PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

PŌHAKULOA TRAINING AREA
REAL PROPERTY MASTER PLAN ADOPTION
HAWAIʻI ISLAND, HAWAIʻI

JUNE 2020

Prepared For: U.S. Army Corps of Engineers Honolulu District and U.S. Army Garrison Hawaii

Prepared By: HHF Planners

Finding of No Significant Impact
Pōhakuloa Training Area
Real Property Master Plan Adoption
for
Hawai‘i Island, Hawai‘i

AUTHORITY

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code 4321-4347) (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] parts 1500-1508), and the Final Rule on Environmental Analysis of Army Actions (32 CFR Part 651), the United States Army Garrison Hawaii (USAG-HI) gives notice that a Programmatic Environmental Assessment (PEA) has been prepared for adoption of the Pōhakuloa Training Area Real Property Master Plan, Hawai‘i Island, Hawai‘i.

PROPOSED ACTION

The U.S. Army (Army) proposes to adopt the Real Property Master Plan (RPMP) for the Pōhakuloa Training Area (PTA). The adoption of the RPMP is an administrative action that would not involve new development, ground disturbance, alteration of any real estate, facility or infrastructure, or change in training activities at PTA. The adoption of the PTA RPMP involves senior commander endorsement, a recommendation by the installation Real Property Planning Board, and approval by the designated staff of the Installation Management Command, a subordinate element to the Army Material Command. The Proposed Action is independent of the types of training and tempo of range activities taking place at PTA. It is not expected to result in changes to training tempo and intensity at PTA because these conditions are driven by national security threat assessments and ongoing contingency operations.

The PEA evaluates the environmental impacts of the RPMP adoption and includes analyses of the no-action alternative. Programmatic NEPA documents are prepared for projects that occur under a program or may occur over time; additionally, each project may require an individual NEPA document. The PEA also evaluates, at a general programmatic level, potential impacts of implementation of RPMP projects, although they are not part of the current Proposed Action. This PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document.

ALTERNATIVES CONSIDERED

The Proposed Action (also the Preferred Alternative) and No-Action alternatives were evaluated in the PEA. Under the no-action alternative, the RPMP would not be adopted and it is assumed that the Army would continue to manage facility and real estate projects at PTA in the way it has in the past, without the benefit of an overarching plan. The no-action alternative would not meet the project purpose and need, which requires the adoption of an RPMP that provides PTA with strategies to ensure installation sustainability while providing for mission readiness and regional planning integration, consistent with Army Regulation 210-20 "Real Property Master Planning for Army Installations." Other alternatives were considered but eliminated because they did not meet screening criteria to be carried through the environmental analysis.

SUMMARY OF ENVIRONMENTAL ANALYSIS

Based on the analysis contained in the PEA, USAG-HI has determined that the preferred alternative would result in impacts that are less than significant. There would be less than significant, potentially beneficial impacts to land use compatibility, less than significant impacts to socioeconomics, and no impacts to cultural resources, biological resources, transportation systems, noise, air quality, water resources, natural hazards, geology and soils, visual resources, public facilities and infrastructure, and toxic and hazardous substances. When combined with past, present and reasonably foreseeable future actions, the preferred alternative would not contribute to cumulative impacts on the environmental resource areas studied.

In accordance with 15 CFR 930, subpart C, USAG-HI determined that the Proposed Action of adopting the RPMP would not affect any coastal use or resources.

PUBLIC REVIEW AND COMMENT

The PEA and Draft Finding of No Significant Impact (FNSI) were made available for a 30-day public review and comment period on April 19, 2020 with the publication of a Notice of Availability in the Hawaii Tribune-Herald and West Hawaii Today newspapers. A notice of the PEA and Draft FNSI was also published in the April 23, 2020 edition of The Environmental Notice (Office of Environmental Quality Control [OEQC], State of Hawai‘i Department of Health). An electronic copy of the PEA and Draft FNSI were made available for download at: https://home.army.mil/hawaii/index.php/garrison/dpw/nepa as well as for download at the OEQC website: http://health.hawaii.gov/oeqc. Paper copies of the PEA and Draft FNSI were also provided to the following public libraries: Hilo Public Library, Kailua-Kona Public Library, and Thelma Parker Memorial Public Library.

No comments on the PEA or Draft FNSI were received within the comment period, which ended on May 19, 2020.

CONCLUSION

Based on a careful review of the PEA, I have concluded that implementation of the Proposed Action (i.e., Adoption of the PTA RPMP) would not result in significant impacts to either the manmade or natural environment. Therefore, an environmental impact statement is not required and will not be prepared.

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Programmatic Environmental Assessment
for
Pōhakuloa Training Area Real Property Master Plan Adoption
Hawai'i Island, Hawai'i
February 2020

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Executive Summary

The U.S. Army (Army) proposes to adopt the Real Property Master Plan (RPMP) for the Pōhakuloa Training Area (PTA)—an administrative action that would not involve new development, ground disturbance, alteration of any real estate, facility or infrastructure, or change in training activities at PTA. The Army has prepared this Programmatic Environmental Assessment (PEA) in accordance with the National Environmental Policy Act (NEPA) [42 United States Code (USC) §§ 4321 to 4370 (f)], the Council on Environmental Quality's (CEQ) NEPA regulations [Title 40 of the Code of Federal Regulations (CFR) Parts 1500–1508], and 32 CFR Part 651, *Environmental Analysis of Army Actions*. Guidance is also provided from Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations*. Programmatic NEPA documents are prepared for projects that occur under a program or may occur over time; additionally, each project may require an individual NEPA document.

This PEA evaluates the Army's proposed adoption of a Real Property Master Plan (RPMP) for improving infrastructure and training support facilities at Pōhakuloa Training Area (PTA). The RPMP reflects the Army's mission requirements in addressing future facility and infrastructure needs over a 20-year time frame, or longer, depending on circumstances. This PEA includes analysis of the potential environmental impacts of adopting the RPMP, which provides the Army with a comprehensive planning strategy that may accommodate future changes, such as repair or replacement, for PTA's facilities and infrastructure. The information contained in this PEA will be reviewed and considered by the Army prior to the final decision on how to proceed with the implementation of the Proposed Action, and to determine whether a Finding of No Significant Impact is appropriate or whether a Notice of Intent to prepare an Environmental Impact Statement (EIS) should be issued.

Future documentation for implementation of RPMP actions required by NEPA may be tiered from this PEA, thereby eliminating duplicate discussions that can be referenced from this document. Should more analysis be required for the action, subsequent documentation may take the form of a NEPA Record of Environmental Consideration, environmental assessment, or EIS. This PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document (e.g., implementation of RPMP short- and long-range projects described herein).

E.1. Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to comply with Army Regulation 210-20, which requires the adoption of an RPMP that provides PTA with strategies to ensure installation sustainability through the provision of mission readiness and installation integration in regional planning. The RPMP identifies requirements and alternatives for modernizing PTA assets and provides the framework for analyzing and modifying resource allocations for the maintenance and repair of existing facilities. Adoption of the RPMP would also allow for increased awareness of PTA's planned development and land use patterns by civilian stakeholders (e.g., State of Hawai'i, County of Hawai'i, neighboring communities, and Native Hawaiian cultural groups) via a publicly-available summary. This would allow for coordination of real property master planning activities with local community developments, promote cooperative and interactive relationships with stakeholders, facilitate compatible land use, and minimize PTA's operational and development impacts on the surrounding communities.

The Proposed Action is needed to optimize PTA's potential as a contingency base operation, supporting a safe and secure Pacific region. PTA has increasing expenses for recurring maintenance and repairs on its existing assets, and a responsibility to provide modern, technology-intensive operational functions requiring power and communications support. In order to support the Army's mission of maintaining a ready force with global reach in the Pacific Theater and ensure PTA remains a viable training facility, modernization is necessary to maintain and improve the quality of its joint multinational training capabilities. Adopting the RPMP would allow the Army to make capital investments and land use decisions at PTA in a more coordinated and transparent manner reflective of the RPMP's development goals and objectives. Without RPMP adoption, facility and infrastructure investments and improvements may be hindered by siting conflicts, poor sequencing, or missed opportunities. Coordination of land use planning with neighboring communities and stakeholders may also be suboptimal.

E.2. Summary of the Proposed Action and Alternatives

The Proposed Action is the Army's adoption of the PTA RPMP—an administrative action that would not involve new development, ground disturbance, alteration of any real estate, facility or infrastructure, or change in training activities at PTA. The Proposed Action does not include implementation of any RPMP projects; they have been or will be evaluated under separate NEPA documents, as appropriate, when sufficient project details are available for adequate environmental impact analyses and when funding is available for project implementation.

Based on the project purpose and need and using the alternative screening factors, one action alternative was identified and is analyzed in this PEA: Adopt the PTA RPMP. Other alternatives did not meet the screening factors of meeting the purpose and need for the Proposed Action and having sufficient project details for adequate analysis of environmental effects. The no-action alternative assumes the PTA RPMP is not adopted and the Army continues to manage facility and real estate projects at PTA in the way it has in the past, without the benefit of an overarching plan. It would not meet the project purpose and need; however, it is carried forward in this PEA as required by NEPA.

E.3. List of Permits and Approvals

The Proposed Action that is the subject of this NEPA PEA includes only an administrative action with no construction, alteration, ground disturbance, or changes to the physical environment or activities at PTA. Because of its administrative nature, the Proposed Action does not represent a federal undertaking under the National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665; 16 USC §470 et seq.) and the RPMP is not subject to consultation under Section 106 of the NHPA. United States Army Garrison Hawaii (USAG-HI) determined that the Proposed Action would not affect listed species or critical habitat and therefore, it is not required to consult with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA) of 1973 (Public Law 93-205; 16 USC. §1531 et seq.) or acquire a Migratory Bird Treaty Act (MBTA) permit. As a federal agency, the Army is required to determine whether its proposed activities would affect the coastal zone by evaluating the Proposed Action relative the objectives and policies of the Coastal Zone Management Act (CZMA) of 1972 (as amended) (16 USC §1451 et seq.). This takes the form of a consistency determination, a negative determination, or a determination that no further action is

necessary. Because the administrative action of adopting the RPMP would not involve any new development, alteration of existing land or facilities, changes in land use, activities, or training tempo or intensity, USAG-HI determined that the Proposed Action would have no effects on coastal uses or resources (see Appendix A for documentation of this determination).

E.4. Affected Environment and Environmental Consequences

The PEA describes the affected environment and environmental consequences of the RPMP adoption. The analysis also addresses environmental conditions and potential impacts associated with implementing RPMP projects at a programmatic level—with the understanding that future, tiered NEPA evaluation would occur, as appropriate, when there is adequate project information available for environmental analyses.

All potentially relevant resource areas were initially considered for analysis in this Environmental Assessment. In compliance with NEPA, CEQ, and 32 CFR part 651 guidelines, the discussion of the affected environment focuses only on those resource areas that are potentially subject to impacts. Additionally, the level of detail used in analyzing a resource is commensurate with the anticipated level of potential environmental impact. Environmental consequences were analyzed for each resource area at a programmatic level and classified in one of four impact categories:

- Significant impact
- Less than significant impact
- No impact
- Beneficial impact (impact that benefits the resource/issue)

Based on the scope of the Proposed Action and No-Action Alternatives, resource areas analyzed in detail include the following:

- Land Use Compatibility
- Cultural Resources
- Biological Resources
- Socioeconomics
- Transportation Systems
- Noise
- Air Quality
- Water Resources
- Natural Hazards, Geology, and Soils
- Visual Resources
- Public Facilities and Infrastructure
- Toxic and Hazardous Substances

The effects that the Proposed Action and No-Action Alternative would have on various facets of the natural and man-made environment are summarized in Table ES-1. Potential impacts associated with

the future construction and operational phases of RPMP implementation are addressed programmatically in the PEA.

Table ES-1: Summary of Potential Impacts by Resource Area

Resource Areas	No-Action Alternative	Proposed Action (RPMP Adoption)
Land Use Compatibility	Less than significant impact. The RPMP would not be adopted and the Army would continue to manage PTA without the benefit of an overarching plan. The No-Action alternative would not be in compliance with Army regulations which require RPMPs to be adopted and followed.	Less than significant impact, with potential beneficial impacts from contributing to coordinated regional planning and informing surrounding communities and jurisdictions of the Army's long-term plans. The Proposed Action would be compatible with existing and planned land uses surrounding PTA and Kawaihae Harbor. Within PTA, there would be beneficial impacts to land use associated with the comprehensive planning and implementation of improvements at PTA in accordance with best practices and Army regulations.
Cultural Resources	Less than significant impact.	No impact.
Biological Resources	Less than significant impact.	No impact.
Socioeconomics	Less than significant impact, including no impacts on minority or low income populations.	Same as No-Action Alternative.
Transportation Systems	Less than significant impact	No impact.
Noise	Less than significant impact.	No impact.
Air Quality	Less than significant impact.	No impact.
Water Resources	Less than significant impact.	No impact.
Natural Hazards, Geology and Soils	Less than significant impact.	No impact.
Visual Resources	Less than significant impact.	No impact.
Public Facilities and Infrastructure	Less than significant impact.	No impact.
Toxic and Hazardous Substances	Less than significant impact.	No impact, including no increased environmental health and safety risks that would disproportionately affect children.

E.5. Avoidance and Minimization Measures

Impacts from the Proposed Action would be less than significant for all resource areas; therefore, no mitigation measures are required or proposed. Best management practices (BMP) would be employed for sustainment, restoration, and modernization and capital improvements projects as RPMP projects are implemented to avoid and minimize adverse impacts to the environment. Army contractors would be required to develop site-specific BMP plans in consultation with federal and state regulatory agencies (as applicable) to address specific conditions of the work proposed at the project site. Typical BMPs may include the following:

Typical Construction Period BMPs

1. Erosion and sediment control measures such as protection of erodible soils; mechanical control of stormwater runoff from the construction site; use of sediment basins; and use of vegetation, mulch, or acceptable non-vegetative means on soil exposed by grading or ground disturbance. BMP measures must remain in place until the area is permanently stabilized.

2. Employment of personnel qualified to identify and handle hazardous materials if unexpectedly encountered.

3. Use of personal protective equipment (e.g., protective clothing, eye protection, and respirators) during pipe removal activities to protect personnel from lead containing paint. Implementation of appropriate procedures to contain dust and paint chips that may be loosened during construction activities.

4. If contaminated soil is suspected, it will be tested, stored and disposed of at an appropriate waste facility.

5. Implementation of fugitive dust control measures during the construction period, including during non-working periods. Measures may include sprinkling or treating the soil with dust suppressants at the site, haul roads, and other areas disturbed by operations.

6. Preparation and implementation of a dirt and dust control plan that identifies the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

7. Cleaning and inspecting all construction vehicles and equipment before moving onto the worksite to prevent the spread of invasive species. Prior to construction, the PTA Natural Resources staff will provide briefing materials to ensure inspections are conducted effectively.

8. Preparation and execution of a Construction Management Plan to avoid and minimize potential impacts of multi-year, on-post construction activities and ensure construction activities do not degrade readiness or soldier quality of life.

9. BMPs will also be identified as conditions of the National Pollutant Discharge Elimination System (NPDES) permit required for the discharge of stormwater associated with construction activity, including a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP serves as a primary water quality BMP for projects requiring NPDES permits. All construction projects that are greater than or equal to 1 acre in size, or part of a larger development plan totaling 1 acre or more, should consult the Hawai‘i Department of Health Clean Water Branch to determine if a NPDES permit for storm water discharges associated with construction activities is necessary.

10. If a project does not require an NPDES permit, USAG-HI Department of Public Works Environmental Branch will review the Environmental Protection Plan and perform at least one site inspection.

Measures for Cultural Resources

The Proposed Action would comply with guidelines and protocols outlined in the installation’s Integrated Cultural Resources Management Plan (ICRMP) (U.S. Army Garrison Pōhakuloa, 2018). The RPMP was developed in conjunction with the ICRMP, and specific projects would comply with Section

106 of the NHPA prior to implementation. Site-specific impacts to cultural resources would be addressed and avoided, minimized, or mitigated at that time.

Best Management Practices for Biological Resources

The following avoidance and minimization measures are required to be included for RPMP projects as they are implemented to avoid and minimize adverse impacts to natural resources, specifically for protected threatened or endangered species. The following measures are requirements from Section 7, Endangered Species Act formal consultations with U.S. Fish and Wildlife Service. These include:

1. Hawaiian goose (*Branta sandvicensis*)

    a. Construction personnel shall coordinate with PTA Natural Resources staff and acquire a briefing and Hawaiian goose information prior to starting construction work activities to educate personnel on how to work safely around them, particularly during the geese breeding season from September to April.

    b. Contractors will survey their work areas prior to starting work activities or after any prolonged break in activity to ensure geese are absent from the work areas and will not be affected by work activities.

    c. Personnel shall remain vigilant throughout construction period for potential presence of the Hawaiian goose (and their nests) around construction sites, including staging, stockpiles, and parking areas. If the Hawaiian geese are found within 100 feet of construction activities, crews will stop work and contact PTA Natural Resources for assistance;

    d. Contractors are not allowed to haze geese. Neither project activities nor construction personnel may cause any “take” to geese (i.e., harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct).

    e. The vehicle speed limit within the Cantonment is 15 miles per hour, and will be followed to avoid striking geese.

2. Hawaiian hoary bat (*Lasiurus cinereus semotus*)

    a. Tree trimming and vegetation removal of trees and large shrubs 15 feet or higher will be avoided during the Hawaiian hoary bat breeding season, June 1 through September 15.

    b. Construction activities that occur during nighttime hours will comply with BMPs for lighting.

    c. The use of spotlights to illuminate construction sites for nighttime work or for security shall be avoided or minimized to the maximum extent practicable to avoid attracting insects, which then attracts bats to forage at lit work sites where they may be struck by construction activities/materials, or become entangled in fencing or other construction materials.

    d. Carefully consider security fencing requirements; avoid installation of barbed wire if at all possible.

3. Unified Facilities Criteria standards and County of Hawai‘i Lighting Ordinance for outdoor lighting specifications will be followed.

a. Exterior lights shall be shielded and downcast to avoid causing impacts to federally-listed species (i.e., disorientation and fallout of protected seabirds, Band-rumped storm petrel, and Hawaiian petrel, etc.).

Measures for Invasive Species Prevention

Invasive Pest Prevention Standard Operating Procedures (SOP) have been established to prevent the introduction of harmful invasive species including weeds, reptiles, amphibians, invertebrates (e.g., ants), weeds, and disease-causing agents such as the pathogenic fungus, which causes the rapid ʻōhiʻa death disease, into PTA. General SOPs for the prevention of invasive species introduction are listed below. Project leaders and/or contractor shall ensure compliance with PTA's Invasive Pest Prevention Standard Operating Procedures (July 2018, or successor guidance).

1. All work vehicles, machinery, and equipment must be clean and free of debris (soil and vegetation material) prior to entering the PTA.

2. Inspection of work vehicles, machinery, and equipment for invasive ants prior to entering the PTA.

3. Auxiliary construction support sites and staging areas within the PTA must be kept free of invasive pests.

4. All cutting tools must be sanitized to prevent rapid ʻōhiʻa death.

5. Landscaping: New construction and land management projects will use native Hawaiian plants for landscaping to the extent practical.

6. All project personnel, including subcontractors, must receive a PTA Natural Resources (NR) briefing or review the PTA NR briefing materials prior to project implementation.

7. Use of off-site aggregate material

    a. If use of fill material from an off-site source (i.e., not obtained from the main quarry at PTA) is contemplated for a project, procedures outlined in the Protocol for Optional Use of Off-Site Aggregate for Infrastructure Construction at PTA and Keamuku Maneuver Area (September 22, 2010) shall be followed.

    b. These procedures include:

        i. Requesting approval to use off-site aggregate;

        ii. Inspection of the off-site quarry or site for the presence of invasive plant and invertebrate species;

        iii. Risk assessment; and

        iv. Identification and implementation of risk management measures

E.6. Consistency with Land Use Policies, Plans, and Controls

The Proposed Action would have no impact on state or county land use policies, plans, or controls, as no changes in land use would result from the adoption of the RPMP. As noted in Section E.3, USAG-HI determined that that the Proposed Action would have no effects on coastal uses or resources under the CZMA.

E.7. Cumulative Impacts

Several past, present, and reasonably foreseeable future projects were identified at or near the project area (i.e., RPMP planning area), including: (past projects) construction of an Infantry Platoon Battle Course, Kawaihae Harbor improvements (state facilities), Stryker Brigade Combat Team training support facilities (prior to cessation of Stryker training at PTA), changes in military aircraft training at PTA, and construction of Multi-Purpose Range Complex facilities; (present and reasonably foreseeable actions) PTA Cantonment Facilities Improvement Program modernization projects, Daniel K. Inouye Highway extension, State small boat and commercial harbor improvements at Kawaihae Harbor, marine sciences center at Kawaihae Harbor, Department of Hawaiian Home Lands development plans, State airport plans, Mauna Kea Observatories Thirty Meter Telescope, and other recreational and residential community plans.

When considered with relevant past, present and reasonably foreseeable projects, the incremental effects of the Proposed Action (i.e., RPMP adoption, an administrative action) would not contribute to cumulative impacts on pertinent resource areas.

E.8. Unresolved Issues

No unresolved issues associated with implementing the Proposed Action have been identified.

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
ADP	Area Development Plan
ADT	Average daily traffic
AHA	Ammunition Holding Area
amsl	Above mean sea level
APE	Area of Potential Effect
AR	Army Regulation
ASP	Ammunition Supply Point
BAAF	Bradshaw Army Airfield
BAX	Battle Area Complex
BMP	Best Management Practice
BO	Biological Opinion
BSM	Blackburn's sphinx moth
CDP	Community Development Plan
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CMP	Construction Management Plan
CO	carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
dBA	A-weighted decibel
DFAC	Dining Facility
DHHL	Department of Hawaiian Home Lands
DKI	Daniel K. Inouye
DLNR	Department of Land and Natural Resources
DOD	Department of Defense
DODI	Department of Defense Instruction
DOFAW	Division of Forestry and Wildlife
DOH	Department of Health
DPW	Directorate of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Management Services
EO	Executive Order
ER	Engineering Regulations
ESA	Endangered Species Act

FIP	Facilities Improvement Program
FNSI	Finding of No Significant Impact
ft	foot (feet)
FY	Fiscal Year
GHG	Greenhouse gas
HDOT	Hawai'i Department of Transportation
HELCO	Hawai'i Electric Light Company
HGRP	Humu'ula Groundwater Research Project
IBCT	Infantry Brigade Combat Team
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
IMCOM	Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IPBC	Infantry Platoon Battle Course
ITO	Hilo International Airport
JLUS	Joint Land Use Study
JMT	Joint Multinational Training
JMTC	Joint Multinational Training Complex
JPMRC	Joint Pacific Multinational Readiness Capability
KMA	Keamuku Maneuver Area
KMR	Keaukaha Military Reservation
KOA	Kona International Airport
LST	Landing Ship, Tank
LSV	Logistics support vessel
LVCG	live, virtual, constructive and gaming
LVCT-IA	live, virtual, constructive training-integrated architecture
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPH	miles per hour
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNL	National Natural Landmark
NO_2	Nitrogen dioxide
NO_X	nitrogen oxide

NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Services
NRHP	National Register of Historic Places
NR	Natural Resources
OEQC	Office of Environmental Quality
Pb	lead
PEA	Programmatic Environmental Assessment
$PM_{2.5}$	fine particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	suspended particulate matter less than or equal to 10 microns in diameter
PMO	Provost Marshall Office
PMRF	Pacific Missile Range Facility
POL	Petroleum, Oil, and Lubricants
POM	Program Objective Memorandum
PREPO	Pre-positioned Equipment
PTA	Pōhakuloa Training Area
RCRA	Resource Conservation and Recovery Act
ROD	Rapid ʻōhiʻa death
ROI	Region of influence
RO/RO	Roll on/roll off
ROW	Right-of-Way
RPMP	Real Property Master Plan
RPPB	Real Property Planning Board
SBCT	Stryker Brigade Combat Team
SF	square foot
SHPO	State Historic Preservation Officer
SO_2	Sulphur dioxide
SOP	Standard Operating Procedure
SRM	Sustainment, restoration, and modernization
SWPPP	Stormwater Pollution Prevention Plan
TAB	Tabulation of Existing and Required Facilities
TBD	To be determined
TCP	Traditional Cultural Property
TEMF	Tactical Equipment Maintenance Facility
TES	Threatened or Endangered Species
TMT	Thirty-Meter Telescope
TSCA	Toxic Substances Control Act
TISA	Troop Issue Subsistence Activity
U.S.	United States

UAS	Unmanned Aircraft System
UAV	Unmanned Aerial Vehicle
UFC	Unified Facilities Criteria
UPH	Unaccompanied Personnel Housing
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USAG-HI	U.S. Army Garrison Hawaii
USAG-Pōhakuloa	U.S. Army Garrison Pōhakuloa
USARHAW	U.S. Army Region Hawaii
USARPAC	U.S. Army Pacific
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
USMC	U.S. Marine Corps
USN	U.S. Navy

1 Purpose of and Need for the Proposed Action

1.1 Introduction

This Programmatic Environmental Assessment (PEA) evaluates the United States Army's (Army) proposed adoption of a Real Property Master Plan (RPMP) for improving infrastructure and training support facilities at Pōhakuloa Training Area (PTA). The RPMP reflects the Army's mission requirements in addressing future facility and infrastructure needs over a 20-year time frame, or longer, depending on circumstances. For PTA to remain a viable training facility and support the Army's mission, modernization is needed to improve the quality of training for Joint Multinational Training (JMT) relating to maneuver, live, virtual, constructive training-integrated architecture (LVCT-IA) at PTA, in the Pacific Theater, and beyond. PTA would also be positioned for contingency base operations that support a safe and secure Pacific region. (Note: Adoption of the RPMP [i.e., a planning tool] would be an administrative action that would not involve ground disturbance or construction activities. Implementation of the RPMP projects described herein is not included in the Proposed Action addressed by this PEA.)

The Army has prepared this PEA in accordance with the National Environmental Policy Act (NEPA) [42 United States Code (USC) §§ 4321 to 4370 (f)], the Council on Environmental Quality's (CEQ) NEPA regulations [Title 40 of the Code of Federal Regulations (CFR) Parts 1500–1508], and 32 CFR Part 651, *Environmental Analysis of Army Actions*. Guidance is also provided from Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations*.

Programmatic NEPA documents are prepared for projects that occur under a program or may occur over time; additionally, each project may require an individual NEPA document. In these cases, the analyses in a programmatic NEPA review are valuable in setting out the broad view of environmental impacts and benefits for a proposed decision such as a rulemaking, or establishing a policy, program, or plan. That programmatic NEPA review (e.g., PEA or Programmatic Environmental Impact Statement (EIS)) can then be relied upon when agencies make decisions based on the programmatic Environmental Assessment (EA) or programmatic EIS, as well as decisions based on a subsequent (also known as tiered) NEPA review.

Future documentation for implementation of RPMP actions required by NEPA may be tiered from this PEA, thereby eliminating duplicate discussions that can be referenced from this document. Should more analysis be required for the action, subsequent documentation may take the form of a NEPA Record of Environmental Consideration, EA, or EIS. This PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document.

This PEA takes a programmatic look at the RPMP's polices, programs, and project proposals consistent with CEQ guidance on effective use of programmatic NEPA reviews (Council on Environmental Quality, 2014). This PEA analyzes the potential environmental impacts of adopting the RPMP, which provides the Army with a comprehensive planning strategy that may accommodate future changes, such as repair or replacement, for PTA's facilities and infrastructure. The PEA tiers with past, current, and future NEPA actions being undertaken by U.S. Army Garrison Hawaii (USAG-HI). The information contained in this PEA will be reviewed and considered by the Army prior to the final decision on how to proceed with the

implementation of the Proposed Action, and to determine whether a Finding of No Significant Impact (FNSI) is appropriate or whether a Notice of Intent to prepare an EIS should be issued.

1.2 Background and Project Location

The mission of PTA is to provide an austere training environment to enhance the combat readiness of service members by providing quality live, virtual, constructive and gaming (LVCG) training with logistical, administrative, and service support, facilities, and utilities for up to a Brigade(-)[1] size force. PTA is located in the Saddle region on the Island of Hawai'i between the Mauna Kea, Mauna Loa, and Hualālai Volcanoes (Figure 1-1). It also includes land and facilities at Kawaihae Harbor, a commercial port and key entry point for PTA's military material and supplies located about 40 miles to the northwest (see Figure 1-1).

PTA is a 132,800-acre multi-function training area (including the Army's port facilities at Kawaihae Harbor). It includes an 80-acre Base Camp (also referred to as "Cantonment"), Bradshaw Army Airfield (BAAF), and a 192-acre parcel south of Old Saddle Road (Figure 1-2), as well as live-fire ranges, and a 51,000-acre high-hazard impact area (Figure 1-2). As the largest training area in Hawai'i, PTA serves a significant role in the training and readiness of United States (U.S.) forces in the Pacific. PTA offers the largest live-fire operations training area on U.S. soil in the Pacific with a Base Camp that can accommodate up to 2,300 billets during training exercises. This training capability is critical to maintaining a ready force with global reach.

Ground elevations at the main PTA installation area range from 2,500 feet above mean sea level (amsl) at the northwest boundary of the range to 8,900 feet amsl at the southeast boundary, while elevations at PTA's Kawaihae Harbor facilities range from near sea level at the Army's loading ramp to over five feet amsl within the Army's secured compound. The main installation is approximately 35 miles west of Hilo and 55 miles northeast of Kailua-Kona (Figure 1-1). It is primarily located in the county district of Hāmākua. Troops transit to PTA through the island's commercial airports: Hilo International Airport (ITO) and Kona International Airport (KOA). Access to PTA from Hilo is via the state-owned Daniel K. Inouye (DKI) Highway and from Kailua-Kona and Kawaihae Harbor via a combination of state highways.

PTA was established as an Army training area in 1956. There is evidence that the Hawai'i Army National Guard trained in the vicinity of PTA in the 1930s, and during World War II, the area was used for live-fire training. The Army and U.S. Marine Corps (USMC) contributed to the construction of PTA facilities during the 1950s. In the years between 1955 and 1958, the 65th Engineer Company soldiers constructed most of the Base Camp structures that are still in use today. Aging infrastructure and facilities require frequent maintenance and repair servicing to remain operational. Facility and utility improvements are needed to support modern technology-intensive operational functions. In order to continue to meet PTA's mission requirements, infrastructure upgrades and facility replacements as detailed in the RPMP are needed to improve operations and safety.

[1] An Army Brigade is comprised of three to six Battalions, plus supporting elements. A Battalion is a combat unit of between 500 to 800 Soldiers. A Brigade (-), or "minus" means less than a full Brigade.

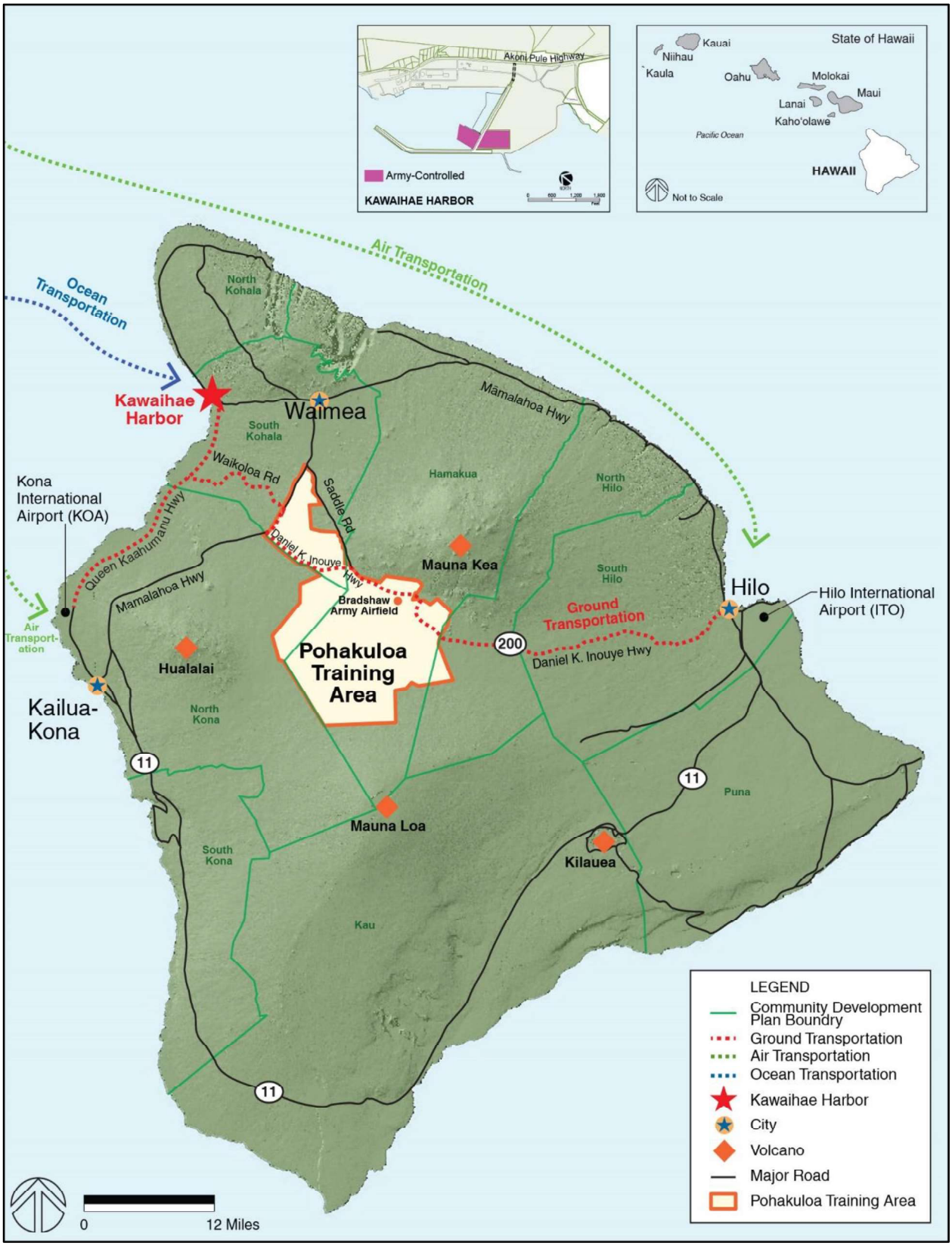

Figure 1-1: Location Map of PTA

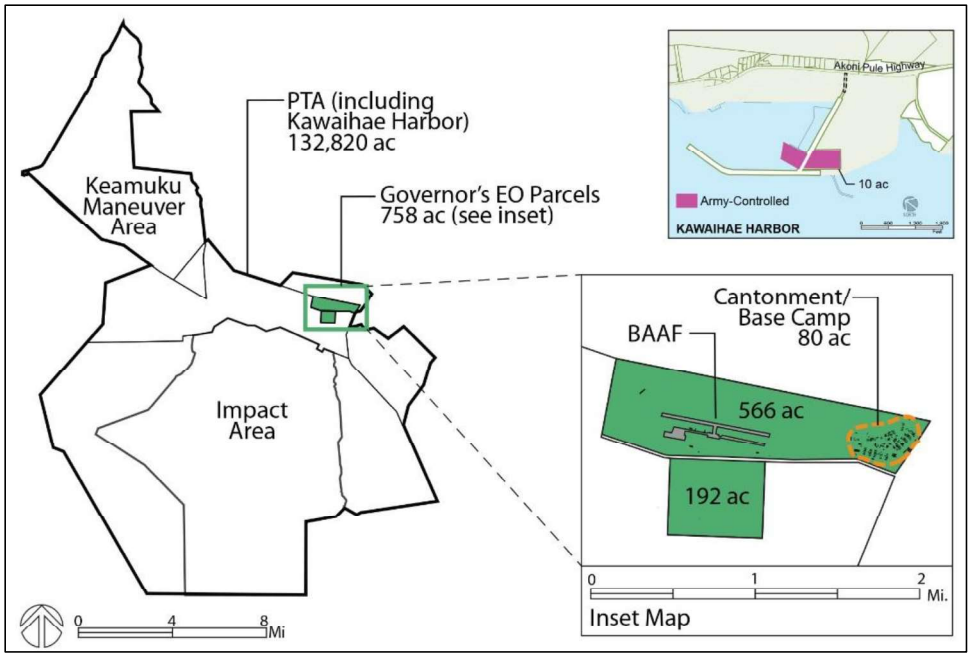

Figure 1-2: Range, Governor's Executive Order (EO) Parcels, BAAF, and Cantonment/Base Camp Map

The existing primary land uses at PTA include the training ranges and maneuver areas, support facilities and infrastructure, and BAAF. PTA is an austere training area and does not have typical community support facilities such as permanent party military housing, family housing, or dependent support facilities. Support functions are minimal and serve a transient/temporary troop population in training.

