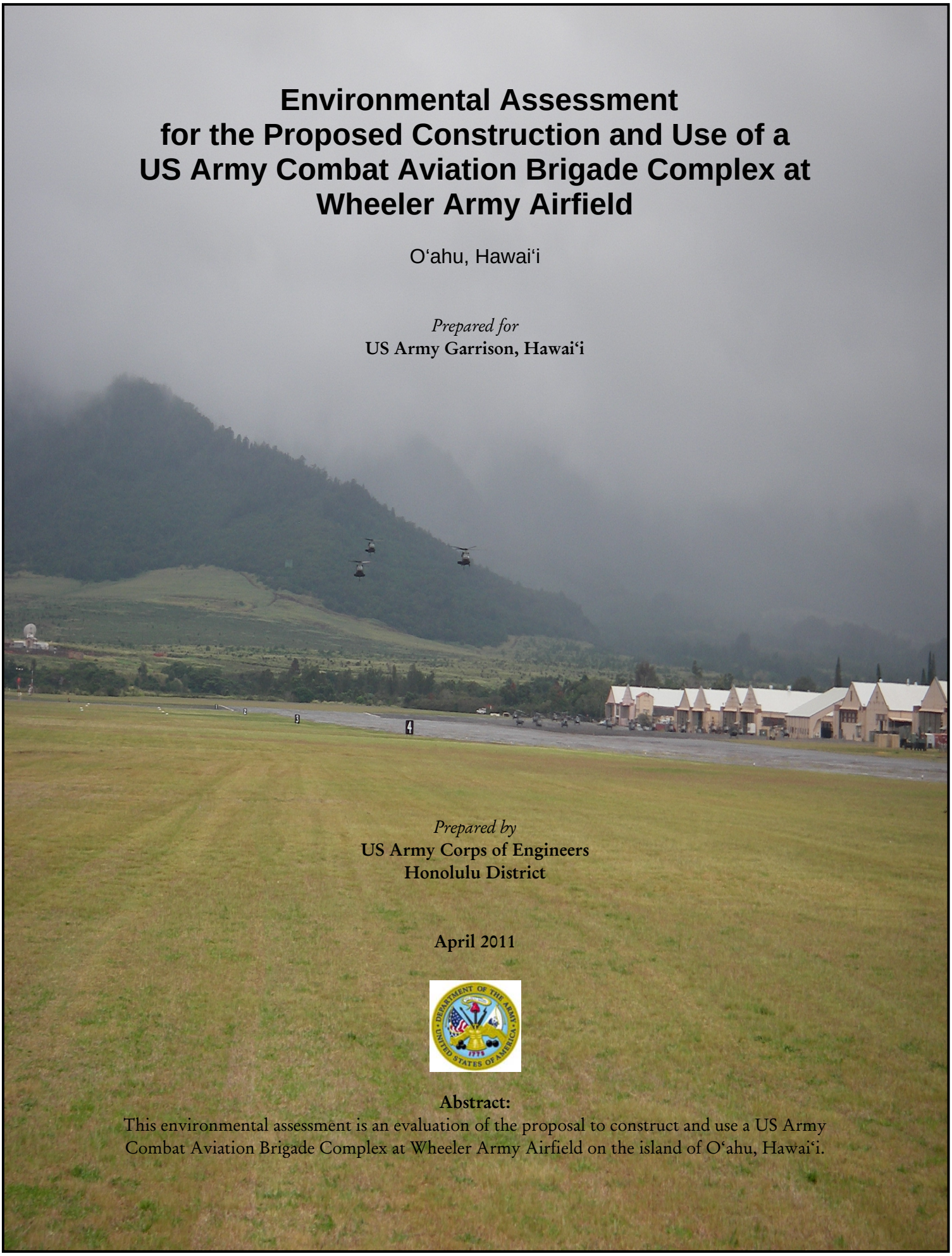
Environmental Assessment for the Proposed Construction and Use of a US Army Combat Aviation Brigade Complex at Wheeler Army Airfield

O‘ahu, Hawai‘i

Prepared for
US Army Garrison, Hawai‘i



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April 2011

Abstract:
This environmental assessment is an evaluation of the proposal to construct and use a US Army Combat Aviation Brigade Complex at Wheeler Army Airfield on the island of O‘ahu, Hawai‘i.

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This environmental assessment addresses the Proposed Action to construct and use a US Army Combat Aviation Brigade Complex at Wheeler Army Airfield. This action includes constructing new site infrastructure, aviation maintenance hangars, aircraft maintenance aprons, company operation facilities, rotary parallel taxiway, tactical equipment maintenance facilities, barracks, hot refueling pads, parking areas, dining facility, central plant, flight control tower, remote switch center, and an access control point. As required by Environmental Analysis of Army Actions (32 Code of Federal Regulations, Part 351) and the National Environmental Policy Act, the potential environmental and socioeconomic impacts are analyzed.

An ***EXECUTIVE SUMMARY*** briefly describes the Proposed Action (Preferred Alternative) and No Action Alternatives, environmental and socioeconomic consequences, and mitigation measures.

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SECTION 1.0: ***INTRODUCTION*** is a summary of the purpose of and need for the proposed project and a description of the scope of the environmental impact analysis process. This section also includes a discussion of the Proposed Action (Preferred Alternative) and the No Action Alternatives.

SECTION 2.0: ***AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES*** describes the existing environmental and socioeconomic setting on the island of O‘ahu. The section also identifies potential effects of implementing the Proposed Action (Preferred Alternative) and No Action Alternative, and summarizes the resulting environmental effects.

SECTION 3.0: ***CUMULATIVE IMPACTS*** identifies potential cumulative effects of implementing the Proposed Action and cumulative actions and summarizes the resulting environmental effects.

SECTION 4.0: ***OTHER REQUIRED DISCUSSION*** is concerned with the relationship between local short-term uses and long-term productivity and includes any irreversible and irretrievable commitment of resources. A list of agencies consulted is also provided.

SECTION 5.0: ***REFERENCES*** are bibliographical information for cited sources.

SECTION 6.0: ***LIST OF PREPARERS*** are persons who prepared the document.

APPENDICES

- *A* Coastal Zone Management Act Negative Determination Letter
- *B* Clean Air Act Record of Nonapplicability for Combat Aviation Brigade Actions at Wheeler Army Airfield
- *C* SHPO Letter

Draft Finding of No Significant Impact for
Proposed Construction and Use of a US Army Combat Aviation Complex
at Wheeler Army Airfield, O‘ahu, Hawai‘i

Authority

In accordance with the Council on Environmental Quality (CEQ) Regulations (40 CFR, Parts 1500-1508) for implementing the procedural provisions of the National Environmental Policy Act (NEPA) (42 USC, 4321 et seq.), and the Army's NEPA regulations codified at 32 CFR, Part 651, the US Army conducted an environmental assessment (EA) of the potential environmental and socioeconomic effects associated with construction and use of a US Army Combat Aviation Brigade (CAB) Complex at Wheeler Army Airfield (WAAF) on O‘ahu, Hawai‘i.

Proposed Action

The Proposed Action is to construct modern replacement facilities for the CAB. Due to the size and complexity of this undertaking, construction is scheduled over seventeen phases. These projects would provide facilities that meet current Army standards to accommodate the operational and mission requirements for the CAB.

Alternatives Considered

In accordance with NEPA and the Army's real property planning policy and regulations, the USAG-HI evaluated the following scenarios for constructing CAB facilities:

- **No Action—**No construction of facilities for the CAB. Continue to use existing facilities for CAB operations.
- **Proposed Action (Preferred Alternative)—**Construct a CAB Complex at WAAF.

As required by CEQ regulations, the No Action Alternative was considered in the EA to serve as a benchmark against which the proposed action was evaluated.

In order to determine which scenario would meet the established purpose and need for the projects, USAG-HI determined that the CAB should strengthen the spatial and operational relationships appropriate to a CAB. The facility requirements for the CAB Complex should promote efficient operations and training, while preserving a sense of "going home" when the Soldier's workday is complete.

Under the Preferred Alternative, several facilities would be constructed to support the CAB, as follows: site infrastructure, a remote switch center, hot refueling pads with storage, a rotary-wing parallel taxiway, two aircraft maintenance aprons, a rotary-wing parking apron, a clear water rinse/corrosion control facility, a flight control tower, four aviation maintenance hangars, four aircraft washing aprons, two tactical equipment maintenance facilities, four unaccompanied enlisted personnel housing buildings, a company operations facility, a consolidated brigade/battalion headquarters, privately owned vehicle parking, a light aviation maintenance hanger, a dining facility, a central plant, and an access control point.

Heavy equipment used during demolition and construction would include scrapers, bulldozers, excavators, and heavy haul transporters. It may be necessary to establish interim parking (less than 100 spaces) for the barracks because construction will occur in a phased approach and barracks parking will be temporarily used for staging during demolition and construction. Interim parking locations would be selected based on land use and environmental considerations. Waste materials would be recycled, disposed of at landfills, or diverted to a waste-to-energy facility. Current Army diversion goals require fifty percent of nonhazardous construction and demolition debris be diverted from landfill disposal. Hazardous materials encountered would be handled in accordance with all applicable federal and state laws and regulations.

The Army would use best management practices (BMPs) to reduce potential impacts during project implementation. Such BMPs may include developing a program to educate workers about BMPs and safety standards before the project starts; minimizing dust by regularly watering exposed soils, stockpiling soil, and stabilizing soil; using equipment exhaust mufflers; restricting parking of construction-related vehicles to on-site space for the duration of construction or in other designated areas; using stormwater pollution prevention BMPs, such as silt fencing, dust control, and sediment traps; placing seasonal and duration restrictions on construction activities; and complying with State of Hawai‘i noise regulations and standards.

The proposed facilities would comply with standards established by the US Army. They would contribute to high morale, would enable operations efficiency, and would foster the effective function of the modular force structure.

Factors Considered in Determining that No Environmental Impact Statement Would Be Required

The EA, which is incorporated by reference into this draft finding of no significant impact (FNSI), examined the potential effects of the Proposed Action and No Action Alternative on several valued environmental components. Implementing the Proposed Action would result in a combination of adverse and beneficial impacts.
Under the Preferred Alternative, there would be less than significant adverse impacts on transportation and circulation, noise, air quality, water resources, hazardous materials and conditions, public services and utilities, biological resources, cultural resources, visual resources, and geology, soils and seismicity. The Preferred Alternative would have beneficial impacts on land use, socioeconomics, and transportation and circulation. There would be no impacts on environmental justice.

Conclusion

Based on the findings in the EA, implementing the Proposed Action by utilizing the Preferred Alternative would result in no significant direct, indirect, or cumulative effects on the resources listed above. Therefore, an environmental impact statement need not be prepared. The EA supports the issuance of this FNSI.

Public Comment

The Final EA and Draft FNSI will be available for review and comment for 30 days, beginning on May 23, 2011, and ending on June 21, 2011.

_____ _____

DOUGLAS S. MULBURY Date
Colonel, US Army Garrison, Hawai‘i
Commanding

ENVIRONMENTAL ASSESSMENT
FOR THE PROPOSED CONSTRUCTION AND USE OF A
US ARMY COMBAT AVIATION BRIGADE COMPLEX
AT WHEELER ARMY AIRFIELD
O'AHU, HAWAI'I

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April 2011

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This environmental assessment (EA) addresses the environmental impacts of the Proposed Action to construct and use a US Army 25th Infantry Division Combat Aviation Brigade (referred to as CAB for the remainder of the document) Complex at Wheeler Army Airfield (WAAF) on O‘ahu, Hawai‘i.

The purpose of the Proposed Action is to consolidate, update, and construct modernized CAB facilities to meet current standards. The need for the Proposed Action is that US Army Garrison, Hawai‘i (USAG-HI) does not have enough standardized operational and mission facilities to accommodate the CAB.

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 US Code, Section 4321 et seq.; the Council on Environmental Quality regulations for implementing NEPA, 40 Code of Federal Regulations (CFR) Parts 1500-1508: Environmental Analysis of Army Actions (32 CFR 651). The purpose of the EA is to analyze the environmental impacts, present the findings, and solicit public input in order for the Army to make an informed decision on selecting between the alternatives. This EA provides a focused and site-specific analysis of the potential environmental impacts of constructing and using facilities at WAAF to support the CAB. Additionally, the EA considers impacts on O‘ahu that would result from the Proposed Action.

Proposed Action (Preferred Alternative): Construct a CAB Complex at WAAF

The Proposed Action is to construct modern replacement facilities for the CAB. Due to the size and complexity of this undertaking, construction is scheduled over seventeen phases. These projects would provide a CAB

Complex that meets Army standards. All required antiterrorism/force protection measures are included in project designs, which have been coordinated with the installation security plan. These facilities are as follows:

- Site infrastructure (Phase 1; storm drainage, water, sewer, gas, electric, roads, sidewalks, curb, gutter, landscaping, and irrigation);
- Remote Switch Center (Phase 1);
- Hot refueling pads with storage (Phase 1);
- Rotary-wing parallel taxiway (Phase 2);
- Two aircraft maintenance aprons (Phase 2);
- Rotary-wing parking apron (Phase 2);
- Clear Water Rinse/Corrosion Control Facility (Phase 2);
- Flight control tower (Phase 2);
- Four aviation maintenance hangars (Phases 3, 4, 5 and 6);
- Four Aircraft washing aprons (Phases 3, 4, 5, and 6);
- Two Tactical Equipment Maintenance Facilities (Phases 7 and 8);
- Four Unaccompanied Enlisted Personnel Housing Buildings (Phases 9, 10, and 14);
- Company Operations Facility (Phase 11);
- Consolidated Brigade/Battalion Headquarters (Phase 12);
- Privately owned vehicle (POV) parking (Phases 9, 10, 13, 14, and 17);
- Light aviation maintenance hangar (Phase 15);
- Dining Facility (Phase 16);
- Central plant (Phase 16); and
- Access Control Point (Phase 17).

No Action Alternative

The No Action Alternative is a benchmark against which the Proposed Action alternative can be evaluated. Under this alternative, the CAB would continue to be housed in its current facilities at WAAF and Schofield Barracks Military Reservation (SBMR), which do not meet Army standards for hangar and operational space. Working in these buildings makes it difficult for the CAB to train and maintain unit readiness in an efficient manner and to function as a part of the Army's modular force structure. This would be detrimental to

Soldier morale and productivity. Soldier morale would not be enhanced without the improvement of their working and living conditions.

The No Action Alternative is evaluated in the environmental consequences section of this EA and addresses the potential impacts of no action on baseline conditions identified in the affected environment section of the document.

Summary of Environmental and Socioeconomic Impacts

Less than significant impacts are identified for most resource areas under the Proposed Action, as summarized in Table ES-1.

Table ES-1
Summary of Potential Impacts for
the Proposed Action, the No Action Alternative, and Cumulative Actions

Impact Issues	Proposed Action (Preferred Alternative)	Cumulative	No Action Alternative
Land use	+/⊙	○	○
Socioeconomics	+	+	○
Transportation and circulation	+/⊙	+/⊙	○
Noise	⊙	⊙	○
Air quality	⊙	⊙	○
Geology, soils, and seismicity	⊙	⊙	○
Water resources	⊙	⊙	○
Hazardous materials and conditions	⊙	⊙	○
Public services and utilities	⊙	⊙	○
Biological resources	⊙	⊙	○
Cultural resources	⊙	⊙	○
Visual resources	⊙	⊙	○
Environmental justice	○	○	○

LEGEND:

+ = Beneficial impact
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative): Construct a CAB Complex at WAAF

Under the Proposed Action, beneficial impacts can be expected for land use, socioeconomics, and transportation and circulation. The proposed construction of the CAB Complex is consistent with the long-range land use goals and policies in the WAAF Real Property Management Plan for development of facilities at WAAF. The construction of the CAB Complex would meet Army standards and provide both support and operation facilities

to enhance training and improve infrastructure. In addition, the Proposed Action would be consistent with the land use goals and policies of Executive Order 13123 and would not conflict with the Coastal Zone Management Act, and other state and local plans.

The Proposed Action would have short-term and long-term beneficial effects on the local economy. There would be marginal increases in employment and income during the construction period, between 2012 and 2017.

Less than significant impacts are expected for land use, transportation and circulation, noise, air quality, geology, soils and seismicity, water resources, hazardous materials, public services and utilities, biological resources, cultural resources and visual resources.

The relocation of the ball fields from a location inconsistent with the long-range planning areas, without a specific timetable for their reconstruction at a more appropriate location, is a less than significant impact of the Proposed Action.

Under the Proposed Action, there would be an increase in tactical vehicles and POV on WAAF from the use of the proposed new CAB Complex. Traffic on Santos Dumont Avenue and on other roads within WAAF property may change from redistributing traffic. The new CAB Complex would consolidate services and would minimize movement among sleeping, eating, and operational facilities, thereby reducing the amount of traffic to and from SBMR and WAAF. Changes in traffic conditions may result in less than significant long-term adverse impacts on the installation due to an increase in traffic. However, traffic patterns in the vicinity of WAAF and SBMR would improve due to fewer movements between the CAB facilities. The new Access Control Point at WAAF would reduce congestion for incoming traffic at the existing WAAF gates.

The Proposed Action would construct on-site parking, so there would be no shortage of available parking at the installation. The proposed new sidewalks in the development area would result in long-term less than significant beneficial impacts by providing dedicated areas for pedestrians. No bicycle improvements would be implemented.

The Proposed Action would introduce temporary noise from construction, would shift aircraft noise from surface maneuvers south of the runway, and would introduce new operational noise sources, such as ventilation systems and vehicle traffic. However, these changes would not exceed the Zone II noise

levels in the area and therefore would have less than significant adverse impacts.

The Proposed Action would have less than significant adverse impacts on air quality from air pollutants or greenhouse gases.

Short-term adverse impacts from erosion would be mitigated during the construction period with erosion and sediment control best management practices (BMPs). The Proposed Action would have minor adverse impacts from expansive soils. The presence of expansive soils may require additional geotechnical investigations. An increase in impervious area at the project sites and potential increase in water quality degradation due to sediment-laden runoff from disturbed areas during construction would be mitigated with erosion and sediment control construction BMPs and permanent post-construction stormwater management BMPs.

The effects of construction may require testing lead-based paint and asbestos-containing material and would increase the use and storage of petroleum, oils, and lubricants. Increased demand on some public utilities and services, including police, fire, and emergency medical services, electricity, potable water supply and distribution, sanitary wastewater system, stormwater system, and solid waste would result in less than significant if the Proposed Action were implemented.

The Proposed Action would have less than significant impacts on vegetation, wildlife, and habitat. The Proposed Action may affect the Pacific golden plover because there would be less grassy open area on the project site. Also, the plover would be adversely impacted in the short term, especially if demolition, staging, or construction occurs between August and April, when the plover is wintering in the Hawaiian Islands. However, impacts are considered to be less than significant because there is abundant alternative habitat for this species in the adjacent areas, and the adverse effects from construction would be temporary and minor. Site clearing would have a less than significant impact on resident migratory wildlife or migratory wildlife corridors.

There would be a less than significant impact on cultural and visual resources. The presence of traditional or ethnographic resources or concerns in the project area is unknown but is unlikely, due to the absence of prehistoric Native Hawaiian archaeological resources in the region of influence. The standard USAG-HI inadvertent discovery clause would be implemented to avoid inadvertent impacts on archaeological resources; therefore, the Proposed

Action is expected to have less than significant impacts on traditional and ethnographic resources.

During construction, there would be short-term adverse impacts on the visual character of the site and surroundings resulting from a visible increase in traffic from project vehicles, an increase in activity and equipment from demolition and construction, and a decrease in visibility from fugitive dust. Also, the construction of new buildings in an area that is currently open space will degrade the visual character of this site. These adverse impacts on the visual landscape of the project sites would be less than significant.

The Proposed Action would not have any adverse environmental justice impacts.

Construction of all facilities listed in the seventeen phases is subject to the availability of funding. The impacts of constructing all phases and using the maximum size facility that could be built are analyzed in this EA. However, if some phases are not constructed or smaller facilities were constructed, some impacts may be reduced. Some of the details proposed in this EA could change as requirements and designs are refined. Additionally, unanticipated issues may delay the construction schedule.

No Action Alternative

Under the No Action Alternative, the CAB would continue to be housed in its current facilities at WAAF and SBMR, which do not meet Army standards for hangar and operational space. No impacts are expected on land use, transportation and circulation, noise, air quality, geology, soils, and seismicity, water resources, hazardous materials and conditions, public services and utilities, biological resources, cultural resources, visual resources, and environmental justice under the No Action Alternative.

