevation movement has been documented on Kauai and Hawaii, detections at the northern Koolau mountain range study did not show a strong seasonal movement pattern. Elevation range on Oahu is restricted as compared to other islands and therefore seasonal movement may be more limited (Gorresen et al. 2015). The study did find bat occupancy is driven by local conditions that vary with wind exposure and prey availability. Bats favored leeward ridges that were wind-sheltered and high elevation sites with flat ridge tops (Gorresen et al. 2015).

3.4 Threats to the Species

Because accurate population estimates of Hawaiian hoary bats are limited and historical distribution information is lacking, the decline of the species has largely been inferred (USFWS 1998). Observations and species records suggest that bats are absent from historically occupied ranges (USFWS 1998). Because little research has been conducted on this species, factors

threatening this species are assumed to be similar to those threatening bat species found in North America (USFWS 1998). The primary factors associated with Hawaiian hoary bat declines are thought to be habitat loss, collision with structures, and possibly pesticide use (USFWS 2010). Effects of pesticides have not been fully investigated as to whether it effects bats directly, or indirectly through limiting prey (USFWS 1998).

3.5 Habitat Loss

Roost disturbance is a common threat for all bats worldwide (Koob 2012). For the Hawaiian hoary bat, this could be clearing or pruning trees where bats roost. The availability of roosting sites and suitable roosting habitat are important to pregnant lactating females and fledging bats (USFWS 2010). Disturbing roosting sites when juvenile bats are fledging (July to September) has the highest potential for mortality as young bats are not able to evade disturbance. Bat numbers on Oahu are thought to have decreased significantly perhaps due to deforestation that occurred in the early nineteenth century (USFWS 1998). Mortality of breeding adults and females may also limit the recovery of the species. Current loss of forests and land conversions from agriculture contribute to habitat loss (USFWS 2010).

4.0 Conservation Measures

To avoid take of Hawaiian hoary bats, trees 15 feet or taller will not be cut or removed during the bat pupping season from June 1 through September 15. If any bat pups are discovered in the construction zone, outside of this season, vegetation clearing will immediately stop and operations will be moved to a minimum of 300 feet away. Construction will not resume until the bat pups have departed the area on their own accord.

5.0 Analysis of Potential Effects of the Hawaiian Hoary Bat

This section presents an analysis of direct and indirect effects on endangered Hawaiian hoary bats from implementation of this action. Direct effects are the direct or immediate effects of the project on the species or habitat. Indirect effects are those that are caused by the action and are later in time, but are reasonably certain to occur (e.g. attraction of predators due to development).

5.1 Vegetation Clearing

Clearing vegetation could have the greatest impact to hoary bats from loss of roosting habitat and harming pups that are unable to fly. The action area has non-native trees greater than 15 feet tall, potentially providing suitable habitat for bats to roost. In the short term, tree removal may take away bat roosting sites, but it is assumed adult bats could find suitable roosting locations nearby. Direct impacts could occur if flightless bats (pups and/or fledglings) are in trees and branches during removal. However, because conservation measures will be implemented to clear taller vegetation (>15 feet) outside of the bat pupping season (June 1 through September 15) direct impacts are unlikely. Once vegetation clearing is finished, bats would be able to occupy surrounding vegetation within the Annex that is similar to the action area. Considering the action, biology of the bats, and this avoidance conservation measure, the Navy has determined that vegetation clearing associated with this action may affect the

Hawaiian hoary bat from disturbance and vegetation loss, but is not likely to adversely affect individuals or populations of this species.

6.0 Conclusion

In this Biological Evaluation, the Navy examined the potential impacts from tree clearing on the Hawaiian hoary bat. Conservation measures have been proposed for inclusion in the proposed action (Section 4.0) to avoid or reduce impacts to the species. To mitigate the possibility of negatively affecting roosting bats and/or fledging bats, trees greater than 15 feet in height will not be removed during the bat pupping season, from June 1 thought September 15. The Navy has determined that the proposed construction and related clearing activities may affect, but are not likely to adversely affect the Hawaiian hoary bat.

7.0 Works Cited

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2020-I-0276

May 29, 2020

Corrina Carnes
JBPHH Natural Resources Manager
NAVFAC Hawaii, Environmental Planning
400 Marshall Road, Building 55
Joint Base Pearl Harbor-Hickam, HI 96860-3134

Subject: Construction of U.S. Army Ordnance Facilities at the West Loch Annex of Joint Base Pearl Harbor-Hickam (JBPHH) in Honolulu County, Hawaii.

Dear Ms. Carnes:

The U.S. Fish and Wildlife Service's (Service) received your email, dated May 1, 2020, requesting concurrence with your "may affect, but not likely to adversely affect" 7(a)(2) determination for the proposed construction of U.S. Army ordnance storage facilities at the West Loch Annex of JBPHH in Honolulu County, Hawaii. The U.S. Navy has determined project components may affect, but are not likely to adversely affect the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*). Our comments are provided in accordance with section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended.

Our response is based on best available information presented in your Biological Evaluation (BE), and otherwise cited below. A complete decision record of this consultation is on file at the Service's Pacific Islands Fish and Wildlife Office in Honolulu, Hawaii. The Service's log number for this consultation is 01EPIF00-2020-I-0276.

DESCRIPTION OF THE PROPOSED ACTION

The Army currently holds ordnance at Lualualei Annex and is assigned 110 magazines for storage. The U.S. Army Garrison-Hawaii (USAG-HI) and Navy Munitions Command Pacific, have a longstanding memorandum of agreement (MOA) under which the Navy provides storage facilities at Lualualei Annex and USAG-HI provides transportation between Lualualei Annex and West Loch Annex for all Department of Defense services. The existing Army Lualualei facilities are aging and unable to accommodate various modern munitions.

The facilities at Lualualei Annex have reached the end of their useful life and need major revitalization work in order to make them suitable for today's weaponry. The existing facilities were constructed between 1932 and 1942 and were originally designed for a railway transport system. Today, transportation of ammunitions is accomplished by truck and forklifts; the narrow doorways and raised platforms make it challenging to perform loading or unloading operations. In addition, the layout of the structural columns in the magazines do not provide adequate space for storage of today's ammunition and the infrastructure of Lualualei Annex does not meet current Anti-Terrorist, Force Protection (ATFP) requirements. Due to the deteriorated condition of the facilities at Lualualei Annex, the Navy has begun relocating their ordnance operations to West Loch Annex.