The installation is divided into Training Areas with distinct regulations, access, restrictions, and/or functions. Range training land includes, but is not limited to, live-fire ranges, maneuver trails, landing zones, drop zones, firing points, impact area and open land maneuver areas. Supporting the range are operational areas, including Ammunition Holding Areas (AHA) and an Ammunition Storage Point (ASP). The Infantry Platoon Battle Course (IPBC) is a newly constructed live-fire range. The Battle Area Complex (BAX) is a digital training range that impacts the availability of other ranges when in use. The Keamuku Maneuver Area (KMA) extends to the north of the main portion of PTA that primarily support maneuver training.

The training environment, while remaining austere, must allow units to conduct large scale, live fire, maneuver exercises, and include urban training areas that replicate combat scenarios involving host nation populations. Additionally, PTA will be used to leverage U. S. Army Pacific's (USARPAC) Joint Pacific Multinational Readiness Capability (JPMRC). PTA is a cornerstone of the USARPAC vision for the Pacific Training Complex—an evolution of vision outlined in USARPAC 2020 Pacific Army Training Strategy and informed by the Army Operating Concept. The Pacific Training Complex will integrate regional training centers in Hawai'i, Alaska, Japan, and Korea and will enable Army, Joint Forces, and multinational training and operability through distributed operations over multiple domains.

The primary user of PTA is the Army's 25th Infantry Division. There is also considerable use of the training area by the Army's 25th Sustainment Brigade, other Army units, U.S. Marine Corps (USMC), U.S.

Navy (USN), U.S. Air Force (USAF), U.S. Special Operations Command Pacific, Hawai'i Army National Guard, Army Reserve Component, multi-national forces, Hawai'i Emergency First Responders, and Hawai'i Police Department.

1.3 Real Property Master Planning

The PTA RPMP directs the future development and management of PTA real property infrastructure. This PEA evaluates components of the PTA RPMP that support military training and also provide contingency base operations for combined armed forces in the Pacific Region with the Army as the manager of PTA. Preparation and adoption of the RPMP is required by Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations* (U.S. Army 2005). AR 210-20 is the primary guidance for the Master Plan ("RPMP" and "Master Plan" are used interchangeably in the PEA). The RPMP is a decision support document, and also a living document that guides the orderly development and operation of the Army installation.

The purpose and mission of the installation—and the type of users—determine the types of facilities that are required. As described above, the mission of PTA is to provide an austere training environment to enhance the combat readiness of service members. This is accomplished through providing quality live, virtual, constructive and gaming (LVCG) training with logistical, administrative, and service support, facilities, and utilities. The RPMP brings together information and concepts from many sources to ensure that adequate real property support is provided to meet the mission of the Army community.

The RPMP consists of several components that are summarized in the RPMP Digest (Digest). The Digest provides the vision, goals, and objectives for the management and development of an installation and summarizes its most important master planning concepts, details, and facts. It describes the intent of an installation's real property development, its constraints and opportunities, and the path to achieving the long-range goals for the community (AR 210-20, Section 3-2(a)(1)). The Digest is publicly available along with this PEA.

Projects included in the RPMP are normally selected and refined during the RPMP's development, although projects can be added or deleted as needed by the Army's Real Property Planning Board (chaired by the USAG-HI Garrison Commander or the 25th Infantry Division Commander) depending on the level of need. Projects included in the RPMP are categorized by their implementation timeframe: short-range (0 to 7 years) and long-range (8 to 20 years). However, some projects envisioned to support the mission, and in some cases considered mission essential, fall beyond short- or long-range timelines. These projects are considered "outyear" (beyond 20 years) due to their complexity or the need for further guidance, analysis, and/or definition. The time periods for the short-, long-, and outyear projects are approximate to help tier projects for planning purposes and do not reflect precise execution dates. The RPMP is an evolving plan that provides a snapshot in time based on the best available information at that time. It is intended to act as a living document with ample flexibility built in to adjust to changes as needed, and provides a "road map" that helps set direction and order. Successful implementation of the RPMP demands constant communication, regular oversight, and adaptive management to validate its contents, priorities, and execution.

1.4 Purpose of and Need for the Proposed Action

Purpose. The purpose of the Proposed Action is to ensure compliance with Army Regulation 210-20, which requires the adoption of an RPMP that provides PTA with strategies to ensure installation sustainability through the provision of mission readiness and installation integration in regional planning. The RPMP will identify requirements and alternatives for modernizing PTA assets and provide the framework for analyzing and modifying resource allocations for the maintenance and repair of existing facilities. Establishing this RPMP for PTA further ensures that any future real property construction, improvement, or development at PTA and Kawaihae Harbor will meet current and anticipated mission requirements as prescribed by Headquarters, Department of the Army. Adoption of the RPMP would also allow for increased awareness of PTA's planned development and land use patterns by civilian stakeholders (e.g., State of Hawai'i, County of Hawai'i, neighboring communities, and Native Hawaiian cultural groups) via a publicly-available summary. This would allow for coordination of real property master planning activities with local community development, promote cooperative and interactive relationships with stakeholders, facilitate compatible land use, and minimize PTA's operational and development impacts on the surrounding communities.

Need. The Proposed Action is needed to optimize PTA's potential as a contingency base operation, supporting a safe and secure Pacific region. PTA has increasing expenses for recurring maintenance and repairs on its existing assets, and a responsibility to provide modern, technology-intensive operational functions requiring power and communications support. In order to support the Army's mission of maintaining a ready force with global reach in the Pacific Theater and ensure PTA remains a viable training facility, modernization is necessary to maintain and improve the quality of its Joint Multinational Training (JMT) capabilities. Adopting the RPMP would allow the Army to make capital investments and land use decisions at PTA in a more coordinated and transparent manner reflective of the RPMP's development goals and objectives. Without RPMP adoption, there would be no commonly accepted land use guidance available for reference by parties responsible for PTA facility planning and decision making. Facility and infrastructure investments and improvements may be hindered by siting conflicts, poor sequencing, or missed opportunities. Decisions may be made on an ad hoc, opportunistic basis and not according to a plan that has been carefully crafted to support the installation's overall mission and vision. Coordination of land use planning with neighboring communities and stakeholders may also be suboptimal.

1.5 Scope of Environmental Analysis

This PEA identifies and evaluates the direct, indirect, and cumulative impacts associated with the adoption of the RPMP. All RPMP projects have been or will be evaluated under NEPA, as appropriate, when there is sufficient information for detailed impact analyses as they are proposed for implementation. Potential projects and implementation will be based on the mission, need, availability of funding, and leadership priorities.

The purpose of this PEA is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and reasonable alternatives. The resource areas analyzed in this PEA include the following:

- Land Use Compatibility
- Cultural Resources
- Biological Resources
- Socioeconomics
- Traffic and Transportation
- Noise
- Air Quality
- Water Resources
- Natural Hazards, Geology and Soils
- Visual Resources
- Public Facilities and Infrastructure
- Toxic and Hazardous Substances

Airspace management was not considered relevant to the environmental analysis given the nature of the Proposed Action.

The region of influence (ROI), or study area, for each resource analyzed may differ due to how the Proposed Action interacts with or impacts the resource. For instance, the ROI for geology may only include the construction footprint of a building whereas the noise ROI expands out to include areas that may be impacted by operational or construction noise.

The environmental analyses of RPMP implementation included in this PEA are conducted at a programmatic level—i.e., general assessments of resource area impacts based on available RPMP project information. These assessments may be referenced in future NEPA analyses tiered to this document.

1.6 Organization of the EA

The PEA is organized in the following chapters:

- Chapter 1 – Purpose of and Need for the Proposed Action
- Chapter 2 – Proposed Action and Alternatives
- Chapter 3 – Affected Environment and Environmental Consequences
- Chapter 4 – Cumulative Impacts
- Chapter 5 – Other Considerations Required by NEPA
- Chapter 6 – References
- Chapter 7 – List of Preparers
- Appendices

1.7 Agency Coordination and Permit Requirements

As part of the NEPA compliance process, USAG-HI engages in coordination, consultation, and permitting with regulatory agencies to ensure that all applicable laws, rules, regulations, and policies have been satisfied with respect to a given proposed action. The Proposed Action that is the subject of this NEPA EA includes only an administrative action with no construction, alteration, ground disturbance, physical

changes to the environment, or changes in training activities. Because of its administrative nature, the Proposed Action does not represent a federal undertaking under the National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665; 16 USC §470 et seq.) and the RPMP is not subject to consultation under Section 106 of the NHPA. Similarly, because of its administrative nature, USAG-HI determined that the Proposed Action would not affect listed species or critical habitat and therefore, it is not required to consult with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA) of 1973 (Public Law 93-205; 16 USC. §1531 et seq.) or acquire a Migratory Bird Treaty Act (MBTA) permit. As a federal agency, the Army is required to determine whether its proposed activities would affect the coastal zone by evaluating the Proposed Action relative the objectives and policies of the Coastal Zone Management Act (CZMA) of 1972 (as amended) (16 USC. §1451 et seq.). This takes the form of a consistency determination, a negative determination, or a determination that no further action is necessary. Because the administrative action of adopting the RPMP would not involve any new development, alteration of existing land or facilities, changes in land use, activities, or training tempo, USAG-HI determined that the Proposed Action would have no effects on coastal uses or resources. Documentation of this determination is provided in Appendix A.

Potential permits, approvals, and consultation requirements for *future implementation* of specific RPMP short-range, long-range, and outyear projects include but are not limited to those listed in Table 1-1.

Table 1-1: RPMP Project Implementation Potential Permits, Approvals, Acknowledgements and Consultations

Oversight Agency	Permit, Approval, or Consultation
Hawai'i State Historic Preservation Officer (SHPO)	Section 106 consultation for properties listed or eligible for the National Register of Historic Places (NRHP) pursuant to the National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665; 16 USC §470 et seq.); 36 CFR 800 (Protection of Historic Properties).
United States Fish and Wildlife Service (USFWS)	Section 7 formal or informal consultation for threatened and endangered species or critical habitat pursuant to the Endangered Species Act (ESA) of 1973 (Public Law 93-205; 16 USC. §1531 et seq.) and acquiring Migratory Bird Treaty Act (MBTA) permit.
National Marine Fisheries Service (NMFS)	Section 7 formal or informal consultation for threatened and endangered species or critical habitat pursuant to the Endangered Species Act (ESA) of 1973 (Public Law 93-205; 16 USC. §1531 et seq.). The Essential Fish Habitat provision of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. section 1801 et seq.) for activities affecting essential fish habitat. Marine Mammal Protection Act (MMPA) of 1972 for activities affecting marine mammals and their habitat.
U.S. Army Corps of Engineers, Honolulu District, Regulatory Office	Section 10 of the Rivers and Harbors Act 1899 and Section 404 of the Clean Water Act of 1972 for work activities, including discharges of fill material in waters of the U.S.
Hawai'i Department of Health (DOH), State of Hawai'i	National Pollutant Discharge Elimination System (NPDES) Permit for construction-related stormwater discharge for land disturbance equal or greater than one acre pursuant to the Clean Water Act of 1972 (33 USC. 121 et seq.)
Coastal Zone Management Program, State of Hawai'i	Army will evaluate the Proposed Action relative the objectives and policies of the Coastal Zone Management Act (CZMA) of 1972 (as amended) (16 USC. §1451 et seq.).

2 Description of the Proposed Action and Alternatives

2.1 Proposed Action

The Proposed Action is the Army's adoption of the PTA RPMP—an administrative action that would not involve new development, ground disturbance, alteration of any real estate, facility or infrastructure, or changes to training activities. The Proposed Action does not include implementation of any RPMP projects; they have been or will be evaluated under separate NEPA documents, as appropriate, when sufficient project details are available for adequate environmental impact analyses and when funding is available for project implementation.

Although it does not involve implementation of any specific project, the Proposed Action is summarized below in the larger context of RPMP components, which are also included in the Cumulative Impacts assessment in Chapter 4.

2.1.1 Screening Factors

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

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

1. Meets the purpose and need for the Proposed Action
2. Currently has sufficient project details for adequate analysis of environmental effects and relevant federal resource agency consultations/approvals/permits

The alternatives that were initially evaluated against the screening factors are described in Section 2.3.

The alternatives considered include:

- No-Action
- Proposed Action: Adopt the RPMP
- Adopt RPMP and implement projects

2.2 Alternatives Carried Forward for Analysis

Based on the reasonable alternative screening factors and the purpose and need for the Proposed Action, one action alternative was identified and is analyzed in this PEA.

2.2.1 No-Action Alternative (Baseline Alternative)

The No-Action Alternative, prescribed by CEQ regulations, serves as a baseline against which the impacts of the Proposed Action can be evaluated. The No-Action Alternative assumes the PTA RPMP is not adopted and the Army continues to manage PTA in the way it has in the past, without the benefit of an overarching plan. Projects would continue to be defined, funded and executed in compliance with

federal laws. However, the Army would forego the potential to improve project planning, funding, and implementation that would likely result from the RPMP's guidance. The benefits of coordinating land use planning and facilitating compatible land uses with neighboring communities may not be realized. The No-Action alternative would not meet the purpose and need, which require RPMPs to be adopted, implemented, and maintained; however, it is carried forward in this PEA as required by NEPA. For the RPMP and this document, the baseline year is 2019.

2.2.2 RPMP Adoption (Proposed Action)

The Proposed Action (also the Preferred Alternative) consists of the adoption of the PTA RPMP, an administrative action that would not involve new development, ground disturbance, or alteration of any real estate, facility or infrastructure. The Proposed Action is independent of the types of training and tempo of range activities taking place at PTA. It is not expected to result in changes to training tempo and intensity at PTA because these conditions are driven by national security threat assessments and the ebb and flow of international affairs.

The adoption of the PTA RPMP involves senior mission commander endorsement, recommendation by the installation real property planning board[2] (RPPB), and approval by the designated staff of the Installation Management Command (IMCOM) (a field-operating agency of the Office, Assistant Chief of Staff for Installation Management; responsible for executing IMCOM plans, policies, and guidance).

Implementation of any RPMP projects is not included in the Proposed Action; RPMP projects have been or will be evaluated under separate NEPA documents, as appropriate, as sufficient project details are available for adequate environmental impact analyses and when implementation funds are available. The environmental analyses of RPMP implementation included in this PEA are conducted at a programmatic level, i.e., general assessments of resource area impacts based on available RPMP project information. These assessments may be referenced in future NEPA analyses tiered to this document.

2.2.2.1 RPMP Planning Process, Mission, Vision, and Goals

Prior to the development of the RPMP, PTA conducted master planning work sessions and periodically developed and updated installation facility requirements to support PTA's mission to provide support for Single Service, Joint, and Combined Training to afford warfighters the most realistic and flexible training environments available in the Pacific Region (U.S. Army Garrison-Pohakuloa, 2018). In 2015, the PTA Area Development Plan (ADP) was finalized and the multi-year Cantonment Facilities Improvement Program (FIP) was instituted, implementing ADP recommendations. In the same timeframe, the need to assess options related to the pending State lease expiration and the need to look more broadly at the entire PTA installation, underscored the need to prepare the PTA-wide RPMP.

[2] The RPPB acts as the installation "city planning council" to ensure the orderly development and management of installation real property in support of missions, management processes, and achieving community goals. Among its responsibilities, it coordinates installation real property master planning with federal, state, and local entities, non-governmental groups, federally-recognized Indian tribes, recognized Alaskan native entities, and native Hawaiian organizations. (Army Regulation 210-20 Real Property Master Planning for Army Installations, 16 May 2005).

The vision for PTA is established by U.S. Army Region Hawaii (USARHAW) as follows (*Approach to Training in Hawai'i: A Strategy for PTA*, October 25, 2015):

> *PTA is a cornerstone of the USARPAC vision for the Pacific Training Complex which integrates regional training centers in Hawai'i, Alaska, Japan, and Korea and will enable Army, Joint, and multinational training and interoperability through distributed operations over multiple domains using live, virtual, constructive and gaming (LVCG) architecture throughout the theater. PTA will serve as a regional training center supporting a modern infrastructure to further enhance readiness.*

PTA's training environment, while remaining austere, must allow units to conduct large scale, live fire, maneuver exercises and include urban training areas that replicate combat scenarios involving host nation populations.

PTA will be used to leverage USARPAC's JPMRC to create a high fidelity, joint and multinational maneuver and live fire training venue fully supported by LVCG integrated architecture as well as robust after-action reviews, which will increase interoperability and enable Army units to achieve their full readiness potential—with the eventual goal of supporting joint combined multinational training events.

PTA must be able to support a Brigade minus (-), for example:

1. Three battalion level units physically on site.
2. Two battalions conducting training simultaneously with one battalion in support.
3. One battalion conducting collective maneuver and live fire training at company level or higher.
4. One battalion conducting collective maneuver and live fire training at crew through platoon levels, and situational training exercise lanes.
5. One or two battalions conducting distributed training via link to the Mission Training Complex with a brigade headquarters providing mission command.

PTA's RPMP goals are to provide the following:

- Support for optimizing training and functions to enhance mission capability at PTA;
- A road map for upgrades and improvements in support of the Mission;
- A living plan that supports current mission and capable of adjusting to mission changes, as well as potential future uses;
- Adequate area to facilitate a world class training complex supported with state of the art LVCT - IA, JPMRC, enabling Full Spectrum Operations trained and ready forces;
- A challenging, battle-focused training area in the Pacific theater;
- Support for Multi-Domain Battle; and
- Upgraded and modernized infrastructure to support the goal of PTA as a regional Joint Multinational Training Complex (JMTC).

The RPMP covers the entire PTA installation, including its live-fire ranges, airfield, harbor facilities at Kawaihae Harbor, Cantonment, Base Camp, and maneuver areas; it does not include the Impact Area.

2.2.2.2 Short-Range Projects

Short-range projects include Sustainment, Restoration, and Modernization (SRM) projects, new construction, and real property land retention actions. These projects are planned to be initiated within 0 to 7 years, which would involve NEPA review and integration into the Army's budgetary and operational planning processes throughout the current Program Objective Memorandum (POM) period related to allocating funding resources.

Some of these short-range projects may commence or be completed before the RPMP PEA is completed, due to requirements or availability of funding. In these cases, the Army has completed or is in the process of preparing separate NEPA documentation. Table 2-1 describes the RPMP short-range projects that are planned and/or underway to accommodate Army facility requirements at PTA and the NEPA status of each project. The project location maps (Figure 2-1 and Figure 2-2) depict the locations of short-range projects and long-range projects, with alpha numeric notations keyed to Table 2-1 and 2-2 (long-range projects). Project locations are shown as sites; notional facility footprints are provided depending on the project's design status. Each of the projects listed in Table 2-1 are described to the extent that the project has been defined or designed. Many of the proposed projects are sited in locations that have been previously disturbed, and have existing structures (e.g., pavement, buildings, utilities, etc.) that would be demolished and/or replaced.

Table 2-1: RPMP Short-Range Project Summary

Figure Key	Project Name	Location	Description	NEPA Status
A	Cantonment Facilities Improvement Program (FIP)	Base Camp	Modernization of 80-acre base camp	EA/FNSI completed October 2018
B	Kawaihae Harbor Ramp and Dolphins	Kawaihae Harbor	Improvements to three mooring dolphins and a ship loading ramp (see Figure 3-5)	Separate NEPA action underway
C	BAAF Pavement and Infrastructure	BAAF	Modernization of helicopter parking and supporting infrastructure	Separate NEPA action
D	Ammunition Holding Areas (AHAs) 1-3 Delicensing	Cantonment	Administrative action to terminate authorization of temporary ammunition storage at three AHAs to reduce land use constraints resulting from their associated safety zones	Separate NEPA action
E	Communications Improvements (USARHAW)	Various	New support building and improvements to communications infrastructure at the Cantonment and Army facilities at Kawaihae Harbor	Separate NEPA action
F	State of Hawai'i Training Lands Retention	Installation	Action to retain control of state leased lands (22,971 acres that bisect PTA)	Separate NEPA action
G	Production Water Well	TBD (Base Camp Vicinity)	Construction of new potable water well	Separate NEPA action
H	Equipment Canopy	Base Camp	3,800-square-foot (SF) canopy for weather protection of equipment and vehicles	Separate NEPA action
I	Old Saddle Road Right-of-Way (ROW) Acquisition	Range	Acquisition of Old Saddle Road ROW passing through PTA	Separate NEPA action

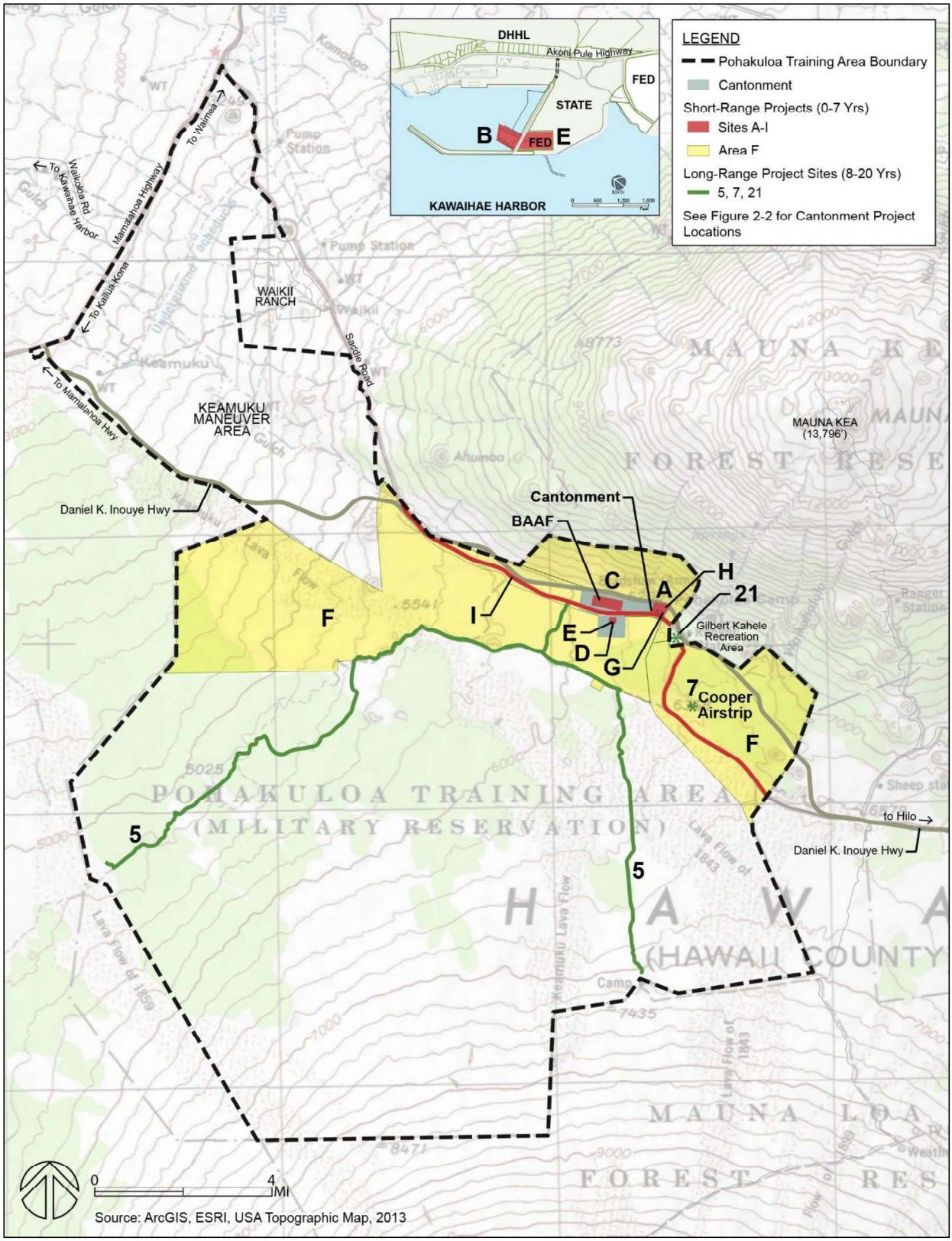

Figure 2-1: RPMP Project Locations

(See Tables 2-1 and 2-2 for alphanumeric project keys)

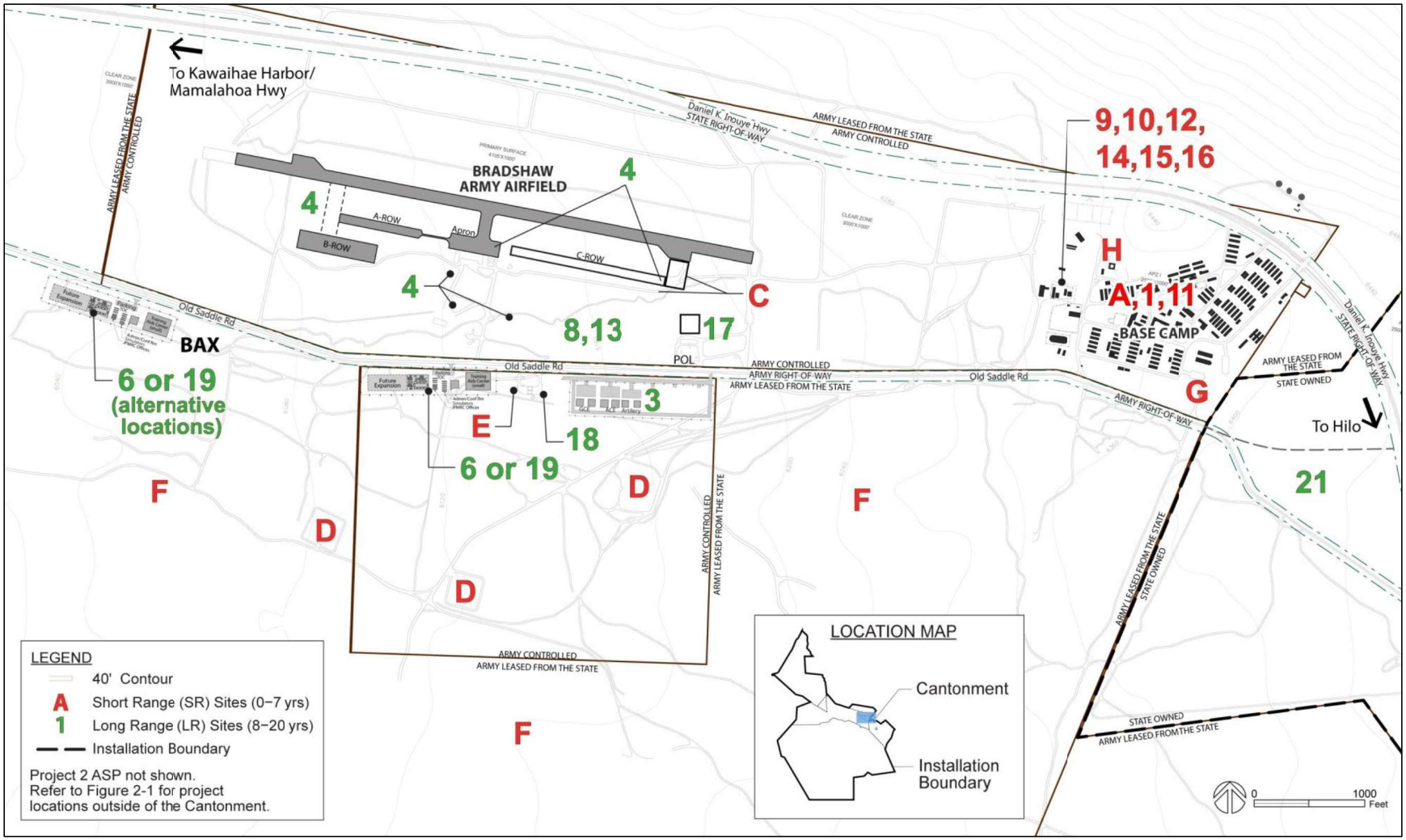

Figure 2-2: RPMP Cantonment Vicinity Project Locations

(See Tables 2-2 and 2-3 for alpha numeric references)

The proposed projects would not change the tempo or intensity of PTA's existing use, as these conditions are governed by operational demands.

2.2.2.3 Long Range Projects

The RPMP describes the installation's existing physical, training, and built environments and its relationship to the surrounding region. It also provides a listing of longer range projects to accommodate the Army's future facility requirements at PTA, based on the US Army's Tabulation of Existing and Required Facilities (TAB). This list comprises projects that are planned to begin within 8-20 years. Further NEPA evaluation would be prepared for all long-term projects, as applicable, and as planning progresses. The RPMP also contains a list of alternative projects and improvements considered during the planning process that are not included in the 20-year timeframe of the PTA RPMP or analyzed in this PEA; these projects are considered as Outyear projects. It is important to note that the RPMP's classification of short-range, long range and outyear projects is subject to change.

Because they are long-range, they have not yet been programmed, and in some instances, have not been sited/located. Some of these projects may not occur due to funding availability and operational priorities and other projects may be added as appropriate. As noted previously, the long-range projects are included programmatically in the Cumulative Impacts analyses in this PEA.

Table 2-2 lists the potential long range projects identified in the RPMP. See Figure 2-1 and Figure 2-2 for project locations. All the long range projects listed in Table 2-2 would be covered under future NEPA documents.

Table 2-2: RPMP Long Range Project Summary

Project No.	Project Name	Location	Description/Comments
1	Dining Facilities (DFACs)	Cantonment	Construct new DFACs and repurpose an existing Base Camp building.
2	Ammunition Supply Point (ASP)	Not Shown	Construct six earth-covered ammunition magazines and supporting facilities and utilities.
3	Pre-Positioned (PREPO) Storage Facilities	Cantonment	Construct pre-positioned storage (enclosed and partially enclosed structures) and support infrastructure, paving, and fencing.
4	Bradshaw Army Airfield (BAAF)	Cantonment	Relocate BAAF support facilities and construct utilities. Related to Short-Range Project C: BAAF Pavement and Infrastructure.
5	Range Road Improvements	Range	Pave and widen existing unpaved range roads and install utilities.
6	Training Complex	Cantonment	Construct a one-stop training complex to include warehouse, training, support, administration, storage, and parking facilities. Site selection and configuration to be determined (TBD).
7	UAS/UAV Training Facility Hangar	Range	Construct a standard unmanned aerial vehicle (UAV)/unmanned aircraft system (UAS) operations and maintenance training hangar and supporting utilities. Location near Cooper Airstrip TBD.

Project No.	Project Name	Location	Description/Comments
8	Tactical Vehicle Area	Cantonment	Construct a Tactical Vehicle Area to accommodate equipment used during training, including paving, parking, and storage space to replace existing. Related to Project 3 (Pre-positioned Storage) and Project 13 (TEMF).
9	Logistics Readiness Center	Cantonment	Replace existing consolidated admin/shops/storage facility. Related to Project 10 TISA and Project 12 TEMF. Remaining requirements TBD.
10	Troop Issue Subsistence Activity (TISA) Warehouse/Storage	Cantonment	Construct a warehouse facility, truck loading dock, and yard to replace existing. Requirements TBD.
11	Pavement Upgrades	Cantonment	Upgrade paving for temporary storage of vehicles and equipment, and construct a paved parking area for non-tactical vehicle parking.
12	Directorate of Public Works (DPW) Facility	Cantonment	Construct a consolidated DPW admin/shops/storage facility, replacing existing.
13	Tactical Equipment Maintenance Facility (TEMF) Building	Cantonment	Construct a TEMF to include equipment repair shop and administrative spaces. Refer also to Projects 8 (Tactical Vehicle Area), 9 (Logistics Readiness Center) and 12 (DPW).
14	Hazardous Materials Storage Building, Installation	Cantonment	Construct a consolidated facility and base yard for disposition and collection of the installation's POL and other hazardous materials.
15	Recycling Facility	Cantonment	Construct a new covered recycling storage facility and yard. Requirements and location TBD.
16	Refuse Collection Area	Cantonment	Construct a refuse collection storage yard. Requirements TBD.
17	Petroleum Oil and Lubricants (POL) Storage Facility	Cantonment	Construct an extension to the existing fuel farm near BAAF with additional fuel truck dispensing and parking. Requirements TBD.
18	Vehicle Wash Facility	Cantonment	Construct an expansion to the existing vehicle wash rack near BAAF to service combat and tactical vehicles.
19	Range/PMRF Maintenance Facility	Cantonment	Construct a consolidated administration/shop/storage facility to replace existing. The facility includes areas for Navy Pacific Missile Range Facility (PMRF) and USMC range maintenance operations. Requirements and location TBD. Preferred location in Training Complex (see Project 6).
20	Fire/Emergency Management Services (EMS)/Provost Marshall Office (PMO) Facility	TBD	Construct a new combined Fire/EMS/PMO facility near the Cantonment. Requirements and location TBD.
21	East Land Acquisition	East of Cantonment	Seek control of approx. 200 acres of state land immediately east of the base camp between DKI Highway and the existing state leased lands

1

2.2.2.4 Outyear Projects

Table 2-3 lists outyear projects considered during the RPMP process that fall outside of the 20 year timeframe of the plan, termed "outyear" projects. They are not shown on figures as their locations have not been determined. Potential impacts beyond 20 years are not evaluated in this EA, as project details and funding are not known. As described in Section 1.5, these projects would be subject to subsequent NEPA screening when there is sufficient information for a detailed impact analysis, and appropriate NEPA documents would be prepared at that time.

Table 2-3: RPMP Outyear Project Summary

Project No.	Project Name	Location	Description/Comments
O1	Kawaihae Harbor Pier	Kawaihae	Upgrade Kawaihae Harbor to accommodate roll-on/roll-off (RO/RO) capability for LSVs, cargo and ammunition ships. A potential option may be a new pier, subject to further analysis/determination.
O2	Adequate Fixed Wing Runway	Hawai'i Island	Make available to support the PTA mission, a runway capable of supporting fixed-wing aircraft, which may also accommodate emergency relief purposes. Project and/or projects to be determined as well as alternative site(s) if the need identifies.
O3	PTA Perimeter Road/Utility/ Security Corridor	Range	Construct a perimeter road around the PTA installation to establish visible demarcation of its installation boundary and provide appropriate buffers.
O4	New Main Access Control Point/Land Acquisition	Cantonment	Construct a new gate on the east side of PTA. Acquire approximately 200 acres of State land to the east of Base Camp (north and south of DKI Highway).
O5	Tactical Vehicle Access Trail	Regional	Develop a route from Kawaihae Harbor to PTA for military vehicles separate from major public roadways.

2.3 Alternatives Eliminated From Further Consideration

Table 2-4 summarizes the alternatives that were considered but eliminated from further consideration. In determining whether or not an alternative was reasonable, they were evaluated against the project's purpose and need and screening factors, along with whether it was reasonably foreseeable in the 20-year timeframe of the RPMP.

Table 2-4: Alternatives Eliminated from Further Consideration

Alternative	Rationale
Adopt RPMP and implement selected short-range projects (i.e., Projects C, D, E, F, G, H, and I in Table 2-1)	Eliminated because these short-range projects (i.e., all projects listed in Table 2-1 except those addressed or being addressed in other NEPA documents) lack sufficient project detail for adequate environmental impact analysis and required resource agency consultations/approvals
Adopt RPMP and implement short- and long-range projects	Eliminated because the projects that have not yet been evaluated lack sufficient project detail for adequate environmental impact analysis and required resource agency consultations/approvals

2.4 Avoidance and Minimization Measures

Best management practices (BMP) would be employed for SRM and capital improvements projects to avoid and minimize adverse impacts to the environment. Army contractors would be required to

develop site-specific BMP plans in consultation with federal and state regulatory agencies (as applicable) to address specific conditions of the work proposed at the project site. Typical BMPs may include those listed in the following sections.

2.4.1 Typical Construction Period BMPs

1. Erosion and sediment control measures such as protection of erodible soils; mechanical control of stormwater runoff from the construction site; use of sediment basins; and use of vegetation, mulch, or acceptable non-vegetative means on soil exposed by grading or ground disturbance. BMP measures must remain in place until the area is permanently stabilized.

2. Employment of personnel qualified to identify and handle hazardous materials if unexpectedly encountered.

3. Use of personal protective equipment (e.g., protective clothing, eye protection, and respirators) during pipe removal activities to protect personnel from lead containing paint. Implementation of appropriate procedures to contain dust and paint chips that may be loosened during construction activities.

4. If contaminated soil is suspected, it will be tested, stored and disposed of at an appropriate waste facility.

5. Implementation of fugitive dust control measures during the construction period, including during non-working periods. Measures may include sprinkling or treating the soil with dust suppressants at the site, haul roads, and other areas disturbed by operations.

6. Preparation and implementation of a dirt and dust control plan that identifies the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

7. Cleaning and inspecting all construction vehicles and equipment before moving onto the worksite to prevent the spread of invasive species. Prior to construction, the PTA Natural Resources staff will provide briefing materials to ensure inspections are conducted effectively.

8. Preparation and execution of a Construction Management Plan (CMP) to avoid and minimize potential impacts of multi-year, on-post construction activities and ensure construction activities do not degrade readiness or soldier quality of life.