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APPENDICES

Appendix

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B	Record of Nonapplicability for CAB Actions at Wheeler Army Airfield
C	SHPO Letter

LIST OF ACRONYMS/ABBREVIATIONS

ACRONYMS/ABBREVIATIONS

Acronym	Full Phrase
ACP	access control point
ACM	asbestos-containing material
ADP	Area Development Plan
AIRFA	American Indian Religious Freedom Act
ARPA	Archaeological Resources Protection Act
ASB	Aviation Support Battalion
AST	aboveground storage tank
ATFP	antiterrorism/force protection
AWOL	absent without leave
BAAF	Bradshaw Army Airfield
BMP	best management practice
CAB	US Army 25th Infantry Division Combat Aviation Brigade
CAV	Cavalry
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO_{2e}	carbon dioxide equivalent
COF	company operations facility
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibel scale
dBC	C-weighted decibel scale
DFAC	dining facility
DNL	day-night average noise level
DoD	Department of Defense
DOE	Department of Education
DOE	Department of Energy
DPW	Directorate of Public Works
EA	environmental assessment
EIS	environmental impact statement
EMF	electromagnetic fields
EO	Executive Order
ESA	Endangered Species Act
FNSI	Finding of No Significant Impact
GHG	greenhouse gas
gpm	gallons-per-minute
GSAB	General Support Aviation Battalion
HDBEDT	State of Hawai‘i Department of Business, Economic Development and Tourism

ACRONYMS/ABBREVIATIONS *(continued)*

Acronym	Full Phrase
HDOH	Hawai‘i Department of Health
HECO	Hawaiian Electric Company
ICP	Central Utility Plant
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resource Management Plan
IRP	installation restoration program
IT	information technology
kV	kilovolts
LBP	lead-based paint
LF	linear feet
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MGD	million gallons per day
MMRP	Military Munitions Response Program
MP	Military Police
mVA	megavolt-ampere
N	total nitrogen
NO_2NO_3	nitrite nitrate
NAGPRA	Native American Graves Protection and Repatriation Act
NAVMAG	Naval Magazine
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated biphenyls
PCPI	per capita personal income
$PM_{2.5}$	fine particulate matter
PM_{10}	inhalable particulate matter
PMO	Provost Marshall’s Office
PN	Project Number
POL	petroleum, oils, and lubricants
POV	privately owned vehicles
PT	physical training
PVC	Polyvinyl chloride

ACRONYMS/ABBREVIATIONS *(continued)*

Acronym	Full Phrase
ROI	region of influence
RPMP	Real Property Master Plan
RSC	Remote Switch Center
SBMR	Schofield Barracks Military Reservation
SWPPP	Stormwater Pollution Prevention Plan
TAMC	Tripler Army Medical Center
TCP	traditional cultural property
TEMF	Tactical Equipment Maintenance Facility
TMDL	total maximum daily load
UEPH	Unaccompanied Enlisted Personnel Housing
US	United States
USACE	United States Army Corps of Engineers
USAG-HI	United States Army Garrison, Hawai‘i
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UXO	unexploded ordnance
VEC	valued environmental components
WAAF	Wheeler Army Airfield

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SECTION 1:

INTRODUCTION AND DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

SECTION 1
PURPOSE, NEED, AND SCOPE

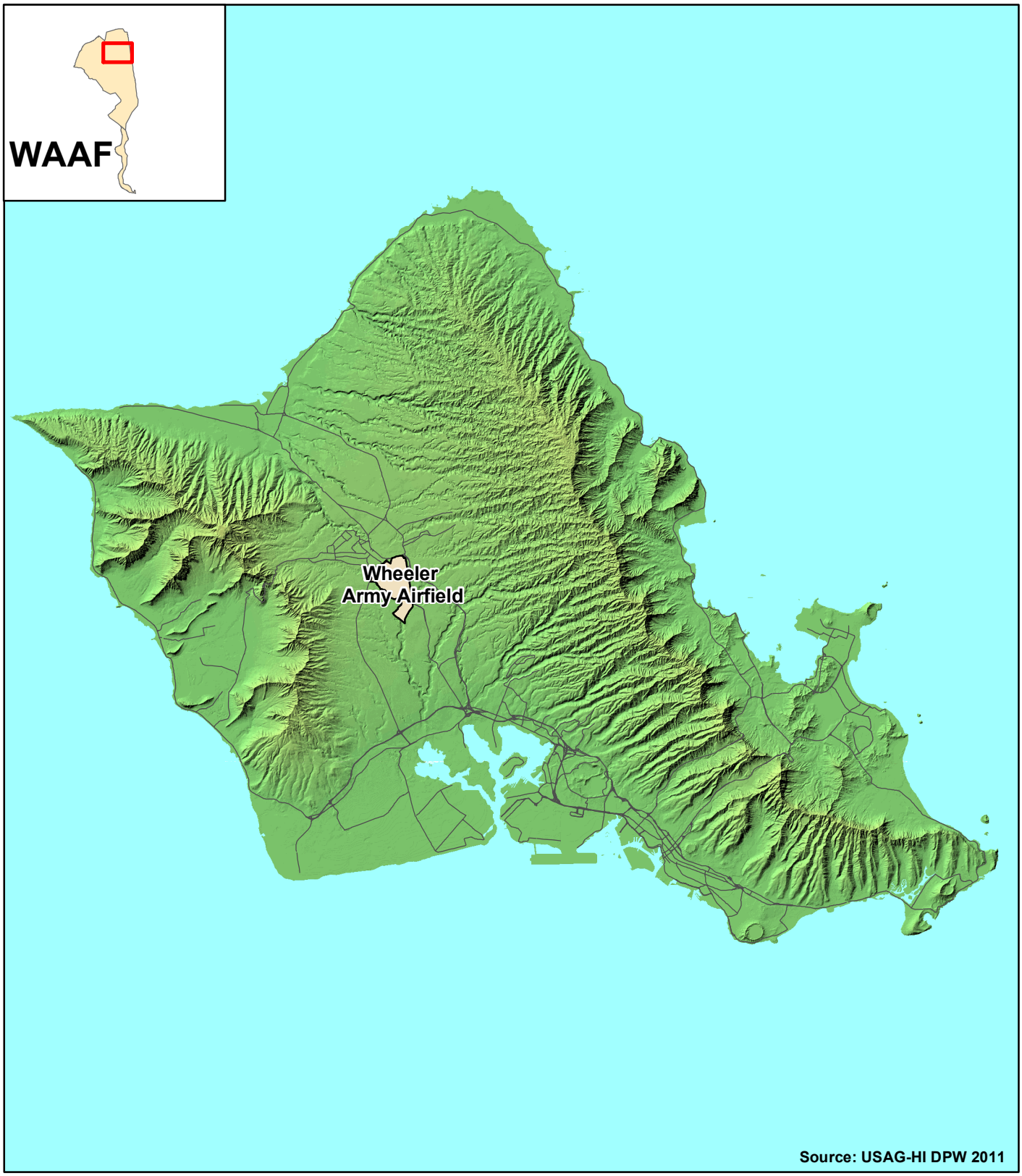
1.1 INTRODUCTION

The United States Army Garrison, Hawai‘i (USAG-HI) is preparing this environmental assessment (EA) to address the environmental impacts of constructing the proposed US Army 25th Infantry Division Combat Aviation Brigade (referred to as CAB for the remainder of the document) Complex at Wheeler Army Airfield (WAAF) on O‘ahu, Hawai‘i (Figure 1-1).

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 US Code (USC), Section 4321 et seq.; the Council on Environmental Quality (CEQ) regulations for implementing NEPA, 40 Code of Federal Regulations (CFR), Parts 1500-1508, and Environmental Analysis of Army Actions (32 CFR, Part 651). The purposes of the EA are to analyze the environmental impacts, present the findings, and solicit public input in order for the Army to make an informed decision on selecting an alternative or to determine if there are significant impacts that necessitate an environmental impact statement (EIS). This EA provides a focused and site-specific analysis of the potential environmental impacts of constructing and using facilities at WAAF to support the CAB. Additionally, the EA considers impacts on the island of O‘ahu that would result from the Proposed Action.

1.2 OVERVIEW AND BACKGROUND

The 25th Aviation was constituted on February 1, 1957, into the Regular Army as the 25th Aviation Company, assigned to the 25th Infantry Division, and activated at Schofield Barracks Military Reservation (SBMR), Hawai‘i. It was reorganized and redesignated on August 12, 1963, as Headquarters and



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TETRA TECH

Legend

Wheeler Army Airfield

Roads

Project Area

Regional Location

O‘ahu, Hawai‘i

Figure 1-1

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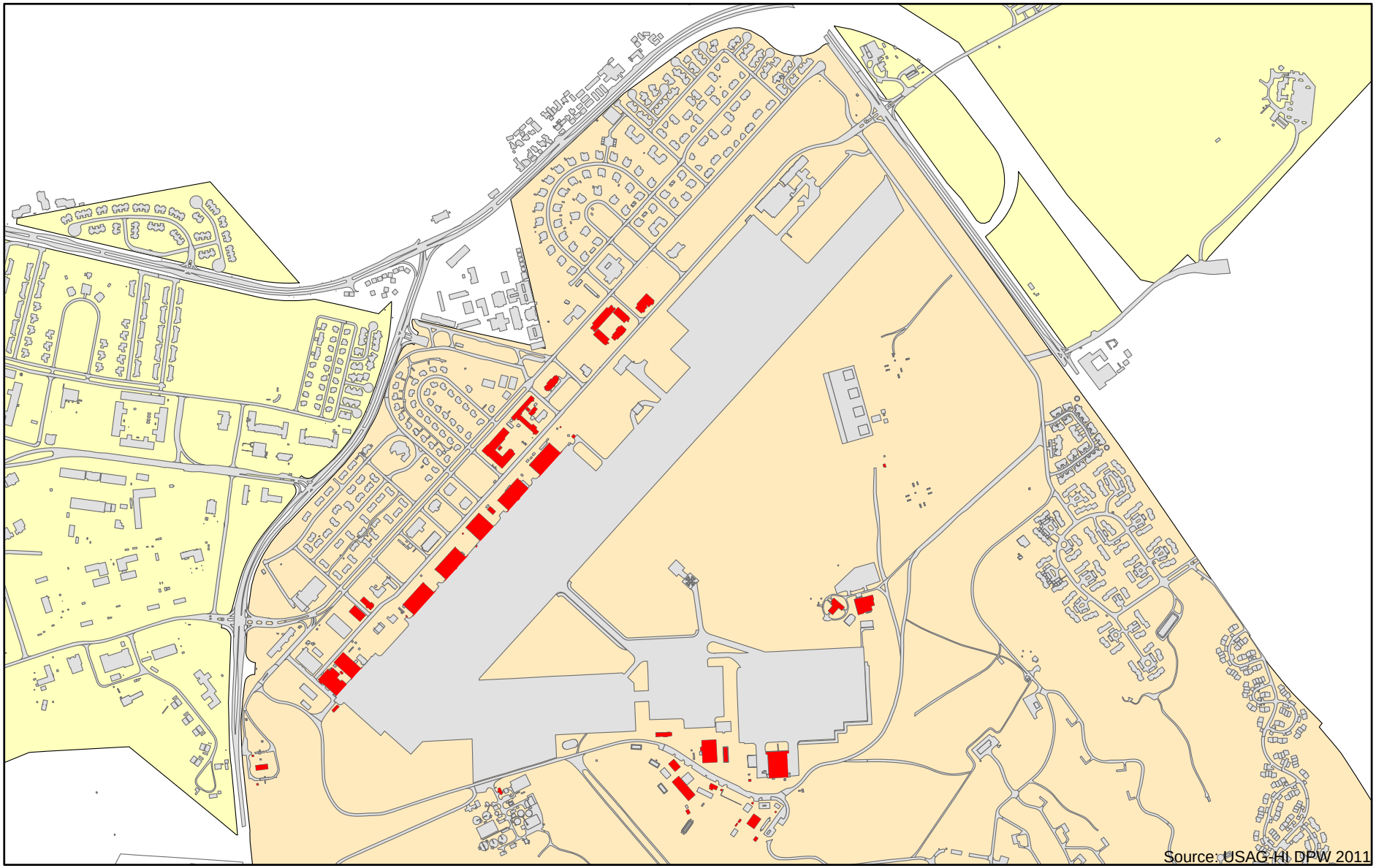
Headquarters Company, 25th Aviation Battalion. The unit's elements were constituted on June 21, 1963, and were activated on January 16, 1986, at Wheeler Air Force Base, Hawai'i. These elements would later become the CAB as it is known today. Wheeler Air Force Base was returned to the Department of the Army on November 1, 1991, and was renamed Wheeler Army Airfield. Its primary mission is to support the CAB; in turn, the CAB's mission is to prepare for worldwide deployment, when directed, to conduct day, night, and night vision goggle combat or other military operations, and, on order, to command and control a combined arms task force. The CAB is required to perform full spectrum aviation operations anywhere in the world, which includes offensive, defensive, stability, and support operations.

The CAB consists of a Headquarters and Headquarters Company, General Support Aviation Battalion (3-25 GSAB), Aviation Support Battalion (209 ASB), Assault Battalion (2-25 ASSAULT), and Cavalry Battalion (2-6 CAV). The CAB is equipped with approximately 92 helicopters, 280 land vehicles, and 2,400 Soldiers who work at WAAF and are housed there and at SBMR (Bradshaw 2009; Ching 2011).

CAB units occupy facilities at WAAF and SBMR. WAAF is in north-central O'ahu and is bordered on the northwest by the SBMR Main Post and on the northeast by SBMR East Range and the Kamehameha Highway. WAAF consists of 1,369 acres and provides administration, housing, maintenance, training, flight facilities, and security and law enforcement support.

The CAB is currently using facilities at WAAF (Figure 1-2), along the north end of the airfield and along Airdrome Road, and at SBMR (Figure 1-3), in the 900 and 9000 blocks, accessed by Wright-Smith Road. Facilities at WAAF consist of a flight control tower, aviation maintenance hangars, aircraft maintenance and washing aprons, hot refueling pads, rotary wing parking aprons, Brigade and Battalion Headquarters, Company Operating Facilities, unaccompanied enlisted personnel housing (UEPH), and a dining facility. The hangars that the CAB is using on WAAF are of pre-World War II construction and were used for the propeller-driven aircraft of that era. The existing UEPH at WAAF consists of three barracks for enlisted personnel on a large block on north WAAF, bounded by Santos Dumont and Wright Avenues, Warhawk Street, and Langley Loop. The USAG-HI is considering renovating these barracks from two-person rooms to one-person rooms to meet Grow the Army requirements or for other uses such as administrative space. CAB facilities at SBMR include motorpools and UEPH.



TETRA TECH

N
E
S
W

0 1,100 2,200 Feet

Legend

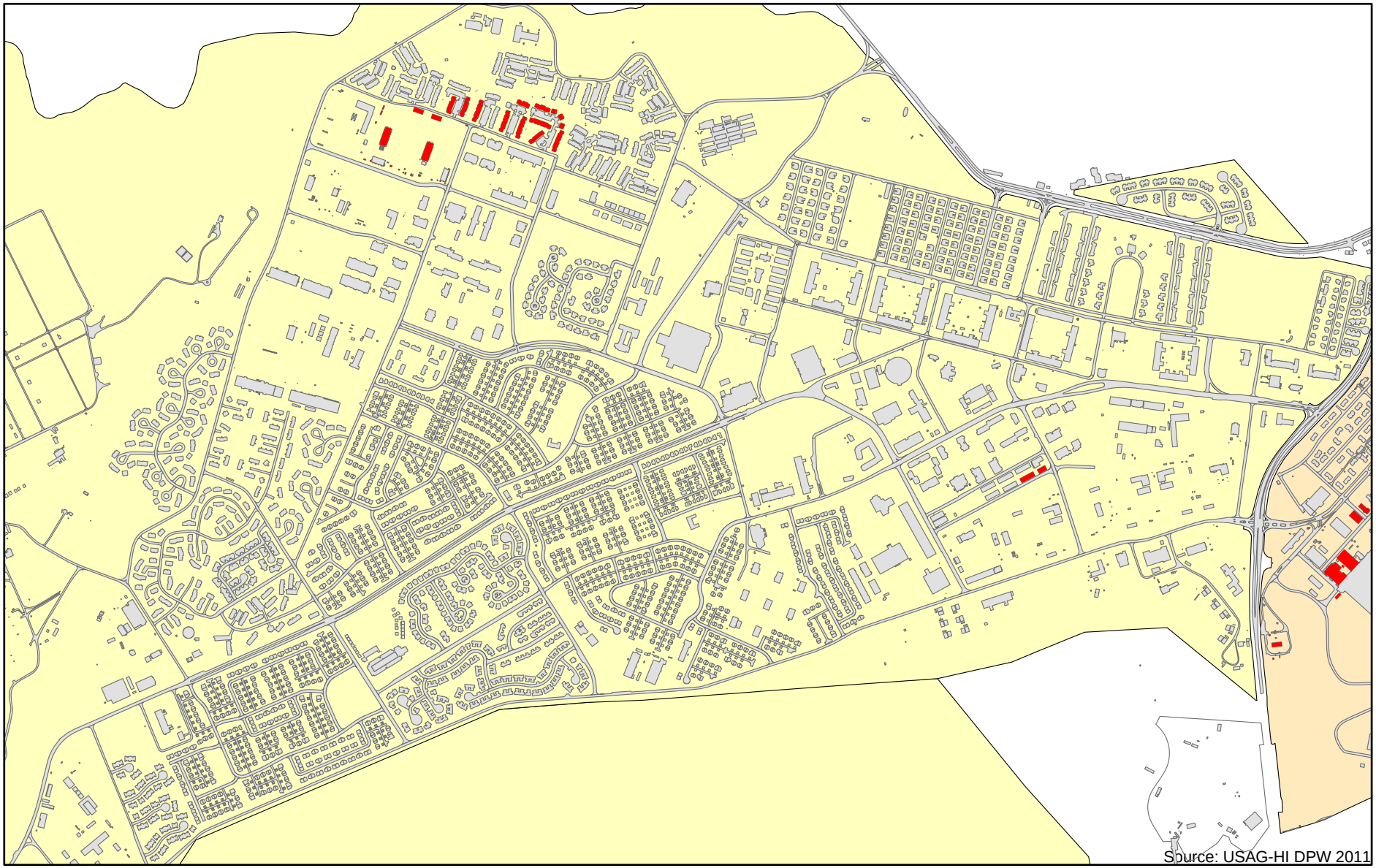
- WAAF
- SBMR
- Existing CAB Facilities
- Existing structures
- Roads

Existing CAB Facilities

Wheeler Army Airfield
O'ahu, Hawai'i

Figure 1-2

R:\NEW\23504\Layout\1-2_Existing_CAB_WAAF_April2011.mxd - 04/04/11 - MO



TETRA TECH

N
E
S
W

0 1,400 2,800 Feet

Legend

- WAAF
- SBMR
- Existing CAB Facilities
- Existing structures
- Roads

Existing CAB Facilities

Schofield Barracks Military Reservation
O'ahu, Hawai'i

Figure 1-3

R:\NEW\23504\Layout\1-3_Existing_CAB_SBMR_April2011.mxd - 04/04/11 - MO

1.3 PURPOSE AND NEED OF THE PROPOSED ACTION

The purpose of the Proposed Action is to consolidate, update, and construct modernized CAB facilities to meet current standards. The need for the Proposed Action is that USAG-HI does not have standardized operational and mission facilities to accommodate the CAB.

Requirements for aviation maintenance hangars and operational space have increased tremendously for CAB units, and the facilities at WAAF and SBMR do not meet spatial requirements. According to Army standards, the CAB facilities are too small and do not meet operational requirements. The Army prepared an Area Development Plan (ADP) and Infrastructure Capacity Analysis to assist in integrating project mission needs with installation planning at WAAF. The ADP provides a conceptual layout for constructing a CAB Complex, which is described in Section 1.6. This new design would be consistent with the modular force concept, which is to be more cohesive, independent, deployable, efficient, and flexible. Wherever possible, a particular modular force unit and its subordinate units' housing, vehicle parking and maintenance, and operations facilities should be as close to each other as possible. Facility layout, as specified in the ADP, would contribute to operations efficiency and Soldier morale and to the efficient functioning of the modular force structure by collocating the working, living, and administrative areas.

1.4 SCOPE AND ORGANIZATION OF THE DOCUMENT

This EA considers two alternatives: the Proposed Action (which is the preferred alternative and is described in Section 1.6.3) and the No Action Alternative. The No Action Alternative, as required by the CEQ, serves as a benchmark against which project action alternatives can be evaluated and is further discussed in Section 1.6.4. Alternatives considered and eliminated through screening criteria are discussed in Section 1.6.5.

Existing conditions of valued environmental components (VECs) at WAAF and environmental impacts from implementing the Proposed Action and No Action Alternatives are described in Section 2, Affected Environment and Environmental Consequences. Along with information presented for the No Action Alternative, existing conditions of VECs constitute the baseline for analyzing potential effects of the Proposed Action. The VECs described in Section 2 are as follows:

- Land use;
- Socioeconomics;

- Transportation and circulation;
- Noise;
- Air quality;
- Geology, soils, and seismicity;
- Water resources;
- Hazardous materials and conditions;
- Public services and utilities;
- Biological resources;
- Cultural resources:
- Visual resources; and
- Environmental justice.

Section 3.0 describes the cumulative impacts of the Proposed Action, when considered in the context of other past, present, and reasonably foreseeable future actions, regardless of whether they are federal or not. Actions and measures that could mitigate impacts are identified, where appropriate.

1.5 PUBLIC INVOLVEMENT

In accordance with 32 CFR, Part 651, the US Army provides opportunities for the public to participate in the NEPA process to promote open communication and to improve the decision making process. All persons and organizations having potential interest in the Proposed Action are encouraged to participate in the environmental analysis process. The formal opportunity to comment involves a 30-day period for public review of the EA and draft finding of no significant impact (FNSI). A notice of availability of the EA and draft FNSI will be published in the State of Hawai‘i's Office of Environmental Quality Control Bulletin, *The Environmental Notice*. Also, a notice will be published in the local newspaper to ensure that interested persons and organizations are notified.

In addition, copies of the EA will be provided to libraries in the vicinity of the project and, on request, copies will be mailed to interested individuals, organizations, Native Hawaiian organizations, and government agencies. The USAG-HI will review and consider comments received during the public comment period. Through the EA process, the USAG-HI will determine whether the Proposed Action may have potentially significant impacts that could not be reduced to less than significant levels with appropriate mitigation. If impacts were to have the potential to be significant after the application of

mitigation, the USAG-HI would publish a notice of intent (NOI) in the *Federal Register* to prepare an EIS. If it were determined that no significant impacts would result from implementing the Proposed Action, the USAG-HI would prepare and sign a FNSI, and the action would be implemented.

1.6 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Two alternatives are fully evaluated in this EA: the Proposed Action (construction of the CAB Complex) and the No Action Alternative.

This section describes the components of the Proposed Action. Due to the size and complexity of this undertaking, the CAB Complex is scheduled to be built in seventeen phases over five years. These projects would bring the CAB facilities up to Army standards. All required antiterrorism/force protection (ATFP) measures are included in project designs, which have been coordinated with the installation security plan. Table 1-1 shows the different construction phases and provides a description of each. The sizes of the facilities listed in Table 1-1 are approximations and may change during design.