Both the Army and Navy agreed on a long-term plan to construct magazines and infrastructure at West Loch Annex to enable complete ordnance relocation from Lualualei Annex. There is enough vacant land at West Loch Annex to accomplish this without increasing the area encumbered by existing Explosives Safety Quantity Distance (ESQD) arcs.

Consolidating magazines at West Loch Annex reduces Army transportation costs and enhances public safety by significantly reducing movement of ordnance along public roads. This also improves Navy efficiencies by keeping ordnance on site, close to loading and unloading sites for naval ships.

The Navy would construct a new ordnance storage complex at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The new munitions storage complex would include 27 new box type D magazines, eight modular storage magazines, and seven administration and operations support facilities (Figure 1). Secondary development would include adjacent accessory roads and concrete pads, utility service and distribution (i.e., electrical, communications, water, and wastewater), site drainage improvements, installation security features, as well as fire lines and hydrants. Construction site preparations would encompass an area of approximately 50 acres, and construction staging areas will be within or adjacent to the proposed building footprints. This project does not include installation of barbed wire fencing. The ESQD arcs associated with the new magazines would fall within existing West Loch Annex property boundary.

The support facilities would include an admin and ordnance operations building, a vehicle holding yard, a field return facility, a surveillance shop and issue point facility, an inert and residue storage warehouse, a military owned demountable container (MILVAN) loading and transfer facility, a vehicle inspection area and associated transportation infrastructure and utilities.

The action will include demolition and relocation of non-compatible structures, facilities, and roads within the project footprint. Site preparation also includes clearing and grubbing of the existing agricultural area used for row crops. Approximately seven acres of primarily kiawe (*Prosopis pallida*), opiuma (*Pithecellobium dulce*), and koa haole (*Leucaena leucocephala*) trees will be cleared, denoted by blue polygons in Figure 2.

Figure 1. Action area location and the project footprint at West Loch.

Figure 2. Vegetation clearing areas for the army magazines and support facilities at West Loch.

EFFECTS OF THE ACTION

Vegetation Clearing

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all major Hawaiian islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away.

The action area has non-native trees greater than 15 feet tall, potentially providing suitable habitat for bats to roost. In the short term, tree removal may take away roosting sites, but it is assumed that adults could find suitable roosting locations nearby. Direct impacts could occur if flightless pups are in trees and branches during removal. However, the Navy will implement timing restrictions for their vegetation clearing to minimize the potential of affecting flightless juvenile bats. Once vegetation clearing is finished, bats would be able to occupy surrounding vegetation within the Annex that is similar to the action area. To avoid and minimize potential project impacts to the Hawaiian hoary bat the following conservation measure will be incorporated into the project plan:

- To avoid take of Hawaiian hoary bats, trees 15 feet or taller will not be removed during the bat pupping season from June 1 through September 15.

By incorporating the conservation measure listed above, potential effects to listed species are extremely unlikely to occur, and therefore discountable. The loss of breeding or roosting habitat is likely to have insignificant effects due to the close proximity of similar habitat nearby.

CONCLUSION

We have reviewed our data and conducted an effects analysis of your project. Because effects from the action are insignificant or discountable, the proposed project is not likely to adversely affect the Hawaiian hoary bat. Therefore, the Service concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Hawaiian hoary bat. No further action pursuant to section 7 of the ESA is necessary unless: (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this letter; or (3) if a new species is listed or critical habitat designated that may be affected by the identified action.

We appreciate your efforts to conserve endangered species. If you have any questions concerning

this consultation, please contact Johnathon Kraska, Fish and Wildlife Biologist, at 808-792-9427 or by email at johnathon_kraska@fws.gov.

Sincerely,

DARREN LEBLANC Digitally signed by DARREN LEBLANC Date: 2020.05.29 14:39:23 -10'00'

Darren LeBlanc
Planning and Consultation Team Manager

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Appendix B
Coastal Zone Management Act Documentation

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From: Nakagawa, John D <john.d.nakagawa@hawaii.gov>
Sent: Friday, May 15, 2020 4:06 PM
To: Suwa, Alan M CIV USN (US); Nihipali, Justine W
Cc: John Hagihara; Weber, Thomas O CPT USARMY USARPAC (USA); Hall, Andrea M CIV USN (USA)
Subject: Re: Notification of U.S. Army West Loch Annex Ordnance Facilities - as Navy/Marine Corps De Minimis Activities under CZMA

[This message was sent from an outside source.]

Alan:

Thank you for the additional information. My apologies on missing the identification of CZMA De Minimis List Category No. 1, in you previous email, as applicable to the proposed action. The map you provided is sufficient.

This acknowledges receipt of the notification of the Navy's use of the CZMA De Minimis List.

Thank you.

John Nakagawa
Hawaii Coastal Zone Management Program

From: Suwa, Alan M CIV USN (US)
Sent: Friday, May 15, 2020 3:57 PM
To: Nakagawa, John D; Nihipali, Justine W
Cc: John Hagihara; Weber, Thomas O CPT USARMY USARPAC (USA); Hall, Andrea M CIV USN (USA)
Subject: [EXTERNAL] Notification of U.S. Army West Loch Annex Ordnance Facilities - as Navy/Marine Corps De Minimis Activities under CZMA

Hi John,

Per our earlier email description:

Applicability of De Minimis Activities under CZMA:
The proposed action falls within item 1 (New Construction) on the de minimis list.

Also, I have attached the project location map with less detail. Let me know if you would need more detailed graphic showing the actual magazine locations and labels.