9. BMPs will also be identified as conditions of the NPDES permit required for the discharge of stormwater associated with construction activity, including a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP serves as a primary water quality BMP for projects requiring NPDES permits. All construction projects that are greater than or equal to 1 acre in size, or part of a larger development plan totaling 1 acre or more, should consult DOH Clean Water Branch to determine if a NPDES permit for storm water discharges associated with construction activities is necessary.

10. If a project does not require an NPDES permit, USAG-HI Department of Public Works Environmental Branch will review the Environmental Protection Plan and perform at least one site inspection.

2.4.2 Measures for Cultural Resources

The Proposed Action would comply with guidelines and protocols outlined in the installation's Integrated Cultural Resources Management Plan (ICRMP) (U.S. Army Garrison-Pohakuloa, 2018). The RPMP was developed in conjunction with the ICRMP, and specific projects would comply with Section 106 of the NHPA prior to implementation. Site-specific impacts to cultural resources would be addressed and avoided, minimized, or mitigated at that time.

2.4.3 Best Management Practices for Biological Resources

The following avoidance and minimization measures are required to be included for RPMP projects as they are implemented to avoid and minimize adverse impacts to natural resources, specifically for protected threatened or endangered species (TES). The following measures are requirements from Section 7, ESA formal consultations with USFWS. These include:

1. Hawaiian goose (*Branta sandvicensis*)

    a. Construction personnel shall coordinate with PTA Natural Resources staff and acquire a briefing and Hawaiian goose information prior to starting construction work activities to educate personnel on how to work safely around them, particularly during the geese breeding season from September to April.

    b. Contractors will survey their work areas prior to starting work activities or after any prolonged break in activity to ensure geese are absent from the work areas and will not be affected by work activities.

    c. Personnel shall remain vigilant throughout construction period for potential presence of the Hawaiian goose (and their nests) around construction sites, including staging, stockpiles, and parking areas. If the Hawaiian geese are found within 100 feet (ft) of construction activities, crews will stop work and contact PTA Natural Resources for assistance;

    d. Contractors are not allowed to haze geese. Neither project activities nor construction personnel may cause any "take" to geese (i.e., harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct).

    e. The vehicle speed limit within the Cantonment is 15 miles per hour (MPH), and will be followed to avoid striking geese.

2. Hawaiian hoary bat (*Lasiurus cinereus semotus*)

    a. Tree trimming and vegetation removal of trees and large shrubs 15 ft or higher will be avoided during the Hawaiian hoary bat breeding season, June 1 through September 15.

    b. Construction activities that occur during nighttime hours will comply with BMPs for lighting.

    c. The use of spotlights to illuminate construction sites for nighttime work or for security shall be avoided or minimized to the maximum extent practicable to avoid attracting insects, which then attracts bats to forage at lit work sites where they may be struck by construction activities/materials, or become entangled in fencing or other construction materials.

d. Carefully consider security fencing requirements; avoid installation of barbed wire if at all possible.

3. Unified Facilities Criteria standards and County of Hawai'i Lighting Ordinance for outdoor lighting specifications will be followed.

   a. Exterior lights shall be shielded and downcast to avoid causing impacts to federally-listed species (i.e., disorientation and fallout of protected seabirds, Band-rumped storm petrel, and Hawaiian petrel, etc.).

2.4.4 Measures for Invasive Species Prevention

Invasive Pest Prevention Standard Operating Procedures (SOP) have been established to prevent the introduction of harmful invasive species including weeds, reptiles, amphibians, invertebrates (e.g., ants), weeds, and disease-causing agents such as the pathogenic fungus, which causes the rapid 'ōhi'a death (ROD) disease, into PTA. General SOPs for the prevention of invasive species introduction are listed below. Project leaders and/or contractor shall ensure compliance with PTA's Invasive Pest Prevention Standard Operating Procedures (July 2018, or successor guidance).

1. All work vehicles, machinery, and equipment must be clean and free of debris (soil and vegetation material) prior to entering the PTA.

2. Inspection of work vehicles, machinery, and equipment for invasive ants prior to entering the PTA.

3. Auxiliary construction support sites and staging areas within the PTA must be kept free of invasive pests.

4. All cutting tools must be sanitized to prevent rapid 'ōhi'a death.

5. Landscaping: New construction and land management projects will use native Hawaiian plants for landscaping to the extent practical.

6. All project personnel, including subcontractors, must receive a PTA Natural Resources (NR) briefing or review the PTA NR briefing materials prior to project implementation.

7. Use of off-site aggregate material

   a. If use of fill material from an off-site source (i.e., not obtained from the main quarry at PTA) is contemplated for a project, procedures outlined in the Protocol for Optional Use of Off-Site Aggregate for Infrastructure Construction at PTA and Keamuku Maneuver Area (September 22, 2010) shall be followed.

   b. These procedures include:

      i. Requesting approval to use off-site aggregate;

      ii. Inspection of the off-site quarry or site for the presence of invasive plant and invertebrate species;

iii. Risk assessment; and

iv. Identification and implementation of risk management measures.

2.5 Summary of Potential Impacts to Resource Areas

The effects that the Proposed Action and No-Action Alternative would have on various facets of the natural and man-made environment are summarized in Table 2-5. As summarized in the table, the Proposed Action would have either no effect, less than significant effects, or beneficial effects on the resource areas evaluated. Potential impacts associated with the construction and operation phases of RPMP implementation are not summarized in the table because they are not part of the Proposed Action; however, programmatic analyses are included in the individual resource area discussions in Chapter 3.

Table 2-5: Summary of Potential Impacts by Resource Area

Resource Areas	No-Action Alternative	Proposed Action (RPMP Adoption)
Land Use Compatibility	Less than significant impact. The RPMP would not be adopted and the Army would continue to manage PTA without the benefit of an overarching plan. The No-Action alternative would not be in compliance with Army regulations which require RPMPs to be adopted and followed.	Less than significant impact, with potential beneficial impacts from contributing to coordinated regional planning and informing surrounding communities and jurisdictions of the Army's long-term plans. The Proposed Action would be compatible with existing and planned land uses surrounding PTA and Kawaihae Harbor. Within PTA, there would be beneficial impacts to land use associated with the comprehensive planning and implementation of improvements at PTA in accordance with best practices and Army regulations.
Cultural Resources	Less than significant impact.	No impact.
Biological Resources	Less than significant impact.	No impact.
Socioeconomics	Less than significant impact, including no impacts on minority or low income populations.	Same as No-Action Alternative.
Transportation Systems	Less than significant impact.	No impact.
Noise	Less than significant impact.	No impact.
Air Quality	Less than significant impact.	No impact.
Water Resources	Less than significant impact.	No impact.
Natural Hazards, Geology and Soils	Less than significant impact.	No impact.
Visual Resources	Less than significant impact.	No impact.
Public Facilities and Infrastructure	Less than significant impact.	No impact.
Toxic and Hazardous Substances	Less than significant impact.	No impact, including no increased environmental health and safety risks that would disproportionately affect children.

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3 Affected Environment and Environmental Consequences

This section describes the affected environment and environmental consequences for each resource area. The affected environment sections describe the existing resources and environmental conditions at PTA and the RPMP planning area. These conditions form the baseline for analyzing the environmental consequences of the Proposed Action and the No-Action Alternative.

The Proposed Action includes the adoption of the RPMP, an administrative action that would not involve new development, physical alteration of facilities or land, land use changes, or changes in training type, tempo, or intensity at PTA.

A general description of environmental consequences for each resource area starts with the adoption of the RPMP. The analysis also addresses, at a programmatic level, environmental conditions and potential impacts associated with implementing RPMP projects—with the understanding that future, tiered NEPA evaluation would occur, as appropriate, when there is adequate project information available for environmental analyses.

All potentially relevant resource areas were initially considered for analysis in this EA. In compliance with NEPA, CEQ, and 32 CFR part 651 guidelines, the discussion of the affected environment focuses only on those resource areas that are potentially subject to impacts. Additionally, the level of detail used in analyzing a resource is commensurate with the anticipated level of potential environmental impact. Temporary or short-term effects (related to construction activities of future RPMP project implementation) and operational or long-term effects (after RPMP project construction is completed) were analyzed at a programmatic level for each resource area, as project information was available. Anticipated impacts are classified in one of four impact categories below. The analyses found that significant impacts are not anticipated for the Proposed Action.

- Significant impact[3]
- Less than significant impact
- No impact
- Beneficial impact (impact that benefits the resource/issue)

Based on the scope of the Proposed Action and No-Action Alternatives, resource areas analyzed in detail include the following:

- Land Use Compatibility
- Cultural Resources

[3] 40 CFR 1508.27 directs that "significantly," as used in NEPA, be considered in terms of both *context* and *intensity*. "Context" means that the significance of an action must be analyzed in several contexts (e.g., society, affected region, interests, locality). Significance varies with the setting of the proposed action. "Intensity" refers to the severity of impact. In this PEA, the environmental consequences of the alternatives considered the context in which the alternatives would occur (usually region-specific, but sometimes site-specific or islandwide) and intensity (e.g., the degree to which the alternative would impact the human or natural environment). The intensity of expected project impacts was assessed by comparing those impacts with thresholds for significant impacts that were established for each resource area analyzed.

- Biological Resources
- Socioeconomics
- Transportation Systems
- Noise
- Air Quality
- Water Resources
- Natural Hazards, Geology, and Soils
- Visual Resources
- Public Facilities and Infrastructure
- Toxic and Hazardous Substances

Resources not analyzed in this PEA include:

- Airspace Management. The Proposed Action will not affect airspace management associated with Bradshaw Army Airfield as it would not result in changes to aviation practices.

A "region of influence" (ROI)—the geographic area where most of the direct and indirect effects of the project are likely to occur—is defined for each resource area evaluated. As noted in Section 1.5, ROIs for each resource studied may differ depending on how the Proposed Action interacts with or impacts the resource. ROIs for varying resource areas may or may not overlap spatially with other components or attributes.

3.1 Land Use Compatibility

This discussion of land use includes current and planned uses and regulations, policies, or zoning that may affect the Proposed Action. 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. The ROI for land use compatibility includes land and facilities controlled by PTA and lands or facilities directly adjacent to PTA (including its Kawaihae Harbor facilities).

3.1.1 Regulatory Setting

Land use in the State of Hawai'i is governed by federal, state, and county statutes, ordinances, and regulations. Federally owned lands in fee-simple, or granted to the federal government through Executive Order (EO), are not subject to land use regulation by the state or counties through the federal supremacy clause of the U.S. Constitution (Article VI, Clause 2). State lands leased to the Army are subject to the lease stipulations. From state and local government perspectives, much of PTA lies within the State Conservation District. KMA lies within the State Agricultural District. The Kawaihae Harbor property spans the State Urban District (secured compound area) and submerged lands are in the State Conservation District.

The County of Hawai'i is divided into nine planning districts. Most of PTA falls within the County's Hāmākua District, while relatively small portions lie within the South Kohala, North Kona, and North Hilo Districts. Local current and future land use in the areas surrounding PTA is addressed in the County's

Hāmākua Community Development Plan (County of Hawai'i, 2018), and land use at and surrounding Kawaihae Harbor, in the *South Kohala Community Development Plan* (County of Hawai'i, 2008).

The Coastal Zone Management Act (CZMA) 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 that they are carried out in a manner consistent to the maximum extent practicable with the enforceable policies of federally approved state coastal management programs. With the exception of federally owned lands, the entire state of Hawai'i lies within the coastal zone subject to the CZMA administered by the Hawai'i CZM Program within the State of Hawai'i, Office of Planning. 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 Army is required to determine whether its proposed activities would affect the coastal zone. This takes the form of a consistency determination, a negative determination, or a determination that no further action is necessary.

3.1.2 Affected Environment

The following discussion provides a description of the existing land uses surrounding and within PTA and Kawaihae Harbor, as well as a description of future development plans and land use constraints.

3.1.2.1 Surrounding Area Land Use

PTA is located in a remote and rural area of Hawai'i Island, 40 to 50 miles away from the major urban areas of Hilo, Waimea, and Kailua-Kona. Surrounding lands are generally owned by the State of Hawai'i and two large private landowners: Kamehameha Schools and Parker Ranch. The privately owned Waiki'i Ranch residential community is the closest residential neighbor and is surrounded on three sides by PTA. See Figure 3-1. Surrounding land uses encompass residential, agricultural, cattle grazing, game management, forest reserves, park land, and undeveloped land.

Land uses to the north of PTA include the DKI Highway, the Mauna Kea Forest Reserve, the Gilbert Kahele Recreation Area, and the Mauna Kea National Natural Landmark (NNL), one of seven NNLs in Hawai'i. Mauna Kea is located to the north and northeast of PTA, and the NNL is an 83,900-acre site encircled by the Mauna Kea Forest Reserve. The specific features that resulted in the NNL designation for Mauna Kea include:

- Being the highest insular mountain (rising to an elevation of 13,796 feet above sea level) in the United States.
- Having the highest lake (Lake Waiau at 13,030 feet above sea level) in the country.
- Possessing evidence of glaciations above the 11,000-foot level.

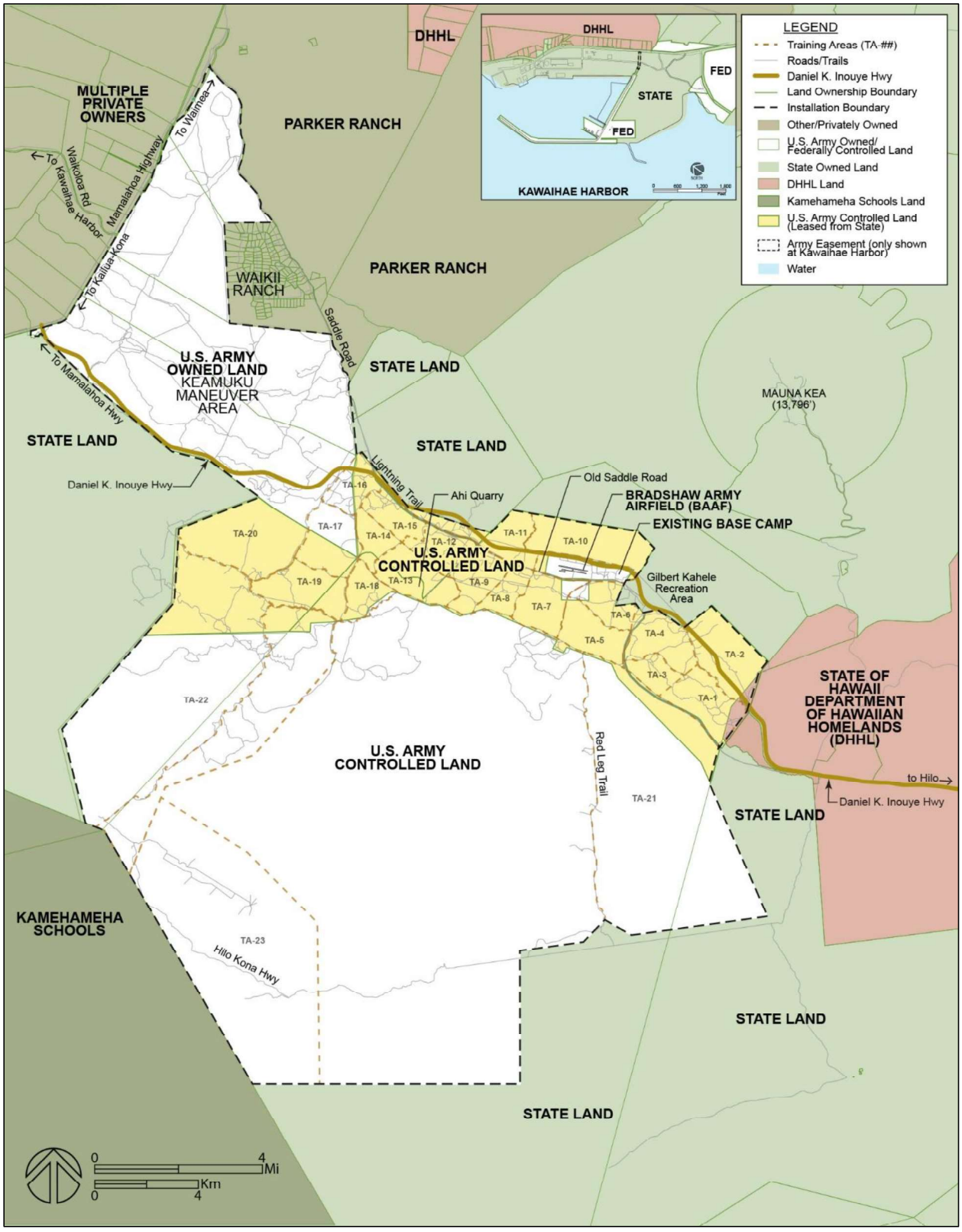

Figure 3-1: Regional Land Ownership and Land Use within PTA

The Gilbert Kahele Recreation Area is located just east of the Cantonment. The Hawai‘i County-managed park includes a parking lot, public restrooms, overnight bunkhouses and cabins, and a system of walking trails. Lands east of PTA are generally owned by the Department of Hawaiian Home Lands (DHHL), a state agency that develops homestead lands for Native Hawaiians. The DHHL lands are currently undeveloped. Limited cattle ranching occurs on these lands under permits issued by the DHHL. The nearest residential community to the east is Kaumana City, approximately 29 miles away near the outskirts of Hilo. A small portion of state lands that includes the Mauna Loa Forest Reserve also lies to the east. All forest reserves in the state are managed by the State's Department of Land and Natural Resources (DLNR) - Division of Forestry and Wildlife (DOFAW).

Lands to the southeast and south of PTA include State of Hawai‘i lands and the main body of the Mauna Loa Forest Reserve. Farther south and on the slope of Mauna Loa lies the northern extent of the Hawai‘i Volcanoes National Park. Lands to the south and southwest of PTA are owned by Kamehameha Schools, the largest private landowner in the State of Hawai‘i. The nearest residential area to the south is Volcano Village, approximately 20 miles from PTA's southern border.

Land uses to the west of PTA include the Pu‘u Anahulu Game Management Area where limited hunting is allowed by DLNR-DOFAW, and other parcels owned by Parker Ranch and leased for cattle grazing, horse raising, and natural resources and cultural conservation. The State of Hawai‘i permits recreational hunting on public lands surrounding PTA.

The nearest residential communities in the region are at Waikoloa Village, approximately 10 miles downslope from the westernmost point of the KMA; Waiki‘i Ranch, a private residential community located along the old Saddle Road and surrounded on three sides by KMA; and the town of Waimea, approximately 6 miles from the northernmost point of the KMA.

The Army also controls 10.8 acres of land at the south end of the state-owned Kawaihae Harbor for transshipment of materials between O‘ahu and PTA. Kawaihae Harbor is managed by the State of Hawai‘i Department of Transportation (HDOT) Harbors Division and is the key maritime entry point for West Hawai‘i and the military traveling to PTA for ammunition, troops, and vehicles. HDOT Harbors Division is planning to expand its commercial port facilities at Kawaihae Harbor to accommodate future demand unrelated to PTA or DoD operations or requirements.

The commercial harbor has two main cargo piers and does not handle passenger ships. Public recreational facilities at the "Coral Flats" area where the Army port facilities are located, support activities for a number of organizations. Cultural resources in the area include the Pu‘ukoholā Heiau National Historic Site, located above Pelekāne Beach, and the Ala Kahakai National Historic Trail, a portion of which runs from the Pu'ukoholā Heiau southward to ‘Anaeho‘omalu Bay. Both the heiau site and historic trail fall under the jurisdiction of the National Park Service (NPS).

PTA is an austere training area with land use including, but not limited to, training areas, training facilities, live-fire ranges, range operations support, airfield operations, ammunition storage, and troop support areas (see Figure 3-2). The Army maintains a quarry site ("Ahi Quarry") near the Pu‘u Ahi in Training Area 13, to the west of BAAF and within State-leased Parcel A (see Figure 3-1 for Ahi Quarry

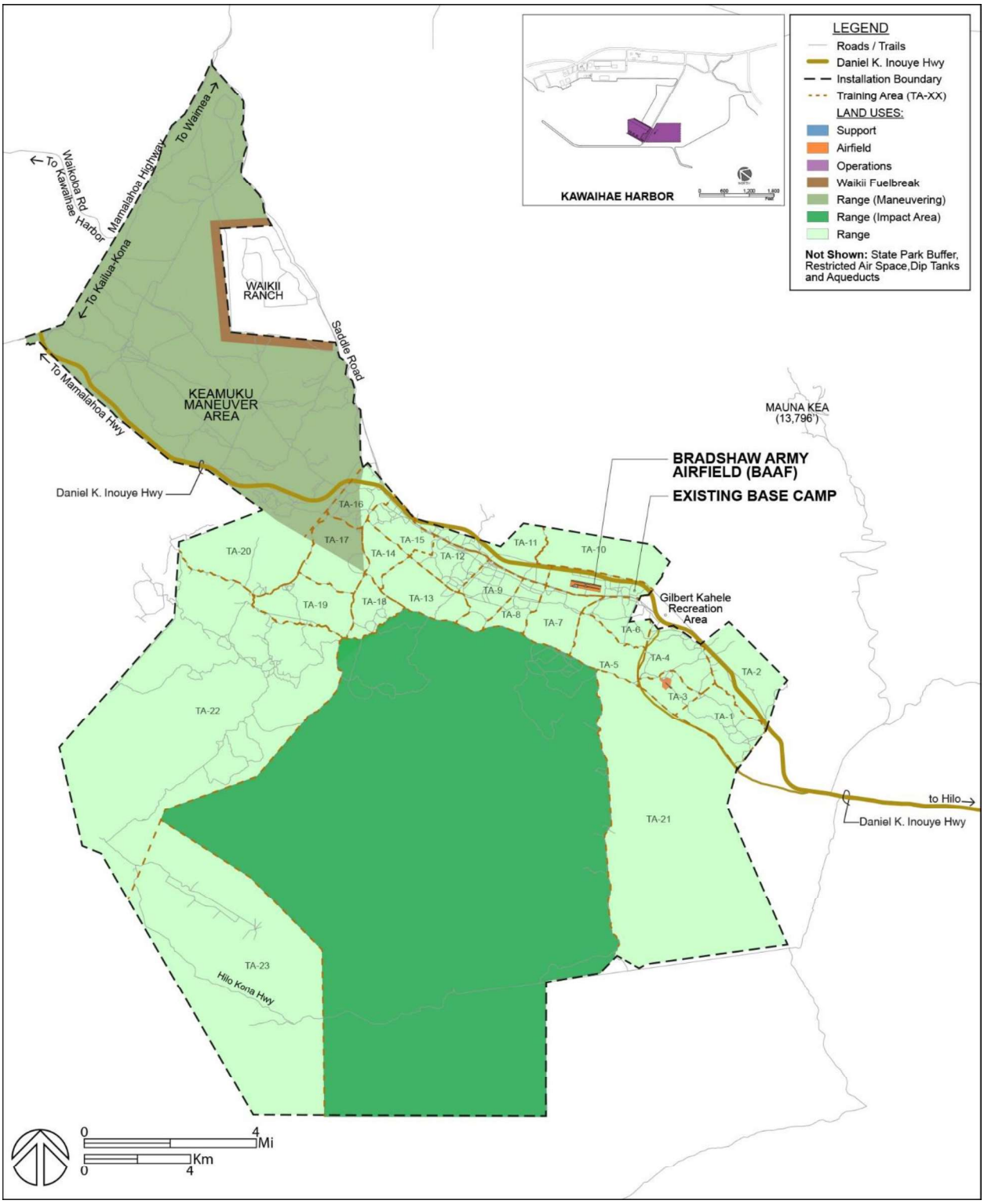

Figure 3-2: PTA Existing Land Use

location). As an austere training area, many of the land uses typically found at an Army installation are not included at PTA such as family housing and other dependent support facilities. There is no permanent party housing for either military or civilian personnel. Support functions are minimal and focused on serving a transient troop population in training.

The range is divided into Training Areas with distinct regulations, access, restrictions, and/or functions. Range training land includes, but is not limited to, live-fire ranges, maneuver trails, landing zones, drop zones, firing points, impact areas, and open land maneuver areas. Supporting the range, are operational areas for AHAs and the ASP. The IPBC is a newly constructed live-fire range and includes a range control center and supporting facilities. The BAX, located just west of the Cantonment along Old Saddle Road, supports mounted and dismounted infantry platoon tactical live fire operations. Primary facilities include the BAX, range control center, and supporting facilities.

KMA is primarily a maneuver area and encompasses approximately 24,000 acres largely located on the north side of DKI Highway and abutting Training Areas 16, 17, and 20 (see Figure 3-1). The Army has established a fuel break surrounding the Waikiʻi Ranch residential area. It leases the 770-acre area for cattle grazing to reduce fuel load and the likelihood of wildland fires.

BAAF is an Army-owned, Class A airfield, located on the west of the PTA Cantonment. (Note: Class A runways are primarily used for small, light aircraft.) It is the highest elevation airfield in consistent use in the State of Hawaiʻi (6,200 feet amsl) and is situated between the two highest peaks in the state. It has a single, 3,705-foot runway aligned east-west. BAAF provides support for assigned and visiting aviation units. Currently, there are no aircraft permanently assigned to BAAF. The airfield supports the 25th Infantry Division and its associate units at Wheeler Army Airfield, Schofield Barracks, the Hawaiʻi Army National Guard at Hilo, and the 45th Support Group (68th Medical Detachment).

The Base Camp area comprises approximately 80 acres and contains approximately 145 facilities used for administration, troop billeting, and support services. The Base Camp currently provides billeting capacity for 2,300 Soldiers. The Base Camp has the greatest diversity of functions of all the land uses at PTA. While a large portion of land in the Base Camp is used for troop support, it is also the hub for installation facility and utility support (DPW functions) as well as the Logistics Readiness Center. There is a consolidated administrative component at the headquarters building with base operations and departmental administrative functions dispersed throughout multiple facilities. Light industrial land uses are sited on the west side of the Base Camp. Overall, the Base Camp is a small portion of PTA, as the majority of the installation's land area is dedicated to live-fire training and maneuvering areas.

3.1.2.2 Army Land Use Plans and Policies

PTA's Area Development Plan (ADP) for the Cantonment vicinity is integrated into the RPMP. The ADP supports sustainable development at PTA and includes Regulating Plans for the Cantonment vicinity and Base Camp, which are the controlling documents and principal tools for implementing specific development projects. The ADP and Regulating Plans provide clear parameters for allowable uses, building height, siting, and basic design elements. Figure 3-3 illustrates the Land Use Regulating Plan for the Cantonment vicinity, and Figure 3-4 illustrates the Land Use Regulating Plan for the Base Camp.

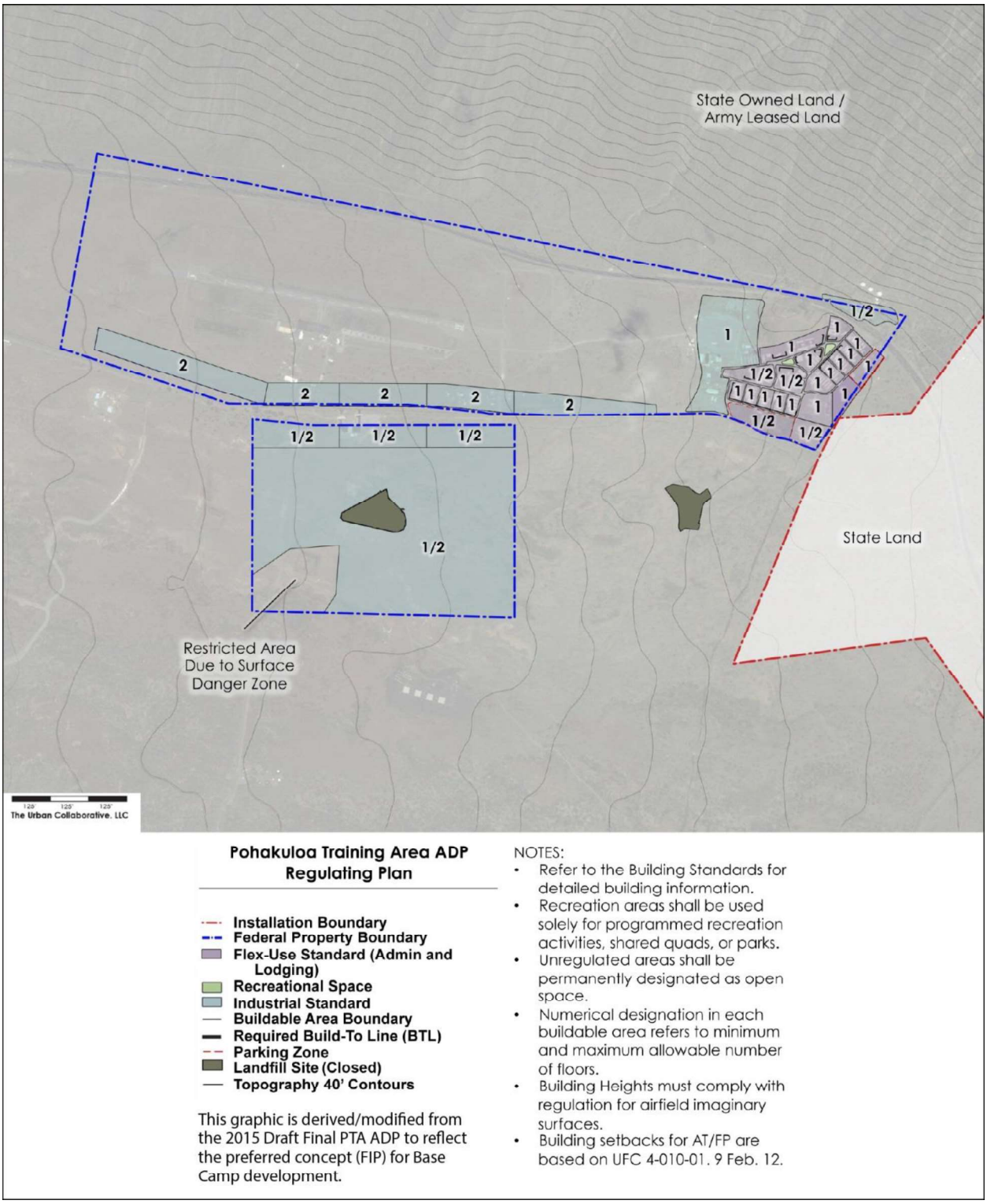

Figure 3-3: Cantonment Vicinity Land Use Regulating Plan

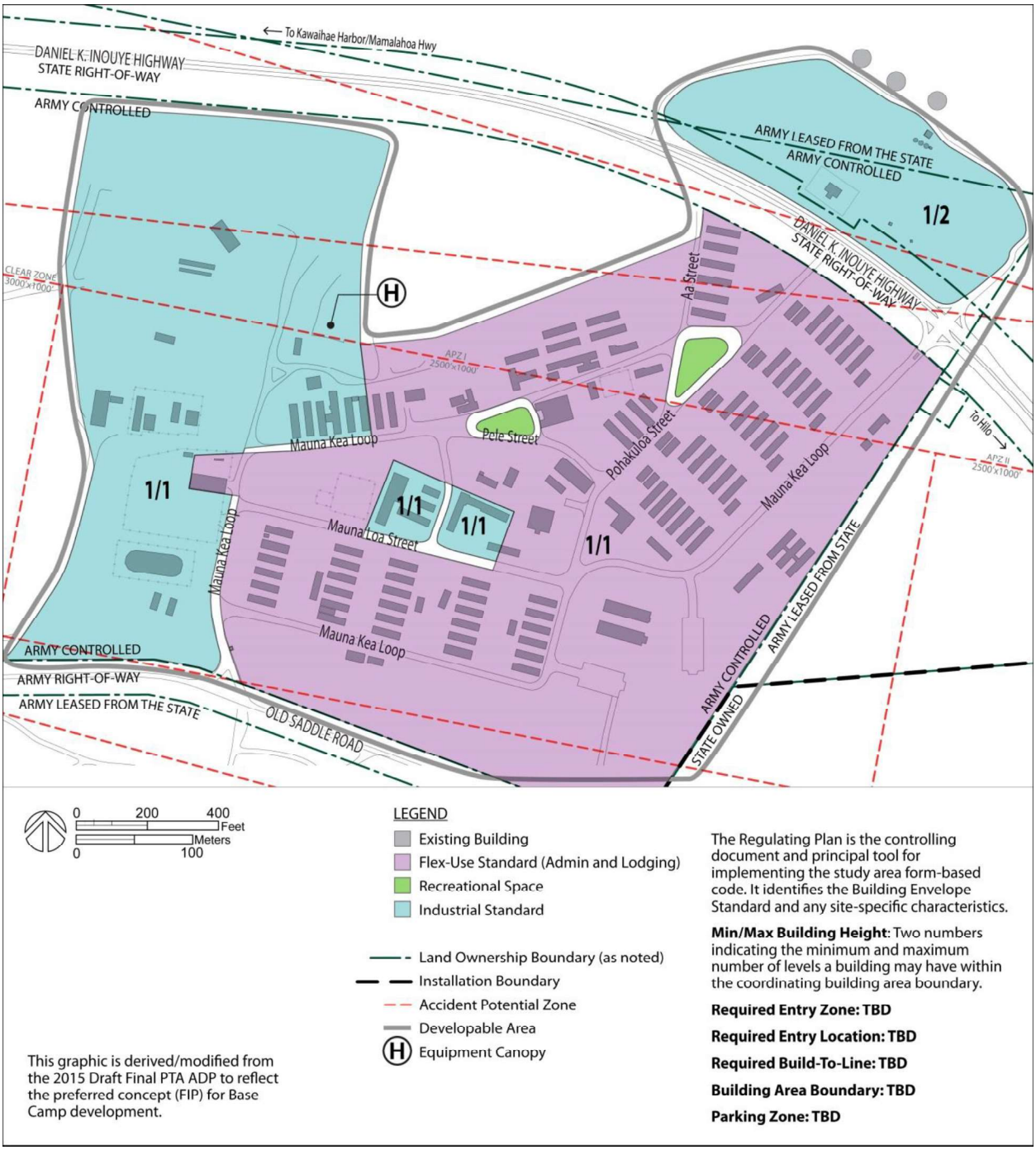

Figure 3-4: Base Camp Land Use Regulating Plan

The Joint Land Use Study (JLUS) and the Installations Compatible Use Zones (ICUZ) programs address the need to ensure lasting compatibility of military installations and realistic training, and neighboring communities. The JLUS is a cooperative land use planning effort between local government and military installations per DOD Instruction (DoDI) 3030.3 (U.S. Department of Defense, 2004). The JLUS seeks to develop a land use plan that effectively addresses the long-term land use needs of the surrounding communities, yet still provides the military with the mission flexibility it needs to meet training doctrine. The JLUS is recommended as the first attempt at planning to limit encroachment to the installation (i.e., external proposals, actions or land uses with the potential to reduce or alter operational capabilities and thus negatively affecting PTA's mission).

3.1.2.4 Land Use and Proposed Development at Kawaihae Harbor

Kawaihae Harbor is one of two deep-draft commercial harbors on Hawai'i Island (the other is Hilo Harbor, located on the island's east coast). Kawaihae Harbor is under the jurisdiction of HDOT Harbors Division, with the exception of a landing area for military ships granted to the U.S. Army. The harbor facilitates the transport of consumable goods, durables, building materials, and fuel to the island from Honolulu Harbor, which initially receives most of the cargo arriving in the state. Cargo is then transshipped to Kawaihae. The harbor also enables exports from the island to other Hawaiian islands, the U.S. mainland, and overseas destinations (State of Hawai'i, 2011).

There are two commercial piers at Kawaihae Harbor, located along the eastern side of the harbor. Pier 1, primarily used by cement barges, provides 412 ft of berthing. Pier 2 provides 1,150 ft of berthing and is primarily used by interisland cargo and fuel barges. No passenger traffic is handled at the harbor (State of Hawai'i, 2011). There are U.S. Coast Guard-established safety zones at Kawaihae Harbor, which include all waters immediately adjacent to Piers 1 and 2 and extending out to 100 yards from the pier faces (i.e., outside Army-controlled waters or submerged lands) (33 CFR § 165.14). The safety zones (established for all Hawai'i commercial harbors) were established to expedite the evacuation of the harbors in the event of a tsunami warning.

Through Governor's EO No. 1759, the Army owns and operates the Landing Ship, Tank (LST) ramp in the "Coral Flats" area of Kawaihae Harbor (see Figure 3-5). This approximately 10-acre area is located on reclaimed land formed by spoils generated from the initial harbor dredging, which provides a landing area for specially designed military ships which allows them to conduct military operations and transfer goods including Soldiers, vehicles, and explosives.

Due to significant growth in the past decade, the HDOT Harbors Division is planning to expand its Kawaihae Harbor facilities to accommodate future demand. HDOT's 2035 Master Plan Update includes improvements at Kawaihae Harbor that may affect Army berthing facilities and staging area at the harbor. The planned improvements near the Army's loading ramp include a new wharf east of the Army facilities, dredging fronting the new wharf, and vehicle entrance and internal roadway improvements (see Figure 3-5). As noted in Section 2.2.2.2, the Army has a short-range RPMP project to repair/improve its mooring dolphins and ramp at Kawaihae Harbor.