Table 1-1
Construction Phases

Map Code	Project Summary	Project No.	Projected Fiscal Year
Phase 1			
1a	Site infrastructure—Storm drainage, water, sewer, gas, electric, roads, sidewalks, curb, gutter, landscaping, irrigation	69489	2012
1b	Remote switch center (RSC)—4,000 square feet (ft²)	69489	2012
1c	Hot refueling pads with storage	69489	2012
Phase 2			
2a	Rotary wing parallel taxiway—46,032 square yards (yd²)	52203	2014
2b	Aircraft maintenance apron (3-25 GSAB)—48,600 yd²	52203	2014
2c	Aircraft maintenance apron (209 ASB)—14,000 yd²	52203	2014
2d	Rotary wing parking apron (3-25 GSAB)—83,134 yd²	52203	2014
2e	Clear water rinse/corrosion control facility—1,867 yd²	52203	2014
2f	Flight control tower—67 linear feet (LF)	52203	2014
Phase 3			
3a	Aviation maintenance hangar (3-25 GSAB)—154,208 ft²	75364	2014
3b	Aircraft washing apron (3-25 GSAB)—1,711 yd²	75364	2014
Phase 4			
4a	Aviation maintenance hangar (209 ASB)—131,432 ft²	76897	2015
4b	Aircraft washing apron (209 ASB)—1,711 yd²	76897	2015
Phase 5			
5a	Aviation maintenance hangar (2-25 Assault Battalion)—135,636 ft²	76898	2016
5b	Aircraft washing apron (2-25 Assault Battalion)—970 yd²	76898	2016

Table 1-1
Construction Phases

Map Code	Project Summary	Project No.	Projected Fiscal Year
Phase 6			
6a	Aviation maintenance hangar (2-6 CAV)—135,636 ft²	76899	2016
6b	Aircraft washing apron (2-6 CAV)—970 yd²	76899	2016
Phase 7			
7a	Tactical equipment maintenance facility (TEMF)—57,031 ft²	76900	2015
7b	Hazardous materials storage—2,280 ft²	76900	2015
7c	Oil storage building—2,280 ft²	76900	2015
7d	Organizational equipment storage building—18,175 ft²	76900	2015
7e	Organizational vehicle parking—59,777 yd²	76900	2015
Phase 8			
8a	TEMF—57,031 ft²	76902	2014
8b	Hazardous materials storage—2,280 ft²	76902	2014
8c	Oil storage building—2,280 ft²	76902	2014
8d	Organizational equipment storage building—18,175 ft²	76902	2014
8e	Organizational vehicle parking—59,777 yd²	76902	2014
Phase 9			
9a	UEPH—78,376 ft²	76903	2013
9b	UEPH—78,376 ft²	76903	2013
Phase 10			
10	UEPH—78,376 ft²	76904	2015
Phase 11			
11a	Company operations facilities—90,472 ft²	76905	2014
11b	Company operations facilities—66,894 ft²	76905	2014
Phase 12			
12	Consolidated Brigade and Battalion Headquarters—95,442 ft²	76589	2014
Phase 13			
13	Parking structure—1,100 parking spaces	78377	2014
Phase 14			
14	UEPH—78,376 ft²	78378	2015
Phase 15			
15	Light aviation maintenance hangar—129,389 ft²	76901	2017
Phase 16			
16a	Dining facility—19,500 ft²	78340	2013
16b	Central utility plant—35,000 ft²	78340	2013
Phase 17			
17	Access control point (ACP)—1,800 ft²	78379	2017

1.6.1 Project Descriptions

Construction Phases

In deciding the phasing of construction projects, the Army prioritized training operations, sustaining combat power, and accommodating entire battalions in the new complex. Future growth and flexibility, sustainability, and reliability were also considerations for determining the order of facility construction. Flexibility is needed for future growth due to the ever-changing mission requirements and uncertainty of future conflicts and operations, and both sustainability and reliability are necessary components considered for land use planning. The map code listed in Table 1-1 corresponds with the location for the proposed project on Figure 1-4.

Site Infrastructure—Phase 1

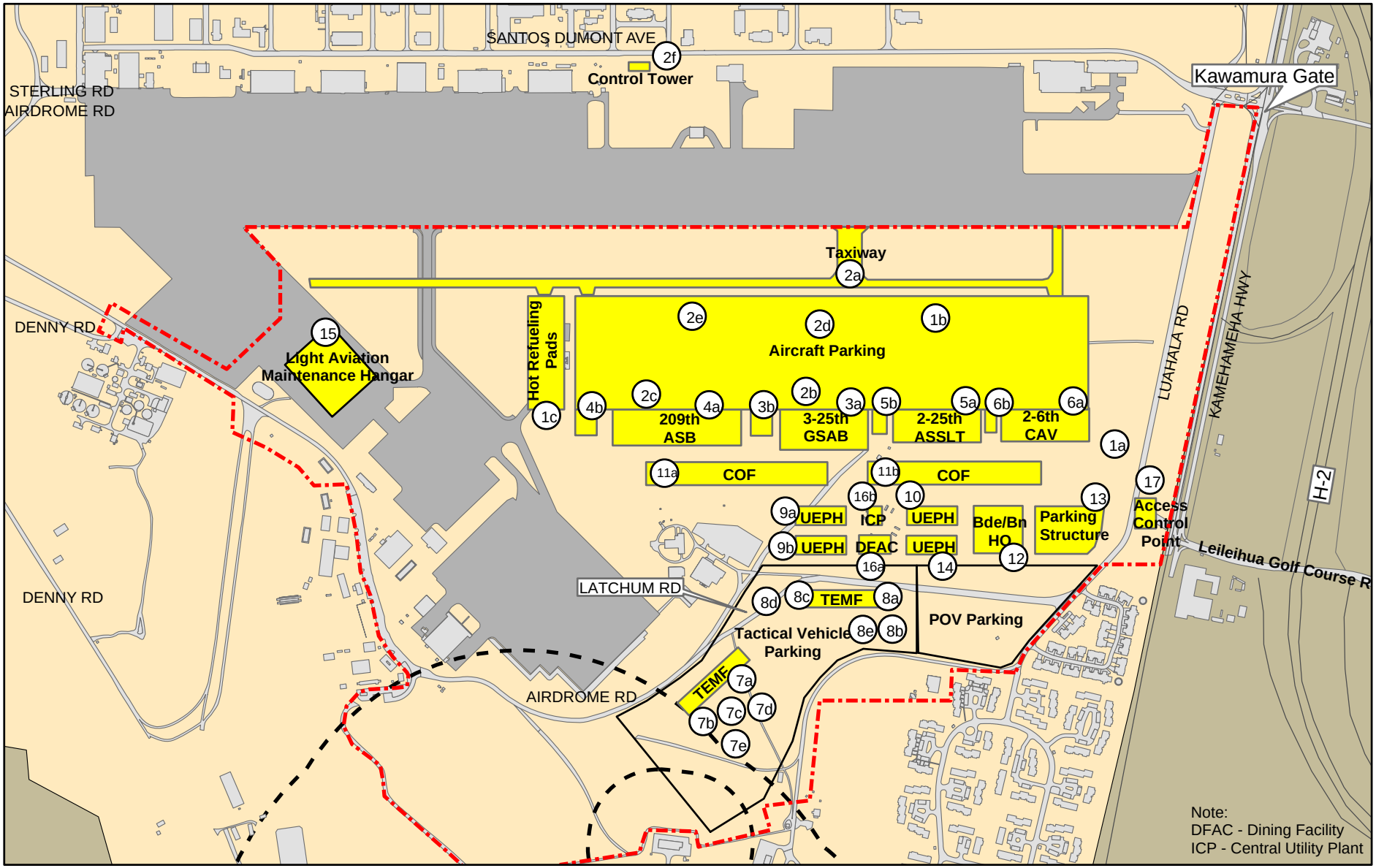
The infrastructure project scheduled for Phase 1 would extend utilities to provide adequate capacity to meet demand from the CAB Complex. The construction of critical infrastructure includes electrical, water, sanitary sewer, storm drainage, and communications and site preparation, described below and listed in Table 1-1. Sustainable principles would be integrated into the development, design, and construction of the infrastructure project, in accordance with Executive Order (EO) 13123 and other applicable laws and EOs.

Site Preparation. The construction of the CAB Complex and necessary utilities would require site clearing, grubbing and grading, clearing the ball fields and hot refueling pad, demolishing concrete, and removing lighting, poles, and fencing at the ball fields.

Roads. Roads would need to be built within the CAB Complex, resulting in approximately 36,000 square feet of road surfacing to accommodate the CAB Complex described below.

Electrical. The CAB Complex would require connecting to the electrical system at WAAF. The construction of the electrical system includes installing at least two pad-mounted transformers and necessary connections from the WAAF substation to and throughout the CAB Complex.

Water. The CAB Complex would require connecting to the 24-inch water line, installing new 6-inch, 8-inch, and 12-inch water lines, installing approximately 50 new fire hydrants, constructing a fire booster pump station and at-grade fire reservoir, and constructing required manholes.



TETRA TECH

N W E S

0 830 1,660 Feet

Legend

- Wheeler Army Airfield
- Off Post
- CAB Facilities (not to scale)
- Existing structures
- Roads
- 1a Map Code
- Explosive Arc
- Project Limits (not to scale)
- Airfield Surface

Preferred Alternative

Wheeler Army Airfield
O'ahu, Hawai'i

Figure 1-4

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Sewer. The CAB Complex would require connecting to the Schofield Wastewater Treatment Plant. The construction of the wastewater collection system includes installing approximately 12,300 linear feet (LF) of gravity sewer piping, 2,500 LF of sewage force mains, and 40 manholes and constructing a sewage pump station to accommodate facilities in the CAB Complex.

Storm Drainage. The CAB Complex would require constructing storm drainage controls to capture and retain stormwater. The design of the CAB development area includes low-impact development techniques, porous pavement, detention ponds, and bio swales to minimize the amount of stormwater entering the drainage system at WAAF.

Building Information Systems. The CAB Complex would require new infrastructure to support building information systems. The design of the CAB Complex includes installing approximately 7,500 LF of information technology (IT) underground infrastructure ducting and 13 IT underground infrastructure manholes.

Remote Switch Center (RSC)—Phase 1

An RSC provides a centralized location for distributing voice and data telecommunication services. The Army intends to renovate the RSC in Building 1322 to facilitate service to an area of approximately 19,987 square feet. Renovations to the RSC include an approximately 4,000-square-foot area and would occur in Phase 1.

Hot Refueling Pads—Phase 1

The Army intends to replace the hot refueling pads, which are areas where aircraft can be refueled without having pilots turn off the engines. Currently, four hot refueling pads are within the footprint of the proposed locations for the four new hangars, described below; therefore, the hot refueling pads would be demolished and four new pads would be constructed near the South Ramp parking area. Construction of the hot refueling pads is scheduled for Phase 1.

Parallel Taxiway—Phase 2

A parallel taxiway is a paved designated pathway on an airfield, constructed for taxiing rotary-wing aircraft. An approximately 46,032-square-yard taxiway would be constructed north of the aircraft apron and hangars and south of the runway. This new taxiway would provide safe conditions for moving aircraft between the runway and the taxi lanes that lead to the aircraft parking and maintenance areas. The parallel taxiway would be constructed in Phase 2.

Rotary Wing Parking Apron—Phase 2

An approximately 83,134-square-yard aircraft parking apron would be used for parking rotary-wing aircraft. The parking apron would be constructed for the 3-25 GSAB, which currently has 32 aircraft, including 12 CH-47 Chinooks, 12 UH-60 MedVacs, and 8 UH-60 C2 Aircraft. The new parking apron would be paved for aircraft parking, loading, unloading, and servicing, and the airfield surface area would include parking lanes, taxi lanes, exits, and entrances. Access to this area would allow for aircraft to be moved under their own power to the parking spaces, to be secured with tie-downs. Parking would be designed to distribute aircraft on dispersed hardstands to increase survivability. Existing apron space north of the airfield and west of the project site next to Building 1020 will also be used.

Aircraft Maintenance Parking Apron—Phase 2

Aircraft maintenance parking aprons are used to park aircraft that must undergo maintenance. Two maintenance parking aprons would be constructed in Phase 2. A 48,600-square-yard apron would be constructed for the 3-25 GSAB and a 14,000-square-yard apron would be constructed for the 209 ASB.

Clear Water Rinse/Corrosion Control Facility—Phase 2

A clear water rinse and corrosion control facility is a paved area for cleaning aircraft and performing periodic maintenance to prevent corrosion. An approximately 1,867-square-yard clear water rinse and corrosion control facility would be constructed south of the apron area to provide access to the existing aircraft parking apron and to the taxiway. The clear water rinse and corrosion control facility would be constructed in Phase 2.

Flight Control Tower—Phase 2

The flight control tower is for housing air traffic control personnel and flight tower equipment, including communications systems and visual signaling. The flight control tower permits a clear view of the entire runway and taxiway system. In Phase 2, a flight control tower approximately 67 feet tall would be constructed on the north side of the runway within a clear zone. The Department of the Army would be required to request a waiver because the flight control tower is critical to the operation of the airfield.

Aviation Maintenance Hangars—Phases 3, 4, 5, and 6

The Aviation Maintenance Hangars would provide shelter for maintaining and repairing US Army aircraft. They would include aircraft maintenance space, technical shops, parts and tool storage, and aviation and administration operations. Work may be done on air frames, engines, and other aircraft equipment. The CAB aviation hangars would be constructed for 209 ASB

(approximately 131,432 square feet), 2-25 ASSAULT (approximately 135,636 square feet), 2-6 CAV (135,636 approximately square feet), and 3-25 GSAB (approximately 154,208 square feet). Table 1-1 shows the phase in which each hangar is proposed for construction.

Aircraft Washing Apron—Phases 3, 4, 5, 6

Aircraft washing aprons are paved areas next to hangars for washing and cleaning aircraft. Four aircraft washing aprons would be constructed. The two aircraft washing aprons constructed for the 3-25 GSAB and 209 ASB would be approximately 1,711 square yards each and the two aprons constructed for the 2-25 ASSAULT and 2-6 CAV would be approximately 970 square yards each. The washing aprons would include electrical and water service, drainage, and wastewater collection equipment.

Tactical Equipment Maintenance Facility (TEMF)—Phases 7 and 8

The new TEMF is intended to serve the CAB, in accordance with the requirements of the Office of Assistant Chief of Staff for Installation Management. The size of the existing maintenance facilities is approximately 97,801 square feet, and they are dispersed throughout the installation. The collocation of the TEMF would satisfy standard facility design requirements and would meet mission requirements. The TEMF construction projects include the construction of a standard design tactical vehicle maintenance complex to meet mission requirements. The proposed facilities include tactical vehicle maintenance shops, organizational equipment storage buildings, organizational vehicle parking, petroleum/oil/lubricant (POL) storage, and hazardous material storage.

UEPH—Phases 9, 10, and 14

The scope of the barracks facilities is to construct modern efficient barracks and consolidate the CAB billeting to a single area that would support mission readiness requirements. Construction of the UEPH complex would provide the additional space required and would meet CAB mission readiness requirements.

The new barracks complex includes constructing four standard-design UEPH to accommodate a maximum of 808 persons. The UEPHs would consist of six-story standard design barracks, approximately 78,376 square feet each, or a total of approximately 313,504 square feet. The UEPHs include living/sleeping rooms, bathrooms, kitchen areas, and walk-in closets, and the buildings include service areas, janitor closets, mechanical rooms, electrical rooms, telecommunications rooms, and elevators.

Soldier community facilities would be integrated into the barracks. The minimum barracks one-person room net area would be 388 square feet and would include a stove for cooking. This project would meet current Army facilities standards for barracks by providing Soldiers with more room and more privacy than previously provided in barracks.

The new barracks would connect to the utilities systems at WAAF at the nearest adequate connection points. Trenching to reach connection points for utilities is expected to be through previously developed areas.

Company Operations Facility (COF)—Phase 11

Line unit COFs are included as part of the new aircraft maintenance hangar standards. The COFs require separate facilities, which include an administrative area, a readiness area, and an exterior covered hardstand area. COFs provide space for companies, battalions, and troops to perform daily administrative and supply activities. All but 25,421 square feet of COF space is augmented by offices in hangars and other facilities within the installation. The two COFs would be constructed for the Aviation Support Company, Headquarters and Headquarters Company, and Forward Support Company.

Consolidated Brigade/Battalion Headquarters—Phase 12

The existing CAB Brigade headquarters building is 19,181 square feet, and the CAB Battalion headquarters, located in multiple buildings throughout the installation, totals 8,545 square feet. These buildings are too small to accommodate the headquarters function and do not meet standard facility requirements; therefore, the Army decided to construct a combined use facility for one brigade and four battalions at the intersection of the new loop road and Lauhala Road for use as the Brigade/Battalion headquarters building.

The building would accommodate both the CAB's Brigade and Battalion administration headquarters operations by providing a better work area, with more space and an emphasis on design concepts of the facility layout. The facility layout would be more conducive to efficiency and would improve work conditions. This project is required to bring all administrative areas to meet current criteria of the standard design requirements. It is essential for implementing the long-range plan to provide adequate work areas for the entire CAB and its supporting elements.

The new Consolidated Brigade/Battalion headquarters would total approximately 95,442 square feet and would include administrative/operations areas with a Sensitive Compartmented Information Facility, Operations Center, Network Operations Center, Battalion administrative/operations areas

with classrooms, and general purpose administrative space. A parking structure with 1,100 spaces would be constructed next to the Consolidated Brigade/Battalion headquarters.

Privately Owned Vehicle (POV) Parking—Phases 9, 10, 13, 14, and 17

The POV parking area and parking structure would be constructed in Phases 9, 10, and 13, respectively. The POV parking area would be on approximately nine acres on Latchum Road next to the TEMF and would accommodate approximately 900 surface POV parking spaces. The parking structure would be east of the Consolidated Brigade/Battalion Headquarters and would accommodate 1,100 parking spaces. The parking area and parking structure would accommodate parking for the dining facility, four UEPHs, two COFs, the Consolidated Brigade and Battalion Headquarters, and the two TEMFs. Consolidating parking would promote walking within the new CAB Complex.

The project scope was derived from the Facility Planning System and the Modified Table of Organizational Equipment, which lists equipment authorized for a unit. The Facility Planning System calculates facility space allowances for the types of facilities required by a unit. The total POV parking requirements generated for the CAB Complex is 2,012 spaces, and the parking area and structure would provide a total of 2,100 spaces. This project site would adapt a standard Department of the Army design. Unique site requirements would be established by the USAG-HI DPW staff and the users at a pre-design conference.

Light Aviation Maintenance Hangar—Phase 15

A light aviation maintenance hangar, approximately 129,389 square feet and suitable for light aircraft maintenance, would be constructed. According to the Headquarters Department of the Army, Army Standard for Aircraft Maintenance Hangar Complex, March 28, 2008, the standard light aviation maintenance hangar size is 129,389 square feet. The hangar would include associated maintenance shops, administrative space, aircraft pavement, storage, and a loading dock and would be constructed on the south side of the airfield and far western side of the CAB Complex.

Dining Facility—Phase 16

A new dining facility would be approximately 19,500 square feet and would accommodate up to 800 people with cafeteria-style dining for unaccompanied personnel. Serving lines include regular full menu and short order or fast food meals and self-service areas for beverages, desserts, and salads.

The existing dining facility on WAAF is next to the billeting area. Its age, size, and location do not meet the requirements of the CAB Complex. Dining facilities on SBMR and WAAF can accommodate the CAB, but the distance from the CAB Complex does not support the mission readiness requirement.

Central Utility Plant—Phase 16

An approximately 35,000-square-foot Central Utility Plant would be constructed south of the 3-25 GSAB Hangar and west of the COF. It would be a combined air conditioning and heating plant that would provide heating and cooling for the dining facility, two TEMFs, and four UEPHs.

Access Control Point—Phase 17

A new installation access gate would be constructed at the intersection of Kamehameha Highway and Leilehua Golf Course Road to serve as the primary entrance to the CAB Complex and the housing area on the southeastern portion of the installation. This facility would house operations for regulating access to and egress from WAAF. This installation access gate would also include the latest ATFP guideline requirements and would be designed to alleviate potential traffic congestion on Kamehameha Highway and Leilehua Golf Course Road.

1.6.2 Alternatives Development

In accordance with NEPA and the Army's real property planning policy and regulations, the USAG-HI evaluated the following scenarios for constructing a CAB Complex:

- CAB Complex at WAAF (Preferred Alternative);
- CAB Complex at WAAF (Historic District); and
- CAB Complex at Bradshaw Army Airfield (BAAF), Island of Hawai'i.

In order to determine which scenario would meet the established purpose and need for the projects, USAG-HI considered potential siting scenarios that would strengthen the spatial and operational relationships as required by Army Standards for a CAB. The facility requirements for the CAB Complex should promote efficient operations and training, while preserving a sense of "going home" when the Soldier's workday is complete.

The USAG-HI applied the following screening criteria to the potential sites:

- Meets Army standards for space requirements and working conditions;

- Ensures that proposed land uses of the CAB complex do not conflict with established relationships;
- Maintains proportional land use relationships and order within the CAB;
- Uses transitional areas to buffer and provide links among the land uses;
- Develops the administration headquarters operations near both airfield and maintenance facilities; and
- Develops troop housing next to community land uses; administrative and service/industrial land uses should be within walking distance of troop housing.

Of the three scenarios listed above, one action alternative was identified for further evaluation and is discussed in Section 1.6.3. The rationale for eliminating the other two alternatives from further analysis is explained in Section 1.6.5.

1.6.3 Proposed Action—Construct CAB Complex at WAAF (Preferred Alternative)

Under the Proposed Action, the CAB Complex would be constructed at WAAF. All seventeen phases listed in Table 1-1 would be constructed. Most of the facilities currently occupied by the CAB at WAAF and SBMR would be vacated when the CAB moves into newly constructed facilities. Future use of the facilities that would be vacated by CAB is unknown at this time. However, once plans are developed, NEPA review would be completed, if necessary.

Construction of all facilities in the seventeen phases is subject to the availability of funding. The impacts of constructing all phases and using the maximum size facility that could be built are analyzed in this EA. However, if some phases were not constructed or smaller facilities were constructed, some impacts may be reduced. Some of the details proposed in this EA could change as requirements and designs are refined. Additionally, unanticipated issues may delay the construction schedule.

USAG-HI could make substantial changes in the Proposed Action that are relevant to environmental concerns, or it could identify new circumstances or information relevant to environmental concerns bearing on the Proposed Action or its impacts. If either were to happen, USAG-HI would review the changes and new circumstances to determine if supplemental NEPA documentation must be done, as required by 32 CFR, Part 651.

1.6.4 No Action Alternative

Under this alternative, the CAB would continue to be housed in its current facilities, which do not meet Army standards for hangar and operational space. Working in obsolete buildings would make it difficult to train and maintain unit readiness in an efficient manner and to function as a part of the Army's modular force structure. Soldier morale would deteriorate without improvement of their working and living conditions.

1.6.5 Alternatives Considered but Eliminated from Further Analysis

Other alternatives were initially considered but were determined infeasible to meet the purpose and need of the Proposed Action. These are using other alternate sites on WAAF and an alternate site on another military installation. These alternative locations were dismissed; the ability of each location to fulfill the screening criteria is discussed below.

Use Alternate Sites on WAAF

WAAF National Historic Landmark. This alternative would require demolishing facilities, renovating facilities, and constructing facilities on the same site. Any undertaking that could affect a National Historic Landmark (NHL) would require consultation under Section 106 of the National Historic Preservation Act (NHPA), as amended under implementing regulations 36 CFR, Part 800. This alternative would result in an adverse effect on a NHL. All federal agencies have an obligation to avoid adverse effects. As a result, the CAB Complex is not likely to be built at WAAF NHL, as necessary to meet the purpose and need for the Proposed Action.

Use Alternate Army Installations

Bradshaw Army Airfield, Island of Hawai'i. BAAF is on the northern portion of Pohakuloa Training Area, next to the cantonment area, on the Island of Hawai'i. It has a 3,696-foot runway and offers helicopter access and limited C-130 access (USARHAW and 25th ID [L] 2001). Constructing the CAB Complex at BAAF would not strengthen the spatial and operational relationships appropriate to a CAB. Shortfalls in existing facilities would have to be made up with new construction, which would be required to accommodate CAB facilities. BAAF does not have standard design facilities, schools, or family housing to support the CAB. Additionally, BAAF does not have adequate infrastructure to support unit housing and facilities and lacks sufficient water, electric power, sewage treatment capability, and road access to support the CAB.