Thanks,

Alan Suwa
NAVFAC PAC EV

From: Nakagawa, John D <john.d.nakagawa@hawaii.gov>
Sent: Friday, May 15, 2020 3:38 PM
To: Suwa, Alan M CIV USN (US) <alan.suwa@navy.mil>
Cc: John Hagihara <jhagihara@hhf.com>; Weber, Thomas O CPT USARMY USARPAC (USA) <thomas.o.weber.mil@mail.mil>; Hall, Andrea M CIV USN (USA) <andrea.vonburg-hall@navy.mil>; Nihipali, Justine W <justine.w.nihipali@hawaii.gov>
Subject: Re: Notification of U.S. Army West Loch Annex Ordnance Facilities - as Navy/Marine Corps De Minimis Activities under CZMA
[This message was sent from an outside source.]
Alan:

Can you please identify which category of the CZMA DeMinimis List (see attached) is being used for the proposed action. Also, can you please provide a location map of the new munitions storage complex at the West Loch Annex.

Thank you.

John Nakagawa
Hawaii Coastal Zone Management Program

From: Suwa, Alan M CIV USN (US)
Sent: Friday, May 15, 2020 3:11 PM
To: Nakagawa, John D
Cc: John Hagihara; Weber, Thomas O CPT USARMY USARPAC (USA); Hall, Andrea M CIV USN (USA)
Subject: [EXTERNAL] FW: Notification of U.S. Army West Loch Annex Ordnance Facilities - as Navy/Marine Corps De Minimis Activities under CZMA

John:

Per DBEDT's letter dated July 9, 2009, this e-mail notification is provided to the State CZM office in compliance with "Project Mitigation / General Conditions" when the Department of the Navy/Marine Corps de minimis list under CZMA is used for projects that require an Environmental Assessment (EA). NAVFAC Pacific, on behalf of Joint Base Pearl Harbor Hickam (JBPHH), is preparing an Environmental Assessment for U.S. Army West Loch Ordnance Facilities at JBPHH West Loch Annex, which is to be implemented in multiple phases as separate Military Construction projects, and has determined the project falls under the de minimis list. Project information and relevant "Project Mitigation / General Conditions" are provided below. Please let me know if you have any questions.

Very respectfully,

Alan Suwa
NAVFAC PACIFIC EV21
NEPA Planner
808 472 1450
alan.suwa@navy.mil

-=-=-=

Proposed Action:
The Commander, Joint Base Pearl Harbor-Hickam (JBPHH) proposes the U.S. Army's construction of new magazines and/or repair/modernization of existing magazines to serve as the U.S. Army's Ammunition Supply Point on the island of Oahu, Hawaii. The Preferred Alternative would construct a new munitions storage complex for the storage of military ordnance at West Loch Annex, which would be completed under several phases of military construction projects, the first of which is planned to begin in 2022. The U.S. Army Pacific Command (USARPAC) would be the intended occupant/tenant of the new facilities on Navy-owned land.

Background:
The Army's existing Ammunitions Supply Point is located at Lualualei Annex, but the facilities are aging and unable to accommodate various modern munitions. Additionally, Farrington Highway is the only road connecting Lualualei Annex and West Loch Annex; when closed – as during a major traffic accident, no surface route is available to connect these two points, representing a single point of failure. Relocating the Army's Ammunitions Supply Point to West Loch Annex enables either demolition or reuse of the vacated facilities at Lualualei Annex for other critical training or infrastructure requirements. Consolidating magazines at West Loch Annex reduces Army transportation costs and enhances public safety by significantly reducing movement of ordnance along public roads. This also improves Army efficiencies by keeping ordnance on site close to the ordnance wharves.

Applicability of De Minimis Activities under CZMA:
The proposed action falls within item 1 (New Construction) on the de minimis list.

The relevant mitigation/conditions are as follows:
1) All activities will occur on DoD property.
3) As the project is located in-land and away from estuaries and the shore, turbidity and siltation from project related work shall be minimized and contained to within the vicinity of the site.
6) No project-related materials will be stockpiled in the water.
8) No contamination of adjacent marine/aquatic environments shall result from project-related activities.
9) Fueling of project-related vehicles and equipment will take place away from the water. A contingency plan will be established to control accidental petroleum releases during project construction.
10) All fill material will be protected from erosion as soon as practicable.
11) All exposed soil will be protected from erosion and stabilized as soon as practicable.
13) The Navy is in consultation with the USFWS on a determination that the project is not likely to adversely affect species and habitats protected under the Endangered Species Act.
14) The National Environmental Policy Act review process (Environmental Assessment) will be completed.
16) State CZM office notified on use of de minimis list for an EA.

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Appendix C
Summary of Public Comments on the Draft Environmental Assessment

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Summary of Public Comments on the Draft Environmental Assessment

The Navy implemented a range of public outreach initiatives to share information and solicit comments. In accordance with the National Environmental Policy Act (NEPA), the 30-day public review period for the Draft EA was published in the Honolulu Star-Advertiser for three consecutive days beginning August 9, 2020. Notice was also posted in the State of Hawaii Office of Environmental Quality Control's semi-monthly publication, The Environmental Notice, Aug. 8, 2020. Per the advice of the Honolulu Neighborhood Commission, the chairs of the Neighborhood Boards that represent the residents of those neighborhoods located adjacent to the West Loch Annex and Lualualei Annex were emailed notice of the public review period and were mailed print copies of the Draft EA. Print copies of the Draft EA were also distributed to the Ewa, Waipahu, and Hawaii State Libraries. The Draft EA was accessible online through both Navy and Army public websites, and the public was encouraged to submit comments to the Navy by mail or email. Due to heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. Additionally, Joint Base Pearl Harbor-Hickam Community Planning and Liaison Officer engagements occurred at the Ewa Beach Neighborhood Board (NB) meeting on September 10, 2020 and the Maili-Nanakuli NB on September 15, 2020.

A total of thirty-six comment letters and emails were submitted from twenty-six individuals during the public comment period. Several commenters provided more than one submission. A list of the individuals who provided comment is provided in Table C-1. The Navy considered all comments prior to preparing this Final EA and the associated Finding of No Significant Impact (FONSI). The issues identified in the public comments and the Navy's responses have been summarized in Table C-2.