Figure 3-5: Kawaihae Harbor

3.1.3 Environmental Consequences

Impacts on land use can occur when the implementation of a project creates an inconsistency between the actual use of the land and the underlying land use designation, or when a project is incompatible with the adjacent or surrounding land uses. Land use impacts may also occur when the implementation of a project conflicts with or prevents the implementation of the goals, objectives, and policies of relevant planning documents, and/or nearby development projects (by others). The threshold for significant impacts to land use compatibility is the degree to which the alternative introduces new land uses or activities that cause severe conflict with adjacent land uses.

3.1.3.1 Proposed Action

This section presents a general discussion of the potential effects on land use compatibility associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP. PTA would remain an austere training area essential to training in the Pacific. No change in operations tempo, type, or capacity are anticipated as a result of RPMP adoption, including PTA facilities at Kawaihae Harbor. The adoption of the RPMP is considered a best practice because it provides Army planners with a comprehensive view of PTA's plans, programs and policies, and would bring the installation into compliance with Army regulations regarding RPMPs. It would also inform surrounding communities and jurisdictions of the Army's long term land use and facility improvements that could result in more coordinated planning in the region, and, therefore, have beneficial impacts on land use. The administrative action of adopting the RPMP would have no impact on state or county land use policies, plans, or controls, as no changes in land use would result from the adoption of this planning document.

Implementation of the RPMP would not impact or be incompatible with surrounding land uses because it would retain and continue existing land uses at PTA. The Training Areas would not be encroached upon, expanded, or reduced in any way. KMA would remain primarily a maneuver area. BAAF would remain in its current location and would continue operations; the runway's approach-departure clearance surface penetrations to the east would continue to constrain Base Camp land use. Safety arc generating functions (e.g., firing points) would remain in place. The proposed RPMP improvements at the Army's Kawaihae Harbor facility would not change existing land use or function. Public recreational use of the ship berthing area could be curtailed during construction, but no new restrictions to adjacent land uses are anticipated.

Implementation of RPMP projects would support PTA's current and future mission requirements by replacing outdated facilities, and/or meeting unmet demand with new facilities and infrastructure. This would contribute to increased safety, efficiency, and reduced maintenance costs for PTA. Implementation of the RPMP would allow development of needed range support and maintenance facilities proximate to training areas, consolidate, and provide needed industrial and support facilities. RPMP implementation would focus future development and infrastructure upgrades primarily in areas of the installation that have previously been developed and are served by or adjacent to existing transportation and utility infrastructure. The projects identified in the RPMP were developed and sited in accordance with the ADP Overall Land Use Regulating Plan and would comply with the JLUS and ICUZ programs.

Implementation of the RPMP is not expected to introduce new land uses or activities that cause severe conflict with adjacent land uses. It may have also have beneficial impacts through more coordinated regional planning with surrounding communities and jurisdictions and providing Army planners with a comprehensive view of PTA's land use plans, programs and policies. Therefore, it is likely to have less than significant impacts on land use compatibility.

Because the administrative action of adopting the RPMP would not involve any new development, alteration of existing land or facilities, changes in land use, activities, or training tempo or intensity, USAG-HI determined that that the Proposed Action would have no effects on coastal uses or resources (see Appendix A for documentation). The Army will assess individual RPMP projects relative to the objectives and policies of the CZMA of 1972 (as amended) (16 USC. §1451 et seq.) as they are implemented.

3.1.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially occur in isolated locations with ad hoc siting, which increases the potential for incompatible internal and external land uses to occur. However, no significant changes to land use at PTA (including at Kawaihae Harbor), or the surrounding areas, would be expected. Therefore, the No-Action Alternative would result in less than significant impacts to land use.

3.2 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, and districts; and physical entities and manmade or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources are designated in three major categories:

- Archaeological resources (prehistoric and historic) are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.
- Traditional cultural properties may include archaeological resources, structures, neighborhoods, prominent natural features, habitat, plants, animals, and minerals that are significant to a community because they are based in the history of a living community, contribute to maintaining the continued cultural identity of the community, and associated with cultural practices or beliefs.

3.2.1 Regulatory Setting

Cultural resources are governed by other federal laws and regulations, including the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. Federal agencies' responsibility for protecting historic properties is defined primarily by sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws.

3.2.2 Affected Environment

According to the regulations implementing Section 106 of the NHPA (36 CFR §800), an Area of Potential Effects (APE) is defined as the geographic area or areas in which an undertaking may directly or indirectly cause alternations in the character or use of historic properties, if such properties exist. For the purposes of this analysis, the term APE is synonymous with ROI for cultural resources. For the Proposed Action, the ROI for cultural resources encompasses the entirety of PTA and the Army-controlled area at Kawaihae Harbor.

3.2.2.1 Early History

PTA is part of larger cultural landscape that includes Mauna Kea, Mauna Loa, and the Saddle area between them (U.S. Army Environmental Command, 2013). Prior to becoming a military installation, PTA and the surrounding landscape was used for a variety of purposes that included quarrying and stone tool manufacture, bird hunting, journeying (huakaʻi), battles between warring chiefs, Native Hawaiian religious practices, and, during the historic era, hunting feral ungulates and ranching.

Current archaeological understanding is that Hawaiʻi Island was settled about A.D. 1200 (Rieth, et al., 2011). The first Polynesian settlers of South Kohala arrived and established fishing villages and cultivated taro along streams at the base of the Kohala Mountains (County of Hawaiʻi, 2008). The coastal village of Kawaihae was the site of one of Kamehameha I's primary residences and became the location of two major heiau: Mailekini, and Puʻukoholā, which was completed under Kamehameha I's rule in 1791 (Wheeler, Wilkinson, & Hammatt, 2014). Kawaihae was a major shipping port throughout the 1800s and into the 20th century. Kawaihae Harbor was used to ship cattle products (primarily tallow, hides, and salt beef), beginning in the 19th century, and into the 20th century when production shifted to live cattle and fresh meat. In the 19th century, other products were shipped out through Kawaihae and/or sold to ships that docked there, including wool, sheep meat (mutton), and agricultural produce. Other harbors on the west side of the island such as Mahukona and Kailua were also used during this time period. Whaling ships frequented these harbors for supplies during the 19th century until sperm whale oil was replaced with other oils.

3.2.2.2 Ranching History and Use

In the late 1800s, cattle and sheep ranchers utilized land within PTA and its immediate environs. In addition to cattle- and sheep-ranching operations, related activities and land uses included hunting, and the construction of trails, wagon roads, stone walls, and fence lines (U.S. Army Environmental Command, 2013). A portion of the road that connected the sheep station from Humuʻula to Waimea is located within and to the east of PTA (ibid). Stone walls and foundations constructed in the 1890s may also remain in the northeastern part of PTA. Ranching era fence lines and associated stone foundations extend across PTA's northern training areas and into KMA (ibid).

3.2.2.3 U.S. Military History and Use

The following is an overview of the military history of PTA extracted from *An Architectural Survey and Evaluation of the Cantonment Area at the Pōhakuloa Training Area* (Hays, 2002, with 2015 addendum), and information from the PTA Cultural Resources Office.

There is evidence that the Hawai'i Army National Guard trained in the vicinity of PTA in the 1930s. During World War II, live-fire training continued by the USMC but not on a regular basis until 1943. In 1942, the Army constructed Kaumana Road, later known as Saddle Road, between Hilo and the north and west sides of the island. It was initially constructed as an evacuation route in the event of a Japanese attack on Hawai'i Island. Between 1943–1945, Soldiers and Marines trained at PTA while billeting in temporary tent encampments. After WWII and prior to 1955, the National Guard trained at PTA and probably billeted in tents, although there is little information on this time period. PTA was established as an Army training area in 1956. A number of relatively small outhouses were constructed between WWII and 1955 in support of the National Guard activities in the area, before the Army established PTA, but were demolished in 1962.

From 1955–1958, the Army's 65th Engineer Company built Quonset huts at PTA. The predecessor to the Quonset hut was developed to house British Soldiers during World War I and as emergency housing for civilians in London during World War II. During World War II, the U.S. Navy commissioned construction of an American version, manufactured at Quonset Point, Rhode Island. The Quonset hut was valued for durability, ease of assembly, and portability. The distinctive round-walled structures are used at PTA as barracks, administrative offices, recreational facilities, and for a variety of other purposes.

Typical Quonset hut structure

During World War II, thousands of U.S. Soldiers were shipped in and out of Kawaihae Harbor. At the southern end of the bay, amphibious landing exercises were conducted, and military emplacements set up in the area of Pu'ukoholā Heiau (Wheeler, Wilkinson, & Hammatt, 2014). A deep draft harbor project, including a main breakwater and military landing ramp project was completed by the Territory of Hawai'i and the United States Army Corps of Engineers (USACE) in 1959.

3.2.2.4 Archaeological and Non-Military Historic Resources

To-date, there are over 1,200 recorded archaeological sites at PTA, including KMA. These include prehistoric Native Hawaiian sites and historic sites related to a variety of activities in the area, including ranching. About 21% of the recorded sites are lava tube shelters, located primarily in the 109,000 acres of the main part of PTA. There is one lava tube site in KMA. The remaining sites at PTA include cairns, mounds, trails, surface structures, rock quarrying areas, platforms, and features related to 19th and 20th century activities. In 1986, the Bobcat Trail Habitation Cave was listed on the National Register of Historic Places. As of October 2018, 40 other sites have been determined to be eligible for the National Register, while 333 have been determined not eligible for the National Register. The remaining sites are treated as eligible and possible impacts are avoided until eligibility can be determined. Evaluations for

National Register eligibility are currently under way for all sites identified in the KMA. Per the ICRMP, 20% of PTA's High Hazard Impact Area and approximately 50% of the area outside of the Impact Area have been surveyed for cultural resources (U.S. Army Garrison-Pohakuloa, 2018). No properties at PTA have been classified as National Historic Landmarks.

The Army-controlled area at Kawaihae Harbor consists of landfill area; the 2018 ICRMP noted that archaeological sites were therefore not anticipated. No archaeological remains were located in the Army-controlled portion of Kawaihae Harbor in 2001 (Cox and Zulick, 2001).

In 1972, Puʻukoholā Heiau was designated a National Historic Site. Under a cooperative agreement between the U.S. Department of the Interior, the NPS and the Harbors Division, a 22-acre Pelekāne Lands Buffer was established to separate the archaeologically significant Puʻukoholā Heiau National Historic Site from the commercial harbor area (Wheeler, Wilkinson, & Hammatt, 2014). In 2000, the Ala Kahakai National Historic Trail was established for the preservation, protection and interpretation of traditional Native Hawaiian culture and natural resources. Portions of the trail traverse the Kawaihae area and are described in more detail in the Ala Kahakai National Historic Trail Comprehensive Management Plan (National Park Service, 2009).

3.2.2.5 Military Resources

BAAF and the existing Base Camp were constructed after the end of the Korean War in the mid to late 1950s; as such, most of the facilities are over 50 years of age. According to a 2002 assessment (Hays, 2002, with 2015 addendum), most of the building stock at the Base Camp is made up of Quonset huts with a few wood frame and concrete masonry unit exceptions. Approximately 60% of the structures were erected between 1955 and 1961. Another building wave occurred between 1962 and 1969. The camp's building stock remained stable during the 1970s with another minor construction wave occurring during the 1980s and a few structures erected during the 1990s. Only a small fraction of the Quonset huts have been demolished in the past ten years, including those removed for the construction of DKI Highway.

There are 84 Quonset huts at PTA covered by the Advisory Council on Historic Preservation (ACHP) Program Comment for Cold War Era Unaccompanied Personnel Housing (UPH). The Program Comment, published in 2006, can be found on the Advisory Council's website, www.achp.gov. The Army published a Historic Context for Cold War Era Unaccompanied Personnel Housing, which serves as mitigation for any potential adverse effects to the properties covered by the Program Comment. ACHP's Program Comment process provides federal agencies—including DoD and its Military Departments—with an alternative way to comply with their responsibilities under Section 106 of the NHPA. The Army prepared a 2015 addendum to the 2002 assessment analyzing potential National Register of Historic Places eligibility for all buildings in the Cantonment and determined that none of the buildings are eligible. SHPO did not concur with the determination that the buildings are not eligible, and therefore the Army sought a determination from the Keeper of the National Register. The Keeper determined that the Quonset huts are not eligible for the National Register (letter dated January 18, 2018). Determinations by the Keeper cannot be appealed, and therefore SHPO accepted the Keeper's determination. Based on

the Keeper's findings, SHPO concurred in a letter dated March 20, 2018 that no historic properties would be affected by the Cantonment FIP (one of the eight short-range projects covered by the RPMP).

BAAF contains three Quonset huts dating from 1958–1965, one of which is considered eligible for the NRHP for the purposes of the ACHP Program Comment regarding Cold War era UPH. Mitigation for any adverse effects to BAAF Quonset huts associated with the UPH Program Comment was completed with the Army's publication of the Cold War Era UPH Historic Context. This publication served as mitigation for any potential adverse effects on Cold War Era UPH at Army installations throughout the U.S. Existing structures at the Army-controlled area at Kawaihae Harbor, built from 1959–1985 (wharves, seawalls, dock/ramp, offshore mooring dolphins) require evaluation to determine NRHP eligibility (U.S. Army Garrison-Pohakuloa, 2018).

3.2.2.6 Traditional Cultural Properties

A traditional cultural property may be eligible for the National Register as a site, district, building, structure, or object because of its association with cultural practices or 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 the community (Parker & King, 1998).

The information provided below summarizes the findings of an ethnographic report prepared by Pacific Consulting Services, Inc. (McCoy and Orr, 2012, in U.S. Army Environmental Command, 2013). The report evaluated the potential existence of Traditional Cultural Properties (TCPs) at PTA and concluded that no areas within PTA appear to qualify for consideration as TCPs under U.S. National Park Service (NPS) criteria (ibid).

The Pacific Consulting Services, Inc. study (McCoy and Orr, 2012) evaluated information from interviews with knowledgeable cultural consultants raised in Waimea and information gleaned from previous works by McEldowney (1982), Maly and Maly, (2004), Langlas, et al. (1998), Maly (1999), Maly and Maly (2002), and Maly (2005). Traditional and contemporary cultural practices associated with the Saddle Region, in general, and PTA, specifically included (U.S. Army Environmental Command, 2013):

- Quarrying and stone tool manufacture
- Bird hunting
- Human burial
- Shrine construction
- Journeying (Huaka'i)
- Hunting of feral ungulates
- Scattering of cremation remains
- Ranching

Informants for the Pacific Consulting Services, Inc. study reported the presence of human burial from observation and oral traditions, but could not recall exact locations (McCoy and Orr, 2012). Except for the disposition of cremated remains of two Parker Ranch cowboys at KMA, now owned by the Army, human burials have not occurred at PTA during modern times, and active community burial traditions at PTA have not been identified. Informants also reported the continued use of old trails that crossed PTA

and the persistence of bird hunting, a major traditional use of the area from prehistoric times into the early part of the 20th century (U.S. Army Environmental Command, 2013). The bird hunting described by the informants interviewed for the 2012 McCoy and Orr report is of introduced game species with introduced shotguns or bows and arrows; it is not bird hunting of native species with traditional hunting methods.

Research conducted by Maly (1997; Maly & Maly, 2005 in U.S. Army Environmental Command, 2013) involved interviews that considered Mauna Kea and associated the landscapes and view planes (i.e., did not include the PTA area or the saddle area between Mauna Kea and Mauna Loa). The researchers surmised that Native Hawaiians may feel a "deep cultural attachment to the broad spectrum of natural and cultural resources" found in and around Mauna Kea" (Maly, 1999 in U.S. Army Environmental Command, 2013) and recommended that the traditions, sites, practices, and continuing significance of Mauna Kea make it "eligible for nomination as a traditional cultural property under federal law and policies" (Maly, 1999).

3.2.3 Environmental Consequences

Cultural resources are historic properties, cultural items, archeological resources, sacred sites and collections and associated records. Historic properties are districts, sites, structures, or objects listed in or eligible for listing in the NRHP. Cultural items are human remains, funerary items, or items of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act. Archeological resources are defined in the Archeological Resources Protection Act as archaeological sites 100 years or older. Sacred sites are defined in Executive Order 13007 and the American Indian Religious Freedom Act as specific discrete locations on Federal land identified by an appropriate authority as sacred because of their established religious significance to, or ceremonial use by, an Indian religion, provided the appropriate authority has informed the agency of the existence of such a site. The threshold for significant impacts to cultural resources is any unmitigated loss or destruction of the property.

Impacts on an area's unique tangible and intangible cultural resources can be direct or indirect. Negative impacts can result from physical alteration, damage, or destruction of the site or traditional place, alteration of the surrounding environment by introducing visual, audible, or atmospheric elements, instituting other elements out of character with the resource; or reduction of access to traditional places. If mitigated, these negative impacts would be considered less than significant.

3.2.3.1 Proposed Action

This section presents a general discussion of the potential effects on cultural resources associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level. Additional NEPA and NHPA compliance reviews would be required prior to the implementation of any project proposed in the RPMP. The guidelines and protocols outlined in the PTA ICRMP (U.S. Army Garrison-Pohakuloa, 2018) for compliance with Section 106 of the NHPA will be followed for all future actions. Site-specific impacts to cultural resources would be addressed and avoided, minimized, or mitigated at that time.

The RPMP was developed in conjunction with the PTA ICRMP. Therefore, the projects proposed in the RPMP are generally compliant with the guidelines and recommendations of the ICRMP to avoid and minimize potential impacts to cultural resources. As a plan, the RPMP does not represent a federal undertaking under NHPA, thus the RPMP itself is not subject to consultation under Section 106. Its adoption would not affect historic properties. The adoption of the RPMP would have no impact on cultural resources at PTA, including at its Kawaihae Harbor facilities. For the specific projects proposed in the RPMP, NEPA and NHPA Section 106 compliance must be completed prior to implementation.

Section 106, National Historic Preservation Act Consultation

As noted in the preceding sections, NHPA Section 106 consultations will be conducted prior to implementation of the individual RPMP projects, as appropriate, when sufficient project details are available to implement a Section 106 review of the projects.

3.2.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be conducted in isolated areas without planned phasing, raising the potential risk for adverse effects to cultural resources. Each project (including at the Army's Kawaihae Harbor facilities) would undergo project-specific evaluation under the ICRMP, as well as NEPA and NHPA Section 106. Mitigation measures for adverse effects to historic properties would be implemented, as required. The No-Action Alternative would not result in unmitigated loss or destruction of historic properties; therefore, it is likely to have less than significant impacts to cultural resources.

3.3 Biological Resources

Biological resources include the living, native, or naturalized plant and animal species and the habitats within which they occur. In general, plants are referred to as vegetation or flora, and animals (including fish and microbes) are referred to as wildlife or fauna. Habitat includes the biological and abiotic features (resources and conditions) present or necessary in an area that support a plant or animal. (Note: Abiotic components necessary to support and sustain an ecological system [e.g., water, soil, substrate, etc.] are addressed in separate resource areas in this PEA.)

For this EA, PTA biological resources are first divided into two major categories, terrestrial/coastal and marine resources, to account for the major, but distinct ecosystem types that exist across Army-controlled properties where RPMP projects are proposed. To simplify the wide range of biological resource types, three general types are established based on species status or classification. They include: 1) protected (i.e., federally-listed threatened or endangered species, critical habitat, migratory birds, state-listed species of concern), 2) native, and 3) other, which includes all other types of species, including non-native, invasive, game, or other designation types.

3.3.1 Regulatory Setting

The analysis of impacts from the proposed activities focuses on the natural resources that are protected under federal, state, or other laws and statutes. These include NEPA (42 USC 55 § 4321 et seq.), ESA (16

USC 35 § 1531 et seq.), Migratory Bird Treaty Act (MBTA) (16 USC 7 § 703-712 et seq.); Sikes Act Improvement Act (16 USC § 670a-670o), DoDI 4715.03 (DoD 2011); AR 200-1 (U.S. Army 2007d), and other requirements resulting from past applicable ESA Section 7 consultations with the USFWS. Also applicable are valid memoranda of agreement (MOA)/memoranda of understanding (MOU) with cooperating agencies or groups that establishes commitments and support for implementing natural resources conservation.

The ESA (16 USC 35 § 1531 et seq.) is administered by the USFWS and NMFS and requires federal agencies to conserve imperiled species and the ecosystems they depend on. Under the ESA, vegetation and wildlife may be listed as either a threatened or endangered species (TES) with the purpose of protecting or recovering those protected species and their habitat. Under Section 7 of the ESA, federal agencies, in consultation with USFWS and/or NMFS, must ensure their actions are not likely to jeopardize the continued existence of any listed species or to result in any adverse modification or destruction of critical habitat. The Army is moving toward a programmatic approach to ESA consultations for PTA with federal resource agencies. In this approach, specific species, activities, avoidance and minimization measures, and commitments would be incorporated into a new programmatic biological opinion. The existing biological opinions now applicable to activities at PTA would then be superseded by the programmatic biological opinion.

Construction-related activities (such as for the RPMP implementation) would be described in the programmatic biological assessment and the foreseeable impacts (i.e., standard construction impacts) to federally-listed species and critical habitat will be analyzed. The programmatic biological assessment would likely include general avoidance and minimization measures similar to those identified in this PEA, and/or additional measures as needed to address project-specific impacts. As a result, the need for additional mitigation measures for individual ESA Section 7 consultations for each RPMP project may be minimized.

Under the MBTA (16 USC 7 § 703-712 et seq.) and EO 13186 (66 FR 3853), federal agencies are directed to ensure their action does not result in prohibited acts to migratory birds, and must take action to further implement the Act. Unless permitted by regulation (i.e., hunting or incidental take caused by "military readiness activities"), the MBTA prohibits the "take" pursuit, hunt, shoot, wound, trap, capture, kill or collection of any migratory birds, part, nest, or egg of any such bird. Per 50 CFR 21.3(c), the definition of military readiness activities does not provide exception for construction or demolition of facilities. Therefore, the proposed projects which may result in migratory bird "take," are subject to MBTA permitting requirements.

The Sikes Act (16 USC § 670a-670o) provides for cooperation of the Departments of Defense and Interior with State natural resources agencies to plan, develop, and maintain fish and wildlife resources via a cooperative conservation plan, the Integrated Natural Resources Management Plan (INRMP), on military reservations. It also provides for the establishment of fee collection programs for hunting and fishing for outdoor recreation, forestry products, and agricultural / grazing leases for the public provided that the activities are aligned with the military mission and comply with other applicable environmental requirements.

Invasive species consist of non-indigenous plants and wildlife that adversely affect the habitats they invade economically, environmentally, or ecologically. EO 13112, "Invasive Species," (64 FR 6183) requires all federal agencies to prevent the introduction of invasive species, provide control, and minimize the economic, ecologic, and human health impacts that invasive species may cause. The effects of invasive species are addressed in *Army Policy Guidance for Management and Control of Invasive Species* (U.S. Army, 2001). Additionally, both PTA and USAG-HI have established local invasive species prevention policies that apply at PTA for projects (and other activities (e.g., training)) to prevent and control the introduction, establishment, and spread of invasive species at and beyond PTA.

3.3.2 Affected Environment

The ROI for natural resources consists of areas at PTA and Kawaihae Harbor that contain and support terrestrial, coastal, and marine biological resources that may be directly or indirectly affected by the Proposed Action. Because of their presence within or in the vicinity of the proposed project, protected species and other vegetation and wildlife and their habitats have the potential to be impacted by the Proposed Action.

Figure 3-6, Natural Resources Overlay, provides the locations and boundaries of environmentally sensitive natural resource areas and assets at PTA. The overlay layers include protected (threatened, endangered, and candidate) plant species, the Kipuka Kalawamauna endangered plant habitat, the Palila critical habitat, wildlife enhancement area, and environmental restoration areas. It is important to note that the overlay is not a complete and comprehensive census of sensitive natural resources. It is limited and based on the available information. Specifically, it does not detail the resources or habitat features that support protected wildlife, nor does it contain detailed information on types and location of marine and coastal resources at Kawaihae Harbor.

3.3.2.1 Terrestrial and Coastal Environment

3.3.2.1.1 Terrestrial Environment

Terrestrial Vegetation

Plant communities across PTA range from barren lava with less than five percent plant cover to forests, shrublands, and grasslands (Shaw & Castillo, 1997). The most complex and the oldest communities are found in the kīpukas (areas that persisted through volcanic eruptions as lava moved around, rather than over them). Grasslands are prevalent in the KMA where soils are more developed and have higher amounts of organic material due to a steady breakdown of vegetative cover (U.S. Army Garrison Hawaii, 2020). The highly variable soil types and topography throughout the area along with climate conditions influence the type and density of plant cover. Cracks and crevices in rock collect soil, organic matter, seeds and spores. When sufficient moisture is available and growing conditions are favorable (sunlight, temperature, etc.), seeds and spores germinate and grow. During drier periods, woody species with deep roots have an advantage and are able to persist better than herbaceous species.

A total of 333 vascular plant taxa from 77 families and 226 genera have been identified at PTA (U.S. Army Garrison Hawaii, 2020). Most taxa are forbs (42%), followed by grasses and grass-like plants (18%), shrubs (15%), ferns (9%), trees (7%), and vines (2%). Some taxa are present with both tree and shrub

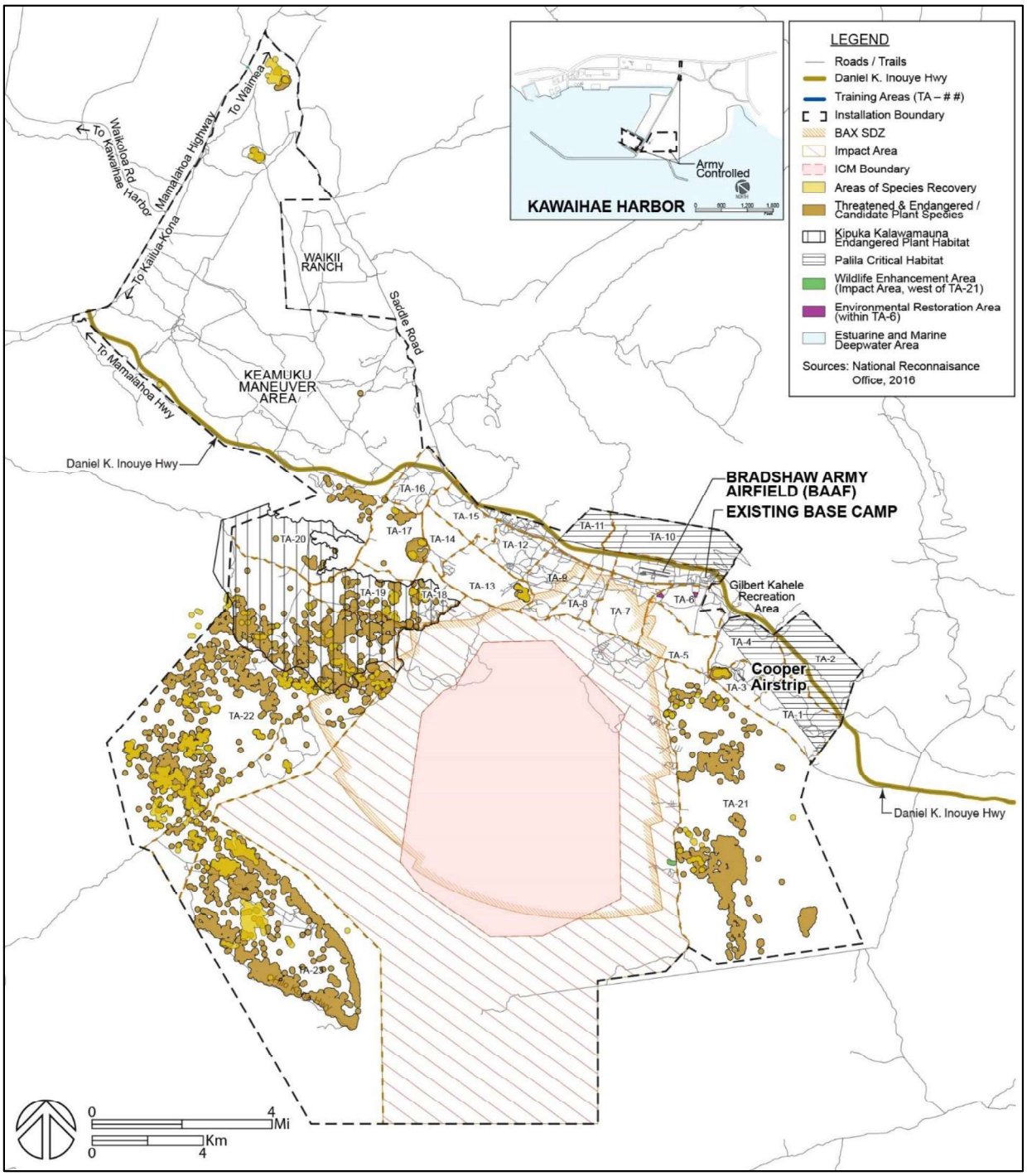

Figure 3-6: PTA Natural Resources Overlay

forms. Approximately 35% of the plants found on PTA are indigenous or endemic and about 65% are non-native. The non-native, invasive fountain grass (*Pennisetum setaceum*) has become and continues to encroach across the landscape. It is dominant in disturbed areas (e.g., along roads, covering trails, in the Cantonment and in other high use areas) and in most areas throughout the KMA. It is also found in undisturbed lava fields. At PTA, there are 19 endangered and 1 threatened federally-listed plant species (see Table 3-1). These 20 TES plant species are protected under the ESA, and other federal candidate species and state listed species are considered to be species at risk for extinction or critical habitat loss. In addition, there is one undescribed *Tetramolopium* species that, due to its rarity and limited distribution, is managed like a federally listed species.

Table 3-1: Federally Listed Threatened and Endangered Plant Species at PTA

Scientific Name	Common Name	Status
Asplenium peruvianum var. insulare	no common name	Endangered
Exocarpos menziesii	heau	Endangered
Festuca hawaiiense	Hawai‘i fescue	Endangered
Haplostachys haplostachya	honohono	Endangered
Isodendrion hosakae	aupaka	Endangered
Kadua coriacea	kio‘ele	Endangered
Melanthera venosa	nehe	Endangered
Neraudia ovata	ma‘aloa	Endangered
Portulaca sclerocarpa	‘ihi makole, po‘e	Endangered
Portulaca villosa	ihi	Endangered
Schiedea hawaiiensis	ma‘oli‘oli, island schiedea	Endangered
Sicyos macrophyllus	‘anunu	Endangered
Silene hawaiiensis	Hawai‘i catchfly	Threatened
Silene lanceolata	Kaua‘i catchfly	Endangered
Solanum incompletum	popolu ku mai	Endangered
Spermolepis hawaiiensis	Hawai‘i scaleseed	Endangered
Stenogyne angustifolia	no common name	Endangered
Tetramolopium arenarium var. arenarium	Mauna Kea pamakani	Endangered
Vigna o-wahuensis	O‘ahu cowpea	Endangered
Zanthoxylum hawaiiense	a‘e	Endangered

Sources: U.S. Army Environmental Command, 2013; PTA Natural Resources, 2016

Terrestrial Wildlife

Within the ROI, PTA provides habitat that supports native and introduced wildlife species that are well adapted to arid conditions. In addition to native and introduced birds, PTA is also inhabited by several introduced invertebrates and mammals, including feral ungulates (i.e. feral goats, sheep, mouflon hybrids, and pigs) that forage and cause chronic damage to the plant communities. Although the Cantonment contains very limited natural resources (i.e., food, water, and cover), there is enough available to support and maintain ungulate and pest populations in developed areas. Therefore, wildlife

inhabiting the ROI consists mainly of a few vertebrates that include several species of birds, rodents, and ungulates such as feral sheep, goats, and Mouflon-domestic sheep hybrids.

Invertebrates

Caves and lava tubes are a specialized habitat type that supports a diverse community of invertebrate life. Ninety species of invertebrates are found in PTA caves and lava tubes. Of these, approximately 60 are native species (Howarth et al., 1996 in U.S. Army Garrison Hawaii, 2020). Arthropod surveys in 1998 and 2001 identified the presence and location of the invasive Argentine ant (*Linepithema humile*) and documentation of 6 other ant species (U.S. Army Garrison Hawaii, 2020). More recent ant surveys documented three new ant species at PTA (Center for Environmental Management of Military Lands, 2020), for a total of ten ant species identified at the installation.

Terrestrial snails are also found at PTA on surface substrates like pāhoehoe and ʻaʻā under vegetation canopies. The malacologist, Dr. Robert Cowie, discovered the only extant population of *Leptachatina lepida* at PTA (Cowie and Nishida, 1993 in U.S. Army Garrison Hawaii, 2020).

Another rare invertebrate is a wingless weevil, *Rhyncogonus stellaris*, which is known only from Kīpuka Kālawamauna, Pōhakuloa (USAG-HI 2006). It was last surveyed for in 2004 due to limited resources. A single and possibly vagrant specimen of the yellow-faced bee (*Hylaeus anthracinus)*, a federally-listed endangered species, was collected once at PTA. *Helicoverpa confusa*, a rare moth, was collected by the Heritage Program, now the Hawaiʻi Biodiversity and Mapping Program, in 1998.

In July 2019, several Blackburn's sphinx moth (BSM) (*Manduca blackburni*) instars (caterpillars) were discovered on the BSM host plant, tree tobacco (*Nicotiana glauca*), in the northeastern part of the KMA. It is the first documented instance of BSM (a federally-listed endangered species) presence on Army-controlled lands.

Throughout the Cantonment, it is presumed that the low numbers of native and protected arthropods and invertebrates is likely due to the history of manmade disturbances from past development and persisting operations and maintenance activities that occur routinely to support training and base operations, lack of a healthy and adequate native plant community, and the competing distributions of non-native plant species.

Amphibians, Reptiles, and Fish

There are no permanent terrestrial surface water bodies on PTA that support fish or other aquatic species. No native terrestrial reptiles or amphibians are documented at PTA; therefore, any potential reptile or amphibian species that may be encountered at PTA would be considered non-native, and potentially invasive species.

Mammals

The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only native terrestrial land mammal at PTA and is known to forage at night in the Cantonment area (Gon SM, Honigman L., Zevin D., Fulks W, David, 1993). PTA has been conducting a comprehensive study using acoustic monitoring of bat calls over the last six years. The unpublished data find that the bat is ubiquitous at PTA and KMA.

Other mammals that occur on PTA consist of introduced game animals, including the feral pig (*Sus scrofa*), feral sheep (*Ovis aries*), goats (*Capra hircus*), and mouflon sheep (*Ovis mismon*), and other introduced species, such as rat species (*Rattus rattus*), mongoose (*Herpestes auropunctatus*), mice (*Mus domesticus*), feral dogs (*Canis familiaris*), and feral cats (*Felis catus*). On PTA, these species are considered a nuisance, and mitigation efforts, such as fences, trapping, and removal, are in place to conserve habitat and control their populations (U.S. Army Environmental Command, 2013). Domestic horses and cattle were once present at KMA, with cattle found as recently as 2010 at KMA, and have been re-implemented via an agriculture lease issued by the Army for grazing a 770-acre area in the KMA around the private Waikiʻi Ranch community. Although cattle and horses are not extensively ranched at PTA, the historic presence of these domestic mammals has affected the existing vegetation communities.

Birds

Based on survey and incidental sighting data there are 10 native bird species (nine of which are endemic and one is indigenous) and 26 non-native species present at PTA. Of the non-native species, 10 are game bird species (e.g., Erckel's Francolin [*Francolinus erckelli*]).

In 1977, the USFWS designated Palila Critical Habitat at PTA for the federally listed palila (*Loxioides bailleui*). A member of the Hawaiian honeycreeper family (*Drepanididae*), the palila was listed as endangered in 1967 (USFWS 1967). Two non-contiguous areas along the north-northeast border on the installation comprise the Palila Critical Habitat (see Figure 3-6). PTA Natural Resources staff annually surveys the Palila Critical Habitat for all avian species per requirements in the 2003 Biological Opinion (BO). The palila has not been seen at the installation since 1980.

Seabird surveys require specialized efforts because the birds are nocturnal and extremely hard to detect. PTA does not survey for ʻuaʻu (*Pterodroma sandwichensis*) in the Palila Critical Habitat. PTA received a No Effect determination for military training activity for the hawk (*Buteo solitarius*) (USFWS 2013 BO). (Note: The hawk was delisted in early 2020.) The Hawaiian ʻelepaio (*Chasiempis sandwichensis sandwichensis*) is now extirpated from PTA with the last birds seen in 2008. The band-rumped storm-petrel (*Oceanodroma castro*) was listed endangered in 2016. Its historical range includes the Island of Hawaiʻi (U.S. Fish and Wildlife Service, 2016). An active breeding colony has been confirmed on PTA lands near the installation's southeast boundary.

Federally listed wildlife species detected at PTA and protected by the ESA and/or the MBTA are provided in Table 3-2.