There are no suitable facilities that are not being used by other military units on nearby installations that would meet the Army's requirements. The CAB

must have access to a fully functional airfield to support its mission. No nearby facilities have the supporting infrastructure to fulfill this requirement.

Use Off-Post Facilities

Alternatives using off-post facilities through bulk lease, purchase, or individual rental options were examined.

Use Available Off-Post Facilities

Use of this alternative would degrade unit integrity by dispersing personnel off-post. Junior enlisted men are generally billeted off-post only when there is no room within their organization's assigned spaces. Off-post facilities would not meet standard design criteria.

Lease or Purchase Existing Off-Post Assets

Existing off-post facilities for barracks use would be leased or purchased. This alternative is not viable since there are no facilities that meet current Army standards that can be leased or purchased by the government.

SECTION 2:

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CHAPTER 2
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

2.1 INTRODUCTION

This chapter is an overview of the baseline physical, biological, social, and economic conditions of VECs that occur within the region of influence (ROI) of the Proposed Action. This chapter also contains the evaluation of the potential impacts on the VECs of the Proposed Action and No Action Alternatives. Only those environmental and socioeconomic conditions relevant to the Proposed Action are presented, including the following:

2.2 Land Use,
2.3 Socioeconomics,
2.4 Transportation and Circulation,
2.5 Noise,
2.6 Air Quality,
2.7 Geology, soils, and seismicity,
2.8 Water Resources,
2.9 Hazardous materials and conditions,
2.10 Public Services and Utilities,
2.11 Biological resources,
2.12 Cultural Resources,
2.13 Visual Resources, and,
2.14 Environmental Justice.

This chapter is organized by sections for each VEC listed above. As applicable, each section includes background on how the VEC is related to the Proposed Action, provides an overview of relevant legislative requirements governing the VEC, and discusses the general conditions of the VEC within the ROI. To

support the impact analysis, each VEC section also includes a summary of baseline effects.

The impact analysis includes likely beneficial and adverse impacts (as defined in Section 2.1.2) on the human environment, including short-term and long-term impacts, direct and indirect impacts, and cumulative impacts. The analysis of impacts on resources focuses on environmental issues in proportion to their potential effects. Detailed consideration is given to those resources that have a potential for environmental impacts. Interpretation of impacts in terms of their duration, intensity, and scale are provided where possible. Impacts under the No Action Alternative are compared against baseline effects of each resource discussed in each section.

2.1.1 Chapter Organization

Each section describes the methods used for impact analysis and factors used to determine the significance of impacts (40 CFR 1508.8). Impacts are all described where they occur for each resource, including both direct and indirect impacts; direct impacts are caused by the Proposed Action and occur at the same time and place, while indirect impacts are caused by the Proposed Action but occurring later or at a distance from the Proposed Action. Chapter 3 then discusses cumulative effects and whether the Proposed Action would contribute to cumulative impacts on each resource.

2.1.2 Terminology

To determine whether an impact is major, CEQ regulations also require the consideration of context and intensity of potential impacts (40 CFR 1508.27). Context normally refers to the setting, whether the impact is local or regional, and intensity refers to the severity and duration of the impact. Also, this EA includes a discussion of the possible conflicts between the Proposed Action and the objectives of federal, regional, state, and local land use plans and policies for the area concerned (40 CFR 1502.16 C).

Impacts are described by the following levels of significance:

- Significant impact;
- Significant impact but mitigable to less than significant;
- Less than significant impact; or
- No impact.

An impact may be described as beneficial or adverse. There may be both adverse (defined as significant, significant but mitigable, and less than

significant) and beneficial impacts within a single resource category; for instance, a project could interfere with an existing land use, such as recreation (an adverse impact), while expanding public access to different recreational resources (a beneficial impact). Where there are adverse and beneficial impacts, both are described. Mitigation is identified where it may reduce the significance of an impact.

2.1.3 Summary of Impacts

Table 2.1-1 is a summary of impacts of the Proposed Action (Preferred Alternative), and the No Action Alternative. Less than significant impacts were identified for most resource areas.

Table 2.1-1
Summary of Potential Impacts for
Proposed Action (Preferred Alternative) and No Action Alternative

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Land Use	+/⊙	○
Socioeconomics	+	○
Transportation and Circulation	+/⊙	○
Noise	⊙	○
Air Quality	⊙	○
Geology, Soils, and Seismicity	⊙	○
Water Resources	⊙	○
Hazardous Materials and Conditions	⊙	○
Public Services and Utilities	⊙	○
Biological resources	⊙	○
Cultural Resources	⊙	○
Visual Resources	⊙	○
Environmental Justice	○	○

In cases when there would be both beneficial and adverse impacts, both are shown on this table.

LEGEND:

⊙ = Less than significant impact
○ = No impact
\+ = Beneficial impact
N/A = Not applicable

2.2 LAND USE

2.2.1 Affected Environment

Introduction and Region of Influence

This section summarizes the affected environment in the context of the Proposed Action with the federal, state, and local regulations and policies that govern land use on O'ahu. For the purpose of this evaluation, the ROI is defined as WAAF, since land use changes in support of the Proposed Action would be limited to the existing military installation; no military land would be acquired or released. The baseline information presented in this section was obtained from readily available resources.

Regulatory Framework

Coastal Zone Management Act (CZMA)

The CZMA of 1972, as amended (16 USC, Section 145 et seq.), encourages coastal states to manage and conserve coastal areas as a unique irreplaceable resource. Federal activities that affect any land or water use or natural resource of the coastal zone must be carried out in a manner consistent, to the maximum extent practicable, with the enforceable policies of federally approved state coastal zone management programs. The Army has concluded that a federal consistency determination is not required because the Proposed Action would have no potential adverse impacts on coastal resources. Furthermore, the CZMA states that land subject solely to the discretion of the federal government, such as federally owned or leased property, is excluded from the state's coastal zone.

Executive Order 13123, Greening the Government through Efficient Energy Management

This EO, effective June 8, 1999, requires federal agencies to define energy efficiency goals and outlines measures to achieve them. Policies to achieve greater energy efficiency include greater reliance on energy from renewable sources and identify measures to reduce greenhouse gas emissions. This act also established the Federal Energy Management Advisory Committee, whose purpose is to provide the Department of Energy with an independent view on enhancing energy management in the federal sector. The order directs the committee to address a range of issues, including how to achieve the following:

- Improve the use of Energy Saving Performance Contracts and utility energy service contracts;

- Improve procurement of EnergyStar and other energy efficient products;
- Improve building design;
- Reduce process energy use; and
- Enhance applications of efficient and renewable energy technologies at federal facilities (http://ceq.hss.doe.gov/nepa/regs/eos/eo13123.html).

Wheeler Army Airfield Real Property Master Plan (RPMP)

The RPMP defines and directs the land uses at WAAF, in accordance with the directives of AR 210-20: Real Property Master Planning for Army Installations. The RPMP identifies the directives and long-range goals of the airfield and its supporting operations and land uses, identifies operational deficiencies, and adopts goals and objectives for maximum efficiency, use, and environmental consideration for airfield improvements. For WAAF, the RPMP has identified various goals and objectives supporting each goal that forms the land use and operational foundation for various installation improvements and construction of new or relocated facilities. The RPMP consists of four components: long-range, capital investment strategy, short-range, and mobilization. In addition, the RPMP includes an exterior installation design guide and an update to the installation compatibility use zone to guide the installation of future facilities. The RPMP for WAAF is directed by the Commander, US Army Garrison, Hawai‘i (USAG-HI), by the Directorate of Public Works, USAG-HI, with support from the USACE Pacific Ocean Division/Honolulu District (Wheeler Army Airfield Real Property Master Plan, Executive Summary, December 1994).

Central O‘ahu Sustainable Communities Plan

The Central O‘ahu Sustainable Communities Plan (2003) contains land use guidelines for military areas, including those for the SBMR/WAAF (Section 3.12.3.1). These guidelines recommend that existing base uses may be expanded to accommodate additional residents on base or augmented activities that do not significantly conflict with surrounding residential communities. Additional guidelines call for landscape screening of base activities from highway frontages and other off-base areas. The plan also recommend adequate buffers to be provided for residential developments next to the Central O‘ahu training areas to ensure that residents would not be adversely impacted by noise or other environmental impacts of training. The guidelines and policies of this plan are advisory only. Section 3.12.3 requests that the Department of Defense consider them in planning for development at its bases on O‘ahu.

Overview of Valued Environmental Component

WAAF is 21 miles northwest of Honolulu. Its land uses are operations, training, maintenance, supply storage, medical/dental, administration, family housing, troop housing, community/personnel facilities, outdoor recreation, and open buffer zones. Land uses bordering WAAF are a mixture of urban, military, and agriculture. The town of Wahiawā is to the north, the town of Mililani is to the east-southeast, and SBMR is to the northwest. Forested lands surround the southeastern border of WAAF, with lands formerly used for pineapple production located just beyond this wooded area, to the south and east. Kamehameha Highway forms the eastern perimeter of WAAF, and Kunia Road delineates WAAF from SBMR at its northwest perimeter. The Leilehua Golf Course is across the Kamehameha Highway and Interstate H2 (Veteran's Memorial Freeway) to the east.

Current and proposed land use at WAAF is defined on the accompanying maps in Figures 2.2-1 and 2.2-2 (USAG-HI DPW 2011). Development of the installation included land zones that maximized use of available lands and separated family and troop housing from operational, maintenance, and industrial uses. Few spaces remain within WAAF that are available for facilities expansion. Available space for aviation expansion is limited without encroaching into incompatible areas. WAAF is an adjunct to SBMR, which provides many of the necessary community support functions. WAAF includes lands within the state-designated Urban and Agricultural Districts (State of Hawai'i 2002a).

The Proposed Action site is on WAAF and includes the open area southwest of the runway, with Kamehameha Highway to the east and Airdrome Road tracing its entire southern perimeter. Current land uses at the proposed project site are operations, training, open buffer zone, and outdoor recreation. Under the CAB Proposed Land Uses Map, there would be a land use change in the Proposed Action area with the outdoor recreation land use converted to CAB operations and training use.

TETRA TECH

N
W
E
S

0 1,000 2,000 Feet

Legend

- Operations
- Outdoor Recreation
- Supply Storage
- Training
- Communication Facility
- Family Housing
- Maintenance
- Open Buffer Zone
- Utility Area
- Airfield
- Airfield surface
- WAAF

Current Land Use

Wheeler Army Airfield
O'ahu, Hawai'i

Figure 2-2.1

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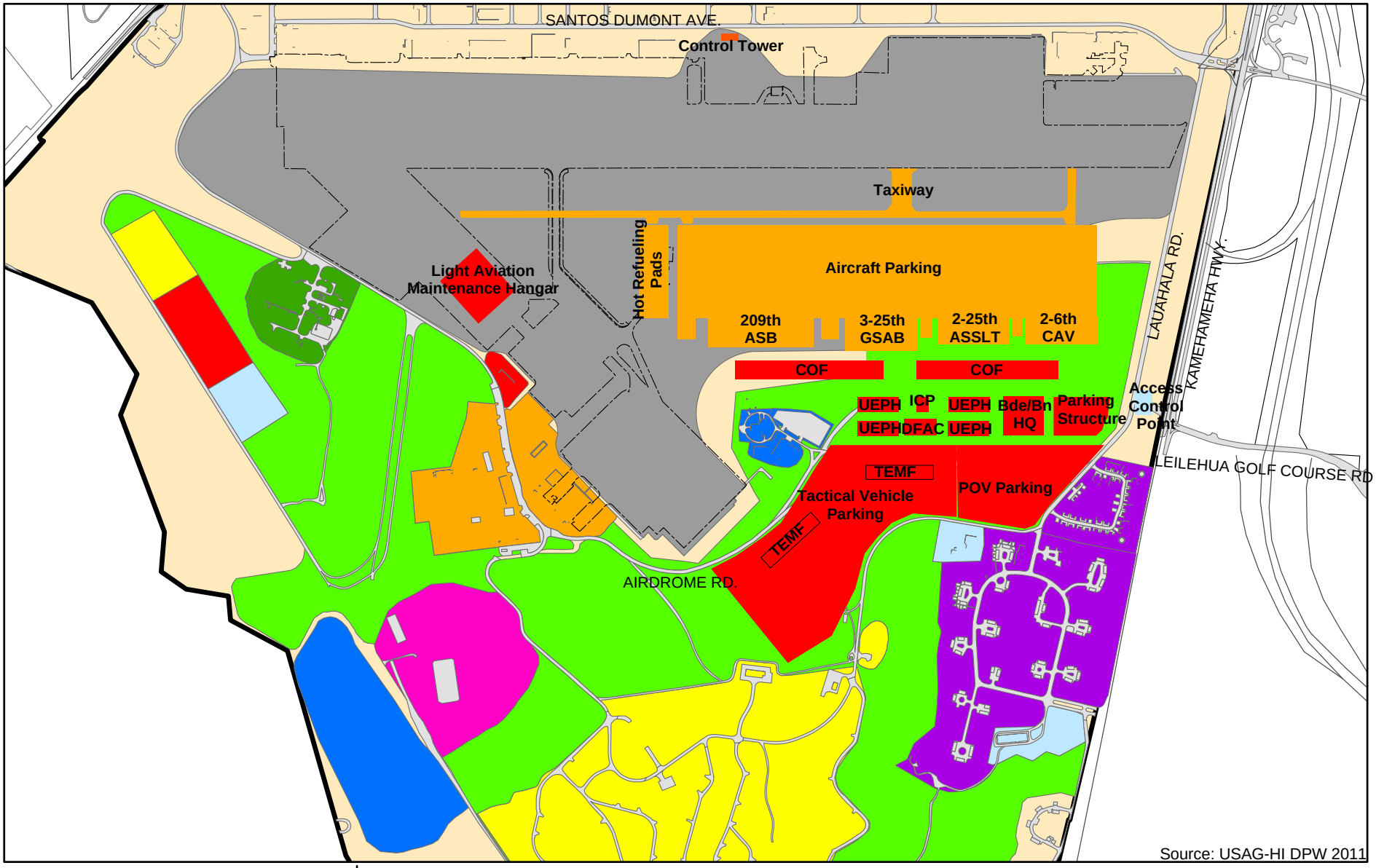

TETRA TECH

N W E S

0 1,000 2,000 Feet

Legend

- Operations
- Outdoor Recreation
- Supply Storage
- Training
- Communication Facility
- Family Housing
- Maintenance
- Open Buffer Zone
- Utility Area
- Airfield
- Airfield surface
- WAAF

Proposed Land Use

Wheeler Army Airfield
O‘ahu, Hawai‘i

Figure 2-2.2

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2.2.2 Environmental Consequences

Impact Methodology

Impacts on land use were assessed based on review and analysis of applicable federal land use plans, ordinances, and regulations. Policies applicable to the Proposed Action were identified to determine the potential impacts, if any, the Proposed Action would have on these policies and regulations. Compliance with regulatory and environmental regulations and policies was analyzed, including those related to energy management, as required by the National Environmental Policy Act of 1969, AR 200-1: Environmental Protection and Enhancement, and by 32 CFR 651, Environmental Analysis of Army Actions. In addition, potential impacts on surrounding land uses and land use policies and provisions were analyzed.

Factors Considered for Impacts Analysis

The evaluation of potential impacts on land use was based on the following:

- Existing and planned land uses at WAAF;
- Consistency with adopted federal, state, and local ordinances and land use plans; and
- Unique characteristics of the geographical area (40 CFR, Section 1508.27), such as parks, reserves, or prime farmlands.

Summary of Impacts

Table 2.2-1 is a summary of land use impacts of the Proposed Action and the No Action Alternative.

Table 2.2-1
Summary of Potential Impacts on Land Use

Impact Issue	Proposed Action (Preferred Alternative)	No Action Alternative
Land use	+/⊙	○

In cases when there would be both beneficial and adverse impacts, both are shown on this table.

LEGEND:
+ = Beneficial impact
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Consistency with Federal Statutes and the RPMP

Based on the parameters of this project, the Army has concluded that a federal consistency determination is not required because potential impacts on the coastal zone are negligible. Furthermore, the CZMA states that land subject solely to the discretion of the federal government, such as federally owned or leased property, is excluded from the state's coastal zone. The US Army has sent a Coastal Consistency Negative Determination letter and a copy of this EA to the State Department of Business, Economic Development, and Tourism, requesting concurrence with these findings. This letter is attached as Appendix A. The Proposed Action is consistent with the land use goals and policies of the WAAF RPMP. The Proposed Action includes many new facilities that are specifically described in the RPMP. These include the construction of aviation maintenance hangars consistent with RPMP Section 3.4, Goal 1—Design new and renovate existing facilities to support maximum efficiency, productivity, and mission accomplishment—and construction of the UEPH and dining facility consistent with Goal 2—Provide the best possible quality of life for the bachelor and unaccompanied and married enlisted Soldier, officer, and their Families. The installation of site infrastructure, including new storm drainage, water, sewer, landscaping, and irrigation in Phase 1, would be consistent with RPMP Goal 9—Be Environmentally responsible—as well as the energy efficiency provision of EO 13123.

The Proposed Action includes the construction of a CAB Complex, including the aircraft maintenance apron, aviation maintenance hangars, and company operations facilities in the location of the baseball fields. These fields are on lands designated as Outdoor Recreation, as shown on the Existing Land Use Map for WAAF (Figure 2.2-1). The construction of replacement baseball fields is not part of the Proposed Action. However, planning is underway to construct the baseball fields across Airdrome Road from the airfield area in areas designated as open space and maintenance on the existing land use map. A portion of the proposed baseball fields site overlaps with the Explosive Safety Buffer Area. This location should be shifted northward to ensure that no portion of the baseball fields overlap with this buffer area. Construction of the relocated fields is not included in any of the construction phases in the Proposed Action. Removing the baseball fields from a location inconsistent with the long-range planning areas in the RPMP without a specific timetable for their reconstruction to a more appropriate location is a less than significant impact of the Proposed Action under the criteria in 40 CFR, Section 1508.27.

The aviation maintenance hangars and hot refueling pad would be relocated next to the airfield, which is consistent with the land use goals in the RPMP to promote idealized functional relationships, allowing ready access from the airfields to airfield support functions and facilities. These facilities would be relocated to areas consistent with the designation for operations/airfield uses on the existing land use map, with the exception of the outdoor recreation designation in the ball field areas. In addition, relocating the UEPH and dining facility to next to administration and operational land use areas would facilitate readiness and would minimize distance for eating, sleeping, and operations. These facilities would be on areas designated as open space/conservation and outdoor recreation on the existing land use map, but these areas would not be significantly reduced or impacted in context of the planned relocation of recreation facilities to a more suitable location in the WAAF.

Consistency with the Central O'ahu Sustainable Communities Plan

The Proposed Action is also consistent with Policy 3.12.1.1 and with the guidelines in Section 3.12.3 of the Central O'ahu Sustainable Communities Plan concerning the SBMR/WAAF. The guidelines call for use and additional development on the posts for the support of military and dependents, which do not significantly conflict with surrounding residential communities. They also call for screening and adequate buffers for adjacent residences to ensure that residents are not adversely impacted by noise or training activities.

The Proposed Action includes the construction of aviation maintenance hangars that would enclose areas for these activities, reducing noise and related impacts from these activities. In addition, the barracks, dining areas, and consolidated operations facilities would be built in already developed portions of WAAF and would create impacts that would not adversely impact nearby communities. Therefore, the Proposed Action would be consistent with the policies and guidelines of this plan.

No Action Alternative

The No Action Alternative would result in no change to the land uses at WAAF. The installation would continue to operate with existing infrastructure and training support facilities, with none of the new facilities described in the Proposed Action. There would be no impacts on the land use goals and policies of the federal CZMA or other state and local land plans. However, the No Action Alternative would be inconsistent with the goals and polices of the WAAF RPMP, specifically Section 3.4, Goal 1—Design New and Renovate Existing Facilities to Support Maximum Efficiency, Productivity, and Mission Accomplishment—and Goal 2—Provide the Best Possible Quality of Life for the Bachelor, Unaccompanied, and Married Enlisted Soldier, Officer, and

Their Families. In addition, the No Action Alternative would be inconsistent with General Plan objectives and policies to encourage the continuation of a high level of military-related employment in the Wahiawā area if infrastructure improvements were not made to ensure the long-term adequacy of WAAF for Army needs and operations. These goals include supporting objectives that contain specific installation facilities that are contained in the Proposed Action. By not constructing those facilities, these goals and supporting objectives would not be met, and the long-range policies of the RPMP would not be applied.

2.3 SOCIOECONOMICS

2.3.1 Affected Environment

Introduction and Region of Influence

The ROI for socioeconomic conditions is Honolulu County on O'ahu. The Proposed Action and the No Action Alternative are reviewed and evaluated to identify potential beneficial or adverse impacts in the ROI. The socioeconomic indicators used for this study are population, employment levels and distribution among business sectors, income, housing, and quality of life. These indicators characterize the ROI.

The baseline years for socioeconomic data are 2008 and 2009, the most recent years that data for the socioeconomic indicators are reasonably available. When available, more recent data are used to best characterize the current conditions of the socioeconomic ROI. Information in this section was obtained from various sources including the US Census Bureau, the US Bureau of Economics, and the State of Hawai'i Department of Business, Economic Development, and Tourism (HDBEDT).

Overview of Valued Environmental and Social Components

Population

Historic, current, and projected population counts in the ROI, compared to the state, are presented in Table 2.3-1. Between 1990 and 2000, the population of Honolulu County increased 4.4 percent and the state by 8.8 percent. Honolulu County's population increased by 3.7 percent between 2000 and 2009 and the state of Hawai'i by 6.9 percent during the same period. Honolulu County's population was 72.2 percent of the state population in 2000 and 70.0 percent in 2009.

Table 2.3-1
Population Trends for the State of Hawai'i and Honolulu City and County

	1990*	2000	2009	2020**	% Change 1990-2000	% Change 2000-2009
Hawai'i	1,113,491	1,211,479	1,295,178	1,432,500	8.8	6.9
Honolulu County (O'ahu)	838,534	875,054	907,574	969,500	4.4	3.7

Source: US Census Bureau 2000a, 2010a
*Source: State of Hawai'i 2008
**Source: State of Hawai'i 2009

Economy, Employment, and Income

Table 2.3-2 presents the distribution of employment for Honolulu County among the various North American Industry Classification System industry sectors and the changes experienced in these sectors between 2000 and 2009, the latest data available from the US Census Bureau. At over 93,000 workers, the educational services, health care, social assistance sector employed the greatest number of workers in Honolulu County in 2009. The second largest employer was the arts, entertainment, recreation, accommodation, and food services sector, employing over 57,000 workers in 2009. These combined sectors also employed the most people in 2000.