Table C-1 List of Commenters on the Draft EA

#	*Commenter*	*Affiliation*
1	Alice Dodge	
2	Ann Wright	Voices of Conscience
3	Carl A. Vincenti	
4	Donna Wong	Hawaii's Thousand Friends
5	Eileen Gawrys	
6	Hanalei Fergerstrom	Na Kupuna Moku O Keawe
7	Haunani Hess	
8	Jackie Conant	Office of Congressman Ed Case
9	Jim Albertini	
10	John Bond	Kanehili Cultural Hui
11	John Rogers	Ewa Neighborhood Board
12	Kamakana C. Ferreira	Office of Hawaiian Affairs
13	Karen Luke	
14	Kenneth G. Masden II	Department of Education
15	Kioni Dudley	Friends of Makakilo; Save Oahu Farmlands Alliance
16	Senator Kurt Fevella	State Senate District 19
17	Kyle Kajihiro	
18	Lynn Robinson-Onderko	Ewa Neighborhood Board
19	Michael Plowman	
20	Moana Bjur	Conservation Council for Hawaii
21	Poka Laenui	Institute for the Advancement of Hawaiian Affairs
22	Regina Gregory	
23	Sean Hayworth	
24	Shad Kane	
25	Representative Ty J.K Cullen	State House of Representatives - District 39
26	Will Espero	

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
1	Lack of public notice	10	The Navy and Army implemented a range of public outreach initiatives to share information and solicit comments. In accordance with the National Environmental Policy Act (NEPA), the 30-day public review period for the Draft Environmental Assessment (Draft EA) was published in the newspaper for three consecutive days beginning Aug. 9. 2020. Notice was also posted in the State of Hawaii Office of Environmental Quality Control's semi-monthly publication, The Environmental Notice, Aug. 8, 2020. Per the advice of the Honolulu Neighborhood Commission, the chairs of the adjacent Neighborhood Boards were emailed notice of the public review period and were mailed print copies of the Draft EA. Print copies of the Draft EA were also distributed to the Ewa, Waipahu, and Hawaii State Libraries. The Draft EA was accessible online through both Navy and Army public websites, and the public was encouraged to submit their comments to the Navy by mail or email. Due to the heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. Additionally, Joint Base Pearl Harbor-Hickam Community Planning and Liaison Officer engagements occurred at the Ewa Beach Neighborhood Board (NB) meeting on September 10, 2020 and the Maili-Nanakuli NB on September 15, 2020.	A description of the public outreach initiatives was added to sections ES.6 and 1.8.
2	Request for public hearing	10	The National Environmental Policy Act (NEPA) EA process provides opportunities for the public to learn about the project and allows for community input. While public meetings are not required under federal laws for EAs, public involvement was sought using several outreach initiatives described above. During the EA process, the Navy engaged with local neighborhood boards which provide ideal public forums where community concerns can be readily discussed and presentations requested. Prior to and during construction, project information and updates can be provided by the Navy representatives to keep the community well informed.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
3	Explosive safety; Insufficient ESQD arcs	9	The proposed magazines would be constructed at West Loch Annex in accordance with US Department of Defense Explosives Safety Board (DDESB) standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA), a field activity of the Naval Sea Systems Command. The Naval Explosive Safety Improvement Program's explosive-safety quantity-distance (ESQD) arcs generated by the new magazines would be fully contained within the existing, larger ESQD arcs at West Loch Annex, following NOSSA and DDESB standards. All new magazines will be within the existing West Loch Annex ESQD arcs, which are currently located on uninhabited, Navy-owned land. The ESQD arc represents a safety buffer zone determined by the design of the magazine and amount of explosives permitted to be stored inside the magazine. These new magazines are designed and sited to not exceed the current ESQD arcs associated with ordnance handling operations at the West Loch ammunition wharves. ESQD arcs created by the newly constructed ordnance facilities are not permitted to expand (i.e. alter) the existing ESQD arcs, and construction cannot begin without DDESB Approval. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities. As part of a separate Navy construction action, the West Loch Annex perimeter will be secured by a new security fence and patrol road along its western boundary. A new entry-control point along Iroquois Road will control public access into the Annex. All individual magazines are sited in accordance with minimum separation distances and structural designs to prevent sympathetic explosion (e.g., chain reactions). In addition, each magazine would have an intrusion detection system to protect against unauthorized access and would comply with Anti-Terrorism Force Protection (ATFP) standards. Importantly, West Loch Annex personnel are	Additional descriptions of ESQD arcs were added to Section 2.3.2.1 New Magazines and to Section 3.4.3.2.

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
			highly trained to manage munitions, including transport, storage, and security.	
4	An EIS is needed	7	The analysis in the EA indicates that the Proposed Action would not have a significant effect on the natural or human environment, therefore an Environmental Impact Statement (EIS) is not warranted.	No change
5	Request for an extension of the public comment period	5	Due to the heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020.	A description of the extended public comment period was added to Sections ES.6 and 1.8.