Table 3-2: Federally Listed Wildlife Species at PTA

Scientific Name	Hawaiian Name	Common Name	Federal Status	Notes
Listed Bird Species				
Branta sandvicensis	*nene*	Hawaiian goose	Threatened	USFWS downlisted nene from endangered to threatened on January 2, 2020
Pterodroma sandwichensis	*uaʻu*	Hawaiian petrel	Endangered	

Scientific Name	Hawaiian Name	Common Name	Federal Status	Notes
Oceanodroma castro	*ʻAkēʻakē*	Band-rumped storm petrel	Endangered	
**Loxioides bailleui*	*palila*		Endangered	palila has not been seen at the installation since 1980
**Hemignathus munroi*	*ʻakiapolaʻau*	Hawaiian honeycreeper	Endangered	*ʻakiapolaʻau* has not been seen on the installation since 1995
Listed Mammal Species				
Lasirus cinerus semotus	*ʻōpeʻapeʻa*	Hawaiian hoary bat	Endangered	
Neomonachus schauinslandi		Hawaiian monk seal	Endangered	
Listed Invertebrate Species				
Hylaeus anthracinus		yellow-faced bee	Endangered	listed as endangered by USFWS in 2016
Manduca blackburni		*Blackburn's sphinx moth*	Endangered	

**Due to the length of time since the last sighting at PTA, these species are no longer considered as occurring at PTA.*

3.3.2.1.2 Coastal Terrestrial Environment

The coastal terrestrial environment at Kawaihae Harbor consists of compacted coralline fill material that was generated by dredging to create the harbor. The harbor land area has been extensively filled, recontoured, and leveled using crushed coral (dredged material) on top of lagoonal deposits of sand and soft clay deposits, coralline debris, and weathered basalt (at greater depths) (AECOS, 2016).

Coastal Terrestrial Vegetation

In general, the climatic and physical environment in the vicinity of the Army's Kawaihae Harbor facilities is severe and hostile to plant growth. A 2016 botanical survey covered an adjacent area to the south of the Army's ship loading ramp extending from the western edge of the coral fill area (i.e., in line with the harbor breakwater) approximately 400 ft to the east (AECOS, 2016).

The survey site, which consists of crushed coral, is heavily used for parking for recreational uses in the area. Plant presence is very sparse within the survey area. Very few grass species are present, even in small cracks in the concrete. A few large power poles are located in the survey area with *Chloris barbata* growing at the base of these poles. Most of these plants were dried out at the time of the survey (AECOS, 2016).

Grass species were more prevalent outside the area of vehicular or foot traffic. A few grass species were dominant along the fence line of the Army's staging area and visibly abundant within the fenced area. Along the western shoreline of the survey area, some concrete pile fragments had been arranged to create a man-made protected planting area in which a native plants garden has been developed. Some of the plants in the area include *Sesbania tomentosa* or '*ohai* plants, a federally-listed endangered

endemic species. Several other plants grow within the tiny strip of strand but outside the garden area. *Sesuvium portulacastrum*, *Portulaca lutea*, and *Chenopodium murale* survive here in a few small clusters along with *Cynodon dactylon* (Bermuda grass) and *Tournefortia aregentea* or tree heliotrope (AECOS, 2016).

Coastal Terrestrial Wildlife

Earlier biological surveys of other areas of the harbor indicated that the following birds have been observed in the harbor fastlands (all are non-native unless noted): native Ruddy Turnstone (*Arenaria interpres*), California Plover, native Wandering Tattler (*Heteroscelus incanus*), Japanese White-eye (*Zosterops japonicus*), House Sparrow (*Passer domesticus*), native American Golden Plover (*PIuvialis dominica*)[4], Cardinal, House Finch (*Carpodacus mexicanus*), Warbling Silverbill (*Lonchura spp*.), Spotted Dove (*Streptopelia chinensis*), and Barred Dove (*Geopelia striata*) (Ahuimanu Productions, 1977 in DLNR, 1985). The *Environmental Assessment for Kawaihae Small Boat Harbor (South)* (Hawai'i Department of Transportation, 1994 in State of Hawai'i Department of Transportation, 2013) indicated the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) could transit the harbor, but this was not confirmed by other sources. Tall trees that would be desirable for use by bats are not present in the project area. Other mammalian species that are common in urbanized areas of the State include feral cats (*Felis cattus*) and rats (*Rattus spp.*), small Indian mongoose (*Herpetes auropunctatus*), which could be present on the coral flats area surrounding the project area.

3.3.2.2 Marine Environment

In 2015, marine biological surveys were conducted to inventory marine resources around the Army's ship loading ramp and the mooring dolphin closest to shore for the purpose of identifying sensitive biological resources in the area. The harbor bottom is a mix of coral rubble, silty sand, and coralline rock.

3.3.2.2.1 Marine Vegetation

The 2016 marine survey reported that crustose coralline algae species (*Hydrolithon* spp.) are common on the dolphin's supporting piles and submerged portions of the ship loading ramp. Other less common algae species include *Lobophora variegata* and *Padina* sp. on the dolphin piles and *Padina* sp. and cyanobacteria (*Lyngbya crosbyana*) on the ship loading ramp.

3.3.2.2.2 Marine Wildlife

The supralittoral zone of the piles of mooring dolphin host snails (*pipipi* or *Nerita picea, Littoraria pintado,* and *Echinolittorina hawaiiensis*), false limpet (*Siphonaria normalis*), Hawaiian mussel (*Brachidontes crebristriatus*), and purple rock barnacle (*Nesochthamalus intertextus*). Sponges (*Dysidea* cf. *avara*, *Iotrochota protea*, *Biemna fistulosa*), a bryozoan (*Amathia distans*), a hydroid (*Pennaria disticha*), worms (*Sabellastarte spectabilis,* and *Loimia medusa*), tunicates (*Ascidea sydneiensi*, *Phallusia nigra* and *Herdmania momus*), zoanthids (*Zoanthus* sp. and *Palythoa caesia*), and urchins (*Echinothrix diadema* and *Tripneustus gratilla*) are common organisms on the piles.

[4] Until 1993, the American Golden Plover and Pacific Golden Plover (*Pluvialis fulva*) were regarded as the same species.

Coral colonies are common on the upper portions of the piles. Many colonies display signs of bleaching, some colonies up to 100% bleached (AECOS, 2016). At least seven taxa was observed on the eight mooring piles of Dolphin No. 1, with *Leptastrea spp*., *Montipora capitata*, *Pocillopora meandrina*, and *Porites lobata* having the most numerous colonies. At least 5 taxa was observed on the seafloor in an approximate 30-foot radius of Dolphin No. 1: *Leptastrea spp*., *M. capitata*, *M. patula*, *Poc. meandrina*, and *P. lobate*, with *M. capitate* the most numerous. Bleaching was seen on almost all coral taxa (AECOS, 2016).

A total of 13 fish taxa was observed around Dolphin No. 1. Commonly seen species include: *manini* (*Acanthurus triostegus*), brown tang (*A. nigrofuscus*), common longnose butterflyfish (*Forcipiger flavissimus*), moorish idol (*Zanclus cornutus*), blackspot sergeant (*Abudefduf sordidus*), Hawaiian dascyllus (*Dascyllus albisella*), wrasses (*Thalassoma duperrey*, *Gomphosus varius* and *Stethojulis balteata*), and goatfishes (*Parupeneus multifasciatus* and *Mulloidichthys flavolineatus*) (AECOS, 2016).

The face of the ship loading ramp hosts very little biota: a few crabs (*Grapsus tenuicrustatus*) were seen. Commonly observed species in the littoral zone of the loading ramp include thin shelled rock crab (*Grapsus tenuicrustatus*), black purse shell (*Isognomon californicum*), dotted periwinkle (*Littoraria pintado*), and false limpet or *ʻopihi ʻawa* (*S. normalis*). A total of 9 fish taxa was observed around the ship loading ramp. Fishes were in low numbers except for the mullet (*Mugil cephalus*), which were seen schooling in the shallow waters. Other fishes observed include: *manini* (*A. triostegus*), brown tang (*A. nigrofuscus*), unicornfish (*Naso* sp.), common longnose butterflyfish (*F. flavissimus*), moorish idol (*Z. cornutus*), Hawaiian dascyllus (*D. albisella*), and wrasses (*T. duperrey* and *S. balteata*).

The coral assemblage associated with the ship loading ramp consists of many encrusting *Porites* sp., *Leptastrea* spp., and mounding *Montipora* spp. At least eight different taxa were observed: *Cyphastrea* sp., *Leptastrea* spp., *M. capitata*, *M. patula*, *Pavona varians, Poc. meandrina, P. lobata, and Psammacora haineana),* with *P. lobate* and *M. capitate* the most common. Bleaching was observed on almost all coral taxa.

At Kawaihae Harbor, coastal and marine ecosystems and resources are present and provide habitat for federally-listed marine reptiles such as the threatened Green sea turtle (*Chelonia mydas*) and endangered Hawksbill sea turtle (*Eretmochelys imbricata*).

The Hawaiian monk seal (*Neomonachus schauinslandi*) is the only native marine mammal whose historical range and marine and upland habitat are present at Kawaihae Harbor. The NMFS designated critical habitat for the Hawaiian monk seal without excluding any for the Hawaiian Islands, which also included harbors (50 CFR Part 226, printed in Federal Register Volume 80, No. 162, August 21, 2015).

3.3.3 Environmental Consequences

The analysis of environmental consequences for this RMPA EA focuses primarily on biological resources across the terrestrial landscape, with added emphasis on impacts to protected vegetation and wildlife (i.e., TES plants and animals), and their habitat given the status and protection afforded to protected species under federal, state, or other laws and regulation. Impacts to other species, including native, invasive, game, etc. and their habitat are also evaluated, including marine biological resources at

Kawaihae Harbor. (Note: Abiotic features, such as water resources and soil, that are relevant to the biological resources' survival and environment, are evaluated under separate resource area sections.) The threshold for significant impacts to biological resources involves the extent to which the alternative would reasonably foreseeably result in unmitigated adverse effects on federally protected species or designated critical habitat.

3.3.3.1 Proposed Action

This section presents a general discussion of the potential impacts to biological resources associated with adoption of the RPMP. It also assesses potential impacts of RPMP implementation at a programmatic level. Additional NEPA and ESA or other federal, state, or other regulatory compliance reviews would be required prior to the implementation of the proposed RPMP projects not included in this PEA, including short-range or long-range projects.

The adoption of the RPMP would be an administrative action that would not result in the direct or indirect physical alteration of the existing terrestrial, coastal, or marine biological environment within the ROI (including adverse effects on federally protected species or designated critical habitat), and thus would have no impact on these resources.

When future RPMP projects are proposed for implementation, each will be evaluated based on its specific project details. It should be noted that the RPMP was developed in conjunction with the 2010 PTA INRMP (recently succeeded by the 2020 PTA INRMP) and the PTA natural resources overlay. The INRMP provides a limited inventory of the natural resources at PTA, and details special considerations (i.e., species status and conservation requirements) and management activities that need to be taken into account or applied, respectively. The natural resources overlay is a partial compilation of natural resources assets inventoried primarily within the terrestrial environment, with particular focus on protected plants, critical habitat, and other designated natural resources sensitive areas at PTA. Together, these two sources of information were used to assess the presence of natural resources and their potential to impact proposed projects. The RPMP natural resources overlay provides a useful tool to help communicate potential environmental constraints to personnel training at PTA, facility managers, and planners to avoid and minimize impacts to protected resources, such as TES and critical habitat, and impacts to other natural resources.

The specific details of most RPMP projects, which would be required to determine whether consultation or permit(s) are needed, are not yet available. After details are developed, compliance with Section 7 ESA or other regulatory requirements (i.e., acquiring MBTA or other permits) will be completed prior to implementing any project.

The vast majority of the short- and long-range projects proposed in the RPMP are located in the terrestrial environment, in the Cantonment vicinity, which does not overlap with assets detailed in the natural resources overlay. These proposed projects could result in varying degrees of beneficial and adverse, direct and indirect, and temporary and permanent impacts to biological resources and habitat depending on the project design and types of activities associated with construction, and the follow on operational and maintenance activities and requirements. BMPs should be implemented to avoid and

minimize the potential impacts from construction, operations, and maintenance activities (see Section 2.4).

During the operational period, the projects proposed in the RPMP would not substantially change the type, intensity, or capacity of training at PTA. Potential operational impacts to biological resources would continue to be managed and mitigated in accordance with the INRMP and other required compliance documents (i.e., Endangered Species Act consultations, permits, etc.).

In summary, the because it is unlikely to result in unmitigated adverse effects on federally protected species or critical habitat, the implementation of RPMP projects is likely to result in less than significant impacts to biological resources.

Additional Avoidance and Minimization Measures

Impacts from the future construction of RPMP projects to biological resources are anticipated to be less than significant through the implementation of environmental protection measures, to include avoidance, BMPs, and SOPs.

The Army will use a natural resource planning process and the INRMPs to consider potential sites for the construction of the RPMP projects on PTA, and the installation's Natural Resources Manager would assist in guiding construction, operation, and maintenance decisions.

Based on known information and guidance received during past consultations, the specific measures will be taken into consideration and may be implemented. The potential effects and avoidance and minimization measures for listed species is summarized below.

Hawaiian goose: PTA is located within the historic natural range of the endangered Hawaiian goose, which has the potential to land and occupy natural undeveloped and developed areas within and in the vicinity of the project area during the summer flocking season (April-September), resting and loafing while in the area. Potential effects to Hawaiian geese include disturbance and exposure to elevated noise levels associated with construction and strikes from vehicles resulting from increased traffic. Because only small areas will be affected by construction activity at any one time and for limited duration, and because geese are infrequent visitors to the project area, and because the project area lacks features attractive to geese (e.g., lawns and standing water), and because of enforcement of a low speed limit, the impact to Hawaiian geese is expected to be discountable. Minimization measures for Hawaiian geese include:

- Construction personnel remain aware of the potential for geese presence and be vigilant in looking for them during construction period.
- All Hawaiian goose sightings during project period to be reported to PTA Natural Resources
- If geese are present during construction, construction personnel shall stop work and contact PTA Natural Resources for assistance.
- All speed limits to be followed and enforced.

Hawaiian hoary bat: Bats roost in trees during the day, but the relative lack of roosting habitat in the cantonment makes their presence during the day unlikely. Foraging bats may be drawn to artificial light,

in particular bright, unshielded, cool lights (more blue than yellow) through the attraction of insects. This puts them at risk of colliding with construction equipment. Depending on the frequency and duration, bats may also be affected by elevated noise from construction activities at night, which could interfere with their echolocation. Minimization measures include:

- Avoid trimming and removal of trees over 15 feet tall during bat pupping season (June 1 through September 15).
- Conduct construction activities during daytime if possible; if construction activities must occur during nighttime hours, comply with BMPs for lighting.
- Report any observations of downed bats to PTA Natural Resources.
- Incorporate Unified Facilities Criteria (UFC) for Interior and Exterior Lighting System standards for exterior lighting including using monochromatic amber LEDs and shielding.
- Carefully consider security fencing requirements; avoid installation of barbed wire if at all possible.

Seabirds: Hawaiian petrel and band-rumped storm petrel density in the saddle region flyway is estimated to be very low (Cooper et al., 1996) with few petrels expected to transit near the Cantonment at night. Hawaiian petrels and band-rumped storm petrels nest in underground burrows, cracks and crevices in lava fields on Hawai'i Island. Although there are no recorded burrows in the Cantonment, a band-rumped storm petrel colony has been documented in lava fields in the southeastern part of PTA.

In order to protect these seabird species, nighttime construction activities should be avoided as artificial light sources are known to be hazardous to petrels by disrupting navigation (Simon and Hodges 1988). If nighttime construction activities cannot be avoided, BMPs for lighting will be implemented (see Section 2.4.3). While permanent lighting will be installed on replacement buildings, the overall lighting levels in the project area are not expected to change. Under the existing lighting design and levels, seabird fallout has not been documented in the ROI. Light management is essential for many aspects of military training and lighting standards exist for the DoD. The UFC for Interior and Exterior Lighting Systems and Control standards (DoD, 2019) include establishing interior zone levels compatible with the area's land use (e.g. low ambient lighting for personnel support districts) and installing shielding for exterior lights. In addition, the Army will meet the requirements to maintain dark skies as described in the County of Hawai'i lighting ordinance (Hawai'i County, 1983). In addition, any observations of downed petrels shall be reported to the PTA Natural Resources and may require a temporary work stoppage until notification and required consultation are completed. Minimization measures include:

- Schedule construction activities during daylight hours, avoiding use of lights.
- Report downed seabirds to the PTA Natural Resources as part of the required briefings provided to all military personnel training at PTA.
- Incorporate UFC for Interior and Exterior Lighting Systems standards when replacing outside lights, including using monochromatic amber LEDs and shielding.

Yellow-faced bees (*Hylacus anthracinus*): This species was listed for protection under the ESA in 2016. There was a single record of *H. anthracinus* on PTA property in 2004; however, additional surveys for

this taxon have been undertaken and no bees have been observed. USFWS encourages the Army to continue surveying its property for this species, and to contact USFWS if the bee or its host plants become established in the Cantonment.

Compliance with Migratory Bird Treaty Act

To comply with the MBTA, pre-construction surveys shall be conducted for all buildings slated for demolition or renovation for MBTA birds. If nesting birds, eggs, or chicks are found, a MBTA depredation permit must be acquired for the project (50 CFR 21). If an empty nest is discovered, it may be removed and destroyed to dissuade nesting (2016 email to Pamela Sullivan, USAG-PTA Natural Resources Section from Jenny Hoskins, USFWS). Removal and disposal of any bird nest will be coordinated with the PTA Natural Resources.

3.3.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects could still be expected to occur, but on an as needed basis. Development would potentially be done in an ad hoc manner without planned phasing and taking into account the potential cumulative adverse effects to natural resources, particularly protected TES and habitat. Each RPMP project would be evaluated separately on a project-specific basis under NEPA and ESA Section 7 and other applicable natural resources requirements, which may make it more difficult to accurately account for the cumulative impacts of the suite of RPMP projects. BMPs and avoidance and minimization measures described in Section 2.4—along with any project-specific BMPs and mitigation measures identified during specific project environmental evaluation—would be implemented, as required. Therefore, because the No-Action Alternative is unlikely to result in unmitigated adverse effects on federally protected species or designated critical habitat, it is expected to result in less than significant impacts to biological resources.

3.4 Socioeconomics

This section discusses population demographics, employment characteristics, schools, housing occupancy status, economic activity, tax revenue and related data providing key insights into the socioeconomic conditions that might be affected by a proposed action. The ROI for socioeconomics is the County of Hawai‘i, in which PTA (including its facilities at Kawaihae Harbor) is located.

3.4.1 Regulatory Setting

Population data have been collected from previously published documents issued by federal, state, and local agencies and from state and national databases. Some population data were released by the Population Estimates Program of the U.S. Census Bureau and are considered the official estimates of population and housing between decennial censuses.

3.4.2 Affected Environment

3.4.2.1 Population

Hawai'i County (in which PTA—including its Kawaihae Harbor facilities—is located) had an estimated resident population of 200,983 in 2018, which represented 14.1 percent of the total state population of 1,420,491 (U.S. Census Bureau, 2019). Hawai'i County is the most populous of the "neighbor island" counties (i.e., other than O'ahu), with an increasing share of the state's total population over time. Hawai'i County's population has been growing faster than the State of Hawai'i, with a 61 percent growth from 1990 to 2015, compared to State population growth of about 28 percent during the same period (John M. Knox & Associates, Inc., 2020). By comparison, O'ahu's population grew by only 18 percent from 1990 to 2015—less than one-third of Hawai'i County's rate of growth. Population forecasts developed for Hawai'i County by the State of Hawai'i's Department of Business, Economic Development and Tourism project a pattern of annual population growth *rates* declining from 1.3 percent in 2020 to 0.9 percent by 2045 (Ibid.), with the total resident population increasing from 209,000 in 2020 to about 273,200 in 2045. This is consistent with overall falling growth rates of the State and other counties during the same timeframe; however, Hawai'i County is projected to experience the highest population growth rate of all the counties.

The County of Hawai'i's largest ethnic groups, based on self-description in the 2013-2017 American Community Survey, were Caucasians (a bit more than one-third) and all or part-Hawaiians (a little more than 30% combined) (see Table 3-3). The other two Neighbor Island counties of Maui and Kauai had similar percentages of Caucasians as did Hawai'i County, but Hawai'i County had the highest percentage of Native Hawaiians (alone or in combination – i.e., combined) of all counties in the state. Hawai'i County's 30% Native Hawaiian figure compares to just 19% for O'ahu, 23% for Maui County and 22% for Kauai County (Ibid.).

Table 3-3: Census Race Categories, State vs. Hawai'i County (2013-2017)

Action	County of Hawai'i		Rest of State	
	Total	% of Total	Total	% of Total
White Alone	66,492	33.9	290,816	23.7
Filipino Alone	17,827	9.1	193,362	15.8
Japanese Alone	18,077	9.2	160,367	13.1
Native Hawaiian Alone	19,549	10.0	69,420	5.7
Native Hawaiian in Combination with Other Race	40,241	20.5	175,133	14.3
Other Race Alone	18,139	9.2	229,111	18.7
Two or More Races (other than Native Hawaiian)	16,000	8.1	107,124	8.7
TOTAL	**196,325**	**100.00**	**1,225,333**	**100.00**

Source: U.S. Census Bureau, American Community Survey 2013-17 Five-Year Dataset (averaged results of five survey years to provide greater precision), extracted by the Hawai'i State DBEDT, Hawai'i State Data Center, http://census.hawaii.gov/acs/acs-2017/, in John M. Knox & Associates, 2020.

American Community Survey (ACS) 2013-2017 data also indicate that Hawai'i County had the highest median age of the four major counties (along with Kaua'i) at 42.1 years. It had similar rates as Maui or

Kaua‘i County of residents over 25 years old who hold bachelor’s degrees or higher, while Honolulu County’s population was younger and more educated (Ibid.).

3.4.2.2 Economic Characteristics

At the time of statehood of 1959, all four of Hawai‘i’s major counties had economies heavily dependent on plantation agriculture (sugar and pineapple). Although a diversified agricultural component still remains in each county’s economy, plantation agriculture has essentially disappeared and the state’s economy now principally depends on tourism (which sometimes merges with the real estate sector through resort-residential development and increasing numbers of vacation rentals), construction, and on O‘ahu, but much less so on Neighbor Islands, military activities. The nature of economic activity in Hawai‘i County varies greatly between West Hawai‘i (heavily dependent on major resort activities) and the East Hawai‘i economy that has struggled since the 1990s closures of former plantation agriculture (now dependent on a mix of small-scale tourism, retail, government, the University of Hawai‘i at Hilo, and base camp activities for most Mauna Kea observatories) (Ibid.).

All four State of Hawai‘i counties have long experienced high costs of living – particularly for energy and housing, though Hawai‘i County has generally had somewhat lower housing costs than the other counties. However, Hawai‘i County also suffers the state’s lowest incomes and highest poverty rates by a variety of measures (Ibid.).

3.4.2.3 Economic Activity and Tax Revenue

Hawai‘i County’s basic economic drivers of tourism, construction, retail, and real estate have all been faring reasonably well in recent times, but the short-term outlook has been clouded by uncertainties over financial problems at the Hilo Medical Center and by an ongoing controversy over construction of the proposed large Thirty-Meter Telescope (TMT) atop Mauna Kea (i.e., regional employment nodes). The TMT has been particularly opposed by Native Hawaiian sovereignty activists, but also by their supporters, throughout the island and state (Ibid.).

According to 2013-17 ACS Census data[5], Hawai‘i County had the lowest Civilian Labor Force participation rate of the four major counties (58% vs. 61% to 67% in other counties). The Hawai‘i County workforce tends to differ from that of other counties in that it has higher proportions of workers in agriculture, retail, and professional/scientific industries, but smaller proportions in the combined “Finance and insurance, and real estate and rental and leasing” category. The Hawai‘i County workforce also consists of relatively fewer wage and salaried workers compared to the other counties, but there are more people who are self-employed in their own not-incorporated businesses. Hawai‘i County has also historically had a higher unemployment rate than the rest of the state (Ibid.).

A 2016 study on military economic outcomes, Hawai‘i Economic Impact Study (Jack Faucett Associates, 2016) found that the Defense industry provides more than 97,000 jobs with household incomes totaling $8.7 billion in Hawai‘i annually, and that this represents around “16.5 percent of the state’s total

[5] U.S. Census Bureau, American Community Survey 2013-17 Five-Year Dataset (averaged results of five survey years to provide greater precision), extracted by DBEDT, Hawai‘i State Data Center, http://census.hawaii.gov/acs/acs-2017/ in John M. Knox & Associates, Inc., 2020.

workforce, making it the largest industry-related workforce in Hawai'i" (Jack Faucett Associates, 2016, in John M. Knox & Associates, Inc., 2020). For Army-specific economic impacts, the Faucett report finds that the Army represents between 6.7 and 8.5 percent of the State's economy, and states that the Army makes a significant positive contribution to the State with procurement contracts exceeding $828.1 million (in fiscal year [FY] 2014) (Jack Faucett Associates, 2016, in John M. Knox & Associates, Inc., 2020).

For the County of Hawai'i, the 2016 economic impact study found the Army represents between 0.9 and 2.7 percent of its economy (Jack Faucett Associates, 2016). The 2016 report also found that Army expenditures support 1,962 jobs in Hawai'i County, compared with 66,391 in Honolulu County. Army expenditures account for $4.4 billion in labor income for the State of Hawai'i, about $4 billion of which is in Honolulu County and $91.8 million is in Hawai'i County. For value added, a measure of Gross State Product, Army expenditures account for about $5.4 billion for the State of Hawai'i, $4.8 billion in Honolulu County and $109.4 million in Hawai'i County (Jack Faucett Associates, 2016, p. 64, in John M. Knox & Associates, Inc., 2020). Much of the Army's Hawai'i County economic benefit is likely to come from PTA, although specific information on PTA's current economic contribution to the statewide or county economies (i.e., expenditures for goods and services or payroll for employees or contractors[6]) is limited.

PTA is recognized as an important training area for military forces in the Pacific and offers the largest live-fire training area on U.S. soil in the Pacific region (U.S. Army Garrison Hawaii, 2020). It serves a significant role in the training and readiness of joint forces. Therefore, from an economic perspective, the PTA range is a vital part of the U.S. Army in the Pacific. In FY19, PTA employed about 129 permanent party personnel (of 156 authorized positions) and approximately 45 contractors to manage the installation. These personnel are residents of Hawai'i County and commute to PTA on a regular basis. Aside from the PTA fire station bunkroom, there are no overnight accommodations for these staff.

The 2016 Jack Faucett Associates economic study reported that Army related expenditures in the State are estimated to "produce over $174 million in social insurance payments, over $28 million in tax receipts on production and imports, and almost $140 million in income taxes paid by households and corporations" (Jack Faucett Associates, 2016, in John M. Knox & Associates, Inc., 2020).

3.4.2.4 Social Context

Social issues that may potentially be associated with the Proposed Action involve the following general areas, and are discussed below:

- Native Hawaiian sovereignty and environmental activism
- Hunting access
- Commuter traffic

[6] Examples of such additional expenditures related to PTA include food supplies from on-island suppliers, fuel support facilities at Kawaihae Harbor from a local contractor, a local rock quarry contractor, occasional equipment rental from local suppliers, potable water trucked in by local contractors, and troops carried to/from the island by commercial airlines (thus supporting on-island jobs both on the airlines and at airports). USAG-Pōhakuloa also has an active program to promote local (Hawai'i Island) businesses, including USACE workshops on how to obtain contracts.

3.4.2.4.1 Native Hawaiian Rights and Environmental Advocacy

PTA is at the intersection of a number of overlapping issues for some members of the Native Hawaiian community—(a) military presence as a symbol of "occupation" following loss of Hawaiian sovereignty in the late 19th century; (b) more recent specific U.S. military activities involving previous damage to the ʻāina (land or ecosystem supporting life) through bombing or artillery practice, as well as other forms of perceived abuse of stewardship responsibilities; (c) a growing unease with the leasing of State lands in general, and especially when it involves former Crown lands; and (d) PTA's proximity to Mauna Kea, site of widely publicized protests by kiaʻi, or "protectors" of the mountain, over the addition of another large telescope to what some consider a sacred mountaintop area that has been overdeveloped.

All of these concerns implicitly involve loss of traditional ways of life and loss of self-determination, as well as perceived Native Hawaiian failure to thrive under an American economic and political system that is both protected and represented by the military in Hawaiʻi. A perceived sense of disrespect by the military and/or Western institutions for land as well as for indigenous people comprises another theme.

The aforementioned Native Hawaiian issues and controversies have achieved very high profiles in Hawaiʻi since the start of the kiaʻi movement and have eroded earlier support for the TMT issue in particular. A published statewide random-sample poll (N=613) in October 2015 and one Hawaiʻi Island poll (N=404) in July 2016, both commissioned by The TMT Observatory Corp (Hurley, 2016) indicated similar results: 62% in favor and 29% opposed statewide, and 60% for and 31% against for Hawaiʻi Island. Both surveys contained smaller Native Hawaiian sub-samples (exact Ns not reported) showing different and much more evenly divided attitudes—44% in favor and 49% opposed statewide, and 46% for and 45% against for Hawaiʻi Island. In March 2018, a report was issued by the Envision Maunakea working group in attempts to qualitatively capture Hawaiʻi Island resident sentiment towards TMT (Envision Maunakea, 2018). The report highlighted a variety of opinions but did not attempt any summary statements or conclusions. As recently as August 2019, a Civil Beat poll of State of Hawaiʻi registered voters showed a solid majority (64%) supported the project. However, a September 2019 Honolulu Star Advertiser poll of registered voters indicated that 50 percent of those polled statewide supported TMT construction at Mauna Kea, with 36 percent opposed—indicating a sharp decline from the earlier majority. Among Native Hawaiians, the September 2019 poll indicated nearly two-thirds opposed the TMT construction (63 percent) and with over one-quarter (27 percent) in favor.

No recent public opinion survey has specifically addressed activities at PTA. However, a September 2013 statewide survey of registered voters (N=700) included a few questions about military presence and military training throughout Hawaiʻi. The survey was commissioned by the Chamber of Commerce Hawaiʻi, Hawaiʻi Business Roundtable, and The Pacific Resource Partnership[7]. The survey report contained no data for Native Hawaiian sub-samples. However, among all respondents, it showed generally strong support for military presence and military training, as follows (John M. Knox & Associates, Inc., 2020).

[7] The "Hawaiʻi Perspectives" Survey (2013). Contracted by Pacific Resources Partnership, Hawaiʻi Business Roundtable, and the Chamber of Commerce Hawaiʻi, in John M. Knox & Associates, 2020. http://2w57np2winy89onj5k3rbd14.wpengine.netdna-cdn.com/wp-content/uploads/2015/02/Hawaii-Perspectives-Fall-2013-Report-020915v2.pdf.

- A total 73% of respondents rated the U.S. Military as "very important" to the state's economy and jobs, with 19% reporting it as "somewhat important" and only 5% as "not important."
- Most relevant to the Proposed Action, when asked about "U.S. Military training activities here in Hawai'i and in the coastal waters," 77% supported training (49% "strongly" and 28% "somewhat"), with just 17% opposed to any extent.

3.4.2.4.2 Hunting Access

As noted in Section 3.1 Land Use Compatibility and Section 3.2 Cultural Resources, hunting has taken place throughout the historic era at PTA and on surrounding areas and continues today. Year-round recreational (public) hunting for feral pigs, wild sheep and feral goats is possible in six "hunting units" at PTA with proper entry permit, subject to military training schedule and weather conditions. The State DLNR-DOFAW allows limited recreational hunting on public lands surrounding PTA.

3.4.2.4.3 Commuter Traffic

The island's highways are generally only two lanes wide, and slow-moving traffic such as military convoys for troops and equipment can be an annoyance for those affected. The great majority of convoy transport currently occurs between PTA and Kawaihae Harbor. Some transport of troops also occurs to and from PTA and the Keaukaha Military Reservation (KMR) in Hilo. Transport also occasionally occurs to/from the Kona airport. Traffic announcements (media releases) for convoys traveling to and from military training areas at PTA and Hilo, from Kawaihae Harbor have been (and will continue to be) posted on the USAG-P website to alert Island residents of potential delays. Since 2012, media releases to the public about convoy transport have varied from 11 to 25 per year to and from Kawaihae Harbor and PTA. Hilo transports per year range from about six to nine news releases per year.

3.4.3 Environmental Consequences

Analysis of impacts to socioeconomics is focused on the effects of the alternatives on population, income, economic activity, tax revenue, housing, Native Hawaiian rights and environmental advocacy, hunting access, and commuter traffic. The threshold for significant socioeconomics impacts includes the degree to which the alternative would result in permanent, unmitigated adverse effects to (1) population, employment, income, tax revenue in the ROI; (2) adversely alter the existing social context (including Native Hawaiian sovereignty and environmental advocacy, hunting access, and commuter traffic); and (3) disproportionate human health or environmental effects on minority and low-income populations.

3.4.3.1 Proposed Action

This section presents a general discussion of the potential effects on socioeconomic factors associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

As discussed below, the Proposed Action would have no impacts on population, economic activity (including employment and earnings) and State tax revenues in the ROI, as the action would not involve construction or change capacity, tempo, or activities at PTA. The Proposed Action would not change the current state of Native Hawaiians rights or environmental advocacy, and would have no effects on

hunting access and commuter traffic—and thus is likely to have less than significant impacts on existing social conditions. However, due to continuing criticisms and objections of these communities regarding military activities and land stewardship, along with PTA's proximity to the access road for the culturally-significant Mauna Kea, the Proposed Action may be perceived as presenting adverse social impacts due to PTA's continued training activities and land uses.

3.4.3.1.1 Population

Because it would be an administrative act that would not involve new development, physical alteration of facilities or land, or changes to existing operations, the adoption of the RPMP would have no impact on population because it would not increase temporary or permanent residential population in the ROI.

If and when implementation of RPMP projects occurs, there are likely to be minor increases in employment related to their construction. It is difficult to predict how many construction workers would come from Hawai'i Island. Many larger construction contracts are awarded to O'ahu companies, but these may either bring Honolulu employees to the site or hire Hawai'i Island workers, and/or they may use specialty subcontractors from Hilo or Kona. In addition, design and administrative professionals associated with construction often live on O'ahu, but in some circumstances may be Hawai'i Island residents. It should be noted that construction activities require different trades and skill sets at different times, which involve sequential employment of those personnel. Therefore, the total project-related workers on-island at any one time would be less than the estimated jobs per year from off-island sources. There would likely be very few construction workers from out of state who would temporarily reside on Hawai'i Island during construction, although occasional spikes may occur if large RPMP projects are implemented when construction activity is strong elsewhere in the county. These temporary changes in Hawai'i Island's employment would not constitute a permanent adverse effect on population in the ROI because they would be short-term and represent a small percentage of the island's population.

During the operational period, future implementation of RPMP projects would not change the tempo or use of PTA or the Army's facilities at Kawaihae Harbor. No new housing or employment is expected to directly or indirectly result from implementation of specific RPMP projects, and thus, it is not anticipated to affect population of the state, county, or PTA

3.4.3.1.2 Economic Characteristics

Adoption of the RPMP is likely to have no impact on economic characteristics of the State or County after RPMP adoption because no new construction, alteration of existing facilities, or changes to operations would occur.

If and when specific RPMP projects are implemented, there would be short-term increases in construction jobs and expenditures that would be temporary and relatively minor in the context of the State and County economies and the lengthy implementation period (i.e., 10 years or more). Because implementation of RPMP projects would not affect ongoing or future activities at PTA (including at Kawaihae Harbor) and would not induce future population growth or housing demand, there would be no impacts to economic characteristics during the operational period—including the cost of energy and housing.

3.4.3.1.3 Economic Activity and Tax Revenue

Adoption of the RPMP would not affect the economic output of the State or County (i.e., have no impact on economic activity) because it would not involve any new development, construction, or economic inputs to the State and County economies.

If and when it occurs, implementation of individual RPMP projects would result in less than significant construction period economic impacts due to DoD investments in modernizing and updating aging buildings and infrastructure. While an economic analysis was not conducted for the full suite of RPMP projects because of lack of details on the projects, quantitative economic analysis was conducted for a subset of RPMP short-range projects (where preliminary cost estimates were available) that resulted in calculations of *direct* and *total*[8] economic outputs.[9] Because the Proposed Action represents improvements to modernize and update aging buildings and infrastructure (i.e., not expanding operational period capacity), the major focus of the quantitative analysis involved construction expenditures. Benefits from these expenditures are assumed to flow roughly equally into the economics of Hawai'i County and O'ahu, as many prime contractors would be from Honolulu. As an indicator of the lower range of economic effects of RPMP short-range project implementation (i.e., only FIP and four selected short-range projects), the input-output analyses estimated resulting statewide economic output of approximately $392 million over a 10-year implementation period—or an average of $39.2 million per year (in 2019 dollars) (John M. Knox & Associates, Inc., 2020). Total output is estimated at approximately $817 million over a 10-year implementation period, or $82 million per year.