Table 2.3-2
Sector Employment for Honolulu County

	Honolulu County			
Sector	**Number of Persons, 2000**	**% of Total, 2000**	**Number of Persons, 2009**	**% of Total, 2009**
Total employment	383,148	100.0%	417,361	100
Agriculture, forestry, fishing and hunting, and mining	4,046	1.1%	3,349	0.8
Construction	20,657	5.4%	26,592	6.4
Manufacturing	14,494	3.8%	17,017	4.1
Wholesale trade	13,211	3.4%	11,144	2.7
Retail trade	46,914	12.2%	44,540	10.7
Transportation and warehousing, and utilities	24,877	6.5%	23,307	5.6
Information	10,515	2.7%	7,997	1.9
Finance and insurance, and real estate and rental and leasing	28,643	7.5%	29,515	7.1
Professional, scientific, and management, and administrative and waste management services	37,837	9.9%	45,473	10.9
Educational services, health care, social assistance	76,091	19.9%	93,570	22.4
Arts, entertainment, recreation, accommodation, and food services	52,743	13.8%	57,885	13.9
Other services, except public administration	17,308	4.5%	18,035	4.3
Public administration	35,812	9.3%	38,936	9.3

Source: US Census Bureau 2000a, 2010b

In 2009, the ROI civilian labor force totaled 443,950, with 417,361 people employed and 26,589 people unemployed. The average annual unemployment rate for the ROI was 6.0 percent in 2009, lower than the average annual unemployment rate in Hawai‘i of 7.0 percent (US Census Bureau 2010b). In 2009, the per capita personal income (PCPI) of the ROI was $28,849. This was marginally higher than the state of Hawai‘i’s PCPI of $28,142 and higher than the national PCPI of $26,409 (US Bureau of Economic Analysis 2010).

According to the Army Stationing and Installation Plan data for fiscal year (FY) 2011, WAAF employs approximately 4,615 people. About 2,694 are military personnel and 1,921 are civilian personnel. Neighboring Schofield Barracks employs approximately 21,409 people. About 14,235 were military personnel and 7,174 were civilian personnel (US Army 2011a).

Housing

Housing unit supply estimates for the ROI are presented in Table 2.3-3 for the state and Honolulu County. Between 2000 and 2009, the total number of housing units and the number of occupied housing units in Honolulu County increased by a lower percentage than the state average. In 2009, 10.1 percent (34,284 units) of the total housing units (338,078 units) in Honolulu County were vacant. This is slightly higher than the vacancy rate of 9.3 percent of total housing units for the county in 2000. As shown in Table 2.3-3, the total number of housing units increased by 7.0 percent (22,090 units) between 2000 and 2009 in Honolulu County. This is lower than the state average of 11.9 percent (55,083 units) for the same time frame.

Table 2.3-3
State and County Housing Availability Trends

	Hawai'i			Honolulu County		
	2000	2009	Percent Change 2000 to 2009	2000	2009	Percent Change 2000 to 2009
Total	460,542	515,625	11.9	315,988	338,078	7.0
Occupied	403,240	437,976	8.6	286,450	303,794	6.0
Owner-occupied	227,888	254,414	11.6	156,290	170,135	8.8
Renter-occupied	175,352	183,562	4.6	130,160	133,659	2.6
Vacant	57,302	77,649	35.5	29,538	34,284	16.0

Source: US Census Bureau 2000b, 2010c

Schools

According to the Hawai'i Department of Education (DOE), over 15,000 military dependent students attend public schools in Hawai'i. The ROI has four school districts: Central, Honolulu, Leeward, and Windward. Children living on WAAF attend schools in the Central District, which has 25 public schools. The public schools serving the WAAF on-post community are Wheeler Elementary School, Wheeler Intermediate School, Solomon Elementary School, Hale Kula Elementary School and Leilehua High School. (Hawai'i DOE 2010).

School enrollment in the ROI for the school year 2009-2010 was 118,534 students. This is an increase of 0.4 percent from the 2008-2009 school year. The student enrollment of the public schools that serve the WAAF and Schofield Barracks on-post community totaled 5,115 students in the 2009-2010 school year, with the largest enrollment at Leilehua High School at 1,900 students. For higher education, the University of Hawai‘i in west O‘ahu total student enrollment for 2009 was 1,133. The Honolulu Community College had 4,585 student enrollments in 2009 (HDBEDT 2010).

Law Enforcement Services

Security at the WAAF is provided through the Provost Marshall's Office and the Military Police, both of which respond to law enforcement emergencies on the installations, including the housing areas. The Military Police enforce laws, regulations, and directives, administer physical security programs, investigations, crime prevention program, absent without leave (AWOL) apprehension, vehicle and weapons registration, and act as liaisons with civil law enforcement agencies.

Fire Protection Services

The Fire and Emergency Services Division at WAAF operates on a 24-hour emergency service basis. The Honolulu Fire Department can provide additional support if needed. Typically, the Fire and Emergency Services Division also educates the on-post community about fire prevention and provides courtesy fire inspections on request.

2.3.2 Environmental Consequences

Impact Methodology

The ROI is Honolulu County on O‘ahu. The No Action Alternative and Proposed Action are reviewed and evaluated to identify potential beneficial or adverse impacts on conditions in the ROI. For the Proposed Action, impacts on population, employment, housing, and quality of life were evaluated qualitatively.

Factors Considered for Impacts Analysis

Factors considered in determining if an alternative would have a significant impact on socioeconomics include the extent or degree to which its implementation would change the following:

- Population;
- Employment and total income in Honolulu County;
- Demand on housing; or

- Demand on public services (e.g., schools, fire, and security services).

Summary of Impacts

Table 2.3-4 is a summary of the impacts on socioeconomics.

Table 2.3-4
Summary of Potential Socioeconomic Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Population	○	○
Employment and total income	+	○
Demand on housing	○	○
Demand on public services	○	○

LEGEND:
+ = Beneficial impact
○ = No impact

Proposed Action (Preferred Alternative)

Long-term and short-term beneficial impacts would occur by implementing the Proposed Action. Direct benefits would result from materials procurement for construction of the proposed CAB Complex and associated state excise tax on those materials. The projected construction expenditures for the new facilities would marginally increase employment and income in the ROI during the five-year construction period and would have a short-term beneficial economic impact. Local communities, such as Wahiawā and Mililani, may benefit from economic activity generated by the purchase of services, manufactured goods, and equipment from local business during the construction period.

Construction of the proposed CAB Complex would bring the CAB facilities at WAAF up to Army standards, employing the modular force concept, thereby creating more cohesive, efficient, and flexible CAB facilities at WAAF. The new facilities would provide more space and improve efficiency for Army operations conducted at the WAAF. Army readiness would also improve because facilities would be near each other, thereby minimizing movement necessary to deploy units. It would also enhance morale among WAAF personnel because the proposed barracks complex would accommodate a maximum of 808 personnel in 808 spaces, providing personnel their own spaces to live. Given these impacts, the Proposed Action would result in long-term beneficial impacts on operations at the WAAF.

No impacts on population and public services are expected in the long-term. The addition of 808 housing spaces would not increase the permanent population because this housing would replace existing housing at the WAAF and SBMR. Therefore, construction of the new CAB Complex would not increase the long-term population or overburden public services, such as schools, law enforcement, or fire protection.

No Action Alternative

Under the No Action Alternative, existing conditions would not change. Existing CAB facilities at WAAF and SBMR would continue to be noncompliant with the new standards established by the facilities modernization program for the Hawai‘i CAB units. The existing barracks facilities would also continue to lack sufficient space to meet new standards.

2.4 TRANSPORTATION AND CIRCULATION

2.4.1 Affected Environment

Introduction and Region of Influence

Transportation and circulation refer to the movement of vehicles and pedestrians along roads. The ROI of the Proposed Action is the area within WAAF and SBMR perimeters, including the roadways next to the Proposed Action sites.

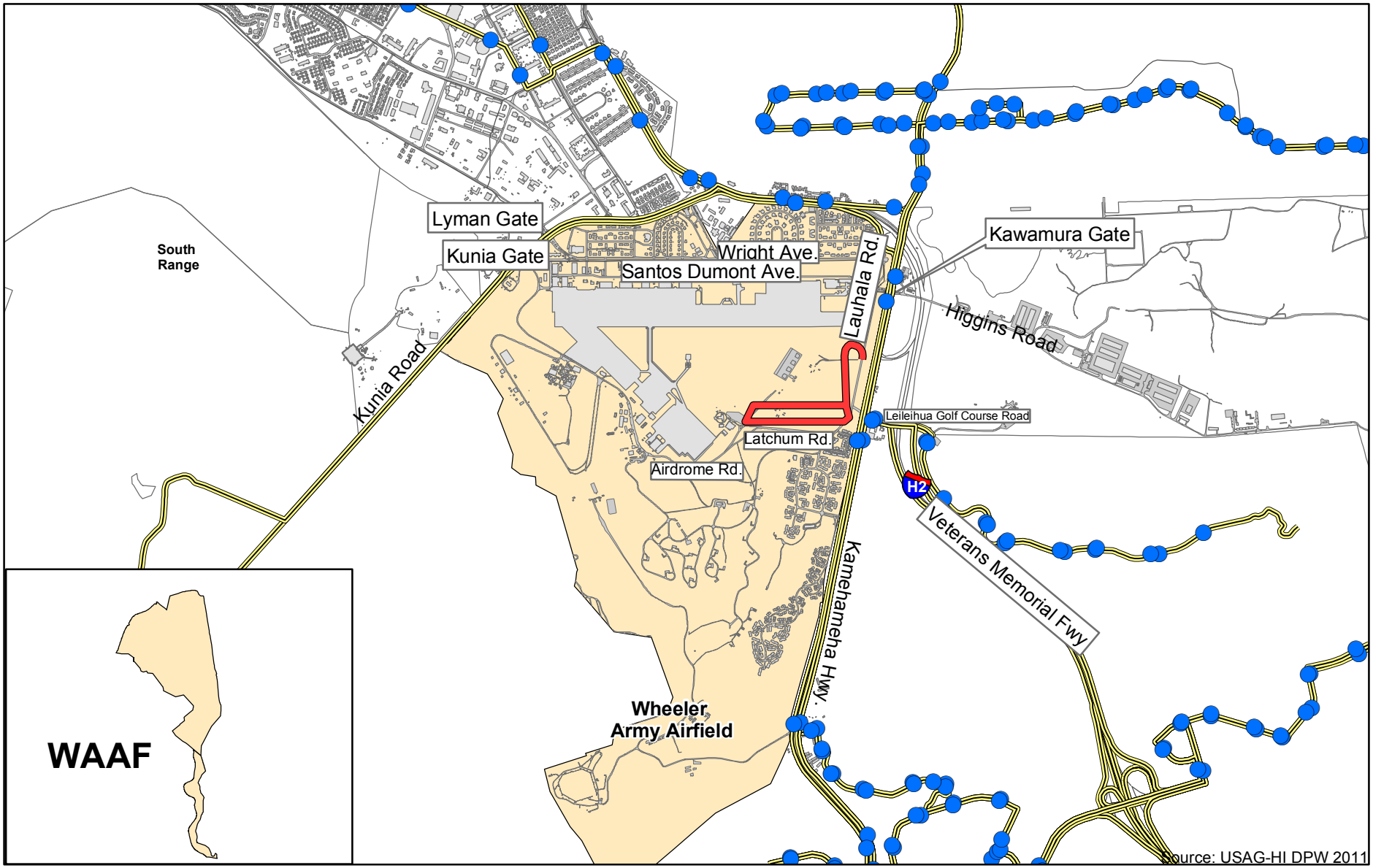
Overview of Valued Environmental Component

Wheeler Army Airfield

Two main roadways serve WAAF, Santos Dumont Avenue, which directly borders the airfield, and Wright Avenue, which runs parallel to Santos Dumont Avenue, one block northwest, through the housing and administrative areas (Figure 2.4-1). Both of these streets are oriented southwest-northeast. Lauhala Road is along the eastern boundary, parallel to Kamehameha Highway (H-99). It connects to Latchum Road, which is oriented roughly east-west in the southern portion of WAAF. Latchum Road connects to Airdrome Road on the west side, which connects to Wright Avenue in the northwestern portion of WAAF. Other large roadways close to WAAF with direct connections to the roadways described above are the Veterans Memorial Freeway (H-2, immediately east of H-99), and Kunia Road (H-750, generally north and west of Wright Avenue).

All access to WAAF is through access control points (ACPs) (IMCOM 2009). Gate 1, also known as the Main Gate or Kawamura Gate (Figure 2.4-1) is at the intersection of Kamehameha Highway and Santos Dumont Avenue, in the northeastern corner of WAAF. Gate 2, which is also known as the Kunia Gate, is limited in use and is restricted to authorized personnel. It offers direct access to SBMR's Lyman Gate to SBMR. It is located, in the northwestern corner of WAAF, at the intersection of Kunia Road and Wright Avenue. Visitors to WAAF have to first enter SBMR at Lyman Gate in order to get a visitor's pass. Once they have a visitor's pass, they can enter WAAF through either the Kunia Gate or Kawamura Gate. Lauhala Road connects the Kawamura Gate with the proposed site for the CAB Complex. Traffic accessing the southern side of the airfield predominantly uses the Kawamura Gate.

The transportation system at WAAF is generally in good condition and is adequately serving the current demands. Relatively minor problems are



TETRA TECH

N W E S

0 2,500 5,000 Feet

Legend

- Wheeler Army Airfield
- Schofield Barracks
- Existing structures
- Roads
- Proposed New Road
- Bus Stop
- Bus Route

Existing Road Network at WAAF

O'ahu, Hawai'i

Figure 2-4.1

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congestion at the gates and some intersections during peak hours and the absence of pedestrian pathways and bicycle lanes, which hinder safety (IMCOM 2009). CAB use of the transportation system to move among facilities at WAAF and SBMR is not consistent with the modular force concept, as described in Section 1.3, Purpose and Need of the Proposed Action.

The existing road, pedestrian, and bicycle facilities for the proposed CAB Complex (Figure 2.4-1), bounded by Santos Dumont Avenue, Lauhala Road, Latchum Road, and Airdrome Road, is provided in Table 2.4-1. Traffic associated with uses in this area does not become congested. Limited, dedicated pedestrian facilities are along Santos Dumont Avenue. Because there are no formal bicycle facilities in this area, these conditions require cyclists to share travel lanes with vehicle operators.

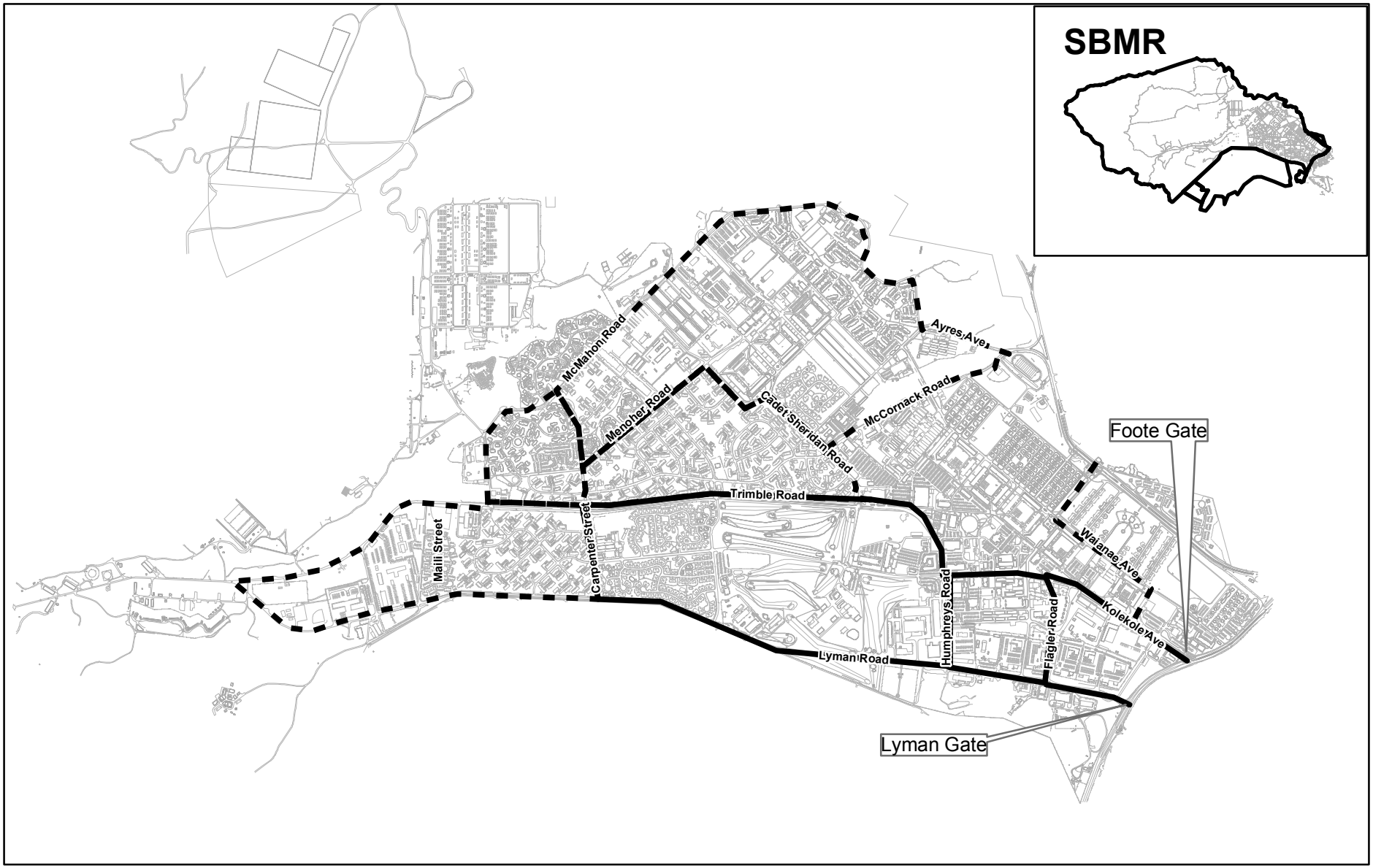
Table 2.4-1
Existing Two-Way Roadway Network and Pedestrian Facilities at WAAF

Segment	Pedestrian Facilities	Bicycle Facilities
Santos Dumont Avenue	Paved sidewalk on both sides	None
Lauhala Road	None	None
Latchum Road	None	None
Airdrome Road	None	None

The City and County of Honolulu maintains the public transportation system, TheBus, and Route 72 services the Whitmore/Wahiawā/SBMR area. There is no direct access to WAAF via TheBus, but there is a stop next to the Main Gate on Kamehameha Highway (Figure 2.4-1). Direct service to SBMR is available on Route 72. This bus enters SBMR at McNair Gate (Ayres Avenue) and circles the north-central portion of the Main Post (O'ahu Transit Services 2010).

Schofield Barracks Military Reservation

Two main roadways serve the interior of SBMR, Foote Avenue/Trimble Road and Lyman Road (Figure 2.4-2). Both roadways traverse the main compound and are oriented in east-west. Foote Avenue connects the main gate with the central area, which contains the commercial area and the barracks. West of the commercial area, Foote Avenue turns into Trimble Road, which continues west to the training areas. Generally, Foote Avenue/Trimble Road is a four-lane roadway between the Main Gate and Beaver Road, which is approximately 1.2 miles west of the commercial area.



TETRA TECH

N
W E
S

0 1,050 2,100 4,200
Feet

Legend

Primary Road

Secondary Road

Existing Road Network at SBMR

O‘ahu, Hawai‘i

Figure 2-4.2

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Regional access to SBMR is via either Kunia Road or Wilikina Drive. Four-lane Kunia Road borders the east side of SBMR (DPW 2005). Commercial and visitor traffic enters SBMR from Lyman Gate, southwest of the main Foote Gate. Lyman Road parallels Foote Avenue on the southern boundary of SBMR and extends west to the training ranges. The CAB facilities at SBMR are accessed from Wright-Smith Avenue on the southwest side or from tertiary roads off McMahon Road to the northwest. The closest ACP to the CAB facilities at SBMR is at the McMahon Gate. Kunia Road generally separates SBMR from WAAF.

Road, pedestrian, and bicycle facilities at SBMR are shown in Table 2.4-2. Current traffic associated with uses in these areas does not become congested in the immediate area. Lack of pedestrian facilities in some areas requires pedestrians to travel on the unpaved areas next to the roads. Because there are no formal bicycle facilities in this area, these conditions require cyclists to share travel lanes with vehicle operators.

Table 2.4-2
Existing Two-Lane Roadway Network and Pedestrian Facilities at SBMR

Segment	Pedestrian Facilities	Bicycle Facilities
Wright-Smith Avenue	None	None
Menoher Road	Paved sidewalks on both sides	None
Willisian Avenue	Paved sidewalks on both sides	None
McMahon Road	Paved sidewalk on side bordering installation	None

2.4.2 Environmental Consequences

Impact Methodology

Impacts on local circulation, parking, access, and vehicle, pedestrian and bicycle safety in the vicinity of the Proposed Action were qualitatively evaluated.

Factors Considered for Impacts Analysis

Factors considered in determining whether an alternative would have a significant impact include the extent or degree to which its implementation would cause or result in the following:

- Increases in vehicle trips on local roads that would disrupt or alter local circulation patterns;

- Lane closures or impediments that would disrupt or alter local circulation patterns;
- Activities that would create potential traffic safety hazards;
- Increases in conflicts with pedestrian and bicycle routes or fixed-route transit;
- Increases in demand on public transportation in excess of planned or anticipated capacity at the time of increase;
- Increases in demand for bicycle and pedestrian facilities in excess of planned or anticipated capacity at the time of increase;
- Parking demand in excess of the supply; or
- Impeded emergency access on or off the site.

Summary of Impacts

Table 2.4-3 summarizes transportation and circulation impacts from the Proposed Action and the No Action Alternatives.

Table 2.4-3
Summary of Potential Traffic Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Intersection operations	+/⊙	○
Roadway segment operations	+/⊙	○
Parking	+	○
Pedestrian facilities	+/⊙	○
Bicycle facilities	○	○

In cases when there would be both beneficial and adverse impacts, both are shown on this table.

LEGEND:

+ = Beneficial impact
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Under the Proposed Action, there would be approximately 36,000 square feet of road surfacing in the proposed CAB Complex. There would be an increase in military vehicles and POVs within WAAF. Traffic changes on Santos Dumont Avenue and on other roads within WAAF property could result from redistributing traffic. The new CAB Complex would consolidate services and

minimize movement among sleeping, eating, and operational facilities, therefore reducing the volume of traffic going to and from SBMR and WAAF.