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
6	Request for data on reduction of munitions transport on public roadways	5	The need for the Proposed Action is to meet the mission of the Army to receive, maintain, store, and issue ammunition, weapons, and technical ordnance material for the Army commands in Hawaii. The facility will function similarly to Lualualei Annex as long-term storage and training munitions. The implementation of the Preferred Alternative would eliminate the need for the Army to store ordnance at Lualualei Annex.The ordnance would continue to arrive by sea and be offloaded at the West Loch Annex wharves. Therefore the new facility would eliminate the need to transport ordnance to the current Lualualei facility for storage. As a result, ordnance stored in the new facility would not be transported on the 18 miles of public highways from West Loch Annex to Lualualei Annex, including Fort Weaver Road, H-1 Freeway, Farrington Highway, and Lualualei Naval Road. The Proposed Action would improve public safety by providing modern munitions handling technology and by significantly reducing the movement of ordnance on roadways across West Oahu and through surrounding neighborhoods.	Clarifying language on reduced ordnance transport was added to Section 2.3.2.1 and Section 3.4.3.2.
7	What types/amounts of munitions will be stored?	6	Actual ammunition and explosive amounts are considered sensitive information so the precise ESQD calculations cannot be disclosed. However as stated in the Draft EA, storage for the new magazines would be limited to maintain the current ESQD arc which is within Navy-owned land. Homes constructed beyond the western border of the West Loch Annex would not be impacted by the proposed project as they are outside the long established ESQD arc. The magazines would be built to modern design standards specifically developed to ensure safe, secure storage of the type of munitions being stored.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
8	How are ESQD arcs calculated?	5	NAVSEA OP5 Vol. 1 is the publication used to determine ESQD arcs, however, this document is not publicly available due to the sensitive nature of ESQD calculations and information. Similarly, the types of ammunition and explosive amounts are considered sensitive information so exact ESQD calculations cannot be disclosed. However as stated in the Draft EA, storage for the new magazines will be limited to maintain the current ESQD arc which falls on Navy-owned land. Construction of the new magazines cannot begin without U.S. Department of Defense Explosive Safety Board (DDESB) approval, requiring compliance with DDESB standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA). Homes constructed beyond the western border of the West Loch Annex would not be impacted by the proposed project as they are outside the ESQD arc.	No change
9	Resources with negligible impacts should be reconsidered.	3	The Navy conducted a careful screening of potential effects in determining which resource areas needed to be analyzed in detail. This approach is consistent with NEPA laws, the Council on Environmental Quality guidance and Navy instructions for implementing NEPA. The screening process provides a carefully structured approach that applies proportional levels of study based on potential impacts, designed to keep NEPA documents at a manageable size and readable, and to avoid encyclopedic type documents that contain irrelevant information. No information was provided by the reviewer to indicate that the Navy's approach did not comply with NEPA.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
10	Kolekole pass should be repaired and reopened.	3	Kolekole Pass is a steep mountain roadway with sharp hairpin turns. Even with necessary repairs to reopen the roadway, its exposure, steepness, and tight turns present major safety concerns for its use as a consistent ordnance hauling route. Additionally, the roadway would continue to be vulnerable to potential landslides and further damage. The consolidation of munitions storage at West Loch Annex does not preclude the Army from improving Kolekole Pass or working with the State of Hawaii and City and County of Honolulu to establish it as an emergency evacuation route.	No change
11	What are the protocols and contingencies in the event of an explosive accident and what would be environmental impacts be?	3	Safety is one of the key reasons for this project. The proposed facilities would be built to modern design standards specifically developed to ensure safe, secure storage. DoD storage requirements consistently undergo review through the Department of Defense Explosive Safety Board (DDESB) and Congressional Oversight. The DDESB and NOSSA provide extensive oversight of all ordnance handling at DoD facilities, including West Loch Annex. The DoD's explosives handling operations utilize a layered safety system that includes highly trained personnel, detailed administration, and specifically designed equipment to ensure its handling of ordnance is safe and reliable. The DoD's military and civilian personnel responsible for handling explosives must complete rigorous qualification training and must demonstrate continuing proficiency annually.In its explosives handling operations, the DoD seeks at all times to keep the quantity of ammunition and explosives present in any one location to the minimum amount that is consistent with operating requirements. Accordingly, while the quantity of ordnance stored in a given location may at times approach or reach the maximum approved amount (upon which any related ESQD arc is based), the actual amount is usually appreciably less. Additionally, modern ordnance is generally designed to be insensitive, and ordnance is tested during development and manufacturing under extreme conditions far beyond what it is	A description of operations safety protocols was added to Section 2.3.2.1 and Section 3.4.3.2.

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
			subjected to during the DoD's explosives handling operations. In the unlikely event that an explosive incident was to occur, explosive hazards would be confined to the area within the current ESQD arc on Navy land. The DoD maintains contingency plans and conducts regular emergency response training to ensure rapid and effective actions in the unlikely event of an accident.	
12	What are the plans for continuous expansion at West Loch?	2	The Proposed Action (construction of Army munitions storage facilities) as well as the Navy's proposed construction of magazines at West Loch Annex would replace the ordnance storage requirements that are currently served by Lualualei Annex. Additional munitions storage requirements at West Loch Annex are unknown at this time.	No change
13	The Draft EA does not address susceptibility to corrosion and weathering of structures.	2	The current munitions storage facilities at Lualualei Annex were constructed between 1932-1942 and are approaching the end of their useful life. They would require major revitalization work in order to make them suitable for today's weaponry. The magazines are not standardized, and the maintenance of the facilities require customized methods to operate.The proposed new ordnance storage facilities at West Loch Annex would be constructed and maintained in accordance with US Department of Defense Explosives Safety Board (DDESB) standards. The expected operational life for buildings, including these ordnance storage facilities, is 45 years per DoD 7000.14-R Financial Management Regulation.	A description of the estimated service life and maintenance standards for the proposed magazines was added to Section 2.3.2.1.

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
14	The Draft EA does not address tsunami risk.	2	The entire magazine area is outside the tsunami evacuation zone (the evacuation zone limits are based on distant tsunami events that have impacted the State of Hawaii and Island of Oahu in the past 100 years). A portion of the proposed ordnance storage facilities are within the extreme tsunami risk zone (evacuation zone for a tsunami that exceeds the historic distant Tsunami Evacuation Zone). Source: City & County of Honolulu Tsunami Risk Zone Map #20 Inset #1. April 2015	A description of tsunami risk was added to page 3-3 Water Resources.
15	The Draft EA does not address impacts to the Ewa coast and the associated limu fields.	2	The west side of Pearl Harbor, including the project area, is composed mostly of limestone reef material and is locally known as the Ewa Plain. Soils are predominantly Ewa Silty Clay Loam (0-2% slope) and Waipahu Silty Clay (0-2% slope). The ground elevation of the proposed magazine area is approximately 30 feet above mean sea level on land that was formerly part of the Ewa Sugar Planation. Development activities would be set back from the West Loch shoreline and there are no surface waters (brackish or freshwater) within the project area. As noted above, the proposed action will follow principles of low impact development (UFC 3-210-10 Low Impact Development), which are designed to maintain site hydrology and mitigate the adverse impacts of stormwater runoff and nonpoint source pollution. Other best management practices are summarized in Table 2-2 of the EA. Site development would also be subject to an NPDES permit process to avoid and minimize construction impacts to receiving waters.	No change
16	The Proposed Action violates Hawaiian sovereignty/international law.	2	Issues of statehood and Hawaiian sovereignty are outside the scope of the NEPA process and are thus not addressed in this environmental assessment.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
17	There are two super sites in the area that still remain to be addressed.	1	Assume the comment refers to superfund sites, which are polluted locations requiring a long-term response to clean up of hazardous material contaminations. See page 3-2 of the EA (Hazardous Materials and Wastes). Construction of the Preferred Alternative would take place in existing agricultural fields and would not disturb any hazardous waste sites regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).	No change
18	Canal dredging cannot pass an environmental assessment.	1	No dredging is proposed as part of this proposed project. Potential environmental impacts associated with the dredging and widening of the West Loch Channel were assessed in the Environmental Assessment for MCON P-181 Dredge Channel for T-AKE Naval Magazine Pearl Harbor West Loch Branch Oahu, Hawaii, December 2006. A Finding of No Significant Impact was issued on March 5, 2007 for the construction of the project.	No change
19	Concern over chain reactions/missile attacks.	1	The proposed magazines would be constructed at West Loch Annex in accordance with US Department of Defense Explosives Safety Board (DDESB) standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA), a field activity of the Naval Sea Systems Command. All individual magazines are sited in accordance with minimum separation distances and structural designs to prevent sympathetic explosion (e.g., chain reactions). Construction cannot begin without DDESB approval.	Language added to Section 2.3.2.1.