Based on the modeled outputs, direct household earnings were calculated at approximately $148 million over the 10-year period. Implementation of a subset of RPMP short-range projects are estimated to result in nearly 2,000 direct job-years (i.e., number of jobs times their duration in years) statewide over the 10-year timeframe. State tax revenues resulting from the direct output of implementation of a subset of RPMP short-range projects are estimated at $24 million over the construction period—or an average of $2.4 million annually for 10 years. In the State of Hawai'i, county tax revenues consist principally of real property taxes. While construction of hotels and resort housing leads to significant county tax benefits, standard housing and infrastructure construction does not. As a federal government entity, PTA does not pay real property tax and the only county tax impacts would involve continued real property payments by the owners of construction worker housing.

When including its "ripple" effects (i.e., indirect and induced effects), *total* economic output of implementation of a subset of RPMP short-range projects is calculated at about $817 million over 10

[8] "Direct" results stem from the initial round of expenditures—in this case, construction expenditures or spending by new visitors. "Total" impacts include the results of multiplier or "ripple" effects of spending, also referred to as "indirect and induced" effects. These occur as dollars circulate or "ripple" through the economy in two different ways—from businesses buying from other businesses ("indirect") and from employees spending their wages/salaries ("induced") in the local economy (John M. Knox & Associates, Inc., 2020).

[9] The scenario analyzed the economic impacts of implementing the Cantonment FIP (i.e., modernization of the base camp) and four selected short-range projects. The four selected short-range projects (BAAF Pavement Repairs and Improvements, Equipment Canopy, Communications Upgrade, and AHA delicensing) were assumed to be implemented within 10 years. Information was available for these projects to generate planning-level costs adequate to use in the economic analysis; however, their implementation was ultimately not included in this PEA's Proposed Action.

years, with total household earnings reaching over $260 million over the same period. Including ripple effects, the Proposed Action is estimated to result in approximately 4,300 job years (including both full- and part-time jobs) over the 10-year implementation. State tax revenues from total output are estimated at about $49 million or $4.9 million annually over the construction period.

During the operational period of implementation of specific RPMP projects, there may be minor economic impacts due to changes in annual operational spending; however, these cannot currently be estimated with any precision due to lack of data. However, because the future implementation of the RPMP is intended to modernize existing facilities and infrastructure and not increase capacity or frequency of training activities, it is likely to have little to no operational period impacts to economic activity, household earnings, employment, and State tax revenue. Any operational period impacts to economic activity that may occur would generally be beneficial, as expenditures would result in direct and ripple outputs in the state and local economies.

3.4.3.1.4 Social Context

Adoption of the RPMP would not significantly impact the social issues or conditions described in Section 3.4.2.4 (i.e., Native Hawaiian sovereignty and environmental advocacy, hunting access, commuter traffic conditions) because there would be no change to existing conditions from this administrative action. Impacts on area vehicle traffic conditions are discussed in Section 3.5.2 and summarized here. Likely construction and operational period impacts of the implementation of RPMP projects are described in each subsection.

Native Hawaiian Rights and Environmental Advocacy. Adoption of the RPMP would not change existing conditions regarding Native Hawaiian rights locally on Hawai'i Island or throughout the state and is expected to have less than significant impacts because it would not alter the current context in which these social issues exist, as no changes to land use or activities at PTA would result.

Future implementation of specific RPMP projects has the potential for short-term, insignificant construction period air quality, noise, and water quality impacts; however, employment of BMPs and compliance with applicable environmental regulations, guidelines, and stewardship commitments would avoid or minimize these impacts. In the long-term, implementation of specific RPMP projects is not expected to have significant impacts on the environment compared to without-project conditions because it would not affect the tempo or capacity of training at PTA or expand areas for live-fire training.

Although future implementation of RPMP projects would not alter the context in which Native Hawaiian rights and environmental advocacy exist and are being debated, it may be perceived as causing adverse social impacts by a segment of the Native Hawaiian community along with other Hawai'i residents and interested parties. These concerns and interpretations could result in further controversy regarding real and perceived negative interactions with the U.S. military. These perceptions and concerns will be appropriately addressed by the Army throughout RPMP implementation activities to ensure that sensitivities are respected, and social impacts are avoided or minimized to the extent practicable, while maintaining PTA's mission requirements.

Hunting Access. The Proposed Action would have no impact on existing hunting practices as there would be no changes to hunting unit access or procedures at PTA resulting from the adoption of the RPMP.

If and when specific RPMP projects are implemented, there may be occasions during the construction periods that construction related activities could temporarily affect access to the hunting units at PTA. Because the individual projects would be constructed over several years, it is unlikely that access restrictions would occur at the same time. During the operational period, access to public recreational hunting would not be affected by RPMP project implementation because it is not intended to result in changes to the scope or frequency of training at PTA. Therefore, implementation of RPMP projects is unlikely to impact hunting access.

Commuter Traffic. Adoption of the RPMP would be an administrative action that would not involve activities affecting public roadways leading to PTA or Kawaihae Harbor. No changes in frequency or type of vehicle movements on public roadways would result from the RPMP adoption (i.e., would have no impacts to commuter traffic).

If and when specific RPMP projects are implemented, construction related vehicle traffic would use public roadways to and from PTA and Kawaihae Harbor. However, because the construction period would be phased over several years and trips distributed over multiple roadways (i.e., from east and west), associated vehicles and equipment are expected to have less than significant impacts on traffic. During the operational period of RPMP project implementation, the majority of convoys that transport vehicles, equipment, and materials would continue to occur between PTA and Kawaihae Harbor, with some troop transport between PTA and Keaukaha Military Reservation in Hilo. These movements are not expected to significantly increase or change due to RPMP implementation because the RPMP is intended to modernize facilities and infrastructure and not increase capacity or frequency of training activities. Traffic announcements (media releases) for convoys traveling to and from PTA are regularly posted on the U.S. Army Garrison Pōhakuloa (USAG-Pōhakuloa) website to alert Island residents of potential delays. These announcements would continue with implementation of the RPMP and no changes to the frequency, timing, or duration of the convoys are expected under the Proposed Action. Therefore, less than significant impacts to commuter traffic are expected during the operational period of future RPMP implementation.

3.4.3.1.5 Environmental Justice

The U.S. Environmental Protection Agency (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 (https://www.epa.gov/environmentaljustice). Consistent with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994), this section identifies and addresses any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations that may result from the Proposed Action.

The adoption of the RPMP would have no impacts on minority or low income populations because there would be no new environmental hazards introduced by this administrative action.

If and when specific RPMP projects are implemented, construction period activities would occur within Army-controlled areas and adhere to applicable federal and state safety and environmental controls and regulations. No new environmental hazards to minority or low income populations would be introduced. Following construction, the type and nature of operations associated with the implementation of RPMP projects would not substantively change existing land or water use or the type, tempo, and nature of USAG-Pōhakuloa operations and activities, as no increases in capacity or training throughput is anticipated as a result of the RPMP implementation. Therefore, future implementation of RPMP projects is not expected to cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations in the communities surrounding PTA. However, there may be intangible social and cultural concerns for some Native Hawaiians based on the issues discussed in Section 3.4.3.1.4.

3.4.3.2 No-Action

Under the No-Action Alternative, the RPMP would not be adopted and USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as-needed basis, resulting in generally short-term increases in construction-related jobs, population, and expenditures, which are likely to be relatively minor in the context of the State and County economies. Like the Proposed Action, the No-Action Alternative would not alter the existing social context because it would not change operational tempo, intensity, or capacity of activities at PTA, including at Kawaihae Harbor. However, because of the same cultural concerns described in Section 3.4.3.1 for the Proposed Action, the No-Action Alternative may also be perceived as presenting adverse social impacts due to PTA's continued training activities and land uses. Therefore, it would result in less than significant socioeconomics impacts. No new environmental hazards to minority or low income populations would be introduced by the No-Action Alternative and it is not expected to cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations in the communities surrounding PTA. However, like the Proposed Action, there may be intangible social and cultural concerns for some Native Hawaiians based on the issues discussed in Section 3.4.3.1.4.

3.5 Transportation Systems

This discussion of transportation includes all of the air, land, and sea facilities with the means of moving passengers and goods at both the local and regional scale. This includes roadways, harbors, and airports. For roadways, traffic is commonly measured through average daily traffic (ADT) and design capacity. The ROI for transportation systems includes roadway, harbor, and airport facilities that serve PTA facilities, including its Kawaihae Harbor facilities.

3.5.1 Affected Environment

3.5.1.1 Roadways

The Daniel K. Inouye (DKI) Highway (SR 200), also known as Saddle Road, is a cross-island State highway with 60 MPH posted speeds conencting PTA to Hilo and Kailua-Kona, and indirectly to Waimea and also to Kawaihae Harbor. Old Saddle Road runs parallel to DKI Highway and acts as the primary road between

the Base Camp, BAAF, and the BAX. A secondary road network traverses the Base Camp. There is also a tertiary road on the western edge of the Cantonment, heading north past the range maintenance facility, 411th Engineer's Storage yard, and Army Reserve storage. This tertiary road is part of a wider military vehicle trail system throughout PTA.

Soldiers who train at PTA are bussed to the installation from commercial airports and rely on walking within the Base Camp. During training periods, there are more than 1,000 pedestrians and military vehicles in the Cantonment.

Several types of vehicular traffic are generated by activities at PTA: range-related exercises; traffic associated with the permanent party personnel employed at the Cantonment; traffic associated with vendors and guests; and construction vehicles.

Range-related activities are not part of the RPMP and are, therefore, not analyzed in this EA. Traffic-generating activities include Soldiers bussed to PTA from either ITO or KOA airports to participate in training operations, equipment and supplies delivered via vehicle convoys from the Army's landing ramp at Kawaihae Harbor (e.g., vehicles, equipment, and ordinance), and range-related construction traffic. Convoys typically access PTA via the convoy gate at the west intersection of Old Saddle Road and DKI Highway. The occasional convoy traffic associated with periodic training exercises is closely coordinated with state and county governments and the general public to minimize congestion-related impacts to public roadways. As noted in Section 3.4.2.4.3 Commuter Traffic, public notices of convoy transports to and from Kawaihae ranged from 11 to 25 per year (from 2012) and 6 to 9 per year to and from Hilo.

Other traffic is associated with PTA employees. In FY19, PTA employed about 129 permanent party personnel (of 156 authorized positions) and approximately 45 contractors to manage the installation, with the majority working at the Cantonment. PTA staff commute from Hilo, Kailua-Kona, Waikoloa, Waimea, and other Hawai'i Island residential communities via public roads and, ultimately, via the DKI Highway. The DKI Highway experienced an average daily traffic (ADT) volume of approximately 4,000 vehicles in 2016, with 19,500 vehicles per day projected by 2035 (U.S. Department of Transportation, Federal Highways Administration, 2017). Traffic volumes associated with PTA commuting employees are very small compared to the overall DKI Highway ADT. Standard Cantonment working hours are from 6:30 a.m. to 3:30 p.m., Monday through Friday. Police, emergency medical services (EMS), and airport crash/rescue teams maintain 24 hours/7 days per week schedules. Private vehicles access the Cantonment from the DKI Highway via the main gate. PTA vendors include water and food delivery vehicles and construction vehicles working on the ranges and project area repair and maintenance activities.

Queen Ka'ahumanu Highway (SR 19) is part of a continuous segment of primary arterial roadway that connects south Kona to south Hilo. It also connects to collector roads and minor arterials that provide local access, such as 'Akoni Pule Highway (SR 270), which provides access to Kawaihae Harbor. Direct access to the Army's Kawaihae port facility is from the Kawaihae Harbor South Gate vehicle entry via an asphalt concrete road within a perpetual access easement held by the Army that extends from 'Akoni Pule Highway to the Army's access road on the coral fill area. The general public and commercial harbor

users enter through the main gate. Members of the general public who utilize the recreational resources on and around the coral fill use the main gate.

3.5.1.2 Harbors

Kawaihae Harbor is one of two deep-draft commercial harbors on Hawai'i Island (the other is Hilo Harbor, located on the island's east coast). It has a 1,450 ft by 1,500 ft basin with a depth of 35 ft and is protected by a 2,650-ft long breakwater on its west side (State of Hawai'i DOT, 2011). Its entrance channel is 3,270 ft long and 500 ft wide and is marked by a 120-degree lighted range, and lighted buoys (U.S. Department of Commerce, 2017).

The commercial harbor facilitates the transport of consumable goods, durables, building materials, and fuel to the island from Honolulu Harbor, which initially receives most of the cargo arriving in the state. Cargo is then transshipped to Kawaihae. The harbor also enables exports from the island to other Hawaiian islands, the U.S. mainland, and overseas destinations (State of Hawai'i, 2011).

There are two commercial piers at Kawaihae Harbor, located along the eastern side of the harbor. Pier 1, primarily used by cement barges, provides 412 ft of berthing. Pier 2 provides 1,150 ft of berthing and is primarily used by interisland cargo and fuel barges. No passenger traffic is handled at the harbor (State of Hawai'i, 2011). A 100-yard safety zone has been established adjacent to the commercial piers by the U.S. Coast Guard to expedite evacuation in the event of a tsunami warning.

Kawaihae Harbor is under the jurisdiction of HDOT-H, with the exception of a landing area for military ships granted to the U.S. Army through Governor's Executive Order 1759 to allow it to conduct military operations and transfer goods including troops, vehicles, and explosives. This comprises a combined 10.5 acres of submerged and fastland at the harbor (State of Hawai'i, 2011). A safety arc is imposed around the berthing and loading facilities when explosives and ammunition are offloaded and stored in the Army's fenced staging area.

3.5.1.3 Airports

Bradshaw Army Airfield (BAAF) is a Class A military airfield located at PTA. The airfield serves both fixed-wing and rotary-wing aircraft. BAAF is located west of PTA's Cantonment area. It is the highest elevation airfield in consistent use on the Hawaiian Islands and is situated between the two highest peaks in the state. It has a single runway of 3,705 feet.

The nearest public airport to PTA is the Waimea-Kohala Airport. It is owned and operated by the State of Hawai'i, and is located approximately 18 miles northwest of BAAF. It has a 5,197-ft runway and currently has limited commercial passenger service.

3.5.2 Environmental Consequences

Impacts to traffic and transportation are analyzed by considering the possible changes to existing transportation conditions and the capacity of area transportation facilities. The threshold for significant transportation system impacts is the degree to which the alternative would (1) increase traffic on public roads resulting in unacceptable delays or safety hazards or (2) unacceptably disrupt or displace

operations at Hawai'i Island commercial harbors, Army harbor facilities, or commercial or military airports.

3.5.2.1 Proposed Action

This section presents a general discussion of the potential effects on traffic and transportation associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

3.5.2.1.1 Roadways

Under the Proposed Action, the Army would adopt the RPMP. Adoption of the RPMP would be an administrative action that would not affect roadways in the ROI. Therefore, the adoption of the RPMP would have no impact on roadways.

Construction activities related to the implementation of projects identified in the RPMP would be phased over 10 to 20 years (could be longer depending on funding availability). Phasing would reduce the number of construction vehicles travelling to and from the site at any one time. Typically, large construction vehicles (e.g., tractors, graders, rollers, and cranes) are moved to the site at the beginning of the construction period and removed at the end of the construction, so daily traffic would primarily be associated with construction workers commuting in personal vehicles. It is anticipated that this traffic bound for the main PTA installation would be generated from both the west (Kailua-Kona) and east (Hilo) sides of the island and, thus, would be attenuated by distributing the trips over a wider network of roadways that feed into the DKI Highway.

Construction activities at the Army's Kawaihae Harbor facilities would likely result in short-term temporary traffic impacts on roadways leading to the harbor as construction equipment is moved to the project area and contractor staff commute to the job site. After the land-based construction equipment and vehicles are in place, they would remain until no longer needed at the site. Although the general public would be temporarily restricted from access to the Army's loading ramp during construction for safety reasons, the RPMP-related construction is not expected to affect access or traffic volumes to adjacent public use areas.

Construction contractors would be required to comply with a USAG-HI construction management plan (CMP) that will establish requirements including limiting construction-related vehicular activity to outside of peak traffic periods, staging locations for construction-related workers and vehicles, and other BMP measures related to traffic. These measures will ensure base security is not compromised and onsite traffic levels are maintained at acceptable levels of service. The CMP will avoid or minimize any construction-period traffic management issues to less than significant levels (i.e., traffic increases on public roads that result in unacceptable delays or safety hazards).

Implementation of the RPMP would not increase the number of permanent party assigned to PTA, so there would be no change to existing PTA-generated traffic (at the main PTA installation, Kawaihae Harbor, or public roads leading to them) during the operational period.

Therefore, the implementation of RPMP projects is expected to have less than significant impacts on roadways.

3.5.2.1.2 Harbors

The administrative action of adopting the RPMP would not affect the type or frequency of the Army's activities at Kawaihae Harbor or demand for Hilo or Kawaihae Harbor facilities and would not disrupt or displace operations at these harbors. Therefore, it would have no impacts on harbors. The RPMP includes a short-range project for mooring dolphin and ramp repairs at the Army's Kawaihae Harbor facility being addressed under a separate NEPA document. One of the three dolphins would be replaced, the other two repaired, and the concrete landing ramp deck replaced. The repairs would not change the basic use and function of the facility, and once the repairs are made, the facility will continue to remain open for public use when not being used for loading, unloading or other military use. These projects are unlikely to disrupt or displace operations at the State commercial harbor facilities, through the Army's Kawaihae Harbor facilities would be temporarily unavailable for use during the construction period. The DoD would establish alternative processes for transporting vehicles, equipment, and materials to support units training at PTA during this time.

Therefore, the future implementation of a specific RPMP project would have a beneficial impact on harbor facilities.

3.5.2.1.3 Airports

The adoption of the RPMP would not change the types of aircraft using BAAF or the intensity of its use and thus have no impacts on airports. The RPMP includes short and long range projects to modernize BAAF facilities, which, when implemented, would have a beneficial impact on the airfield by improving safety and efficiency. The construction and operations of the proposed RPMP projects would not affect airspace at BAAF or Waimea-Kohala Airport. Therefore, the implementation of the RPMP would have a beneficial impact on airports.

Therefore, the adoption of the RPMP would have no impact on transportation and implementation of RPMP projects is likely to have less than significant impacts on transportation.

3.5.2.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing. The construction of individual projects could affect traffic and transportation in the ROI, but these potential impacts would be temporary and managed via CMPs. Therefore, the No-Action Alternative would result in less than significant impacts to traffic and transportation.

3.6 Noise

The level of ambient noise is an important indicator of environmental quality. Noise from vehicle traffic, aircraft operations, industrial land uses, and construction activities can impact ambient noise levels

based on their proximity to noise-sensitive receptors (e.g., occupied structures). Chronically high noise levels can impact personal health and quality of life in an area.

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal activities. The response of different receptors to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the receptor. A noise-sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals, or certain wildlife species. The ROI for noise includes noise-sensitive receptors exposed to noise from PTA activities (including activities at Kawaihae Harbor).

3.6.1 Regulatory Setting

The Army's Installation Compatible Use Zone (ICUZ) is administered in accordance with the DoD Instruction Directive 4715.13 subject: DoD Noise Program (DoD, 2005) and Army Regulation (AR) 200-1, Environmental Protection and Enhancement, Chapter 14, Operational Noise (U.S. Army, 2007). Army Regulation (AR) 200-1 lists housing, schools, and medical facilities as examples of noise-sensitive land uses. AR 200-1 translates noise exposure on communities into "Noise Zones," or land areas subjected to various levels of noise exposure, which inform land use compatibility. Regulation guidelines state that for land use planning purposes, noise-sensitive land uses are acceptable within the Noise Zone I (<65 dBA)[10], generally not compatible in Noise Zone II (between 65 and 75 dBA), and not recommended or incompatible in Noise Zone III (>75 dBA).

The ICUZ program promotes land use that is compatible with the military noise environment through communication, cooperation, and collaboration between the USAG-HI and the surrounding community. PTA is covered under the USAG-HI Installation Compatible Use Zone Study (U.S. Army Public Health Center, 2017), prepared in accordance with AR 200-1. A major program goal related to operational noise includes controlling operational noise to protect the health and welfare of people, on- and off-post, impacted by all Army-produced noise, including on- and off-post noise sources. The ICUZ study describes the noise environment from military training and airfield operations, identifies areas impacted by noise sources at PTA, and recommends the most appropriate uses of noise-impacted areas.

The Occupational Safety and Health Administration established workplace standards for noise under the Noise Control Act of 1972. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels

[10] The decibel is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or Hz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA).

exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

3.6.2 Affected Environment

There are no sensitive noise receptors in the vicinity of the Proposed Action project sites; the nearest residential community (Waikiʻi Ranch) is 13 miles to the northwest of the Cantonment but is surrounded on three sides by KMA.

The ICUZ uses a variety of noise metrics depending on the type of noise source (e.g., small arms, aviation, and impulsive noises from single events) in its analyses, which resulted in identification of land use compatibility zones (i.e., Noise Zones I, II, and III) around PTA noise sources. These noise zone limits and land use recommendations were developed by the Army using Federal Interagency Committee on Urban Noise[11] guidelines in conjunction with recommendations of the National Academy of Sciences Committee on Hearing, Bioacoustics and Biomechanics (U.S. Army Public Health Center, 2017). According to the 2017 ICUZ, the principal noise sources at PTA are from small and large caliber weapons firing and rotary-wing aircraft training. These sources, along with the noise zones associated with them, are summarized as follows:

- Small arms weapons firing at fixed firing ranges: Noise from small weapons firing is compatible with off-site land use (forest reserve). Noise Zone II (65-75 dB A-Weighted Day-Night Average Sound Level) extends approximately 330 ft beyond the PTA boundary to the north in one small area and beyond the southeastern boundary up to 4,000 feet.
- Large arms weapons operations at ranges and explosives: Noise from large caliber weapons is compatible with off-site land use (forest reserve). All Noise Zones that extend off-site overlap forest reserve areas. On the installation, a moderate complaint risk (115-130 decibel) area encompasses the Cantonment, but no noise sensitive land uses exist there.
- BAAF: Noise zones associated with BAAF operations are contained within DoD property. There are no incompatible land uses at PTA within BAAF noise zones. The 60-dBA contour extends 1,300 meters (4,265 feet) east and west beyond the runway endpoints into open fields. It also encompasses office buildings within the Base Camp due east that are not considered noise sensitive.

It should be noted that noise generated by some training activities at PTA can be heard well beyond the ICUZ noise zones, including to the north and west of the installation boundaries. These noise events occasionally cause annoyance and complaints; however, these events did not result in characterization of incompatible land uses where they are audible and are not considered harmful to human hearing or public health.

[11] In 1979 the Federal Interagency Committee on Urban Noise was formed to develop Federal policy and guidance on noise. The committee's membership included the U.S. Environmental Protection Agency, U.S. Department of Transportation, U.S. Department of Housing and Urban Development, DoD, and the Veterans Administration. Among other things, it developed consolidated federal agency land use compatibility guidelines using Yearly Day-Night Average Sound Levels as the common descriptor of noise levels. The committee issued a report entitled Guidelines for Considering Noise in Land Use Planning and Control in June 1980.

The Kawaihae Harbor noise environment can be described as an industrial setting characterized by regular ship movements, as well as land-based vehicles and loading/unloading equipment. These noise sources are expected to generate daytime sound levels in the range of 60 to 90 dBA, considered moderately loud to very loud, depending on the location of the noise receptor. There are no sensitive noise receptors in the vicinity of the Army's port facility; the nearest is approximately 3,300 ft to the southeast at Puʻukoholā Heiau, where cultural practices and events are held at least annually. The nearest residential uses are along Kaewa Place, about 4,400 ft northwest of the project area.

3.6.3 Environmental Consequences

This analysis of potential noise impacts estimates likely noise levels and determining potential effects to sensitive receptor sites. The threshold for significant noise impacts is the degree to which the alternative adversely alters or creates land use compatibility issues for noise-sensitive land uses, as informed by noise limits in AR 200-1.

3.6.3.1 Proposed Action

This section presents a general discussion of the potential effects on the noise environment associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP, an administrative action that would not involve physical changes to PTA facilities, activities, or lands. Therefore, it would have no impacts to the noise environment within the ROI.

The following analysis is applicable to implementation of specific RPMP projects and their potential noise impacts. The ICUZ determined that noise associated with existing training activities is compatible with surrounding land uses. The implementation of the individual projects would generate noise associated with construction. The noise from construction vehicles, machinery, equipment, and power tools would be the dominant source of construction noise. Typical noise levels associated with this type of equipment can be in the range of 90 dBA at 50 feet from the source (U.S. DOT 2006, Table 12-1). In general, noise drops off with distance from the noise source (approximately 6 dBA for point sources at each doubling of the distance) so distant locations, like the Waikiʻi Ranch residential community, would not be affected. Measures to minimize noise include the use of sound-dampening devices (e.g., baffles and mufflers) and properly maintaining all equipment, vehicles, and machinery.

At Kawaihae Harbor, construction projects associated with the RPMP would take place in the vicinity of non-military land uses and the marine environment. Individual projects associated with the RPMP would undergo their own NEPA compliance, and any potential impacts to the noise environment (and required mitigation) would be identified during those evaluations when details on the projects are available.

Implementation of the RPMP would not change the training tempo or use of PTA or the Army's facilities at Kawaihae Harbor and is likely to result in no impacts to the noise environment during the operational period. It is anticipated that noise associated with operational period activities at PTA and Kawaihae Harbor would continue to be compatible with surrounding land uses. Therefore, implementation of the RPMP is likely to result in less than significant impacts to the noise environment.

3.6.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing. The implementation of individual projects would generate noise associated with construction, but any potential impacts would be temporary and noise levels would comply with regulatory requirements. The No-Action Alternative is not expected to change the frequency, intensity, or tempo of training at PTA (including use of Kawaihae Harbor) and not expected to alter noise exposure for on- and off-base noise sensitive uses. Therefore, the No-Action Alternative is likely to result in less than significant impacts to the noise environment within the ROI.

3.7 Air Quality

Air quality in a given location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

The principal pollutants defining the air quality, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone, suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). CO, SO_2, Pb, NO_2, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO_2, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes. The ROI for air quality is the area potentially subject to measurable air quality impacts under unfavorable dispersion conditions—usually a few miles or less from the emissions source for pollutants directly emitted and up to islandwide for pollutants such as ozone that are formed through atmospheric chemical reactions via precursor pollutants such as nitrogen oxides and volatile organic compounds).

3.7.1 Regulatory Setting

The federal Clean Air Act (42 USC 85 § 7401 et seq.) requires each state to identify areas that have ambient air quality in violation of the National Ambient Air Quality Standards (NAAQS). The status of areas with respect to the NAAQS is categorized as nonattainment (any area that does not meet an ambient air quality standard, or that is contributing to ambient air quality in a nearby area that does not meet the standard), attainment (meets the national standards), or unclassifiable (cannot be classified based on available information). The unclassified designation includes attainment areas that comply with federal standards, as well as areas that lack monitoring data. Unclassified areas are treated as attainment areas for most regulatory purposes. Areas that have been reclassified from nonattainment to attainment are considered maintenance areas. States are required to develop, adopt, and implement a state implementation plan to achieve, maintain, and enforce the NAAQSs in nonattainment areas. The plans are submitted to, and must be approved by, the USEPA.

The State of Hawaii regulates ambient air quality standards (AAQS) defined in Chapter 11-59 of the Hawaii Administrative Rules. State standards have been established for particulate matter, SO_2, NO_2, CO, ozone and Pb. The State has also set a standard for hydrogen sulfide (H_2S). The Hawaii AAQS are given in terms of a single standard that is designed "to protect the public health and welfare and to prevent the significant deterioration of air quality."

3.7.2 Affected Environment

The entire state of Hawai'i is categorized as attainment or unclassified for each of the NAAQSs. Criteria pollutant levels remain below state and federal ambient air quality standards at all state and local air monitoring stations in the state (State of Hawai'i DOH, 2016a).

Air quality at PTA is not affected by pollutant sources from urban areas due to its rural location. Emissions from transportation and explosives detonations can be locally important during troop transportation and maneuver and firing exercises. Sources of fugitive dust include airfield operations and military vehicle traffic, including vehicle convoys on military vehicle trails, vehicle maneuver training on gravel or dirt roads inside the Cantonment, and down range, off-road military vehicle maneuver training.

PTA's main installation is situated between the three volcanoes on the island of Hawai'i: Mauna Kea, Mauna Loa, and the much smaller peak of Hualālai and Kawaihae Harbor is located to the northwest of the three volcanoes. Overall, air pollution levels at the project area and on the island generally are low due to the small size and isolated location of the State and the predominant trade wind regime. During periods of active volcanic eruptions, air pollutant emission hazards are generally limited to a few square miles around the active vents, though vog can affect greater land areas depending on wind direction and speed. The State's small size limits opportunities for locally generated air pollutants to accumulate or recirculate before being transported offshore and away from land areas.

The Kilauea caldera, on the east flank of Mauna Loa, is the single largest emission source in the state, usually producing more than 2,000 tons of sulfur dioxide per day. Active volcanoes like Kilauea emit sulfur dioxide, as well as other gases, including hydrogen sulfide, hydrogen chloride, hydrogen fluoride, and trace metals like mercury. The most recent eruption of Kilauea volcano that began in May 2018 on Kilauea Volcano's lower East Rift Zone—along with summit eruptions that occurred in earlier in 2018—emitted air pollutants at levels that could pose hazards to human health within a localized area. Eruptive activity associated with the recent eruption of Kīlauea Volcano had mostly subsided by August 2018.

The main components of volcanic gas emissions are water vapor, carbon dioxide, and sulfur dioxide (SO_2) gas, with SO_2 presenting the primary air quality hazard. Vog, or volcanic air pollution, can affect broader areas downwind of erupting vents. Vog is a mixture of SO_2 gas and aerosols, which form when SO_2 from erupting vents react in the atmosphere with oxygen, sunlight, moisture, and other gases and particles, and then convert to fine particles. These fine particles cause visible haze downwind from the point of release. Areas far from the erupting vent (including the project area) can be affected by vog, depending on wind direction and speed. Under typical trade wind condition, which are present 80 to 95 percent of the time, vog is blown to the southwest and wraps around the southern to the southwestern

coast of Hawai'i Island, where the emissions are sometimes trapped between alternating onshore and offshore sea breezes. During periods of light or southerly ("kona") winds, vog is generally concentrated on the east side of Hawai'i Island, although it may eventually reach Hawaiian Islands to the northwest.

Greenhouse Gases: The earth's climate is affected by energy entering and leaving its atmosphere, which can be affected by both natural and human factors, including variations in the sun's energy reaching the planet, changes in the reflectivity of its atmosphere and surface, and changes in the amount of heat retained by its atmosphere. When energy from the sun reaches the earth's surface, it can either be reflected back into space or reabsorbed by the earth. After it is absorbed, the energy can be released back into the atmosphere as heat (i.e., infrared radiation).

Greenhouse gas (GHG) emissions absorb energy, resulting in the slowing or prevention of heat loss back into space. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe. The key GHGs emitted by human activities include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. In 2014, energy supply (i.e., the burning of coal, natural gas, and oil for electricity and heat) was the largest source of global GHG emissions (30%), followed by transportation (26%), industry (21%), commercial and residential buildings (12%), and agriculture (9%) (USEPA, 2016).

The USEPA issued the Final *Mandatory Reporting of Greenhouse Gases Rule* on September 22, 2009. GHGs covered under the Final *Mandatory Reporting of Greenhouse Gases Rule* are CO_2, CH_4, nitrogen oxide (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. The equivalent CO_2 rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of mobile sources and engines, and facilities that emit 25,000 metric tons (MT) or more per year of GHG emissions as carbon dioxide equivalent (CO_2e) are required to submit annual reports to USEPA.

In 2015, Hawai'i became the first state to set a goal of obtaining 100% of its electricity from sustainable renewable sources by 2045, which will significantly reduce overall GHG emissions statewide. According to U.S. Department of Energy, in 2016, Hawai'i ranked 32nd in annual per capita energy-related CO_2 emissions with 13 MT CO_2 per capita, compared with the national average of 16 MT per capita (U.S. Department of Energy, 2019). For Hawai'i, this represents a 27.2% decrease from 2005 of annual per capita energy-related CO_2 emissions, or an absolute decrease of 4.8 MT CO_2 per capita. The State's transportation sector represented the greatest share of its 2016 energy-related CO_2 emissions, with over 55 % of total emissions (ibid).

A 2011 assessment of PTAs energy usage by the National Renewable Energy Laboratory (Callahan, et al., 2011) determined that PTA's baseline was 1,245 MT/yr CO_2e (equal to energy use from 131 homes for one year (USEPA GHG Equivalencies Calculator: https://www.epa.gov/energy/greenhouse-gas-

equivalencies-calculator) and 8,156 MT/yr CO_2e, when fuel use on post and commuter fuel use were included.

3.7.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The threshold for significant air quality impacts is if the alternative contributes to a violation of any federal or state air quality regulation or substantially increases GHG emissions.

3.7.3.1 Proposed Action

This section presents a general discussion of the potential effects on air quality and GHG emissions associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP, an administrative action that would not in itself result in construction or operational activities that would increase pollutant or GHG emissions; therefore, it would have no effects on air quality in the ROI.

Implementation of specific RPMP projects at PTA (including its facilities at Kawaihae Harbor) would generate temporary air emissions (e.g., fugitive dust, combustion of fossil fuels) during their construction periods. These potential impacts are expected to be less than significant and of relatively short duration at any one location; future NEPA analyses would be conducted to confirm this. The construction contractor would be required to employ BMPs to minimize particulate emissions during ground disturbing activities.

During the operational period, although some of the RPMP project would likely generate additional GHG emissions associated with power consumption to operate new facilities, none would introduce new major air emissions sources. The basic uses of and activities at PTA and Army-controlled areas of Kawaihae Harbor would remain unchanged from base line conditions. The Proposed Action is not subject to the Clean Air Act's General Conformity Rule because the State of Hawai'i is in attainment of the NAAQS.

Therefore, the implementation of the RPMP is likely to result in less than significant impact to air quality because it is not expected to contribute to a violation of federal or state air quality regulations or substantially increase GHG emissions.

3.7.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing. The implementation of individual projects would generate construction period emissions, but any potential impacts would be temporary and minimized through construction BMPs. Therefore, the No-Action Alternative is likely to result in less than significant impacts to air quality in the ROI.

3.8 Water Resources

Water resources include streams, lakes, rivers, wetlands, groundwater, floodplains, and coastal resources. The ROI for water resources includes surface, ground, or marine water resources within PTA-controlled areas (including at Kawaihae Harbor) or adjacent or downstream waters that have a substantial likelihood of receiving secondary effects from the Proposed Action.

3.8.1 Regulatory Setting

The Safe Drinking Water Act (42 U.S.C. §300f et seq.) is the federal law that protects public drinking water supplies throughout the nation. Under the Safe Drinking Water Act, The USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act.

The Clean Water Act (CWA) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution.

The Hawai'i NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2010 Final Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category*, activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE. Under Section 401 of the CWA, the State of Hawai'i Department of Health (DOH), Clean Water Branch is responsible for issuing or denying Section 401 Water Quality Certifications for any project or activity that requires a federal license or permit and may result in a water pollutant discharge to State surface waters.

Section 438 of the Energy Independence and Security Act establishes storm water design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 square feet must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

Section 10 of the Rivers and Harbors Act provides for USACE permit requirements for any in-water construction. USACE and some states require a permit for any in-water construction. Permits are required for construction of piers, wharfs, bulkheads, pilings, marinas, docks, ramps, floats, moorings,

and like structures; construction of wires and cables over the water, and pipes, cables, or tunnels under the water; dredging and excavation; any obstruction or alteration of navigable waters; depositing fill and dredged material; filling of wetlands adjacent or contiguous to waters of the U.S.; construction of riprap, revetments, groins, breakwaters, and levees; and transportation of dredged material for dumping into ocean waters.

The CZMA provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the CZMA. The Proposed Action's effects on coastal uses and resources are addressed in Section 5.5.

Executive Order 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.

3.8.2 Affected Environment

Water resources such as lakes, rivers, streams, and canals make up the surface hydrology of a watershed. Watersheds of the island of Hawai'i are small and characterized by fast-flowing streams with permeable volcanic rock and soils (U.S. Army Environmental Command, 2013).

PTA lies primarily in the County of Hawai'i Department of Water Supply's Waimea System of the West Mauna Kea Aquifer Sector and the 'Anaeho'omalu System of the Northwest Mauna Loa Aquifer Sector. (County of Hawai'i, Department of Water Supply, 2015).

The University of Hawai'i, in partnership with the Army and other public agencies, initiated the Humu'ula Groundwater Research Project (HGRP) in 2012 that aimed to research the groundwater resources in the Hawai'i Island 'Saddle' region between Mauna Loa and Mauna Kea volcanoes by drilling two test holes on USAG-HI land. Results include the discovery of groundwater at a much shallower depth than expected, a dike-impounded aquifer, and a potential geothermal reservoir (University of Hawai'i, accessed 2019).