Changes in traffic conditions would result in both minor adverse and beneficial impacts within the installation. Traffic patterns would be slightly altered in and around SBMR and WAAF because people and facilities would be relocated. Changes would happen over five years as construction phases are implemented. The last phase (17) could have one of the larger impacts, likely beneficial, on traffic because a new ACP would be constructed at the intersection of Kamehameha Highway and Leilehua Golf Course Road. This would be the primary entrance to the CAB Complex and the housing area on the southeastern portion of the installation. This new ACP would shift much of the traffic in and out of WAAF to the south of the current gates and would likely reduce congestion associated with queuing to enter the installation. Traffic would be redistributed among the three gates at WAAF with the construction of the new ACP. While increases in traffic at the intersection of Kamehameha Highway and Leilehua Golf Course Road would occur with the new ACP, the design of the new ACP would include an appropriate number of lanes and turning lanes to minimize traffic congestion. The net changes in traffic patterns in and around WAAF and SBMR from the Proposed Action would likely have a long-term beneficial impact.

Because the Proposed Action involves the construction of on-site parking, there would be no expected shortage of available parking within the installation. The design of the CAB Complex encourages users to park once and walk to and from their homes and work places (IMCOM 2009). This alternative would improve pedestrian circulation and safety by providing sidewalks within the CAB development area. The proposed sidewalks would result in long-term beneficial impacts by providing dedicated areas for pedestrians to travel. No bicycle improvements would be implemented, so there would be no opportunity to improve bicycle conditions.

There would be short-term less than significant impacts from an increase in construction-related vehicles and activities from 2012 to 2017 as the construction phases are implemented. Road construction is slated for Phase 1 and thus would occur at the beginning of the project in fiscal year 2012. A new gate would be constructed in fiscal year 2012 that would be designated for construction-related traffic only. This gate would be constructed in the same vicinity of the new ACP to be completed under Phase 17. Additionally, a construction traffic control plan would be implemented to mitigate construction-related impacts on vehicular traffic, pedestrians, and bicyclists.

No Action Alternative

Under the No Action Alternative, there would be no road construction. Existing CAB facilities at SBMR and WAAF would continue to be used, so services would not be consolidated requiring travel to and from these facilities. Traffic patterns similar to existing conditions would continue, which would be a minor adverse impact from the continuation of inefficient troop movements and inadequate ACPs. The Hawai‘i State Department of Transportation has determined that it is feasible to program the traffic light at the Lyman Gate and Kunia Gate intersection (or to replace it with a new one) to allow for the simultaneous execution of left turns from Lyman and Kunia Gates; this, in turn, would allow for more traffic between SBMR and WAAF (USAG-HI 2009). Therefore, problems at this gate could be rectified under another project.

2.5 NOISE

2.5.1 Affected Environment

Introduction and Region of Influence

Noise is defined as unwanted sound and can be intermittent or continuous, steady or impulsive. Human response to noise is extremely diverse and varies according to the type of noise source, the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source and the receptor.

Sound levels decrease as the distance from the source increases. The ROI for noise includes the project site and the surrounding areas where sound generated at the project site is audible. Generally, the ROI extends no more than a half mile to a mile from the project site, depending on the sound source.

Overview of Valued Environmental Component

Sound is caused by vibrations that generate waves of minute air-pressure fluctuations in the surrounding air. The decibel (dB) is the accepted unit of measurement for sound. Because human hearing is not equally sensitive to all sound frequencies, various frequency weighting schemes have been developed to approximate the way people hear sound. The A-weighted decibel scale (dBA) is normally used to approximate human hearing response to sound. The C-weighted scale (dBC) is frequently used to evaluate artillery firing and blast noise, since low-frequency components of such impulse sound sources can induce window rattling or building vibrations. Average sound exposure over a 24-hour period is often presented as a day-night average sound level (DNL), where nighttime values (10 PM to 7 AM) are increased by 10 dB to account for the greater disturbance potential from nighttime sound.

The DoD evaluates the acceptability of noise levels at military installations according to three noise level zones: Zone I (DNL levels below 65 dBA or 62 dBC), Zone II (DNL levels of 65 to 75 dBA or 62 to 70 dBC), and Zone III (DNL levels above 75 dBA or 70 dBC). Under Army Regulation 200-1, all types of land uses are considered compatible with Zone I. Educational and residential land uses are not compatible with Zone II noise levels unless special acoustic treatments and designs are used to ensure acceptable interior noise levels. Residential and educational land uses are not compatible with Zone III noise levels. Table 2.5-1 presents a range of example sound levels and the noise level zones in which they fall.

Table 2.5-1
Common Sound Levels

dBA	Example Conditions
	Zone III (DNL levels above 75 dBA or 70 dBC)
120	Air raid siren at 50 feet
90	Jackhammer at 50 feet
85	Bulldozer, excavator, pneumatic wrench, or paver at 50 feet
80	Table saw at 25 feet
	Zone II Noise Levels (DNL levels of 65-75 dBA or 62-70 dBC)
75	Street sweeper at 30 feet
70	Busy six-lane freeway at 300 feet
65	Typical daytime busy downtown background conditions
	Zone I Noise Levels (DNL levels below 65 dBA or 62 dBC)
60	Typical daytime urban mixed use area conditions
55	Typical urban residential area away from major streets
50	Typical suburban daytime background conditions
40	Typical suburban area at night

Source: Data compiled by Tetra Tech staff.

Aircraft constitute the primary noise sources at WAAF, which has an average of 324 aircraft takeoffs and landings per day. Approximately 92 percent of daily aircraft activity is helicopters, and the remaining eight percent is airplanes. Approximately 61 percent of aircraft activity takes place in the daytime (7 AM to 10 PM) and the remaining 39 percent takes place at night (10 PM to 7 AM). Table 2.5-2 shows aircraft used at WAAF and their sound levels at various slant distances (the distance from the airborne craft to a point on the ground). CH-53, single-engine propeller, and twin turbo propeller airplanes are also used at WAAF, but sound levels for these aircraft are not readily available (US Army Public Health Command 2010).

Table 2.5-2
Maximum Sound Levels of Aircraft at WAAF

Slant Distance (feet)	C-130 (Hercules airplane)	CH-47 (Chinook helicopter)	OH-58 (Kiowa helicopter)	UH-60 (Blackhawk helicopter)
200	100	98	89	91
500	92	89	81	83
1,000	85	83	74	76
2,000	77	77	67	69
5,000	66	67	56	58
10,000	57	59	47	48

Source: US Army Public Health Command 2010

Noise contours have been developed for WAAF based on aircraft noise. The runway at WAAF is within a Zone III noise contour, and most of the remainder of WAAF is within a Zone II noise contour, as shown in Figure 2.5-1. These contours represent a weighted day-night average of annual noise conditions, where a penalty is applied to nighttime noise.

Because the noise contours do not represent a constant average noise level, noise levels at a given time and place can be substantially lower or higher than the values indicated by the noise contours. The Aviation Brigade recently requested an additional hour from 10 PM to 11 PM be added to the hours considered to be daytime activities. If granted, this request would alter the noise contours slightly (US Army Public Health Command 2010).

No sensitive noise receptors are within the Zone III noise contour. Military family housing areas south of the runway are within the Zone II noise contour. Residential use is not recommended within Zone II noise contours, and these areas are presumably exposed to undesirable noise levels, constituting an existing adverse effect. North of the runway, military family housing areas and the Wheeler Elementary and Middle Schools are just outside the Zone II noise contour and partially within the Land Use Planning Zone contour, which is the outer edge of the Zone I noise contour (US Army Public Health Command 2010). No sensitive receptors outside WAAF are within the ROI.

2.5.2 Environmental Consequences

Impact Methodology

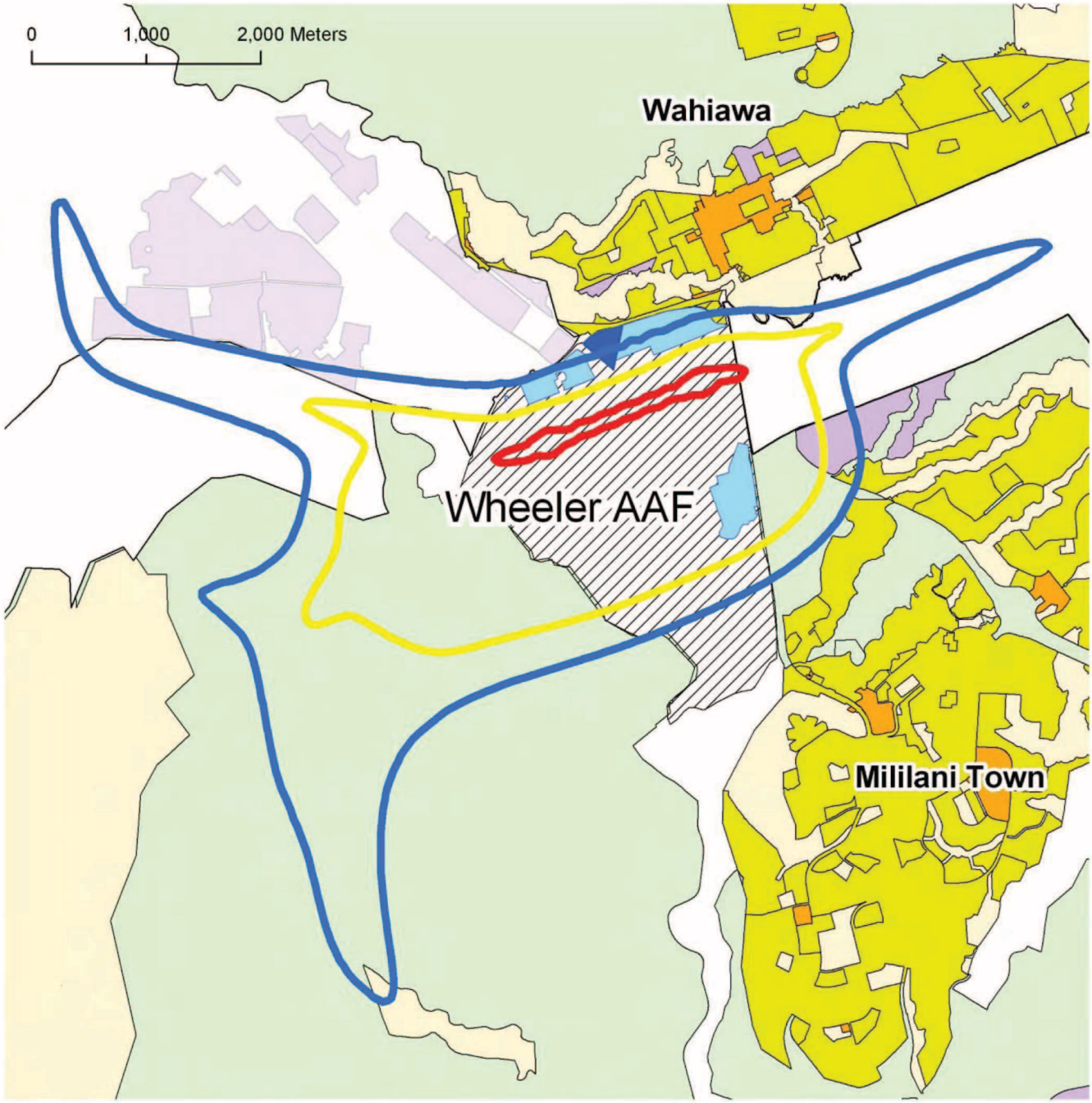
Potential effects of the Proposed Action and No Action Alternative on noise were evaluated by examining the typical noise generated by construction, aircraft, and operations, compared to DoD guidance and applicable regulatory standards regarding noise exposure and distance to nearby sensitive receptors.

Factors Considered for Impacts Analysis

Factors considered in determining if an alternative would have a significant impact include the extent to which its implementation would generate temporary noise during construction or long-term noise during operation and maintenance that would exceed DoD or applicable regulatory standards.

Summary of Impacts

Table 2.5-3 is a summary of impacts on noise.



N
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TETRA TECH

Legend

- Island of Oah`u
- Agriculture
- Preservation
- Residential
- Business
- LUPZ
- Zone II
- Industrial
- WAAF RCI Housing
- Schofield RCI Housing
- Wheeler AAF
- Federal / Military Property
- Zone III
- WAAF Schools

Existing Noise Levels at WAAF

O‘ahu, Hawai‘i

Figure 2-5.1

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Table 2.5-3
Summary of Potential Noise Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Construction noise	⊙	○
Aircraft operations	⊙	○
Operation and maintenance	⊙	○

LEGEND:
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Construction

Construction noise could temporarily disturb nearby houses to the southeast. Utility infrastructure, roads, parking areas, and several buildings would be built next to and within 1,000 feet of several residences over approximately four years. Construction-related noise generally produces levels of 80 to 90 dBA at a distance of 50 feet. Acceptable noise exposures identified by the Occupational Safety and Health Administration (OSHA) for an 8-hour workday is 90 dBA. Noise levels associated with the noisiest stage of construction would be below 65 dBA at a distance of 1,000 feet. Construction would be limited to reasonable daytime hours. Because construction noise would be temporary, would not exceed the OSHA threshold, and would be limited to daytime hours, impacts would be less than significant.

Aircraft Operations

Implementing the Proposed Action would split aircraft operations between the northern and southern portion of the runway. This would include aircraft surface maneuvers, such as taxiing, starting up and shutting down, and hot refueling south of the runway onto the new taxiway, parking aprons, wash aprons, hot refueling pads, and clear water rinse area (Figure 1-4). Currently, the aircraft parking areas north of the runway, where similar surface maneuvers take place, are approximately 500 feet from residential areas to the north. At the closest point, the new areas would be at a comparable distance from sensitive receptors (500 feet from the new barracks and 1,000 feet from residential areas to the south). Therefore, although short-term noise from individual aircraft maneuvers would increase for these sensitive receptors, it would be comparable to that experienced by existing sensitive receptors. In addition, the sensitive receptors to the north are outside the Zone II noise contour, while the sensitive receptors to the south are inside the Zone II

contour. Therefore, average decibel levels would not increase beyond allowable levels for Zone II. For these reasons, impacts would be less than significant.

Operation and Maintenance

The proposed facilities would be constructed within a Zone II noise level area. Other than the barracks, which are living areas, Zone II is compatible with the proposed land uses. As described above, short-term noise levels at the barracks from individual aircraft would be comparable to that currently experienced by sensitive receptors to the north and average decibel levels would not exceed allowable levels for Zone II. Soldiers living in the barracks are engaged in aviation operations, are frequently exposed to aircraft sounds, and likely rarely if ever perceive them as unwanted or annoying sound. For these reasons, noise impacts on the barracks would be less than significant.

The new facilities would introduce new sources of sound, such as ventilation systems and vehicle traffic. These are not significant because they are typical sources of background noise in any developed area and would not likely be perceived as unwanted or annoying sound.

No Action Alternative

The No Action Alternative would not change or augment the existing noise sources within the ROI. No impacts are identified as resulting from the No Action Alternative.

2.6 AIR QUALITY

2.6.1 Affected Environment

Introduction and Region of Influence

Air quality in Hawai'i is generally some of the best in the nation, with ambient air quality concentrations well below federal and state standards. This situation is primarily due to the tendency for pollutants to disperse offshore with the trade winds and the limited number of emission sources on each island. The ROI for this analysis is the Proposed Action area and surrounding areas.

Overview of Valued Environmental Component

Air quality is assessed in terms of whether concentrations of air pollutants are higher or lower than established federal and state ambient air quality standards. The US Environmental Protection Agency (USEPA) and the Hawai'i Department of Health (HDOH), Clean Air Branch have established standards for the following air pollutants, which are collectively referred to as criteria pollutants: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter (as inhalable particulate matter [PM_{10}] and as fine particulate matter [$PM_{2.5}$]). The purpose of these standards is to protect human health and welfare.

Areas where air quality is equal to or better than the ambient air quality standards are called attainment areas and areas where air quality is worse are called nonattainment areas. Areas that have been classified as nonattainment in the past but are currently in attainment are called maintenance areas, and areas of uncertain status are designated as unclassifiable.

Existing Air Quality

The HDOH Clean Air Branch operates several air quality monitoring stations on O'ahu. There were no exceedances of state or federal ambient air quality standards recorded at any of these monitoring stations in 2009, which is the most recent year for which complete air quality data is available. Excluding exceedances due to the Kilauea volcano on the island of Hawai'i, Hawai'i was in attainment for all pollutants in 2009 (HDOH 2010).

There are no sources of air emissions in the Proposed Action area because it is undeveloped. Emission sources on WAAF include personal and government vehicles, maintenance and warehousing equipment, and stationary sources, such as boilers, generators, and incinerators. In addition, military training emission sources include aircraft and helicopters, weapons detonation, and off-

road vehicles, the latter of which can cause relatively high but temporary emissions of fugitive dust in areas with fine soils.

Clean Air Act Conformity

Under the authority of the Clean Air Act, the USEPA has promulgated the general conformity rule, which requires that federal agencies in nonattainment and maintenance areas perform a general conformity analysis and, where emissions could exceed specified thresholds, prepare a formal conformity determination document. Because Hawai‘i is in attainment for all pollutants, a general conformity analysis is not required for the Proposed Action. The Army has documented this fact in a Record of Nonapplicability (Appendix B).

2.6.2 Environmental Consequences

Impact Methodology

Potential air quality impacts from the Proposed Action were assessed using a custom project-specific spreadsheet model that calculates air pollutant and greenhouse gas (GHG) emissions from construction, which is expected to peak during 2014; therefore, an analysis of emissions for calendar year 2014 provides a conservative estimate of annual emissions during project construction. Construction emissions in all other years would be lower than those during 2014, and emissions during operation and maintenance would be a fraction of construction emissions.

The spreadsheet model uses a conventional approach to estimating emissions from construction equipment and activity. Construction was divided into four overlapping stages: site preparation, installation of utility interconnects and construction of building foundations, building construction, and paving. The type and number of equipment and hours of operation needed for each stage was then estimated and engine emissions were calculated. The amount of area to be disturbed was used to calculate typical fugitive dust emission rates, taking into account dust control from watering (using a water truck) and natural precipitation patterns. Emissions of volatile organic compounds from curing asphalt pavement were also calculated.

Factors Considered for Impact Analysis

Factors considered in determining if the Proposed Action or No Action Alternatives would have a significant impact on air quality are as follows:

- If it were to generate significant quantities of criteria pollutant emissions in a calendar year that could contribute to local or regional exceedances of federal or state ambient air quality standards, or

- If it were to generate significant quantities of GHG emissions in a calendar year.

Summary of Impacts

Table 2.6-1 is a summary of impacts on air quality.

Table 2.6-1
Summary of Potential Air Quality Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Air pollutants	⊙	○
Greenhouse gases	⊙	○

LEGEND:
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Construction

Air quality impacts from the Proposed Action are primarily the result of temporary emissions from construction. The Proposed Action would require the operation of heavy equipment and construction vehicles for various activities, including site grading, excavating and pouring building foundations, installing buried and aboveground utility interconnects, erecting buildings, and paving the taxiway, roads, and parking areas. In addition, there would be additional vehicle traffic to and from the project site associated with construction worker commutes and heavy trucks delivering construction materials and facility components.

Construction is expected to peak in 2014 when phases 2, 3, 8, 11, 12, and 13 are expected to occur. These phases collectively involve 489,882 square feet of building construction and 2,296,089 square feet of paving. Construction would result in various sources of emissions, including engine exhaust, fugitive dust from site disturbance, fugitive organic compounds from surface coatings, such as paints and solvents, and fugitive organic compounds from curing asphalt.

Criteria Pollutants. Table 2.6-2 summarizes criteria pollutant emissions from construction and construction-related traffic for 2014, based on estimates predicted by the project-specific spreadsheet model. Clean Air Act conformity analysis criteria do not formally apply to the Proposed Action; nevertheless, the general conformity de minimis threshold for maintenance areas of 100 tons

Table 2.6-2
Summary of Criteria Pollutant Emissions from Project Construction

	Pollutant Emissions, Tons per Year					
Emissions Component	**ROG**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Site preparation	0.13	1.20	0.86	0.20	1.75	0.75
Utilities and building foundations	0.26	1.28	4.02	0.23	0.94	0.43
Building construction	0.32	0.88	5.42	0.14	0.77	0.35
Paving	0.33	2.22	1.83	0.36	1.00	0.52
Total	**1.03**	**5.58**	**12.14**	**0.94**	**4.45**	**2.05**

Source: Tetra Tech staff analysis
CO = carbon monoxide
NO_x = nitrogen oxides (ozone precursors)
PM_{10} = inhalable particulate matter
$PM_{2.5}$ = fine particulate matter
ROG = reactive organic gases (ozone precursors)
SO_x = sulfur oxides

per year of any criteria pollutant can be a useful indicator of significant emissions that could exceed federal or state ambient air quality standards. For each pollutant, the total emissions are an order of magnitude below 100 tons per year. The Proposed Action is expected to be in compliance with both federal and state ambient air quality standards and therefore would have a less than significant impact on air quality. This is because the anticipated quantities of construction emissions would be relatively low, would be temporary, and would be dispersed throughout the project area by trade winds, and the fact that Hawai‘i is in attainment for all criteria pollutants.

Greenhouse Gas Emissions. In addition to criteria pollutants, construction equipment would be a source of GHG emissions, primarily from engine fuel combustion. The major GHGs for fuel combustion sources are carbon dioxide, methane, and nitrous oxide. The overall global warming potential (GWP) of combined GHG emissions is typically presented as carbon dioxide equivalents (CO_{2e}).

Table 2.6-3 summarizes GHG emissions from construction and construction-related traffic for 2014, based on estimates predicted by the project-specific spreadsheet model. State and federal agencies have not yet established impact significance criteria for GHG emissions; however, the USEPA requires air permits for stationary sources that emit more than 75,000 tons per year of CO_{2e}. Using 75,000 tons per year as an indicator of significant emissions, the estimated GHG emissions are two orders of magnitude lower and therefore would have a less than significant impact on air quality.

Table 2.6-3
Summary of GHG Emissions from Project Construction

Emissions Component	GHG Emissions, in Tons per Year			
	CO_2	CH_4	N_2O	GWP, CO_2e
Site preparation	155.7	0.005	0.004	**156.9**
Utilities and building foundations	195.2	0.007	0.005	**196.8**
Building construction	160.1	0.004	0.003	**161.1**
Paving	291.7	0.012	0.009	**294.7**
Total	**802.7**	**0.029**	**0.021**	**809.6**

Source: Tetra Tech staff analysis
CH_4 = methane, GWP multiplier = 25
CO_2 = carbon dioxide, GWP multiplier = 1
CO_2e = carbon dioxide equivalents
GWP = global warming potential in carbon dioxide equivalents, based on Intergovernmental Panel on Climate Change 2007
N_2O = nitrous oxide, GWP multiplier = 298

Operation and Maintenance

Minor long-term emissions would result from the use of the new facilities. Emission sources would result from personal and government vehicles, aircraft and helicopters, maintenance and warehousing equipment, and stationary sources, such as boilers. The emissions from these sources would be a fraction of the emissions generated during construction and would not generate significant quantities of criteria pollutant or GHG emissions. In addition, because the new facilities would be in one area rather than spread across the installation, emissions from vehicle traffic may be reduced because it would often be quicker and easier to walk between training, eating, and living areas than to drive. For these reasons, operation and maintenance of the new facilities would have a less than significant impact on air quality.