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
20	The Draft EA does not sufficiently address potential impacts to cultural resources, specifically native Hawaiian burials.	1	Hawaiian archaeological sites and deposits take the form of artificial modifications of the physical and organic environments. While rock alignments may indicate human agency, archaeologists take note of vegetation patterns, erosional deposits, and other geomorphological evidence as much as they record stone structures. Great variation in structure and deposit forms and size exist (Kirch 1997: 34). Ad hoc combinations of functional and formal structural elements and artifacts are common.Given the variation found within and between sites on Oahu, and the other Hawaiian islands, a single pattern of pohaku cannot be the signifier of religious sites, homesteads, or burials.Any inadvertent discoveries of human skeletal remains would be addressed in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA), and any artifacts or deposits encountered would be protected until a Navy archaeologist could assess them.	No change
21	Pile driving could affect groundwater and the Ewa coast.	1	The west side of Pearl Harbor, including the project area, is composed mostly of limestone reef material and is locally known as the Ewa Plain. Soils are predominantly Ewa Silty Clay Loam (0-2% slope) and Waipahu Silty Clay (0-2% slope). The ground elevation of the proposed magazine area is approximately 30 feet above mean sea level on land that was formally part of the Ewa Sugar Planation. Development activities would be set back from the West Loch shoreline and there are no surface waters (brackish or freshwater) within the project area. The Action Alternatives do not involve work such as pile driving that would affect major geological characteristics such as topography, bedrock material, or mineral deposits. Ground-altering construction activities would comply with all applicable clearing and grading regulations, and the Contractor would be responsible for implementing BMPs to control soil erosion and sedimentation during construction activities.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
22	DoD should consider the alternative of peace by peaceful means; removal of weapons and munitions from Oahu.	1	As noted on page 1-4 of the EA, under 10 U.S.C. section 3062 the US Army "shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land. It is responsible for the preparation of land forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war." The US Navy has similar obligations under 10 U.S.C. section 5062. These are Congressionally mandated authorities that both the Army and Navy are bound by.	No change
23	The Draft EA does not address population density around West Loch and Lualualei.	1	The proposed magazines will be within the existing West Loch Annex ESQD arcs, which are currently located on uninhabited, Navy-owned land. The ESQD arc represents a safety buffer zone determined by the design of the magazine and amount of explosives permitted to be stored inside the magazine. The proposed magazines are designed and sited to not exceed the current ESQD arcs associated with ordnance handling operations at the West Loch ammunition wharves. ESQD arcs created by the newly constructed ordnance facilities are not permitted to expand (i.e., alter) the existing ESQD arcs, and construction cannot begin without DDESB Approval. Because ESQD arcs are not being expanded, there is no additional public health or safety risk to nearby publicly accessible areas or residential communities. Furthermore, the consolidation of Navy and Army ordnance storage facilities at West Loch Annex is consistent with both the City and County of Honolulu's Ewa Development Plan and the Waianae Sustainable Communities Plan.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
24	The Draft EA does not address potential night lighting effects on seabirds.	1	See section 3.2.3.2 of the EA. To minimize effects on nocturnal seabirds, Navy policy is to avoid all night lighting not needed, to comply with Anti-Terrorism/Force Protection (ATFP) standards or for personnel safety. For all new construction, whenever possible exterior lights should be LED lights with full cut-off fixtures for compliance with Migratory Bird Treaty Act (MBTA). Lights that are International Dark Sky Association certified, are preferred but not required.	No change
25	The Draft EA does not address sea level rise and flood mitigation.	1	See page 3-3 of the EA, water resources. The ground elevation of the proposed magazine area is approximately 30 feet above mean sea level, well above the floodplain. The Hawaii Sea Level Rise Vulnerability and Adaptation Report assumes 3.2 feet of sea level rise by the year 2100 (Hawaii Climate Change Mitigation and Adaptation Commission, 2017). The Preferred Alternative is well above and outside the projected sea level rise exposure area for the 3.2 foot sea level rise scenario. The project will follow principles of low impact development that include managing stormwater and minimizing ground disturbance. No flood mitigation is required.	A description of sea level rise was added to page 3-3 Water Resources.
26	The Draft EA does not address the intent of the Farmland Protection Policy Act (FPPA).	1	An assessment of the applicability of the FPPA is provided in section 3.3.3.2 of the EA. The Navy started acquiring lands at West Loch for Ammunition Depot purposes in the post WW-I era and expanded to its current size in 1960s and 70s. The Navy has actively managed its real estate assets through farming out grants (short term leases) and these grants have been gradually withdrawn as the Navy's requirements have expanded.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
27	The Draft EA does not adequately address cumulative impacts to cultural resources.	1	The Navy has carefully studied the cultural resources associated with Pearl Harbor region area generally corresponding with JBPHH boundaries and works closely with its Historic Partners to protect and preserve cultural resources, consistent with fulfilling its primary mission of national defense. As stated in section 3.1.2.3, there are no known traditional cultural properties located with the area of potential effect (APE). The Navy works closely with cultural practitioners to ensure safe access to culturally significant areas within JBPHH.	No change
28	The Draft EA does not consider an alternative of reducing the Army's presence.	1	As noted on page 1-4 of the EA, under 10 U.S.C. section 3062 the US Army "shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land. It is responsible for the preparation of land forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war." The US Navy has similar obligations under 10 U.S.C. section 5062. These are Congressionally mandated authorities that both the Army and Navy are bound by.	No change
29	In this time of pandemic, tax dollars should go to vulnerable communities rather than militarization	1	The funding priorities of the federal government and appropriations for the DoD are set by Congress outside the scope of the NEPA process and are thus not addressed in this environmental assessment.	No changes