PTA is located in the saddle between the Northwest Mauna Loa and the West Mauna Kea watersheds. There are no surface streams, lakes, wetlands or other water bodies within PTA or on adjacent land. Mean annual rainfall recorded at the Mauna Kea Recreation Area rain gauge just east of the Cantonment is low at approximately 16.95 inches (Giambelluca et al., 2013). Water drains from the surface and flows from the site via crevices in the lava. During intense rainfall events, runoff sheet flows to the large, typically dry drainage channel that bisects the Base Camp and terminates to the west of the site in the vicinity of BAAF.

Intermittent stream channels, such as those at KMA, quickly dry after rainfalls. Rainfall, fog drip, and occasional frost are the sources of water that sustain plants and animals (U.S. Army Corps of Engineers, 1996). The PTA Base Camp experiences significant surface water run-off during large storm events. In

some instances, continuous heavy rain exceeds Base Camp's drainage capacity and causes temporary flooding.

According to the Federal Emergency Management Agency Flood Insurance Rate Map (Panel 1551660575C; FIRM index date: April 2, 2004), the Cantonment and surrounding areas are located in Zone X, areas determined to be outside the 0.2% annual chance floodplain. Therefore, the Proposed Action would not trigger evaluation under EO 11988, Floodplain Management.

According to the USFWS National Wetland Inventory, there are no wetlands at PTA.

Kawaihae Harbor, lying in the arid leeward side of the island, receives little rainfall or stream flow. However, because it is located at the toe of the saddle between the Kohala and Mauna Kea volcanic slopes, ground and surface waters form an extensive watershed area that drains toward the sea under heavy rainfall conditions (Helber Hastert & Fee, Planners, 2009). Several gulches converge upland of Highway 270 and drain into marine waters at two locations. Makahuna Stream conveys flows into the southeast interior corner of Kawaihae Harbor when stormwater flows are sufficient to overtop the road bed that provides access to the Coral Flats area (where the Army's port facility is located). Makeahua Stream conveys upland stormwater flows into Pelekāne Bay south of the Coral Flats area.

At Kawaihae Harbor, fronting marine waters are largely influenced by streams and groundwater sources in the associated watershed, and thus, coastal nearshore waters can be viewed as an extension of the watershed (State of Hawai'i DOH, 2016b). There are no perennial streams in the leeward Kohala District, in which the project area is located. There are perennial streams in the upper reaches, but they become intermittent at lower elevations. Therefore, stream flow is generally limited to flows during rainfall events (Stewart, 2005).

According to the Federal Emergency Management Agency's Flood Insurance Rate Map (Panel 0165F, September 29, 2017), the Army's Kawaihae port facility is located in two zones: the storage yard is located in Zone X, or area determined to be outside the 0.2% annual chance floodplain. The landing ramp and dolphins are located in the VE zone (coastal high hazard areas). This includes areas subject to high velocity water including waves and are defined by the 1% annual chance (base) flood limits (also known as the 100-year flood) and wave effects 3 feet or greater.

3.8.3 Environmental Consequences

The analysis of water resources looks at the potential direct and indirect impacts on groundwater, surface water, coastal resources, and floodplains. There are no wetlands in the vicinity of the Proposed Action. The threshold of significant impacts to water resources includes (1) the permanent degradation of water quality standards of a surface or marine water body; (2) contamination of drinking water source; or (3) alteration of floodplain extents or a floodway, if the impacts cannot be mitigated.

3.8.3.1 Proposed Action

This section presents a general discussion of the potential effects on water resources associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP, an administrative action that would not involve ground disturbance, changes in PTA activities or use, or physical alteration of PTA facilities or Army-controlled lands (including at Kawaihae Harbor). Therefore, the adoption of the RPMP would not impact water resources.

Implementation of RPMP projects would not directly impact any streams or surface waters as none are within the individual project footprints. NEPA-related studies and consultations for the proposed potable water well(s) (Short-Range project G) would be conducted to ensure potential impacts to groundwater resources are avoided or minimized. Implementation of individual projects would require consultation with the DOH Clean Water Branch to determine the need for NPDES permit for construction-related stormwater discharge for land disturbance equal or greater than one acre, pursuant to the Clean Water Act of 1972 (33 USC. 121 et seq.). The NPDES permit requires that a project-specific SWPPP be prepared to identify potential sources of stormwater pollution at the construction site, describe stormwater control measures to reduce or eliminate pollutants in discharges from the construction site, and identify procedures to comply with the terms and conditions of the general permit. The BMPs required under these permits would avoid or minimize potential direct and indirect construction period impacts to surface water resources.

The proposed dolphin and landing ramp modernization project at Kawaihae Harbor would take place within coastal waters; this project is being analyzed under a separate NEPA process that will include Section 404, Section 10, NPDES, EO 11988, and Section 401 Water Quality Certification compliance to ensure that any potential impacts to water resources are avoided or minimized.

During the operational period, implementation of RPMP projects would not change the tempo or use of PTA or the Army's facilities at Kawaihae Harbor.

Therefore, the implementation of the RPMP is likely to result less than significant impacts to water resources because NPDES and SWPPP conditions and requirements are likely to prevent the projects' permanent degradation of water quality standards of adjacent or downstream surface and marine water bodies. Additional studies and regulatory agency consultations and approvals would be sought for individual projects, as appropriate, as project details are developed.

3.8.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing. The implementation of individual projects could result in construction period impacts to water resources associated with erosion and runoff, but BMPs would be implemented to avoid and/or minimize potential impacts, including degradation of the water quality standards of surface or marine water bodies such as Kawaihae Harbor. Therefore, the No-Action Alternative would result in less than significant impacts to water resources.

3.9 Natural Hazards, Geology, and Soils

The ROI for natural hazards, geology, and soils include PTA-controlled areas, including submerged lands at Kawaihae Harbor.

3.9.1 Affected Environment

3.9.1.1 Natural Hazards

The U.S. Geological Survey (USGS) identified nine Lava Hazard Zones for Hawai'i Island, Zones 1-9, in order of decreased risk for activity. The Cantonment and the Army's Kawaihae Harbor port facility are located in Hazard Zone 8 (low risk hazard) (U.S. Geological Survey, 2012). Most of the PTA range areas are located in Zones 2 and 3 and have a relatively high-risk hazard. Hazard Zone 2 encompasses lava flow inundations of 15-25 percent coverage since 1800, and 25-75 percent coverage in the last 750 years. Zone 2 occurs adjacent to and downslope from active rift zones. Most of the PTA range lands are within Hazard Zone 3; a less hazardous zone than Zone 2 because of greater distance from recently active vents and (or) because of topography. One to five percent has been covered since 1800, and 15-75 percent has been covered within the past 750 years (Wright, T.L., et.al., 1992).

USGS has also prepared more detailed lava inundation zone maps—based on detailed geologic mapping and modeling of a fluid's response to the current surface topography—in order to anticipate areas that could be overrun by erupted lava from various source regions (Trusdell, F.A. and Zoeller, M.H., 2017). PTA would be affected by the Puako Inundation Zone, which roughly corresponds with the Lava Hazard Zones 2 and 3 described above. The zone extends to within a half-mile of the Base Camp and crosses the shoreline well south of Kawaihae Harbor.

Average annual rainfall at PTA is light (16.95 inches per year), with the wettest months being November through January and March (Giambelluca et al., 2013). Because of its location at the base of the Mauna Kea's massive drainage area, the Cantonment periodically receives significant flooding events that sometimes overwhelm engineered drainage systems and result in temporary flooding. These flooding events can result in soil erosion and damage to on-site facilities.

Flood hazards at the Army's Kawaihae Harbor facilities are described in detail in Section 3.8.2.

The entire Kawaihae Commercial Harbor is located within the tsunami evacuation zone (Hawai'i County Tsunami Evacuation Map #10-South Kohala).

3.9.1.2 Geology

The land formations surrounding PTA Base Camp and BAAF dictate which areas are reasonably buildable. They also govern airfield approach and departure patterns for BAAF, which impact surrounding land uses. The PTA range extends from the lower slopes of the KMA along Māmalahoa Highway (c. 2,600 feet elevation) up to the Saddle between Mauna Kea (c. 6,800 feet elevation) and Mauna Loa (c. 9,000 feet elevation). The 3,705-foot long BAAF runway 9-27 is located at approximately 6,190 feet elevation and slopes upwards towards the east at approximately 2.9%. The Base Camp is located approximately 3,200 feet east of the runway at approximately 6,360 feet elevation. Pu'u

Pōhakuloa, north of the Base Camp and south of the DKI Highway (elevation 6,440 feet), separates the Base Camp industrial area from the primary billeting and administrative area. Average ground slope between the runway and the Base Camp is in the range of 5.3%.

PTA's facilities at Kawaihae Harbor are located on fill land created from harbor dredging. The overall Coral Flats area (including the Army-controlled areas) has an average slope of about three percent (Hoʻokuleana, LLC, 2019).

3.9.1.3 Soils

Soils at PTA are a function of volcanic activity. Much of PTA has no surface soils, but rather consists of pahoehoe lava (36.4%), aa lava (30.8%), or other rocky soil units (17.4%; cinder land, rock land, very stony land), with about 15.4% of the land surface covered with "developed" soil units (e.g., loams, fine sand, etc.) (U.S. Army Garrison Hawaii, 2020). The north portion of PTA has the best-developed soils. The deepest soils are a result of Mauna Kea eruptions, and the soils of KMA, the Cantonment, BAAF, and the northern part of the training areas result from ash deposited during volcanic eruptions. The southern part of the installation are Mauna Loa lava flows (U.S. Army Environmental Command, 2013).

Many areas at PTA are almost completely unusable for maneuvers due to the rough lava flows that occur over much of the surface area. About 88,000 acres at PTA are classified by the Natural Resources Conservation Services (NRCS) as lava flows, equally split between ʻaʻā flows and pāhoehoe flows (U.S. Army Environmental Command, 2013) .

Native soils in the Cantonment short-term project areas have been heavily impacted over decades of use by military training, operations, and construction/maintenance of the facilities and roads. The primary soil type found in the Cantonment is Alaone-Keʻekeʻe complex 2 to 6 percent slopes, which derives from basic volcanic ash over rocky sandy alluvium and sandy and gravelly alluvium derived from basalt (NRCS, 2019).

Soils at PTA's Kawaihae Harbor facilities are classified as Dumps, fill land, 0 to 3 percent slopes by the NRCS (NRCS, 2019). They are well drained soils located at elevations between 0 and 10 feet, not considered prime farmland.

3.9.2 Environmental Consequences

The analysis of natural hazards, geology, and soils focuses on the areas of soils and/or geology that would be disturbed, and potential vulnerabilities to natural hazards. The threshold for significant impacts is the extent to which the alternative results in (1) alterations to soils or geological features that cause substantial soil erosion or loss or (2) increases the risks to humans or the built environment from natural hazards.

3.9.2.1 Proposed Action

This section presents a general discussion of the potential effects on natural hazards, geology, and soils associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP. This administrative action would not involve any new development, physical alteration of existing facilities or sites, or changes to facility use or activities that would alter soils or geological features, or change conditions that affect the frequency or intensity of natural hazards in the ROI. Therefore, it would have no impacts to geological features or soils, and would not affect the frequency or intensity of, or PTA's vulnerability to natural hazards, including at its Kawaihae Harbor facilities.

The construction of individual RPMP projects at PTA's main installation would not significantly alter existing geological features, and would have only localized impacts on soils associated with construction period ground disturbing activities. BMPs would be implemented to limit soil erosion and potential surface runoff. During the operational period, new construction would be in accordance with current seismic codes, which would reduce the vulnerability to damage from earthquakes. Potential exposure to lava inundation would remain unchanged.

At the Kawaihae Harbor project area, implementation of RPMP projects would continue existing uses on DoD-controlled lands. No grading and trenching of the site is anticipated for any RPMP project; therefore, no significant impacts to existing soils or geological features are expected. Project-specific BMPs, in addition to the general BMPs described in Section 2.4, would be implemented to limit erosion and potential surface runoff. RPMP projects proposed for the Army's Kawaihae Harbor facilities would be located within a tsunami evacuation zone, but the proposed improvements would essentially reconstruct or utilize existing facilities and would not introduce new development within the tsunami evacuation zone. Due to the nature of the port facilities, there are no practicable alternatives to relocate the facilities out of the tsunami inundation zone.

Because implementation of specific RPMP projects are not anticipated to result in alteration to soils or geological features that would cause substantial soil erosion or loss or increase natural hazard risks to humans or the built environment, it is likely to result in less than significant impacts to natural hazards, geology, and soils during the construction period, and beneficial or less than significant impacts during the operational period.

3.9.2.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing. The construction of individual projects could have construction period impacts on soils and geology, but BMPs would be implemented to avoid and/or minimize impacts such as soil erosion or loss. Any newly constructed facilities would comply with current building codes (including seismic), which would reduce the vulnerability to damage from earthquakes. New construction taking place under the No-Action Alternative would not change conditions that affect the frequency or intensity of natural hazards in the ROI. Therefore, the No-Action Alternative would result in less than significant impacts to natural hazards, geology, and soils.

3.10 Visual Resources

This discussion of visual resources includes the natural and built features of the landscape visible from public views that contribute to an area's visual quality. Visual perception is an important component of environmental quality that can be impacted through changes created by various projects. Visual impacts occur as a result of the relationship between people and the physical environment. The ROI for visual resources includes scenic vista and view planes identified in Hawai'i County planning documents as well as those from public vantage points and from public roadways serving and adjacent to PTA (including its Kawaihae Harbor facilities).

3.10.1 Regulatory Setting

The Hawai'i County General Plan, approved in 2005 by the County Council, is the overall planning document for the Hawai'i Island. The plan identifies the importance of Hawai'i's natural and scenic beauty to the community, and includes the goal to, "protect scenic vista and view planes from becoming obstructed (County of Hawaii, 2005)." The plan also outlines the process for adopting Community Development Plans (CDPs).

The majority of PTA, including the Cantonment and BAAF, is located within the Hāmākua CDP District. The 2018 Hāmākua CDP identifies the preservation of scenic areas and viewsheds as a community priority (County of Hawai'i, 2018). Two separate community objectives specifically address the preservation of sweeping views and the need to protect and enhance viewscapes.

As discussed in Section 3.1.2.2, the RPMP includes an ADP for PTA's main cantonment, which includes Regulating Plans that define building standards different classifications of areas, which include building height and basic design elements, among others.

Kawaihae Harbor is located within the South Kohala CDP District. The most recent version of the South Kohala CDP was finalized in 2008. The CDP discusses the importance of scenic views in the Kawaiahae area, and specifically identifies the importance of protecting views of Pu'ukoholā Heiau. The CDP states, "The Pu'ukoholā Heiau should be the dominant visual element of the Kawaihae area. Future developments in the area should preserve viewing planes to the heiau" (County of Hawai'i, 2008).

3.10.2 Affected Environment

PTA is located in the broad and dramatic saddle between Mauna Kea and Mauna Loa Volcanoes. The dominant landscape features include the steeply sloping forms of Mauna Kea Volcano to the north and Mauna Loa Volcano to the south. The terrain within PTA is gently sloping, open, and periodically interrupted by volcanic cinder cones, or pu'u, creating dark, visually receding areas throughout PTA. At a closer distance, vegetation within PTA consists of grasses and shrubs, and a few intermediate to tall tree forests offer other visual features. Uniform topography and vegetation result in a lack of visual complexity for PTA, but the expansiveness provides dramatic views. Despite its uniform landscape, the panoramic views and unity of natural features give this area a high visual quality (U.S. Army Environmental Command, 2013). The sweeping views of the Saddle Region are identified by the Hawai'i County General Plan (2005) and the Hāmākua Community Development Plan, as important to protect. Hawai'i Electric Company (HELCO) maintains a 69kV transmission line along the DKI Highway, which is a

dominant, visible element to motorists traveling along the Highway, along with a variety of highway fences, signage, and drainage facilities.

The Cantonment is a distinct visual element of this larger landscape, and includes a concentration of prefabricated Quonset huts. To a lesser extent, some of BAAF's low lying features are also visible to the general public from several vantage points along the DKI Highway. The most visible features within the Cantonment are three large water storage tanks located above the highway and Pu'u Pōhakuloa, around which the Base Camp was built. Approaching from the east along the DKI Highway, the rooftops of the Base Camp buildings become visible from about one-half mile away as a narrow band above intervening terrain and scrub vegetation (Figure 3-7). Approaching from the west along the DKI Highway, structures on the south side of the BAAF, and further east, the rooftops of the maintenance buildings on the west side of the Base Camp become visible from about a mile away (Figure 3-8). Within several hundred feet of PTA's main gate, a HELCO substation and the top row of Quonset huts dominate the highway frontage on the south side of the road (Figure 3-9). Views of the Base Camp buildings are most pronounced along the approximately 1,000-feet stretch of DKI Highway between the main gate and Pu'u Pōhakuloa captured in Figure 3-9.

Figure 3-7: View of the project area from DKI Highway, approaching from the east
Source: Google Street View (September 2011; accessed May 26, 2016)

In Figure 3-7, note the broad mass of the lower slopes of Mauna Kea on the right, the prominence of the Army's three main water tanks and the faint outline of Pu'u Pōhakuloa in the center of the image.

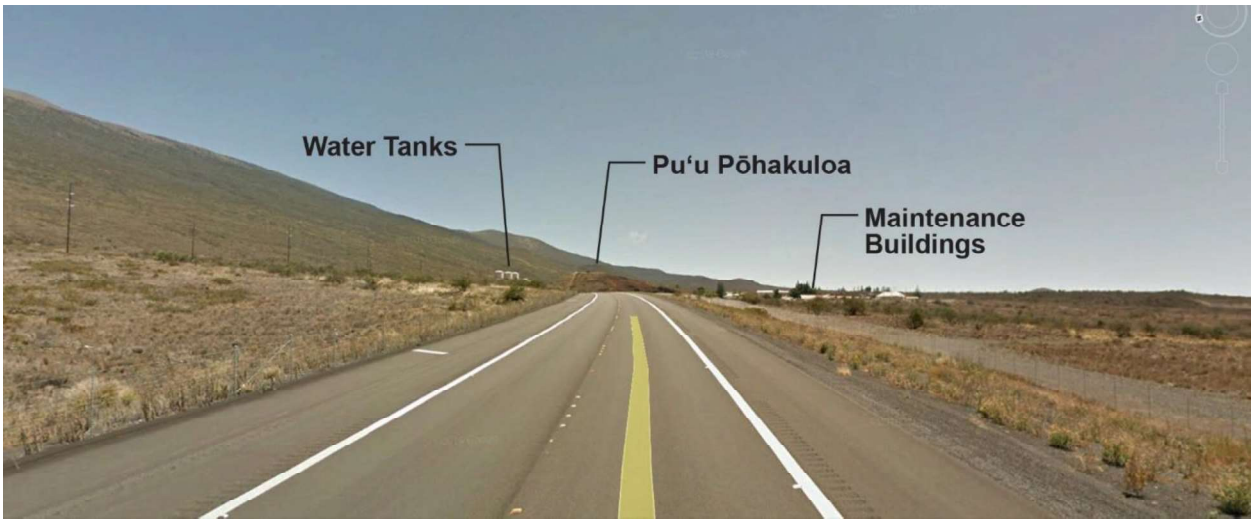

Figure 3-8: View of the project area from DKI Highway, approaching from the west
Source: Google Street View (September 2011; accessed May 26, 2016)

In Figure 3-8, the lower slopes of Mauna Kea are to the left. Water tanks are just to the left of the highway alignment; Pu'u Pōhakuloa is visible in the center of the image. Single-story maintenance buildings on the west side of the Base Camp appear to the right of Pu'u Pōhakuloa.

Figure 3-9 illustrates the public view from DKI highway as it passes along the north and upslope edge of the BAAF. The highway provides a slightly downslope view of airfield buildings with Mauna Loa in the distance.

Figure 3-9: View of the PTA BAAF from DKI Highway, looking south toward Mauna Loa
Source: Google Street View (September 2011; accessed May 26, 2016)

The Regulating Plans for PTA identify two classifications of building standards for the main cantonment: Flex-Use (for Administration and Lodging functions) and Industrial. There is no ADP or related regulating plan with building height standards for the Army's Kawaihae Harbor facilities.

Kawaihae Harbor is located on Hawai'i Island's northwest coastline. Approaching the harbor from the south along the 'Akoni Pule Highway, there are sweeping views of the nearby Pu'ukoholā Heiau with the harbor and the Pacific Ocean in the background (Figure 3-10).

Figure 3-10: View Pu'ukoholā Heiau and Kawaihae Harbor from 'Akoni Pule Highway
Source: Google Street View (October 2011; accessed May 15, 2019)

Figure 3-11 is a photograph taken form the Coral Flats area of the Army's Kawaihae facility (view is towards the south). The fenced storage yard is in the center, with the LSV berth to the right. Note overhead utility lines.

Figure 3-11: View of the Army's Kawaihae facility. Storage yard and fenceline in center, LSV berth to right
Source: HHF August 2017

3.10.3 Environmental Consequences

The evaluation of visual resources addresses the contrast between visible landscape elements. Collectively, these elements comprise the aesthetic environment or landscape character. The landscape character is compared to the visual qualities of the Proposed Action to determine the compatibility or contrast resulting from RPMP implementation. The threshold for significant impacts to visual resources is the degree to which the alternative (1) obstructs or substantially alters existing vistas and view planes

from public viewing points such as public roadways or (2) are inconsistent with important views as identified in county planning documents.

3.10.3.1 Proposed Action

This section presents a general discussion of the potential effects on visual impacts associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP as a guidance document for future real estate actions, but no new development, physical alteration of existing facilities or landscape, or changes to PTA use would result. Therefore, it would have no impact on existing visual qualities, existing vistas and viewplanes from public viewing points, important views identified in county planning documents, and landscape character or the aesthetic environment (including at Kawaihae Harbor).

If and when specific RPMP projects are implemented, they would have minimal impact on the visual environment given the broad scale of the installation and nature and location of the improvements. New development in the Cantonment would be low rise, low density, and of similar height and scale to the existing buildings in Base Camp. Structures will be built in accordance with current design standards, and in accordance with the Army's PTA ADP. During the construction period, construction equipment would be visible from the DKI Highway, but would not impact or diminish any existing important view planes vistas. During the operational period, new development in the Cantonment and at BAAF would be low density, of similar height and scale to the existing buildings in Base Camp, and would be visually compatible with the existing land use and county planning documents. Structures will be built in accordance with current design standards, and in accordance with the Army's PTA ADP. The regional views across the Cantonment to Mauna Loa Volcano would remain relatively unchanged (i.e., not substantially altered).

RPMP projects at Kawaihae Harbor would repair and improve existing facilities, but would not involve major new development or facilities. During construction, grading and underground utility installation would result in temporary visual elements in work areas, which are part of an industrial commercial harbor. During the operational period, there would be no effect on existing views within the harbor or the scenic viewplane to and from Puʻukoholā.

Therefore, the implementation of specific RPMP projects is expected to result in less than significant impacts to visual resources in the ROI.

3.10.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. Development would potentially be done in isolated sections without planned phasing, but projects would still need to comply with NEPA and would be required to avoid or minimize potential impacts to visual resources. Heights of new facilities would be consistent with the Army's land use regulating plans described in Section 3.1.2.2 and BAAF airfield constraints, and are expected to be similar in height, scale, and density to surrounding existing facilities. This would result in

development that is visually compatible with existing land use and county planning documents. Therefore, the No-Action Alternative would result in less than significant impacts to visual resources.

3.11 Public Facilities and Infrastructure

State, county, and publicly regulated utilities and infrastructure systems include public roadways; regional wastewater, potable water, electrical and telecommunications systems; schools; parks; and fire, police and emergency medical services. Army-owned facilities and services include a wide range of municipal type services needed to support PTA. Public roadways are discussed in Section 3.5 Transportation Systems. The ROI for public facilities and infrastructure includes facilities and utility infrastructure at PTA (including its Kawaihae Harbor facilities) and public facilities and infrastructure systems in the surrounding Hawai'i Island community that serve PTA activities.

3.11.1 Regulatory Setting

In 2017, the Hawai'i Legislature passed Act 125, which requires upgrade, conversion, or sewer connection of all cesspools in the State before 2050 unless exempted Director of Health. The Army, including USAG-Pohakuloa, is required to comply with the regulation, which requires full compliance by 2050.

3.11.2 Affected Environment

Because of its remote location, the Army owns and provides most of the needed facilities and services to support PTA operations. Cantonment activities do not impact public facilities and services (schools, hospitals, parks, etc.), except indirectly through the families of approximately 120 permanent party personnel who live off-site in various Hawai'i County communities. Water to support PTA operations is purchased from the Hawai'i County Department of Water Supply and trucked to Army-owned water storage tanks at the Cantonment. Municipal solid waste is collected at PTA and hauled to the West Hawai'i Sanitary Landfill by commercial haulers.

The Base Camp is served by a new septic disposal system. Septic tank pumping services and portable latrine waste disposal during training events are hauled to county wastewater disposal facilities by commercial haulers. Large capacity cesspools formerly in use at the installation have been cleaned, backfilled, and abandoned as part of the FIP sewer system upgrade. The Army expects to be in full compliance with Act 125 by the 2050 deadline.

Electrical power and telecommunications services are provided to PTA by HELCO, Hawaiian Telcom, and Spectrum from facilities along DKI Highway.

The Army's Kawaihae Harbor port facility is accessed by an Army-controlled access road. Due to the transient nature of LSV operations, the existing moorings and wharf infrastructure are not served by any utilities or permanent connections to utility systems. Portable toilets are available to Soldiers in the fenced staging yard, as is a one-story wooden support building. Electrical power is provided by Hawai'i Electric Light Company (HELCO) and Hawaiian Telcom is the main provider of telephone service. The nearest public utility systems (i.e., electrical, water and wastewater, and communication lines) are

associated with facilities at the adjoining commercial harbor and small boat harbor (South); an aboveground potable water line provides water service to showers at the nearby surf park.

Telephone and communication service, power, wastewater collection and potable water are supplied to the South Kohala coast via transmission lines installed along Kawaihae Road and ʻAkoni Pule Highway. The County of Hawaiʻi Department of Water Supply maintains a 12-inch water main to deliver potable water from the county-owned Lālāmilo Water System. The Lālāmilo Water System, which has an average consumption of 3 million gallons per day, is projected to require additional water sources to meet future demand (County of Hawaiʻi, 2005).

3.11.3 Environmental Consequences

This analysis focuses on the potential direct impacts to public facilities and infrastructure as well as the magnitude of anticipated increases or decreases in the demand for public facilities and infrastructure associated with the Proposed Action. The threshold for significant impacts to public facilities and infrastructure is if the alternative causes an unacceptable impairment of utility services to surrounding civilian communities on Hawaiʻi Island.

3.11.3.1 Proposed Action

This section presents a general discussion of the potential effects on public facilities and infrastructure associated with adoption of the RPMP. It also evaluates the impacts of RPMP implementation at a programmatic level.

Under the Proposed Action, the Army would adopt the RPMP. This would not involve improvements that would impact public utilities or facilities serving the main PTA installation, Kawaihae Harbor, or surrounding civilian communities; therefore, adoption of the RPMP would result in no impacts on public facilities and infrastructure.

If and when specific RPMP projects are implemented, proposed infrastructure repairs and improvements at PTA and Kawaihae Harbor would be limited to Army networks and infrastructure. A slight increase in the demand for water, electrical power, and wastewater disposal would be expected during various project construction periods, but is not expected to impair utility services to surrounding civilian communities (including those around Kawaihae Harbor). Construction waste generated by demolition would be subject to PTA's recycling and composting policies and DODI 4715.23, Integrated Recycling and Sold Waste Management (DoD, 2016), which establishes policies and procedures to implement integrated solid waste management though waste prevention and recycling. The Instruction is in accordance with a federal recycling regulations mandate that federal agencies divert non-hazardous solid waste per EO 13693 Planning for Federal Sustainability in the Next Decade. Solid waste not able to be avoided or recycled would be disposed at the County's West Hawaiʻi Landfill at Puʻu Anahulu in accordance with state and county regulations. Additional security and traffic control would be provided at Kawaihae Harbor during the construction period to secure the project site and manage public safety. During the operational period, the implementation of RPMP projects would not change the tempo or intensity of operations at PTA, and there would be no long-term impact to or unacceptable impairment

of public services or utilities under state or county jurisdiction. Therefore, implementation of RPMP projects is expected to result in less than significant impacts on public facilities and infrastructure.

3.11.3.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as-needed basis, which could create temporary increases in demand for water, electrical power, wastewater, and solid waste disposal. However, in the long-term there would be no change to the tempo or intensity of operations at PTA. These impacts would not cause an unacceptable impairment of utility services to surrounding civilian communities (including around Kawaihae Harbor). Therefore, the No-Action Alternative would result in less than significant impacts to public facilities and infrastructure.

3.12 Toxic and Hazardous Substances

The generation, use, storage, transport, and disposal of hazardous materials and waste are regulated at the federal, state, and local levels. The terms hazardous waste, hazardous materials, and hazardous substances include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), and the Toxic Substances Control Act (TSCA). In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics could present substantial danger to public health or welfare or the environment, when released.

Department of the Army Regulation 200–1 (Environmental Protection and Enhancement) governs the use, transport, and disposal of all hazardous materials and regulated waste by military or civilian personnel and on-post tenants and contractors at all Army facilities. In addition to these procedures, USAG-HI follows its own Installation Hazardous Waste Management Plan. This regulation provides plans and procedures for handling, storing, and disposal of hazardous materials and hazardous on USAG-HI installations (U.S. Army Garrison Hawaii, 2010).

Executive Order 13045 Protection of Children from Environmental Health Risks and Safety Risks (62 FR 78) 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."

The ROI for toxic and hazardous substances includes the PTA installation area and areas immediately adjacent that may receive downstream effects of spills or releases, including at Kawaihae Harbor.

3.12.1 Affected Environment

The USEPA requires a Hazardous Waste identification number for installations that qualify as Large Quantity or Small Quantity Generators. Under normal operating conditions, PTA is considered a Conditionally Exempt Small Quantity Generator by the State of Hawai'i; however, it is an episodic Large Quantity Generator and has, therefore, obtained an EPA identification as such.

PTA presently handles materials classified as hazardous materials as well as manages hazardous waste streams. In order to comply with RCRA, PTA is required to maintain a hazardous materials storage facility to control hazardous materials and hazardous waste. Operations are currently located in a building near BAAF. The majority of PTA's hazardous waste is currently generated from three locations: Directorate of Public Works (DPW) maintenance facility; tactical vehicle parking area; and BAAF. Any hazardous materials or hazardous waste associated with operations are identified, removed, handled, and disposed of in accordance with all applicable federal, state, and local regulations, as well as Army guidance and established procedures.

There are no known CERCLA, RCRA, or military munitions response program sites at the PTA or Kawaihae Harbor proposed project areas.

At Kawaihae Harbor, large military vessels regularly berth at the project area and offload heavy vehicles, equipment, and explosives at the ramp. Refueling of military vehicles is allowed at the Army's secured staging compound in the Coral Flats area. Fueling operations are subject to standard BMPs and standard operating procedures, and comply with applicable federal, state, and county regulations for spill prevention and management. Any hazardous materials or hazardous waste associated with the operations are identified, removed, handled, and disposed of in accordance with all applicable federal, state, and local regulations, as well as Army guidance and established procedures.

3.12.2 Environmental Consequences

The toxic and hazardous substances analysis contained in this section addresses issues related to the use and management of hazardous materials, wastes, and substances as well as the presence and management of specific cleanup sites. The threshold for significant toxic and hazardous substances impacts is if the alternative would result in substantial additional risk to human health and safety, including direct human exposure or environmental contamination in violation of applicable federal, DoD, state, or local regulations.

3.12.2.1 Proposed Action

This section presents a general discussion of the potential effects on toxic and hazardous substances associated with adoption of the RPMP. The programmatic impacts of RPMP implementation are also described. This section also addresses the environmental health and safety risks to children.

Under the Proposed Action, the Army would adopt the RPMP. This administrative action would not involve any ground disturbance, new development, or change in PTA operational activities, including at Kawaihae Harbor. Existing BMPs and standard procedures would continue to be observed, and the RPMP adoption would not change the amount, usage, storage, transport, or handling of toxic or hazardous substances at PTA, including its Kawaihae Harbor facilities. Therefore, adoption of the RPMP would have no impact on toxic and hazardous substances in the ROI.

If and when construction of the proposed RPMP projects occurs, any hazardous materials encountered or used would be identified, removed, handled, and disposed of in accordance with all applicable federal, DoD, state, and local regulations. Construction period BMPs would minimize the risk of the release of toxic materials or other pollutants into marine waters, the terrestrial environment, or the

atmosphere. Contingency plans would be in place to address accidental spills of potential pollutants or other hazardous materials or hazardous waste releases. During the construction period, ground disturbance would occur. BMPs would be established to determine if disturbed soils require special handling and disposal, and respond to unanticipated discoveries of contamination or hazardous materials. Adherence to applicable regulations and implementation of BMPs would manage and reduce risks to human health and safety from construction period use or encounters with toxic or hazardous substances. Therefore, construction period impacts associated with RPMP implementation are likely to be less than significant.

During the operational period, implementation of the RPMP would not change the tempo or use of PTA or the Army's facilities at Kawaihae Harbor. Several long-range projects included in the RPMP are proposed to modernize and improve the collection and storage of potentially toxic and hazardous substances. These projects include the Hazardous Materials Storage Facility, Recycling Facility, Refuse Collection Area, and POL Storage Facility. Prior to implementation, these projects would be required to comply with NEPA and all applicable regulations for the proper storage and handling of hazardous materials. In general, these projects have been sited and proposed to modernize and improve the collection and storage of toxic and hazardous substances. Therefore, the implementation of the RPMP is likely to have a long-term beneficial impact on toxic and hazardous substances.

The Proposed Action of adopting the RPMP would not involve any actions or facilities where children are present. It would be an administrative action that would not introduce any products or substances that present environmental health and safety risks for children and would not result in environmental health and safety risks that would disproportionately affect children.

Future implementation of RPMP projects would take place within a secured, active military training installation where access by children is restricted. There are no schools or other facilities where children might be present in the vicinity of the future RPMP projects. Due to the secured premises and general inaccessibility of the project areas to the general public (including children), RPMP implementation would not increase the likelihood that a child would come in contact with or ingest products or substances that present environmental health and safety risks to children during the construction or operational periods. Therefore, future implementation of RPMP projects is not expected to result in environmental health and safety risks that would disproportionately affect children.

3.12.2.2 No-Action Alternative

Under the No-Action Alternative, the Army would not adopt the RPMP. USAG-HI may or may not implement identified projects or plans. Construction and repair projects would still be expected to continue on an as needed basis. During the construction of individual repair or construction projects, any hazardous materials encountered or used would be identified, removed, handled, and disposed of in accordance with all applicable regulations. Therefore, the No-Action alternative would result in less than significant impacts to toxic and hazardous substances in the ROI.

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 NEPA, CEQ regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR section 1508.7 as the following:

"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."

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 do the following:

"…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."

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 defines the geographic extent of the cumulative impacts analysis. In general, the study area would include those areas previously identified in Chapter 3 for the respective resource areas. The time frame for assessing cumulative impacts centers on the timing of the Proposed Action construction. Operational period incremental impacts from the Proposed Action would not result in collectively significant effects of the Proposed Action because they would occur with or without the project. That is, the proposed projects would not change the tempo or intensity of PTA's existing use, as these conditions are governed by operational demands.

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 EISs and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Future Actions

This section focuses on past, present, and reasonably foreseeable future projects at or near the project area (i.e., RPMP planning area). 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, it was first 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. Further, the expected environmental impacts were assessed for their overlap over time. If no such potential relationship or relevant temporal overlap exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), the actions that were initially evaluated (as described above) for their potential interaction with affected resources of the Proposed Action—but were determined as not having overlapping environmental effects—are not listed here because the intent is to focus the analysis on the meaningful actions relevant to informing decision-making.

Projects considered in this cumulative impacts analysis are briefly described in Table 4-1.