No Action Alternative

The No Action Alternative would not change or augment the existing emissions within the ROI. No impacts are identified as resulting from the No Action Alternative.

2.7 GEOLOGY, SOILS, AND SEISMICITY

2.7.1 Affected Environment

Introduction and Region of Influence

The ROI for the geologic and soil impacts of the project lies within WAAF where ground-disturbing activities would occur under the Proposed Action.

Overview of Valued Environmental Component

Geology

WAAF is near the southern edge of the Schofield Plateau, a broad saddle of land between the Ko‘olau Mountains to the east and the Wai‘anae Mountains to the west. The plateau lies approximately 800 to 250 feet above sea level and consists mainly of alluvial deposits shed from the Wai‘anae Mountains to the east and lava flows from the ancient Ko‘olau volcanoes to the west (Stearns 1985).

The thickness of the alluvium generally increases toward the center of the Schofield Plateau. Beneath the alluvium is soil that developed in place on the surface of the Ko‘olau volcanics. This soil surface is underlain by saprolite (basalt that has been intensely weathered in place but retains many of the remnant features of the original rock). Saprolite is exposed in some stream channels at SBMR and grades with depth into less weathered basalt; thus, relatively soft materials (alluvium, ancient soil, saprolite, and weathered basalt) are found to depths of 100 to 200 feet below the ground surface. WAAF is underlain by a thick 100-foot or greater sequence of saprolite, over which has developed an approximately 10-foot-thick thick layer of clay-rich soil (HLA 1992).

Soils

The principal soil type on the flatter lands at WAAF are underlain by Wahiawā silty clay soil. Wahiawā silty clay consists of well drained, very deep soils that formed in residuum and alluvium weathered from basalt. The gully slopes adjacent to Waikele Stream are underlain by Helemanō soils. Helemanō soils are well-drained silty clays that occur in V-shaped gulches and have a high erosion hazard (US Army and USACE 2004). The soils at the Proposed Action site are primarily composed of Wahiawā silty clay soils (USDA 2009).

Seismicity

O‘ahu lies within an earthquake zone classified as Seismic Zone 2A, having a moderate potential for seismic damage. Zone 0 refers to areas with the least seismic activity, whereas Zone 4 denotes an area with the greatest seismic

activity. The expected intensity of a reasonably probable earthquake is moderate to low on O‘ahu because of its distance from the center of most seismic activity on Hawai‘i.

Similarly, the risk of strong ground shaking at WAAF is relatively low due to its distance from the south coast of the island of Hawai‘i, where most earthquakes are centered. In its National Seismic Hazard Mapping Project, the US Geological Survey estimates that there is about a 10 percent chance that ground accelerations of more than 12 percent of gravity would occur in firm rock areas within the southeastern three quarters of O‘ahu over the next 50 years (US Army and USACE 2004).

2.7.2 Environmental Consequences

Impact Methodology

The Proposed Action and No Action Alternatives were evaluated for adverse effects on people and the environment in the context of geologic conditions within the ROI. The Proposed Action and No Action Alternatives were evaluated to determine the significance of the change to the geologic environment, if any, with respect to the factors identified below.

Factors Considered for Impacts Analysis

Factors considered in determining if the Proposed Action and No Action Alternatives would have a significant impact on geology are the extent to which its implementation would result in the following:

- Increase the exposure of people or structures to geologic hazards;
- Cause a substantial loss of soil (such as through increased erosion); or
- Alter the function of the landscape (for example, altering drainage patterns through large-scale excavation, filling, or leveling).

Summary of Impacts

Table 2.7-1 is a summary of the potential impacts on geology, soils, and seismicity.

Table 2.7-1
Summary of Potential Impacts on Geological Resources

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Erosion	⊙	○
Expansive soils	⊙	○
Seismicity	○	○

LEGEND:
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Erosion

During construction, approximately 101-acres of ground disturbance would occur and increasing the potential for soil erosion from wind and water. However, the effects would be temporary and would be reduced by implementing best management practices (BMPs). Wind erosion can be reduced by using common dust suppression techniques, such as regularly watering exposed soils and soil stockpiles and by stabilizing soil. Excavation, grading, trenching, and other earth-disturbing activities can expose soils to runoff and create water erosion. Water erosion can be reduced by implementing BMPs for stormwater pollution prevention. Additionally, the ground surface for this site has only a shallow grade sloping to the south, which would minimize the potential for water erosion. Stormwater BMPs include building during the summer when rainfall potential is low, using silt fences and constructing sediment traps to prevent eroded soil from being transported off-site, and contouring to stop drainage from entering the site and to prevent run-on. Temporary and permanent erosion and sediment control measures would be implemented.

Expansive Soils

Fine-grained clay sediments or expansive soils, such as those at WAAF, often have a high shrink-swell potential. Where expansive soils are present, structural damage may occur over a long period. Standard construction practices, as described in the current Uniform Building Code, would dictate the types of engineering needed for construction in areas of high shrink-swell potential. Geotechnical considerations, including scarifying, moisture conditioning, and recompacting subgrade soils before placing permanent structures, were included in the geotechnical report completed in October 2008 for the site (USACE 2009). However, additional geotechnical investigations may be required before construction starts in order to specify the following:

- Foundation types to be used to account for changing soil patterns;
- Special earthwork preparation to keep the moisture regime near constant;
- Need for reinforcing concrete slabs;
- Measures to ensure drainage would be directed away from foundations and roadways; and
- Foundation studies to identify appropriate site-specific measures.

These BMPs would be followed to ensure that impacts would be minor.

Seismicity

The Proposed Action will comply with the International Building Code (2006), UFC 1-200-01, and OSHA excavation standards for protection from seismic hazards, which would reduce the potential for impacts from seismic events.

No Action Alternative

Under the No Action Alternative, the use of the sites for the Proposed Action would not change, and no large-scale ground-disturbing activities would occur. No adverse impacts on the geology, soils, and seismicity are expected under the No Action Alternative.

2.8 WATER RESOURCES

2.8.1 Affected Environment

Introduction and Region of Influence

Water resources include both surface water (terrestrial and marine) and groundwater. The ROI for surface water and groundwater resources is the watersheds and areas within WAAF, as well as downgradient areas in hydraulic contact with WAAF.

Surface Water and Drainage

WAAF lies near the drainage divide between the Kaukonahua and Waikele watersheds. These watersheds stretch across the Schofield Plateau, from the ridgeline of the Koʻolau Mountains to the ridgeline of the Waiʻanae Mountains. The Kaukonahua watershed is bordered on the north by the Poamoho watershed (USACE 2004).

The principal surface water feature of the Kaukonahua watershed is the Wahiawā Reservoir (Lake Wilson), which lies just outside the eastern boundary of the reservation, east of Highway 99. The reservoir stores drainage from tributaries of the Kaukonahua Stream that originate in the Koʻolau Mountains. The reservoir is owned by the Dole Foods Corporation, which operates it for agricultural irrigation. The reservoir receives small amounts of surface drainage from the eastern side of SBMR (USACE 2004).

The main drainages at WAAF are Waikāloa Gulch and Waikele Stream. The Waikāloa Gulch drains the area just north of the cantonment and joins the Kaukonahua Stream below Wahiawā Reservoir. Two other streams that drain the north part of SBMR are tributaries to the Kaukonahua Stream—Mohiākea Gulch and Haleanau Gulch. Kaukonahua Stream drains northward, through the area underlain by the Waialua aquifer system, joining the Poamoho Stream to form the Kiʻikiʻi Stream, which discharges to Kaiaka Bay just east of Waialua (USACE 2004).

Waikele Stream, which originates in the Honouliuli Forest Preserve along the east slope of the Waiʻanae Range south of SBMR, drains the south boundary of the reservation. It flows south along the west side of WAAF, across land overlying the Waipahu-Wahiawā aquifer system, and eventually discharges to the West Loch of Pearl Harbor (USACE 2004).

Surface Water Quality

The State of Hawai‘i classifies the Kaukonahua and Waikele watersheds as second tier Category I, under the Hawai‘i Unified Watershed Assessment (HDOH 1998). Category I watersheds do not meet, or face imminent threat of not meeting, clean water and other natural resource goals. The classification of the Kaukokonahua watershed was based largely on the fact that the coastal receiving water, Kaiaka Bay, is an impaired water body. The Waikele watershed drains to Pearl Harbor, which is also an impaired water body.

An impaired water body is one that is not attaining water quality standards after technology-based discharge limits on point sources are implemented. Section 303(d) of the federal Clean Water Act requires each state to maintain a list of impaired water bodies and to revise the list in even-numbered years. The priority level of a listed water body indicates the level of information available about it. Priority 1 water bodies have sufficient data to support a listing or delisting decision. Priority 2 water bodies have limited data, and decisions for listing or delisting must be based on a weight-of-evidence approach. Priority 3 water bodies have extremely limited data and require further monitoring before a decision for listing is made.

The Kaukonahua Stream is listed as a Priority 2 impaired water body. Section 303(d) of the Clean Water Act requires states to develop total maximum daily loads (TMDLs) for impaired water bodies. According to the 2006 State of Hawai‘i Water Quality Monitoring and Assessment Report, levels of total suspended solids in both wet and dry conditions has been exceeded in the Kaukonahua Stream, which has been given a medium priority for TMDL development (HDOH 2008).

The Waikele Stream is listed as a Priority 1 impaired water body. According to the 2006 State of Hawai‘i Water Quality Monitoring and Assessment Report, total nitrogen and nitrite nitrate levels have been exceeded, in both wet and dry conditions for the Waikele Stream, which has been given a high priority for TMDL development (HDOH 2008).

Hydrology/Groundwater

WAAF is within the Schofield Plateau groundwater area of the central O‘ahu groundwater flow system, the largest and most productive flow system on O‘ahu (Oki 1998). The central flow system is bounded on the east by the crest of the Ko‘olau Mountains and on the west by the crest of the Wai‘anae Mountains. On the southeast it is bounded by the Ka‘au rift zone, which transects Diamond Head (USACE 2004). The Schofield Plateau subsurface is bounded on the north and south by vertical low permeability features that

reduce or prevent groundwater flow and act like groundwater dams. These features might be dike intrusions or possibly depositional features. Because the groundwater elevation inside these "dams" is higher than outside, the groundwater in the Schofield plateau is called high level groundwater (Oki 1998).

The Ko'olau basalt formation consists of nearly horizontal basalt flows interbedded on the western margin with alluvial deposits resulting from erosion of the Wai'anae Mountains. Weathered basalt is rich in clay minerals that restrict the downward flow of water. Instead, most groundwater recharges in steep upland areas or in deeply incised stream channels, where fractured bedrock is exposed or at shallow depth. Runoff that reaches the plateau tends to percolate slowly and contributes little to groundwater recharge (HLA 1992).

Groundwater occurs in three types of groundwater aquifer systems. Beneath the Schofield Plateau, groundwater occurs in the Schofield high-level groundwater body, where groundwater elevations are in the range of 275 feet above mean sea level. Depth to groundwater is approximately 600 feet or more, depending on the ground surface elevation. Water levels in the high-level groundwater body are higher than in the surrounding region because groundwater flow in the center of the plateau is laterally restricted by natural subsurface barriers called dams—possibly dike intrusions or buried volcanic ridges—that block flow to the north and south (USACE 2004).

Underlying the high-level aquifers is the basal aquifer, a freshwater lens occupying porous and permeable volcanic rocks beneath the island. The freshwater lens of the basal aquifer floats on denser salt water. The freshwater lens is thickest near the center of the island and tapers off toward the edges. Beneath the Schofield plateau, groundwater elevations in the basal aquifer are in the range of only 10 to 30 feet above mean sea level (Oki 1998). The O'ahu basal aquifer underlies SBMR and most of southern O'ahu.

The third groundwater system is the dike-impounded groundwater system associated with the dike intrusions within the Wai'anae volcanics underlying the Wai'anae Mountains. The dike-impounded groundwater system is recharged by runoff in the mountains, but lateral flow of this groundwater is blocked by vertical dike intrusions. Groundwater levels vary locally within the area of dike-impounded groundwater.

In addition to the three main groundwater systems, groundwater may also occur locally in perched aquifers above the high-level groundwater body or the basal aquifer. Perched aquifers are localized, permeable groundwater-bearing

strata that are underlain by strata with much lower permeability that restrict downward groundwater flow (USACE 2004).

2.8.2 Environmental Consequences

Impact Methodology

The evaluation of potential impacts on water resources is based on the project's potential to affect water quality, surface water runoff volumes and drainage patterns, and flood hazards.

- Degradation of surface or groundwater quality in a manner that would reduce the existing or potential beneficial uses of the water;
- Alteration of the pattern of surface or groundwater flow or drainage in a manner that would adversely affect the uses of the water within or outside the project region;
- Noncompliance with existing or proposed water quality standards or with other regulatory requirements related to protecting or managing water resources; or
- Increased potential for flooding or the amount of damage that could result from flooding or seiche run-up.

Summary of Impacts

Table 2.8-1 is a summary of the potential impacts on water resources.

Table 2.8-1
Summary of Potential Water Resources Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Surface water runoff and erosion	⊙	○
Water quality	⊙	○

LEGEND:

⊙ = Less than significant impact

○ = No impact

Proposed Action (Preferred Alternative)

Stormwater runoff may increase slightly as a result of an increase in impervious area at WAAF, compared to existing conditions. During construction, there would be an increased potential for water quality degradation due to silt runoff from disturbed areas at the construction sites; impacts on water quality would

be short term and minor. Compliance with EPA stormwater discharge under the National Pollutant Discharge Elimination System requires construction proponents for projects involving one acre or more to obtain a stormwater discharge permit, which involves preparing a site-specific stormwater pollution prevention plan (SWPPP). In Hawai‘i, the administration of these permits has been delegated to the HDOH. The Proposed Action would include engineering BMPs for erosion control and implementing a SWPPP. Erosion control measures used during construction are expected to prevent water quality degradation from stormwater runoff. The CAB Complex would be designed to complement the natural systems of topography and drainage and to ensure that stormwater is conveyed away from structures and directed to the designated drainage systems. Potential increases in runoff would likely be offset by improvements in stormwater capture and collection infrastructure, as further described under Stormwater in Section 2.10. Consequently, conditions that would increase the potential for flood hazards are not expected.

The Kaukonahua and Waikele watersheds are in the ROI. The State of Hawai‘i classifies Kaukonahua and Waikele watersheds as second tier Category I watersheds and Waikele Stream as a Priority 1 impaired water body. The SWPPP and other project measures to manage potential runoff would be designed to prevent further degradation of these watersheds and the stream. Although development of TMDLs for Waikele Stream may lead to additional future requirements to monitor and reduce sources of nutrients and turbidity by all entities responsible for point and nonpoint discharges to Waikele Stream, the nature or impact of these potential future requirements on activities at WAAF cannot be determined at this time.

No Action Alternative

Under the No Action Alternative, there would be no change to the conditions affecting water supply, water quality, and drainage, so no effects on water resources are expected.

2.9 HAZARDOUS MATERIALS AND CONDITIONS

2.9.1 Affected Environment

Introduction and Region of Influence

The following section addresses hazardous materials and conditions, such as the use and storage of hazardous materials and wastes and the threat of wildfires within the ROI. For the purpose of this evaluation, the ROI is defined as WAAF. Because fences or mountain ranges cannot always confine or reduce impacts from hazardous materials, waste incidents, or natural hazards, such as wildfires, areas next to WAAF are also considered part of the ROI.

The Tripler Army Medical Center (TAMC) Preventative Medicine Unit handles hazardous conditions from military operations affecting military personnel. Civilian complaints, including human health and safety issues, are handled through the Public Affairs Office.

Overview of Valued Environmental Component

According to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), a hazardous substance can be defined as any substance that, due to its quantity, concentration, or physical and chemical characteristics, poses a potential hazard to human health and safety or to the environment. CERCLA has created national policies and procedures to identify and remediate sites contaminated by hazardous substances.

The Army maintains site-specific spill prevention, control, and countermeasure plans to regulate the storage and use of petroleum products and pollution prevention plans to regulate the storage and use of hazardous materials. The Army maintains updated material safety data sheets for all hazardous materials used at its installations on O‘ahu. Hazardous materials and wastes used and generated at WAAF are stored at the Transfer Accumulation Point at Schofield Barracks, East Range, Building 6040.

Hazardous conditions associated with the Proposed Action include wildfires and exposure to radio frequency electromagnetic fields (EMF). The Integrated Wildland Fire Management Plan addresses fire actions for Army training lands and fits within the larger framework of the USAG-HI wildfire management program for all Army lands in Hawai‘i. The potential exposure of civilian and military personnel to radio frequency EMFs is managed through DoD Instruction 6055.11 (Protection of DoD Personnel from Exposure to Radio Frequency Radiation). Both of these hazardous conditions are discussed in greater detail below.

Wheeler Army Airfield

The following sections address specific hazardous materials and conditions of concern related to materials and wastes that may be used, stored, or transported within the ROI. Hazardous materials and wastes can affect the environment and often have specific regulations that govern their use, storage, and disposal. The following specific human health and safety hazards are addressed:

- Munitions and explosives of concern (MECs);
- Unexploded Ordnance (UXO);
- Installation Restoration Program (IRP) sites;
- Lead;
- Asbestos;
- Polychlorinated biphenyls (PCBs);
- Petroleum, oils, and lubricants;
- Pesticides/herbicides;
- EMFs; and
- Wildfires.

Ammunition Storage

Munitions and Explosives of Concern (MECs) are a concern in the ROI because the project sites are near an Ammunition Supply Point (ASP), which training units use for storage. At completion of training, unused ammunition is returned to the ASP, located on WAAF in Buildings 1538 and 1551. Weapons are stored in the unit areas between training sessions.

Explosives quantity distance regulations (TM 9-1300-206) are imposed on ammunition storage facilities for the safety of personnel and supplies. All MEC is stored within the ASP on WAAF under the supervision of the US Army Support Command, Hawai‘i Directorate of Logistics. An explosive arc compliant with the explosive quantity distance regulations extends around the ASP and into the proposed project area.

Military Munitions Response Program (MMRP) Sites

To minimize environmental risks, MMRP sites manage unexploded ordnance (UXO), discarded military munitions, and munitions constituents that are present to some degree at former training facilities and sites. MMRP addresses only closed and transferred ranges, not active ranges.

Historical data indicates the proposed site for the CAB Complex was previously involved in bombing during World War II and also used as a

bombing range and skeet range in the past. There are currently six MMRP sites at WAAF, one of which overlays the CAB footprint (Nelson 2011).

IRP Sites

The IRP is an ongoing DoD-administered program for identifying, evaluating, and remediating contaminated sites on federal lands under DoD control. Through its IRP, the Army evaluates and cleans up sites where hazardous materials and wastes have been spilled or released into the environment. The IRP provides a uniform thorough method to evaluate past disposal sites, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to clean up contamination. There are no IRP sites within the footprint of the proposed site for the CAB Complex.

Lead

Lead was a major component in house paint used throughout the country for many years and can be found on interior and exterior surfaces of housing units. Lead-based paint (LBP) is defined as any paint or surface coating that contains more than 0.5 percent lead by weight. LBP is a hazard because it can slough off as dust or chips that children can easily inhale or ingest. In 1978 the 0.06 percent maximum lead content of newly applied dry paint was set by the Consumer Product Safety Commission. LBP use was discontinued entirely in 1980 (USEPA 2002). Army policy, like US EPA policy, is to manage LBP in place unless it presents an imminent health threat, as determined by the installation medical officer, or unless operational, economic, or regulatory requirements dictate its removal. Army policy also imposes requirements to reduce the release of lead, lead dust, or LBP into the environment from deteriorating paint surfaces, building maintenance, or other sources on Army installations or on Army-controlled property. Any debris from renovation projects is collected and tested to determine if it needs to be handled as hazardous waste.

Lead also is used in manufacturing ordnance and ammunition, such as that used for small arms training. Lead accumulates in backstops, range floors, and berms and can be carried off-site by stormwater, be ingested by wildlife, or become airborne. Erosion can overload streams and rivers with sediments. The type and amount of ammunition used on the range, along with its operational history, will greatly influence the risk of lead migration. Different calibers of ammunition contain varying amounts of lead, so when looking at the risk of lead migration, both the total number and type of rounds fired must be taken into consideration. This risk is substantially reduced if regular maintenance has been performed on the backstop and apron areas to remove rounds and fragments from soil (USACE 1998). The Army implements general cleanup procedures following

training to remove shell casings and other munitions residue from the ranges, and explosive ordnance disposal specialists destroy all UXO.

The Army recognizes the threats associated with lead. The Army document entitled "Prevention of Lead Migration and Erosion from Small Arms Ranges" provides management practices to minimize adverse impacts on human health and the environment from small arms ranges (USACE 1998).

Asbestos

The US EPA and the Occupational Safety and Health Administration (OSHA) regulate asbestos-containing material (ACM) removal and cleanup, and the Hawai'i Department of Health administrative rules apply. The Toxic Substances Control Act, the Asbestos Hazardous Emergency Response Act, and OSHA regulations provide protection for employees who encounter or remove and clean up ACM. The National Emission Standard for Hazardous Air Pollutants regulates the renovation, demolition, and disposal of ACM. Asbestos is managed uniformly across the installations in the ROI. An installation asbestos management program has been established by the Army DPW to ensure the health and safety of Soldiers and civilians. ACM can be found, for example, in the floor tiles of housing units. The proposed project site for the CAB Complex is primarily undeveloped, however, a concrete pad was identified in the project area with floor tiles that contain 10 percent asbestos.

PCBs

Efforts are ongoing to assess and remediate possible PCB contamination sources throughout military properties on O'ahu. Devices that are found to contain regulated levels of PCB are being removed and upgraded with non-PCB devices or are being retrofitted or removed, drained, packaged, and disposed of in accordance with 40 CFR, Part 761 (PRC 1995). A severely corroded pole-mounted transformer exists within the proposed project site for the CAB Complex. Prior to removal an assessment to determine if the transformer contains PCBs would be conducted.