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
30	The Draft EA does not discuss the history of land tenure at West Loch.	1	Between 1929 and 1931, the Navy acquired 213 acres at West Loch for a receiving depot, ordnance handling, and storage. In 1939, an additional 358 acres was acquired at West Loch by condemnation of all the land around the perimeter of Pearl Harbor, including the entire Waipio Peninsula and lands immediately west of the ammunition depot. Proceedings started during World War II, but acquisition was not completed until 1948. In 1964, West Loch Ammunition Depot expanded by 3,879 acres to the south and west including former areas of the Advance Base Construction Depot. In 1982, the Navy purchased an additional 760 acres west of the naval magazine at West Loch base to ensure that all ESQD arcs were within Navy-owned land. These lands were subsequently leased for sugar cane cultivation. As of 2008, the West Loch facility encompasses 4,092 acres (including Waipio Peninsula). None of the West Loch Annex are ceded lands.	No change
31	The Draft EA does not include sufficient discussion of impacts to migratory birds and protected species.	1	A discussion of potential impacts to Migratory Bird Treaty Act (MBTA)-Protected species is provided in section 3.2.3.2 of the EA. The management measures discussed therein are consistent with best management practices the Navy has identified in coordination with the U.S. Fish and Wildlife Service (USFWS). A discussion of the potential impacts to threatened and endangered species is provided in section 3.2.3.2 of the EA. In accordance with Section 7 of the Endangered Species Act (ESA) the Navy conducted informal consultation with USFWS and determined that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat and that there will be no destruction or adverse modification of critical habitat. The USFWS concurred with the Navy's determination.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
32	The Draft EA erroneously concludes that the project will have no environmental justice impacts, specifically Native Hawaiians and immigrant communities.	1	As stated in section 3.1.2.3 of the EA, there are no known traditional Hawaiian or other cultural properties located within the project area. The project is located entirely on Navy property, and there would be no effect on subsistence resources in the adjacent areas. No disproportionately high and adverse human health or environmental effects are anticipated for Native Hawaiian and immigrant communities.	No change
33	Will there be any possibility of underground spillage which could contaminate the aquifer?	1	The Proposed Action would not include any underground liquid storage facilities. All hazardous materials and wastes would be transported, stored, handled, and disposed of in accordance with federal and state regulations. The Proposed Action will follow principles of low impact development (UFC 3-210-10 Low Impact Development), which are designed to maintain site hydrology and mitigate the adverse impacts of stormwater runoff and nonpoint source pollution. Other best management practices are summarized in Table 2-2 of the EA.	No change
34	Request for a hard copy.	1	Hard copies were made available for public review at the Ewa, Waipahu, and Hawaii State Public Libraries.	No change
35	Does the Navy plan to accommodate stormwater from the Hoopili development?	1	In accordance with Section 438 of the Energy Independence and Security Act (EISA), drainage improvements associated with the new facilities would be designed based on the principles of low impact design (LID), and would not increase stormwater runoff from the project site. The Navy is not planning to accommodate excess stormwater from off-site developments such as the Hoopili Development or any other nearby properties/developments.	No change
36	In support of Sean Hayworth comments.	1	Comment noted. See responses to Mr. Hayworth's comments. (See comment responses #2, 16, and 20).	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
37	The Draft EA is insufficient because the discussion of cumulative impacts focuses on the proposed action.	1	Cumulative impacts are covered in Chapter 4 of the EA. The document identifies 27 past, present, and reasonably foreseeable actions for inclusion in the cumulative impacts analysis in addition to the Proposed Action. The past, present, and reasonably foreseeable actions are summarized in Section 4.3 of the EA. The impacts of past, present, and reasonably foreseeable projects are identified for each resource area. The cumulative impacts analysis considers the impacts of the Proposed Action within the context of the past, present, and reasonably foreseeable actions. Cumulative impacts were determined to be less than significant for all resource areas.	No change
38	The NEPA contact list was not notified.	1	The Navy is unsure what NEPA contact list the commenter is referring to. Neither the Navy nor the Army maintains a general NEPA contact list. Occasionally, contact lists are established for individual projects, but no such list was established for this project. Public notification and participation for this project is outlined in Section 1.8 of the EA.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
39	Concern that there has been segmentation of NEPA reviews for munitions storage projects at West Loch.	1	Segmentation arises when connected actions are divided into several smaller actions, each of which might have an insignificant environmental impact when considered in isolation but that taken as a whole, have a substantial impact. NEPA does not require any agency to treat actions as connected if they have independent utility and purpose. The proposed Army Ammunition Supply Point (ASP) at West Loch Annex is completely independent of the Navy's ongoing construction of new "Long Ordnance" magazines (the subject of the "2019 FEA" referred to in the comment). The Navy's new Long Ordinance magazines do not depend on the construction of the Army ASP, and vice versa. Each project serves a distinct purpose and function. Additionally, the referenced 2019 FEA discussed the proposed Army ASP as a reasonably foreseeable action and analyzed it along with other reasonably foreseeable actions as part if its cumulative impact assessment. The Army ASP and Navy's Long Ordnance magazines projects are not connected actions for the purposes of an environmental impact analysis and cumulative impacts are fully considered.	No change
40	No impact anticipated to Hawaii Department of Education schools or facilities. (Comment from the Hawaii Department of Education)	1	Comment noted.	No change
41	The Draft EA omits consideration of hazardous materials.	1	Consideration of hazardous materials and wastes is provided on page 3-2 of the environmental assessment.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
42	What are the potential impacts to Ewa Gentry North Park.	1	NAVSEA OP5 Vol. 1 is the publication used to determine ESQD arcs, however, this document is not publicly available due to the sensitive nature of ESQD calculations and information. Similarly, the types of ammunition and explosive amounts are considered sensitive information so exact ESQD calculations cannot be disclosed. However as stated in the EA, storage for the new magazines will be limited to maintain the current ESQD arc which falls on Navy-owned land. Construction of the new magazines cannot begin without U.S. Department of Defense Explosive Safety Board (DDESB) approval, requiring compliance with DDESB standards and the Navy's implementing standards promulgated by the Naval Ordnance Safety and Security Agency (NOSSA). Homes constructed beyond the western border of the West Loch Annex (including Ewa Gentry North Park) would not be impacted by the proposed project as they are outside the ESQD arc.	No change
43	The project is not consistent with the Ewa Development Plan	1	Consistency with City and County of Honolulu Land Use Plans, Policies, and Controls is discussed in section 3.3.2.3 of the EA. The Preferred Alternative is consistent with the Ewa Development Plan (and the Waianae Sustainable Communities Plan). The Ewa DP recognizes that West Loch Annex is the principal site where U.S. Department of Defense ordnance handling and storage for Oahu is consolidated (City and County of Honolulu, 2013, p. 3-76). The Waianae SCP supports the planned consolidation of ordnance storage from Lualualei Annex to West Loch Annex (City and County of Honolulu, 2012, p. 3-50).	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
44	Request that the Navy provides five acres for habitat for mitigation.	1	Natural resources at Joint Base Pearl Harbor-Hickam are managed in accordance with the Integrated Natural Resources Management Plan (INRMP), which identifies ample habitat and conservation actions for the successful stewardship of natural resources on the installation. The vegetation that would be affected by the Proposed Action does not provide critical habitat. Wildlife that would be displaced by the Proposed Action are expected to use suitable nearby habitats for relocation and foraging. Displacement of these individuals from the project footprint would not be expected to affect the survival of individuals or populations.	No change
45	Request that the Navy provides funding for research and education for native species.	1	The INRMP serves as a comprehensive guide for the Navy's stewardship of natural resources at JBPHH. The Proposed Action would result in less than significant impacts to biological resources, and the U.S. Fish and Wildlife Service has concurred with the Navy's determination that the Preferred Alternative may affect, but is not likely to adversely affect the Hawaiian hoary bat with the implementation of conservation measures.	No change
46	Request for delay in decision making.	1	Due to the heightened public interest in the project the Navy extended the deadline for public comments by ten days ending on September 18, 2020. The Navy will carefully consider all comments for fully informed decision-making.	No change
47	Is there special consideration for PHNHL.	1	The Architectural Resources section of Chapter 3.1 (Cultural Resources) describes the regulatory context for evaluating impacts to architectural resources to the extent to which the project area extends into the PHNHL. The Proposed Action would not involve impacts to historic buildings or structures and therefore no historic properties would be affected. The Action is covered in Programmatic Agreement among the Commander Navy Region Hawaii, the Advisory Council on Historic Preservation and the Hawaii State Historic Preservation Officer Regarding Navy Undertakings in Hawaii (PA) and therefore no further review under the PA or the National Historic Preservation Act is required.	No change
48	Support for the project.	1	Comment noted.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
49	What is the long-term plan for Lualualei Annex?	1	The implementation of the Preferred Alternative would eliminate the U.S. Army's need to store ordnance at the Lualualei Annex. The existing magazine facilities at Lualualei Annex are approaching the end of their useful life. The current facilities were built between 1932 and 1942 and were originally designed for a railway transport system. The move from Lualualei is part of a long-planned restructure based on findings of a 1995 land use study the military prepared at the request of the late U.S. Sen. Daniel Inouye . At this time, the Navy is not planning to close Joint Base Pearl Harbor-Hickam Lualualei Annex or excess the property.	No change
50	What other locations were considered?	1	The No Action Alternative, Preferred Alternative, and Alternative 2 were carried forward for analysis in the EA and are described in section 2.3 of the EA. The alternatives that were considered but not carried forward for detailed analysis are described in section 2.4 of the EA.	No change
51	Where are munitions stored now?	1	Army munitions are currently stored at Lualualei Annex. The facilities at Lualualei Annex were constructed between 1932-1942, and they are reaching the end of their useful life.	No change
52	Who will certify responses/How can community verify?	1	The Navy plans to continue engagement with local neighborhood boards which provide ideal public forums where community concerns can be readily discussed and presentations requested for this and other Navy projects. Project information and updates would be provided by the Navy liaison representatives prior to and during construction of the project to keep the community well informed.	No change