Table 4-1: Past, Present, and Reasonably Foreseeable Future Actions

Project Name	Project Description (*Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects*)	Year/Status
Past Actions		
Infantry Platoon Battle Course (IPBC), PTA	Construction of an Infantry Platoon Battle Course (IPBC) on the west side of PTA. The IPBC is capable of supporting standard Infantry Platoon Live-Fire Training enabling units to accomplish their Mission Essential Task Lists using one range. An IPBC supports a variety of light infantry training events, day and night, such as reconnaissance and security, movement to contact, attack, raid, ambush, defend, and retrograde operations. An infantry platoon training on the IPBC would move from objective to objective while engaging targets. The entire developed footprint of the IPBC is approximately 110 acres and includes an unpaved access road to the IPBC, the Range Operations Control Area, objectives with instrumented targetry that Soldiers engage during training exercises, and maneuver lanes (trails that Soldiers and their equipment use to move down the course to engage objectives). (*Resource areas with potential for cumulative impacts: cultural resources, biological resources, noise, air quality, water resources, public facilities and infrastructure)*	2017 Completed
Kawaihae Small Boat Harbor South Improvements, Phases I & II	DLNR multi-phase project - Phase I: 435-foot long floating dock, finger pier, moorings, water system, vehicle and trailer parking, restrooms and a boat wash-down area. Phase II: Larger water pipes and improved 24-foot wide access road along current alignment. (*Resource areas with potential for cumulative impacts: biological resources, transportation systems, noise, air quality, water resources)*	Phase I: completed 2014 Phase II: completed 2015

Project Name	**Project Description** (***Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects***)	Year/Status
Kawaihae Harbor Pier 2 Improvements	HDOT-H project - New relocated harbor office, and new paved areas. Additional cargo yard space, fire protection, drainage fixes, new energy-efficient lighting and photovoltaic systems are among the improvements. (*Resource areas with potential for cumulative impacts: water resources*)	Completed 2015
Stryker Brigade Combat Team, PTA	The Army selected Hawai'i for the transformation of the 2nd Brigade, 25th Infantry Division to a Stryker Brigade Combat Team (SBCT) in 2008. The SBCT is a maneuver brigade that includes approximately 4,000 Soldiers (infantry, artillery, engineers, and other Army specialties) and 1,000 vehicles (including approximately 320 Stryker Wheeled Armored Vehicles). The SBCT was based at Schofield Barracks Military Reservation (SBMR) on O'ahu and conducted periodic training at PTA, including an assortment of live-fire and non-live-fire maneuver training, fixed-position live-fire training facilities, infantry and engineer demolition training facilities, grenade training facilities, and an urban assault course. A number of facilities were constructed at PTA to support SBCT training including the Battle Area Complex, Tactical Vehicle Wash Facility, and acquisition of the Keamuku Maneuver Area (KMA), among others. In 2015, the Army decided to turn the 2nd Brigade of the 25th Infantry Division back into an infantry brigade as part of a Congressionally mandated, Army-wide downsizing to reduce the total number of active duty Soldiers by 40,000. The SBCT transformation back to an infantry brigade combat team (IBCT) resulted in a net loss of approximately 1,200 Soldiers stationed at SBMR and cessation of Stryker training at PTA. The IBCT trains at PTA. The facilities constructed for the SBCT continue to be used by other units. (*Resource areas with potential for cumulative impacts: land use compatibility, cultural resources, biological resources, socioeconomics, natural hazards/geology/soils, toxic and hazardous substances*)	2008 - 2015
Changes in Military Training at PTA	The USMC continues to fly C-130 aircraft in and out of Bradshaw Army Airfield (BAAF). MCBH received two MV-22 squadrons, replacing its CH-46E helicopters, and the new units train at PTA. The Marines expanded BAAF's Bravo helipad to accommodate the MV-22 aircraft and upgraded existing landing zones. The 25th ID Combat Aviation Brigade received 24 Apache (AH-64D) and unmanned aerial systems—replacing 30 Kiowa helicopters. The new aircraft train at PTA. (*Resource areas with potential for cumulative impacts: cultural resources, biological resources, air quality, water resources*)	Completed and Operational Completed and Operational
Multi-Purpose Range Complex	The Army constructed the MPRC in Training Area 23 (near Kipuka 'Alala) in 1989 after completing an EA/FNSI for it in June 1986. A lawsuit was filed to stop construction and the Army ultimately agreed in an out of court settlement to complete construction and prepare an EIS for the operation of the facility. The Army decided not to proceed with MPRC operations upon review of studies it prepared for the EIS. (*Resource areas with potential for cumulative impacts: biological resources, air quality, water resources*)	Construction completed; not in operation

Project Name	Project Description (*Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects*)	Year/Status
Present and Reasonably Foreseeable Actions		
Cantonment Facilities Improvement Program (FIP), PTA	The Cantonment FIP modernizes building and utility infrastructure within an 80-acre Base Camp portion of the PTA Cantonment to meet current building codes and improve the safety and quality of life for Army and other personnel stationed and training at PTA. The project will replace 1950s-era Quonset huts and other buildings with code-compliant one-story structures of similar size, without increasing their capacity or building heights. The general density and basic land use of the project area would remain unchanged. The drainage, sewer, electrical and telecommunications improvements have already been approved under Records of Environmental Consideration and are underway or have been completed. (*Resource areas with potential for cumulative impacts: cultural resources, biological resources, noise, air quality, water resources, visual resources, public facilities and infrastructure, toxic and hazardous substances*)	2016-2023 Utilities improvements completed or underway
Daniel K. Inouye (DKI) Highway	The Saddle Road Improvement Project was initiated in 1992 by the Federal Highway Administration, Hawai'i Department of Transportation (DOT) and the U.S. Army as a way to improve access to PTA and improve the linkage between the east and west sides of the island. The new highway replaces a dangerous, narrow, winding roadway with a modern, highway that carried an estimated 4,000 vehicles per day in 2016 and is expected to carry 19,500 vehicles per day by 2035. The highway was renamed the Daniel K. Inouye (DKI) Highway in 2015. It is being constructed in five sections; the sections between Hilo and the Māmalahoa Highway are now operational. The section between Māmalahoa Highway and the Queen Kaahumanu Highway is in the Final EIS stage and is expected to be operational in the next five to ten years. The highway was aligned to pass to the north of the PTA Cantonment, and the segment of the old road passing to the south of the Cantonment and BAAF was transferred to Army control. The re-alignment required the relocation of barracks and other uses in the highway corridor alignment to elsewhere within the Cantonment, and a relocation of the main Cantonment gate. (*Resource areas with potential for cumulative impacts: cultural resources, biological resources, socioeconomics, transportation systems, noise, air quality, water resources*)	Ongoing
Kawaihae Small Boat Harbor South Improvements, Phase III	DLNR multi-phase project - Phase III: 45-foot long, three-lane launch ramp and loading docks for recreational boat users. (*Resource areas with potential for cumulative impacts: biological resources, transportation systems, noise, air quality, water resources*)	2019
Marine Sciences Center at Kawaihae Harbor	The Jupiter Research Foundation is proposing to lease land from the State and construct a 14,000-SF state-of-the-art Marine Center near Coral Flats with an office/conference building, workshop, storage, and an attached boat garage for its research vessel. (*Resource areas with potential for cumulative impacts: biological resources, noise, air quality, water resources)*	Ongoing

Project Name	Project Description (*Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects*)	Year/Status
Hawai'i Island Commercial Harbors 2035 Master Plan Update	HDOT has long range development plans for Hawai'i County's two commercial harbors (Kawaihae and Hilo) intended to meet 2035 forecasted demand. Improvements identified for Kawaihae Harbor consist of: pier expansion and construction of a new pier to add berthing capacity; harbor dredging; security improvements and fencing; internal roadway circulation improvements, including a new perimeter access road to the Kawaihae SBH (South) exclusive for recreational users; improvements to Main Gate, South Gate and Kawaihae Road; grading and reconfiguration of the coral flats; various pavement and utility improvements; new cargo storage, office space and parking configurations; relocation of small craft dock facilities and recreational boating activities to the SBH (South); and maintaining the Pelekāne Lands buffer and Army harbor access. The long-range recommendation proposes to construct a new 865-ft-long pier fronting the Coral Flats next to the Army LSV landing ramp to accommodate two additional 400-foot long barge berths. The Plan also recommends negotiating with the Army to develop a new easement for harbor access that routes around the south end of the Coral Flats. (*Resource areas with potential for cumulative impacts: biological resources, transportation systems, noise, air quality, water resources*)	Ongoing (to 2035)
Kawaihae Regional Plan	Based on its Hawai'i Island Plan land use designations and development projections, Department of Hawaiian Home Lands (DHHL) has tentatively mapped out initial residential (2,223 acres), commercial/industrial (356 acres), community (72 acres) and agricultural (7,502 acres) uses. Once completed, the subdivisions will add another 787 residential units, 218 acres of industrial and commercial land, land for a new school, and additional space for other community facilities. The proposed master plan will be completed in four (4) phases. PHASE I (2009-2014) - This phase centers around improving services and amenities for the existing residential homestead subdivision. These amenities include developing mail delivery service, daycare facilities for the community residents and development of a community park along 'Akoni Pule Highway. Concurrently, approximately 32 acres of land around the existing industrial subdivision will be developed for additional expansion. PHASE II (2014-2019) - Phase II will focus on an additional 132 half-acre residential lots adjacent to the existing residential homestead subdivision. A 54-acre section of new industrial land along Kawaihae Road and adjacent to Kawaihae Harbor will be developed. Based on current HDOT projections, Phase I of the Kawaihae Bypass road leading to the harbor will begin approximately around the same time as Phase II construction. PHASE III (2019-2024) - Phase III construction will involve developing an additional 300 10,000-SF residential lots mauka of the proposed Phase II industrial land. In addition to residential lot development, groundwork for a new school, park and church/community site will be developed to meet future demand. The new school can provide emergency shelter for residents and their pets in search of higher grounds. An approximate 39-acre town center commercial parcel will be placed along the 'Akoni Pule Highway between existing commercial and industrial zones. Lastly, a 55-acre parcel of industrial land will be developed mauka of the existing Kawaihae village and makai of the bypass highway.	20-year horizon; status of individual phases unknown

Project Name	Project Description (*Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects*)	Year/Status
	PHASE IV (2024-2029) - The last phase will complete the development of 10,000 square foot residential lots mauka of the Phase I industrial lands. Once completed, there will be approximately 655 individual 10,000 square foot residential lots. An additional 38 acres of town center commercial land will be developed mauka of the Phase III commercial zone. (*Resource areas with potential for cumulative impacts: land use compatibility, biological resources, socioeconomics, transportation systems, noise, air quality, water resources, visual resources, public facilities and infrastructure*)	
Hawai'i Island Commercial Airports	Hawai'i DOT-Airports manages two main International Airports in Hawai'i County: Hilo (ITO) and Kailua-Kona (KOA), and other smaller facilities at Waimea and Upolu. Air travel into the KOA is rapidly expanding while the ITO is fairly stable. Phase I of a multi-year terminal modernization at KOA was initiated in 2017 (scheduled for completion in 2019) to address growing demand, along with a new aircraft rescue and firefighting station. There are also plans to construct a similar facility at the ITO. Soldiers training at PTA often arrive and depart the island via commercial aircraft landing at either at KOA or ITO, and are then transported to PTA via commercial ground transportation vendors. (*Resource areas with potential for cumulative impacts: biological resources, socioeconomics, transportation systems, noise, air quality, water resources*)	Ongoing
Mauna Kea Observatories (Thirty Meter Telescope)	The University of Hawai'i (UH) leases sites atop Mauna Kea to international observatories. UH economists estimate that the $59 million in annual spending by the observatories and their operations created $92 million in local output, $28 million in local income and 806 jobs in 2012 (First Hawaiian Bank 2016). The Thirty Meter Telescope (TMT) planned by the University of California and the California Institute of Technology, is undergoing a protracted and controversial permit process with the State of Hawai'i. If built, the TMT is estimated to add $20 million in local spending, $10 million in local income and 275 new jobs. As part of its stewardship responsibilities, UH is in the process of decommissioning two observatories that will eliminate $2 million in spending and 11 local jobs. In 2010, the University of Hawai'i-Hilo applied for a Conservation District Use Permit (CDUP) from the state Board of Land and Natural Resources, required to construct the TMT. The Land Board voted to approve the CDUP, but at the same time ordered a contested case hearing be held. In early 2013, the Land Board approved the CDUP that was then challenged in court. In December 2015, the State Supreme Court ordered the Land Board to begin the contested case process anew and refrain from voting on the permit until after the hearing had run its course. In July 2017, the contested case hearings officer recommended that the Land Board grant the CDUP, and a revised permit was approved in September 2017. That permit was challenged in court. In October 2018, the Hawai'i State Supreme Court affirmed the Land Board's decision to issue a construction permit for the project. Protestors blocked access to the construction site from August to December 2019. TMT officials have said they plan to build	Ongoing

Project Name	**Project Description** (***Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects***)	**Year/Status**
	the telescope in Spain's Canary Islands if they are unable to build in Hawai'i. The Mauna Kea summit is considered a sacred place by many native Hawaiians. Many of those opposed to the TMT project would like to see the existing observatories removed and the mountaintop restored to its pre-development state. Earlier public opinion polls indicated the majority of Hawai'i residents support the scientific objectives of the observatories and the value the observatories bring to the state's economy and international prestige; more recent (September 2019) polling indicated statewide support declining to about 50 percent. (*Resource areas with potential for cumulative impacts: land use compatibility, cultural resources, biological resources, socioeconomics, noise, air quality, water resources, visual resources, public facilities and infrastructure*)	
Gilbert Kahele Recreational Area (neighbor of PTA)	The County of Hawai'i Department of Parks and Recreation has proposed a project to improve the potable and non-potable water systems, recreational cabins, access, parking, landscaping, park amenities, and security and maintenance facilities of the Gilbert Kahele Recreation Area, with the goal of once again providing a high altitude recreational site that serves diverse recreational needs in a safe, efficient, environmentally appropriate and equitable manner. It is located 0.7 miles to the east of the Cantonment. Bunkhouses, cabins, and a dining area were completed in 2018. (*Resource areas with potential for cumulative impacts: cultural resources, biological resources, socioeconomics, transportation systems, noise, air quality, water resources*)	Ongoing
Nakahili, Workforce Developers, LLC	Nakahili, a Work Force Developers, LLC project, proposes an agricultural residential community on approximately 1,559 acres near the intersection of Māmalahoa Highway and Waikoloa Road. The property is just west of the Ke'āmuku Maneuver Area. When fully built out, Nakahili will include approximately 1,158 apartments and farm dwellings, a regional park, and a community park. (*Resource areas with potential for cumulative impacts: land use compatibility, cultural resources, biological resources, socioeconomics, transportation systems, noise, air quality, water resources, visual resources, public facilities and infrastructure*)	Ongoing

Project Name	Project Description (*Resource Areas with Potential for Cumulative Impacts when combined with* implementation *of RPMP projects*)	Year/Status
Department of Hawaiian Home Lands (DHHL) Humu‘ula/ Pi‘ihonua tracts (neighbor of PTA)	DHHL manages approximately 117,000 acres of land in Hawai‘i County and its Humu‘ula/Pi‘ihonua tracts, located to the east of PTA, are the largest contiguous parcels under its jurisdiction. The area is made up of approximately 56,200 acres located on the northeast slopes of Mauna Kea, between the 4,500- and 9,000-feet elevations. The Humu‘ula parcel is approximately 49,100 acres in size and the Pi‘ihonua parcel, located adjacent to the eastern boundary of Humu‘ula, is approximately 7,078 acres in size. ‘Āinahou, comprising approximately 11,124 acres, is the subsection of Humu‘ula south of Saddle Road and is currently under license to the State of Hawai‘i, Department of Land and Natural Resources. DHHL seeks to restore portions of the Humu‘ula/ Pi‘ihonua lands in perpetuity to conserve these native forests and natural habitats for future generations. DHHL believes that the Humu‘ula/Pi‘ihonua lands have the potential for serving as a sustainable native forest and land unit by simultaneously providing environmental, economic and social benefits to the trust and its beneficiaries, in perpetuity, by linking traditional cultural knowledge and modern science. The plan is a mix of conservation and land stewardship, low-density development, commercial forestry, and grazing. Development plans include the first rural-development homestead area for DHHL beneficiaries in the southeastern portion of the property. Preliminary design concepts call for a subdivision layout encompassing approximately 1,000 acres, with a total of approximately 100 to 200 homestead sites and other community uses. DHHL’s Humu‘ula Sheep Station Adaptive Reuse Plan proposes a mix of land uses, wherein the property is divided into three principal sub-areas: Historic/Community Center (5.5 to 6.0 acres); Open Campground (2.0 to 2.5 acres) and Commercial (7.0 to 8.0 acres), including retail, recreational, lodgings, and restaurant activities appropriate to a transient or visitor market. (*Resource areas with potential for cumulative impacts: land use compatibility, cultural resources, biological resources, socioeconomics, transportation systems, noise, air quality, water resources, visual resources, public facilities and infrastructure*)	Proposed

4.4 Assessment

The following analysis of cumulative impacts is organized by resource area in the same order presented in Chapter 3. The Proposed Action (RPMP adoption) is not anticipated to have incremental impacts in the following resource areas that would overlap temporally or spatially in a way that would be cumulatively significant with those of the past, present, and reasonably foreseeable actions identified in Section 4.3. In the sections that follow, *implementation* of RPMP projects is also generally assessed for their potential cumulative effects to provide context for subsequent NEPA evaluation. For many of the resource areas, quantifiable data are not available for analysis; therefore, 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 Land Use Compatibility

Because it would be an administrative action with no physical improvements or alterations to land, facilities, or use, the adoption of the RPMP would have no incremental effect on land use when considered with past, present, and reasonably foreseeable actions. Therefore, it would have no cumulative impacts on land use compatibility.

Implementation of the RPMP would not impact or be incompatible with surrounding land uses because it would retain and continue existing land uses at PTA. As noted earlier, the training tempo and intensity at PTA are driven by national security threat assessments and the ebb and flow of international affairs. Therefore, it would not have incremental land use impacts or result in significant impacts when combined with past, present, and reasonably foreseeable actions.

4.4.2 Cultural Resources

Because it would be an administrative action with no physical changes to facilities and no ground disturbance, the adoption of the RPMP would have no incremental effect on cultural resources when considered with past, present, and reasonably foreseeable actions. Therefore, it would have no cumulative impacts on cultural resources.

Prior to implementation of RPMP projects, required NHPA Section 106 consultations would be conducted, as appropriate. Implementation of most RPMP projects are likely to result in less than significant impacts on cultural resources due to compliance with the PTA ICRMP or Programmatic Agreements in avoiding and minimizing potential impacts to cultural resources. It is anticipated that implementation of RPMP projects would have less than significant cumulative effects on cultural resources when combined with past, present, and reasonably foreseeable actions. However, individual projects would undergo future NEPA evaluation for specific cultural resources effects, appropriate mitigation measures to unavoidable impacts, and further evaluation of cumulative impacts when project details are available.

4.4.3 Biological Resources

The adoption of the RPMP would be an administrative action that would not result in physical alteration of the existing terrestrial, coastal, or marine biological environment; therefore, it would not contribute incremental effects or cumulative impacts when combined with past, present, and reasonably foreseeable future projects.

The RPMP was developed in conjunction with PTA's INRMP, various Biological Opinions, and natural resources overlay that communicate potential environmental constraints to planners and designers to avoid and minimize impacts to biological resources. It is expected that the design of future RPMP projects would consider ways to avoid or minimize potential impacts to natural resources.

Implementation of RPMP projects would comply with ESA Section 7 and applicable natural resources statutory requirements and BMPs, and involve future NEPA evaluation of environmental effects. These processes would limit potential impacts to protected species and supporting habitat through design, avoidance, minimization, and potentially mitigation of unavoidable impacts. It is anticipated that implementation of RPMP projects would have less than significant cumulative effects on biological resources when combined with past, present, and reasonably foreseeable actions. However, individual projects would undergo future NEPA evaluation for specific biological resources effects, appropriate BMPs and mitigation measures, and further evaluation of cumulative impacts when project details are available. As described in Section 3.3.1, the Army is moving toward a programmatic ESA consultation process for PTA with federal resource agencies.

Construction-related activities (such as for the RPMP implementation) would be described in the programmatic biological assessment and the foreseeable impacts (i.e., standard construction impacts) to federally-listed species and critical habitat will be analyzed. The programmatic biological assessment would likely include general avoidance and minimization measures similar to those identified in this PEA, and/or additional measures as needed to address project-specific impacts. As a result, the need for additional mitigation measures for individual ESA Section 7 consultations for each RPMP project may be minimized.

4.4.4 Socioeconomics

The adoption of the RPMP would be an administrative action that would not involve new development or construction, alteration of existing facilities, or changes to existing operations, would not increase State or County temporary or permanent residential population, impact economic characteristics, activity, or tax revenue, or significantly affect existing social conditions or issues (e.g., Native Hawaiian rights, environmental advocacy, hunting access, commuter traffic). Therefore, when combined with past, present, and reasonably foreseeable future projects, the Proposed Action would have no incremental effects on socioeconomics and would not result in significant cumulative impacts.

Implementation of RPMP projects would result in minor increases in temporary construction-related jobs and expenditures, earnings, and State tax revenues. Operational period impacts of RPMP implementation on these economic factors would be insignificant because the RPMP is not intended to increase capacity or frequency of training activities.

As a set of actions that would continue existing uses at PTA, RPMP implementation would not alter the conditions in which Native Hawaiian rights and environmental advocacy exist and are being debated; however, a segment of the community may perceive it as causing adverse incremental social impacts that may be cumulative when added to those of other projects such as Mauna Kea Observatories Thirty-Meter Telescope. It may temporarily affect access to PTA hunting units during the construction periods, but would not change access during the operational period. RPMP project implementation would temporarily increase vehicle traffic on public roadways to and from PTA during construction, but at less than significant levels. During the operational period, no changes to training frequency or capacity are planned and impacts to commuter traffic would be less than significant.

Therefore, when combined with past, present, and reasonably foreseeable actions, implementation of the RPMP is likely to have less than significant incremental socioeconomic impacts. However, individual projects would undergo future NEPA evaluation when project details are available, which will include further evaluation of potential cumulative impacts.

As described in Section 3.4.3.1.5, the adoption of the RPMP would have no impacts on minority or low income populations because there would be no new environmental hazards introduced by this administrative action. The implementation of RPMP projects is not expected to cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations in the communities surrounding PTA during the construction or operational periods because activities would occur within Army-controlled areas and adhere to applicable federal and state safety and environmental controls. There would be little potential for the incremental effects of the RPMP implementation to result in Environmental Justice cumulative impacts; however, there may be intangible social and cultural concerns for some Native Hawaiians as described in Section 3.4.3.1.4.

4.4.5 Transportation Systems

Adoption of the RPMP would be an administrative action that would not affect roadways serving PTA or the surrounding communities because it would not change activity levels or personnel permanently assigned to or temporarily training at PTA, including its Kawaihae Harbor facilities. For the same reason, the RPMP adoption would not affect use of airports or harbors on Hawai'i Island. Therefore, the Proposed Action would have no incremental effects on transportation systems when combined with past, present, and reasonably foreseeable future projects.

Construction and operation of specific RPMP projects are not expected to significantly affect roadway, harbor, or airport transportation because projects would be constructed over a 20-year period and not result in changes in PTA facility use, training tempo, or intensity. During construction activities, CMPs and BMPs would avoid or minimize roadway traffic impacts, which would be temporary. Because of the long implementation horizon (i.e., 20+ years), it is difficult to predict how RPMP projects may interact with other reasonably foreseeable future projects listed in Table 4-1; however, most would not overlap geographically with the RPMP projects. Therefore, implementation of RPMP projects is unlikely to result in significant cumulative effects when combined with past, present, and reasonably foreseeable actions. However, individual projects would undergo future NEPA evaluation when project details are available, which will include further evaluation of their potential cumulative impacts.

4.4.6 Noise

Under the Proposed Action, the Army would adopt the RPMP, an administrative action that would not involve physical changes to PTA facilities, activities, or lands. Therefore, it would have no incremental impacts to the noise environment when combined with past, present, and reasonably foreseeable future projects.

Construction period noise associated with RPMP implementation will be assessed on a project-by-project basis as they undergo NEPA evaluation. Projects at the PTA main installation are unlikely to affect civilian communities due to their geographical separation. Kawaihae Harbor construction projects

would be in the vicinity of non-military uses; BMPs and mitigation measures would be employed, as appropriate. Therefore, RPMP implementation is not expected to result in cumulative impacts when combined with past, present, and reasonably foreseeable actions. However, individual projects would undergo future NEPA evaluation when project details are available, which will include further evaluation of potential cumulative impacts.

4.4.7 Air Quality

Under the Proposed Action, the Army would adopt the RPMP, an administrative action that would not in itself result in construction or operational activities that would increase pollutant or GHG emissions; therefore, it would have no incremental effects on air quality when combined with past, present, and reasonably foreseeable future projects.

Implementation of specific RPMP projects would generate temporary air emissions during their construction periods, which are expected to be less than significant and of relatively short duration at any one location. Future NEPA analyses would be conducted to confirm this and BMPs would be employed to minimize particulate emissions during ground disturbing activities. During the operational period, the RPMP projects would not introduce new major air emissions sources because the basic uses of and activities at PTA and Army-controlled areas of Kawaihae Harbor would remain unchanged from base line conditions.

Though individual projects are unlikely to have significant impacts on global climate change, they collectively may have cumulative effects when their individual GHG emissions are combined over time. The Proposed Action (RPMP adoption) would have no effects on GHG emissions. RPMP implementation would generate GHG emissions during demolition, renovation, and construction work. However, most of these GHG emissions would be temporary in nature and can be minimized through BMPs. Operation of PTA with the reasonably foreseeable proposed projects would generate GHG primarily from vehicle exhaust and indirect consumption of electrical power; however, this does not represent an increase over current levels since personnel loading and associated privately owned vehicle traffic is not expected to change due to the redevelopment period.

Therefore, RPMP implementation is not expected to have a significant cumulative effect on air quality, including GHGs. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when specific project details and timing are available.

4.4.8 Water Resources

The RPMP adoption would not involve ground disturbance, changes in PTA activities or use, or physical alteration of PTA facilities or Army-controlled lands. Therefore, the adoption of the RPMP would not have incremental impacts on water resources and not contribute to cumulative effects when combined with past, present, and reasonably foreseeable future projects.

Implementation of RPMP projects is likely to have insignificant effects on water resources during both the construction and operational periods, as no streams or surface waters are expected to be affected by individual projects, which would comply with all applicable federal and state water quality regulations to avoid or minimize adverse impacts. NEPA-related studies and consultations for the

proposed potable water well(s) (Short-Range project G) would be conducted to ensure potential impacts to groundwater resources are avoided or minimized. RPMP projects at Kawaihae Harbor would comply with applicable permit conditions to ensure that potential impacts to marine waters are avoided or minimized. Therefore, RPMP implementation is not likely to have significant cumulative impacts on water resources when combined with past, present, and reasonably foreseeable actions. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

4.4.9 Natural Hazards, Geology, and Soils

Under the Proposed Action, there would be no new development, ground disturbance, or changes in facility use, and would have no impacts to geological features, soils, or the frequency or intensity of natural hazards. Therefore, adoption of the RPMP would not contribute incremental effects to natural hazards, geology, or soils when combined with past, present, and reasonably foreseeable future projects.

RPMP implementation is not likely to significantly impact natural hazards, geology, or soils because physical alteration of soils and terrain would be localized. Project-specific BMPs would be employed to limit erosion and surface runoff. Construction and operational activities would not introduce new activities in hazard zones and would meet current seismic codes. These impacts from RPMP project implementation are not expected to produce significant cumulative impacts when combined with past, present, and reasonably foreseeable actions. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

4.4.10 Visual Resources

Under the Proposed Action, the Army would adopt the RPMP as a guidance document for future real estate actions, but no new development or physical alteration of existing facilities or landscape would result. Therefore, it would have no impact on existing visual qualities, landscape character or the aesthetic environment and would not result in incremental effects when combined with past, present, and reasonably foreseeable future projects.

Because of their location and likely physical design, RPMP projects are expected to have minimal impact on visual resources. Therefore, RPMP implementation is unlikely to result in significant cumulative impacts when combined with past, present, and reasonably foreseeable actions. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

4.4.11 Public Facilities and Infrastructure

The adoption of the RPMP would not involve improvements or changes in activities that would impact public utilities or facilities serving the main PTA installation or Kawaihae Harbor and would have no incremental effects on public facilities and infrastructure when considered with past, present, and reasonably foreseeable future projects.

RPMP implementation is likely to have insignificant impacts during the construction period from temporary increases in utility demands. During the operational period, there may be minor increases in utility demands due to modernized facilities, but they would not result in demand for a new sources. NEPA-related studies and consultations for the proposed potable water well(s) (Short-Range project G) would be conducted to ensure potential impacts to groundwater resources are avoided or minimized. Therefore, RPMP implementation is not expected to have a significant cumulative effect on public utilities and infrastructure when combined with past, present, and reasonably foreseeable actions. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

4.4.12 Toxic and Hazardous Substances

The Proposed Action would not involve any ground disturbance, new development, or change in PTA operational activities and it would have no impact on toxic and hazardous substances. Therefore, adoption of the RPMP would have no incremental effects on toxic and hazardous substances when considered with past, present, and reasonably foreseeable future projects.

As described in Section 3.12.2.1, implementation of the RPMP is not expected to significantly impact toxic and hazardous substances during the construction or operational periods. All hazardous materials encountered would be handled and disposed of in accordance with all applicable regulations, and several long-range projects would modernize the collection and storage of potentially toxic and hazardous substances. Therefore, RPMP implementation is anticipated to have less than significant impacts on toxic and hazardous substances when combined with past, present, and reasonably foreseeable actions. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

4.5 Conclusions

The analyses show that, when considered with relevant past, present and reasonably foreseeable projects, the incremental effects of the Proposed Action (i.e., RPMP adoption) would not contribute to cumulative impacts on pertinent resource areas.

When considering the implementation of specific RPMP projects, construction related impacts are expected to be less than significant. During the operational period, RPMP projects are expected to have a less than significant cumulative impact on the natural and manmade environment. However, further evaluation of potential cumulative impacts would be conducted as a part of future NEPA evaluation when project details are available.

Because it is assumed that the No Action Alternative would eventually involve the construction of many or all RPMP projects, its incremental effects would be similar to those of RPMP implementation during the construction and operational periods (i.e., likely less than significant).

5 Other Considerations Required by NEPA

In addition to the analyses discussed in Chapter 3, NEPA requires additional evaluation of the project's impacts including the relationship between short-term uses and long-term productivity and any irreversible or irretrievable commitment of resources. Additionally, Chapter 5 confirms the absence of any significant unavoidable adverse effects or required mitigation measures for the Proposed Action and provides a discussion of the Proposed Action's compliance with the CZMA.

5.1 Relationship between Short-Term Uses 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.

The Proposed Action of adopting the RPMP would have no effects on the human environment.

In the short-term, effects to the human environment with implementation of the RPMP would primarily relate to the construction activity itself. Construction-related impacts to air quality, noise, biological resources, would be short-term consequences. Mitigation measures and BMPs would avoid, minimize or offset adverse impacts to these resources. In the long-term, RPMP implementation would not result in a net change in personnel at PTA or intensity of its use and would not significantly impact the long-term natural resource productivity of the area. Because most activities would occur in previously disturbed lands, RPMP implementation is not expected to result in any impacts that would significantly reduce environmental productivity or significantly narrow the range of beneficial uses of the environment.

5.2 Irreversible or Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that could not be replaced within a reasonable time frame (e.g., fossil fuels and minerals). Irretrievable resource commitments involve the loss in value of an affected resource that could not be restored as a result of the action (e.g., the extinction of a threatened or endangered species and the disturbance of a cultural resource).

There would be no irreversible commitments of resources under the Proposed Action. With implementation of the RPMP, irreversible commitments of resources would include the non-renewable or slowly renewable natural resources needed to manufacture, transport, and construct and replace facilities. However, the consumption of these resources do not represent an unnecessary, inefficient, or wasteful use of these resources, nor would it prevent sustainable development. RPMP implementation activities would result in an irreversible or irretrievable commitment of resources such as labor, fuel, and demolished materials. These resource commitments are neither unusual nor unexpected given the nature of the construction. RPMP implementation would not result in the destruction of environmental

resources such that the range of potential uses of the environment would be limited, and careful siting, planning and impact avoidance/minimization measures would be employed to minimize effects on the biodiversity of the region. The long-term productivity of RPMP implementation is based on the efficiencies, safety improvements, and equipment protection improvements that will be provided by the Proposed Action. Therefore, implementation of the RPMP is not expected to result in significant irreversible or irretrievable commitment of resources.

5.3 Significant Unavoidable Adverse Effects

An EA must include a description of any significant unavoidable impacts for which no mitigation, or only partial mitigation, is feasible. The Proposed Action would not result in any significant unavoidable impacts, as the RPMP adoption is an administrative action that would not involve new construction, physical alteration, new activities, or increased activities at PTA.

Impacts of RPMP implementation are expected to be less than significant when applicable BMPs, permit conditions, and mitigation measures are implemented. This would be confirmed in future NEPA assessments.

5.4 Mitigation Measures

Proposed Action impacts would be less than significant for all resources, so no mitigation measures are proposed. Implementation of the RPMP would be subject to separate evaluations under NEPA and other applicable laws; any project-specific mitigation measures would be identified under those evaluations.

5.5 Coastal Zone Management Act

The federal CZMA of 1972 establishes a federal-state partnership to provide for the comprehensive management of coastal resources. Coastal states and territories develop site-specific coastal management programs based on enforceable policies and mechanisms to balance resource protection and coastal development needs. The Hawai‘i CZM Program lays out the policy to guide the use, protection, and development of land and ocean resources within the state’s coastal zone. Under the Act, federal activity in, or affecting, a coastal zone requires preparation of a Coastal Zone Consistency Determination or a Negative Determination. In other words, any federal agency proposing to conduct or support an activity within or outside the coastal zone that will affect any land or water use or natural resource of the coastal zone, is required to do so in a manner consistent with the CZMA or applicable state coastal zone program to the maximum extent practicable.

USAG-HI assessed reasonably foreseeable direct, indirect, and cumulative effects on Hawai‘i’s defined coastal zone and reviewed relevant management programs of the Hawai‘i CZM program in accordance with the CZMA. Because the administrative action of adopting the RPMP would not involve any new development, alteration of existing land or facilities, changes in land use, activities, or training tempo or intensity, USAG-HI determined that that the Proposed Action would have no effects on coastal uses or resources (see Appendix A for documentation of this determination). Future implementation of RPMP projects would be subject to CZMA requirements and consultations.

5.6 Compliance with Other Executive Orders

Executive Order 13834 Regarding Efficient Federal Operations requires federal agencies to prioritize reducing waste, cutting costs, enhancing the resiliency of Federal infrastructure and operations, and tracking reductions for accountability.

The Proposed Action is consistent with this EO because it promotes internal and external coordination of future project execution, which should improve efficiencies, waste reduction, and cost cutting.

Implementation of the RPMP would involve reuse, repair, consolidation, and refurbishment of existing facilities at PTA, primarily in or near the previously developed Cantonment, rather than new construction in "greenfield" locations. Therefore, it would also be consistent with EO 13834.

Executive Order 13045 – Protection of Children from Environmental Health Risks and Safety Risks (62 FR 78) requires federal agencies to assess activities that have disproportionate environmental health effects on children. As discussed in Section 3.12, Toxic and Hazardous Substances, adoption of the RPMP (Proposed Action) would not involve any actions or facilities where children are present. They would be administrative actions that would not introduce any products or substances that present environmental health and safety risks for children, and would not result in environmental health and safety risks that would disproportionately affect children.

Because the general public is restricted from PTA and would be restricted from the project area during RPMP project construction, RPMP implementation is not expected to have disproportionate environmental health effects on children.

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Appendix A: Coastal Zone Management Act Documentation

IMHW-PWE 01 November 2019

MEMORANDUM FOR RECORD

SUBJECT: Coastal Zone Management Act of 1972 (CZMA) Compliance for the Adoption of the Pohakuloa Training Area (PTA) Real Property Master Plan (RPMP)

1. Pursuant to 32 CFR Part 651, the U.S. Army Garrison, Hawaii's (USAG-HI) is developing a programmatic environmental assessment (EA) for the adoption of the PTA RPMP. The RPMP reflects the Army's mission requirements in addressing future facility and infrastructure needs at PTA over a 20 year time frame or longer.

2. The USAG-HI Directorate of Public Works (DPW), National Environmental Policy Act (NEPA) Program has informed the Hawaii Coastal Zone Management (CZM) Program that the RPMP is being developed. The Hawaii CZM Program was also made aware that the EA for the RPMP was an administrative action and that the projects described in the plan would undergo its own NEPA analysis and CZMA compliance process, once the projects came to fruition.

3. In accordance with 15 CFR 930, subpart C, Federal agencies shall determine which of their activities have coastal effects. Part 930.33(a)(2) states that if the Federal agency determines that a Federal agency activity has no effect on any coastal use or resources, and a negative determination under Part 930.35 is not required, then the Federal agency is not required to coordinate with State agencies under 307 of the Act.

4. The USAG-HI has determined that the activity of adopting the RPMP has no effect on any coastal use or resources and that a negative determination is not required, therefore further coordination with the Hawaii CZM Program is not required.

5. Point of contact regarding this memorandum is Mr. Alton Exzabe, NEPA Coordinator in the DPW Environmental Division. He can be reached at (808) 656-1340 or email at alton.j.exzabe.civ@mail.mil.

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