Table C-2 Public Comment Topics and Navy Responses

#	Comment topic	Number of commenters who raised this topic	Response	Change to EA
53	Why was this location chosen?	1	The Consolidation of Navy and Army ordnance storage facilities at West Loch Annex is part of a decades long planning process as documented in the 1995 Hawaii Military Land Use Study, the 2013 Ewa Development Plan, and the 2012 Waianae Sustainable Communities Plan.Per Chapter 2 of the Environmental Assessment, a range of potential alternatives that met the purpose and need for the Proposed Action were considered. These alternatives were screened against the following screening criteria:• Availability of developable land with adequate setbacks for ordnance storage• Potential risk to public safety• Minimal environmental impacts• Cost efficiency, constructability and ease of maintenanceThe Preferred Alternative was selected because it meets the purpose and need for the Proposed Action and best satisfies the above criteria.	No change
54	The military should shift gears to address climate change immediately.	1	The DoD follows priorities of current climate change policies of the federal government and are addressed under specific issues by the NEPA process. In 2014, the DoD released the Climate Change Adaptation Roadmap which identifies goals and actions to increase the Department's resilience to the impacts of climate change. Additionally, the 2019 DoD Sustainability Report and Implementation Plan summarizes the Department's sustainability efforts. The potential impacts of the Preferred Alternative on greenhouse gas emissions are discussed on page 3-1 of the EA under the "Air Quality" heading. Additionally, the Preferred Alternative would be located outside of the projected sea level rise exposure area (see page 3-3 of the EA, under the "Water Resources" heading).	No change

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