Petroleum, Oils, and Lubricants

Both underground storage tanks (USTs) and aboveground storage tanks (ASTs) are commonly present on Army installations. These tanks typically contain diesel and various grades of gasoline. Army facilities also commonly have motor pools for vehicle maintenance. Although motor fuels were previously stored and distributed at these motor pools for military vehicles, all fueling for industrial purposes now takes place at the filling stations. Motor pool facilities have a designated hazardous waste shop storage point/recyclable material shop storage point to manage hazardous waste or recyclable petroleum, oils, and

lubricants generated from vehicle servicing. Emergency generators can be found throughout the ROI. Many of these units contain integrated tanks to store fuel, as opposed to being connected to separate ASTs. A list of these units is maintained by the DPW. Eight ASTs are located in the project limits. However, only two ASTs are located within the construction footprint for the CAB Complex. These two ASTs contain JP-8 aviation fuel.

Facilities containing oil-water separators, grease traps, and wash racks are inspected regularly by the USAG-HI Environmental Compliance Office, and DPW is responsible for maintaining these devices.

Pesticides/Herbicides

Various types of pesticides, including insecticides, herbicides, fungicides, avicides (bird poison), and rodenticides, have been used at Army properties to maintain the grounds and structures and to prevent pest-related health problems. These chemicals are stored at controlled locations that are convenient to their intended use and that are equipped with ventilation and secondary containment and do not contain floor drains. Typically an entomologist oversees the pest management program at larger installations, maintains pesticide inventories, approves pesticide application procedures, and reviews pesticide use documents.

Electromagnetic Fields

The general public typically is not allowed in areas that could contain EMF hazards from Army equipment. Equipment producing EMF that could pose a serious health risk is operated under strict constraints in site-approved areas by qualified personnel. Mobile radar equipment is owned by Division Artillery and consists of a radar-set designed to detect incoming artillery and projectiles. It is operated and managed by the Forward Area Defense section. Facilities producing EMF at strengths that could cause adverse health effects have not been identified at WAAF.

Wildfires

Live-arms fire can ignite wildfires. The severity of such fires varies by location and depends on topography, plant types and moisture levels, site accessibility, and wind levels. Tracer rounds, pyrotechnics, and indirect fire, such as illumination rounds, are the most common ignition sources, and most wildland fires originate in the ordnance impact area.

A two-company fire station, including crash fire rescue and commercial pumper equipment, is based at WAAF. Two commercial pumpers and two military field firefighting vehicles are based at the nearby Schofield Barracks

station (Belt Collins 1993). For both fire and police services, there is extensive coordination with City and County of Honolulu's fire and police departments.

2.9.2 Environmental Consequences

Impact Methodology

Numerous federal, state, and local laws regulate the storage, use, recycling, disposal, and transportation of hazardous materials and waste. Similar laws exist to help prevent and abate wildfires, and their primary goal is to protect human health and safety. The methods for assessing potential hazardous materials and conditions impacts generally include the following:

- Reviewing and evaluating the Proposed Action to identify its potential to use hazardous or toxic materials or to generate hazardous waste, based on the activities proposed;
- Comparing the location of the Proposed Action with baseline data on known or potentially contaminated areas (such as potentially UXO contaminated land);
- Assessing the compliance of the Proposed Action with applicable, site-specific hazardous materials and waste management plans;
- Assessing the compliance of the Proposed Action with applicable, site-specific, standard operating procedures and health and safety plans in order to avoid potential hazards; and
- Assessing causes of wildfires in conjunction with established wildfire management protocols.

The overall method, including data sources and assumptions, used to conduct the hazardous materials and conditions impact evaluation is consistent with the Army NEPA Manual for Installation Operations and Training (USACE 1998). This manual describes the various types of materials and waste that should be considered to identify potential impacts of Proposed Actions.

Factors Considered for Impacts Analysis

Regulatory standards and guidelines have been applied to determine the significance of each alternative's potential impact from non-chemical hazards and hazardous materials and waste. Factors considered in determining whether an alternative would have a significant hazardous materials and conditions impact include the extent to which its implementation would result in the following:

- Hazardous or acutely hazardous waste, resulting in increased regulatory requirements over the long term;

- A spill or release of a hazardous substance (as defined by 40 CFR, Part 302, of CERCLA, or Sections 110, 112, 116, and 117 of the Clean Water Act);
- Exposure to the environment or public to any hazardous condition through release or disposal;
- The removal or upgrade of a UST;
- The accidental release of friable (easily crumbled by hand pressure) asbestos or LBP during the demolition or renovation of a structure;
- Adverse effects on the progress of IRP site remediation;
- Exposure of military personnel or the public to areas potentially containing UXO;
- Endangerment of the public or environment during the storage, transport, or use of ammunition;
- Increased wildfire danger; or
- Exposure of the public to EMFs with cycle frequencies greater than 300 Hertz.

Summary of Impacts

Table 2.9-1 is a summary of impacts from hazardous materials and conditions.

Table 2.9-1
Summary of Potential Impacts from Hazardous Materials and Conditions

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Ammunition	⊙	○
UXO	⊙	○
IRP sites	○	○
Lead	⊙	○
Asbestos	⊙	○
PCBs	⊙	○
Petroleum, oils, and lubricants	⊙	○
Pesticides/herbicides	○	○
EMFs	○	○
Wildfires	○	○

LEGEND:
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Ammunition Storage

The Proposed Action would not increase the amount of ammunition at WAAF. A small portion of the tactical vehicle parking area for the TEMF would be within the explosive arc for the ASP. Per Army Regulation 385-64, the US Army Technical Center for Explosives Safety will submit the site layout for the CAB Complex to the Department of Defense Explosives Safety Board for approval. Therefore, less than significant impacts are anticipated because the explosive arc does not extend into any proposed structures.

Military Munitions Response Program (MMRP) Sites

There would be no increase in potential UXO-producing munitions under the Proposed Action. The proposed project site was previously bombed in World War II and used as a bombing range, therefore there is a potential for discovery of UXO during construction. Additionally, because there are numerous former MMRP sites and one current MMRP site within the footprint of the proposed CAB Complex, associated hazards may be encountered. During construction appropriate measures will be applied to reduce potential hazards, therefore less than significant impacts are anticipated.

Installation Restoration Program Sites

There are no IRP sites within the footprint for the proposed CAB Complex, so there would be no impact on the public or environment related to the IRP program.

Lead

Lead was a major component in house paint used throughout the country for many years and can be found on interior and exterior surfaces of housing units. The Proposed Action includes the demolition of buildings at WAAF. No data was readily available regarding the potential presence of LBP. Workers could be exposed to LBP during demolition and grading, but removing any LBP before demolition would mitigate potential hazards and result in less than significant impacts. Additionally, it is Army policy that any debris from renovation is collected and tested to determine if it needs to be handled as hazardous waste, further mitigating potential hazards and resulting in less than significant impacts. The proposed construction would use new building materials that would not contain LBP.

Asbestos

Construction associated with the Proposed Action could involve exposing workers to friable asbestos during demolition and grading. Removal of the

existing concrete pad will require properly trained and certified personnel to handle these materials. The proposed construction would use new building materials that would not contain asbestos. Conducting asbestos surveys and removing ACM before demolition would mitigate potential hazards and result in less than significant impacts.

Polychlorinated Biphenyls

The proposed construction would not use devices that contain PCBs. Construction associated with the proposed project would likely include removing pole- and pad-mounted transformers, and before these transformers were removed, the appropriate removal actions would be identified to prevent the release of PCBs. Proper removal of the transformers would mitigate potential hazards from PCBs, so the Proposed Action would have less than significant impacts from PCBs.

Petroleum, Oils, and Lubricants

Under the Proposed Action, areas that handle gasoline, oil, and other automobile fluids such as the hot refueling pads, aviation maintenance and storage hangers, and the light aviation maintenance hangar, would be demolished and replaced with modernized facilities to incorporate the latest technologies in spill prevention, containment, and control. Operations at the proposed facilities would follow BMPs, US EPA and USAG-HI protocol for use and handling of hazardous materials, such as petroleum, oils, and lubricants. The Army DPW maintains a spill contingency plan and standard operating procedures that outline proper operating and emergency response procedures and responsibilities. Additionally, the Army conducts routine inspections of all facilities containing hazardous materials to ensure compliance. Under the Proposed Action, the hot refueling pads would be relocated. The associated ASTs would be relocated and appropriate spill prevention, containment, and control measures would be implemented. Therefore, the Proposed Action would have a less than significant impact from the increased use of petroleum, oils, and lubricants and AST relocation.

Pesticides and Herbicides

Various types of pesticides, including insecticides, herbicides, fungicides, avicides, and rodenticides, have been used at Army properties to maintain the grounds and structures and to prevent pest-related health problems. These chemicals are stored at controlled locations that are convenient to their intended use and that are equipped with ventilation and secondary containment and do not contain floor drains. Typically an entomologist oversees the pest management program at larger installations, maintains

pesticide inventories, approves pesticide application procedures, and reviews pesticide use documents.

Construction associated with the Proposed Action includes grading areas where pesticides and herbicides may have been used to treat building structures or applied to landscaped areas. Sampling may be required before construction to prevent exposing workers during construction or Soldiers occupying the proposed facilities. The Proposed Action would not affect the way pesticides and herbicides are managed at the installation and would result in no impact.

Electromagnetic Fields

The proposed project would not introduce new sources of EMF. There would be no impact on the public from exposure to EMF.

Wildfires

There would be no use of munitions at the proposed site under the Proposed Action, so there would be no impact from wildfires.

No Action Alternative

The Army follows strict protocols to minimize the effects of materials such as lead, asbestos, petroleum, oils, and lubricants, PCBs, and pesticides and the general storage and handling of ammunition. The No Action Alternative would not add training time, would not increase weapons, equipment, or vehicle inventory, and would not introduce any new waste streams. Therefore, there would be no impact from the No Action Alternative.

2.10 PUBLIC SERVICES AND UTILITIES

2.10.1 Affected Environment

Introduction and Region of Influence

Utility infrastructure generally refers to the supporting infrastructure within a community that enables a population to function in a specified area. Components of a community's utility infrastructure include electricity, natural gas, potable water, and solid waste, wastewater, and sewage treatment. This resource is evaluated to determine if upgrades to the existing utility infrastructure would be required to support the Proposed Action to construct a new CAB Complex at WAAF. For this evaluation, the ROI is defined as WAAF and the scope of this analysis includes utility distribution lines and associated facilities servicing the ROI. Public utilities and services for the WAAF that are part of the proposed project include police, fire, and emergency medical services and infrastructure for water, wastewater, solid waste management, telephone, and electricity.

The following section addresses current public utilities and services within the ROI. Information in this analysis was primarily obtained from the Area Development Plan and Infrastructure Capacity Analysis, Wheeler Army Airfield, Hawai'i – Combat Aviation Brigade (Installation Management Command 2009).

Overview of Valued Environmental Components

Public Services and Safety

The Honolulu Fire Department, which has a policy of responding to fires on military installations, sends pumper trucks and firefighting personnel to assist the Federal Fire Department with fires reported on military installations (Installation Management Command 2009). The Federal Fire Department, under the supervision of Commander, Joint Base Pearl Harbor Hickam, provides fire protection to Army installations on O'ahu. Typically, the Fire and Emergency Services Division also educates the on-post community about fire prevention and provides courtesy fire inspections on request.

Medical services available to all Soldiers and their Families include access to TAMC in Honolulu, which provides a full complement of medical facilities. Ambulance service is provided from TAMC. Medical evacuation by helicopter is also available at WAAF and from outlying training areas and ranges.

Security at all the installations is provided through the Provost Marshall's Office and the Military Police. The Military Police enforce laws, regulations, and directives, administer physical security programs, investigations, a crime prevention program, AWOL apprehension, and vehicle and weapons registration, and act as a liaison with civil law enforcement agencies.

A clear zone extending from the edge of an airstrip must be clear of vertical penetrations for runways longer than 3,200 feet, such as the runway at WAAF. Approved uses for permanent facilities in clear zones includes facilities used to meet operational requirements or for navigation. A waiver is required for facilities located in a runway clear zone. The proposed project site for the flight control tower, on the north side of the existing airfield, is within a runway clear zone.

Electricity

Hawaiian Electric Company (HECO) provides WAAF with electrical power. The 12.47 kilovolts (kV), 3-phase, 3W power is fed from a single 46-kV circuit in Wahiawā-Mikilua that originates from the Wahiawā substation. Power is received at and distributed from the WAAF substation, which is owned and maintained by the Directorate of Public Works (DPW). HECO owns and maintains the 46-kV system, substation transformers, and switchgear located upstream of the primary meters. The DPW owns and maintains all switchgear and distribution after the meter. Combinations of approximately 18 miles of overhead and underground 12.47-kV circuits are used to distribute power to the installation. The electrical capacity at WAAF is 10 megavolt-ampere (mVA). Current peak demand is 7.66 mVA, which is approximately 76 percent of capacity. This includes the Army and Navy family housing area on the southeast side of the installation, as well as the sewage treatment plant on the west side of WAAF, both of which feed off the 12.47-kV system (Installation Management Command 2009).

WAAF has two other 12.47-kV HECO services that are used as emergency backup in case the main system fails. One circuit feeds the Army and Navy family housing areas on the southeast side of the installation. The other circuit feeds the sewage treatment plant on the west side of WAAF. Although these circuits are not normally used, they are included in the peak demand usage of 7.66 mVA. In the event that these are circuits are needed, they are manually switched (Installation Management Command 2009).

The entire primary electrical distribution system at WAAF was upgraded in 1992 and 1993, making the current system less than 20 years old. These upgrades, including upgrades to the WAAF substation, cables, insulators,

switches, and transformers, are in relatively good working condition (Installation Management Command 2009).

Natural Gas

The Army privatized the natural gas distribution system at WAAF, which is limited to some buildings on the installation. Although these buildings contain some natural gas infrastructure, such as gas tanks and lines, most of the natural gas infrastructure is at SBMR. Natural gas is distributed by a private contractor via tanks that are filled regularly. However, due to high costs and low availability, the use of natural gas at the installation is being phased out (Installation Management Command 2009) and is not further considered in this analysis.

Potable Water Supply and Distribution

The potable water supply and distribution system that services WAAF also services neighboring SBMR and is part of Schofield Barracks Low-Level Water Distribution System. The WAAF portion of this system consists of more than 20 miles of water pipelines, valves, meters, and fire hydrants (Installation Management Command 2009).

Potable water at WAAF primarily consists of treated groundwater that is sent to a treatment plant via a Maui-type inclined shaft, located east of WAAF's Kawamura gate, along Kamehameha Highway. The Maui-type inclined shaft consists of two pump chambers that use a total of five well pumps with a design rating of 2,000 gallons per minute (gpm) each (Installation Management Command 2009).

Capable of producing 6.55 million gallons per day (mgd), the water system uses groundwater that is pumped from deep wells and is chlorinated before flowing into five air-stripper gravity towers, where organic carbon contaminants are removed. The treated water is then discharged into a clearwell storage tank, a storage tank which holds purified water before distribution to customers that contains booster pumps to transmit water into the distribution systems and storage tanks that serve the WAAF, as well as the SBMR Main Post, East Range, Helemano Military Reservation, and the Naval Computer and Telecommunications Area Master Station, Wahiawā. The quality of the water from the treatment plant is good and in compliance with the Safe Drinking Water Act, but fiscal year (FY) 2009 peak domestic demand (approximately 6.86 mgd) exceeds capacity by about 5 percent, or 0.29 mgd. For emergency purposes, the water supply and distribution system at the WAAF is also interconnected to the City and County of Honolulu Board of Water Supply system (Installation Management Command 2009).

Although each clearwell pump has a design rating of 1,400 gpm at 210 feet of total dynamic head, this is reduced to 1,138 gpm due to modeled average pump discharges of 88.1 pounds per square inch (psi) (Installation Management Command 2009). This is important because it reduces WAAF's ability to pump and serve groundwater slightly below the intended pump design.

Storage for potable water system consists of two 2-million-gallon reservoirs, for a total storage capacity of four million gallons. Water is pumped from the clearwell to each reservoir through a 24-inch transmission main. Based on existing use, water storage requirements is 2.10 million gallons, which is 53 percent of capacity. The reservoirs are on SBMR and also provide water storage for a portion of SBMR Main Post, SBMR East Range, and WAAF (Installation Management Command 2009).

The water supply at WAAF provides sufficient capacity for current mission and mission support requirements, based on average daily demand. However, at a deficit of 0.29 mgd, it does not support requirements at peak conditions (Installation Management Command 2009).

"Fire flow" is the required number of gallons per minute at a specified pressure at the site of a fire for a specified period. The minimum required fire flow is two flows of 1,000 gallons per minute for two hours, or one flow of 2,000 gallons per minute for three hours (Installation Management Command 2009).

Wastewater

WAAF is one of six installations that discharges to the Schofield Barracks Wastewater Treatment Plant, located near the west end of WAAF. The Army privatized the sanitary wastewater system, including the treatment plant and collection systems, which is owned and operated by AQUA Engineering and services wastewater from WAAF, SBMR, Camp Stover, Kunia Military Reservation, Leilehua Golf Course, and Helemanō Military Reservation (Installation Management Command 2009).

The wastewater treatment plant has a design flow capacity of 4.20 mgd, a maximum design flow capacity of 10 mgd, and a design peak flow capacity of 15 mgd. It is permitted to treat 3.20 mgd. The infrastructure that services WAAF consists of over 14 miles of collection lines, varying in diameter from 4 to 15 inches, as well as seven wastewater pump stations. The age of the system pipelines and pump stations ranges from recently constructed (as of 2009) to over 70 years old (Installation Management Command 2009).

Effluent wastewater is discharged to an irrigation ditch owned and operated by Dole Company. The wastewater treatment plant operates under a permit in accordance with the National Pollutant Discharge Elimination System (NPDES) (Installation Management Command 2009).

The wastewater system infrastructure at WAAF provides sufficient support for current mission support requirements. At a current load of 1.91 mgd, the system is operating at approximately 45 percent of capacity (Installation Management Command 2009).

Stormwater

The stormwater drainage system on WAAF is government owned and consists of a disjointed network of approximately 10 miles of collection piping, catch basins, manholes, trenching, and swales, which are connected to an underground 3-foot-wide by 4.5-foot-tall unlined tunnel beneath Santos Dumont Avenue, just north of the WAAF runway. Piping material is composed of reinforced concrete pipe, but cast iron, vitreous clay, corrugated metal, and plastic/PVC piping are used as well. Stormwater runoff on WAAF is also serviced by a network of open drainage lines scattered throughout the installation, which discharge into local waterways. Overall, the system includes approximately 250 inlet points, six sewer fitting points, 90 sewer discharge points, three sewer break points, and 70 sewer junction points. This system collects and transports rainwater, the bulk of which is discharged into the Waikele Stream on the western and southwestern side of the installation. There is no pretreatment of stormwater discharge as it returns into the local watershed (Installation Management Command 2009).

The Infrastructure Capacity Analysis identified drainage problems due to a stormwater drainage system servicing WAAF that is old and over capacity. However, the inadequate drainage system does not pose a threat to surrounding structures on the installation as the topography conveys floodwaters toward the runway (Installation Management Command 2009).

Solid Waste Management

Private contractors collect the solid waste generated at Army installations on O‘ahu and transport it directly to a City and County of Honolulu-owned incinerator at Campbell Industrial Park. This facility, known as HPower, generates electric power that supplies electricity to local residents. The HPower facility is capable of processing more than 2,000 tons per day of municipal solid waste into refuse-derived fuel for combustion (HPower 2011). Based on the waste and recycling streams generated in 2002, residents of the family housing areas of WAAF, SBMR, Helemano, Aliamanu, and Fort Shafter

generate approximately 2,600 tons of solid waste per quarter (USACE 2004). Recyclable materials generated at WAAF are sent to a recycling facility at SBMR, Building 1087B, which is operated by Goodwill Industries (USACE 2004). Only a small portion of waste goes to Waimanalo Gulch Landfill because the Army diverts 90 percent of the waste stream to HPower, and only the ash produced is deposited at the landfill.

Communications

The communications system at WAAF is serviced by several ADNs: Building 102, 126, and 947. These servicing ADNs are on the north side of WAAF and along Wright Avenue. Communication distribution is primarily made available through the use of the various duct and maintenance hole systems throughout WAAF (Installation Management Command 2009).

From the servicing ADN 147, a main duct system runs along Santos Dumont Avenue, eastward crossing Kamehameha Highway. The size of this duct system ranges from a nine-way along Santos Dumont Avenue to a six-way duct bank crossing under Kamehameha Highway into the East Range (Installation Management Command 2009).

From ADN 126, an existing duct system, generally providing connectivity to the southern area of WAAF, stretches down the west side of the runway along Airdrome Road. The infrastructure for this system extends to Building 1004 near the south ramp parking apron, and is primarily a six-way duct bank (Installation Management Command 2009).

In addition, there is a duct system just inside the fence line, along Kamehameha Highway and along Lauhala Road. This system branches off from MH W08A at Kawamura Gate and extends southward, providing connectivity to Building 1322 (Installation Management Command 2009).

Verizon Hawai‘i provides commercial telephone service on official government cable to housing areas, mainly from buried cable lines that are deteriorated and in need of maintenance. AT&T/Hawaiian Information Transfer System provides official phone service to the Army in duct lines. The Army is responsible for repairing and maintaining the official phone lines and for providing underground ducts for the commercial phone lines (C. H. Guernsey & Company 2001).

2.10.2 Environmental Consequences

Impact Methodology

The methods used to determine if a project alternative would have a significant impact on public services and utilities are as follows:

- Review and evaluate existing and past activities to identify the action's potential to affect public services and utilities;
- Review and evaluate each project alternative to identify the action's potential to affect public services and utilities; and
- Assess the compliance of the proposed alternative with applicable federal, state, or local regulations, guidelines, and pollution prevention measures.

This section analyzes potential effects on police, fire, emergency medical services, electricity, potable water supply and distribution, sanitary wastewater, stormwater, solid waste management, and communications utilities infrastructure. Potential infrastructure shortfalls, inconsistencies, inadequacies, or deficiencies identified between the infrastructure and the requirements of a project alternative are all characterized as potential effects.

Factors Considered for Impacts Analysis

Factors considered in determining if an alternative would have a significant impact on public services and utilities include the extent or degree to which its implementation would result in the following:

- Interrupt or disrupt any public utility service, as a result of physical displacement and subsequent relocation of public utility infrastructure, to the extent that the result would be a direct long-term service interruption or permanent disruption of essential public utilities; or
- Require an increase in demand for public services or utilities beyond the capacity of the utility provider, to the point that substantial expansion, additional facilities, or increased staffing levels would be necessary.

Summary of Impacts

Table 2.10-1 summarizes the potential impacts on public services and utilities.

Table 2.10-1
Summary of Potential Public Services and Utilities Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Public services and safety	⊙	○
Electricity	⊙	○
Potable water supply and distribution	⊙	○
Sanitary wastewater	⊙	○
Stormwater	⊙	○
Solid waste management	⊙	○
Communications	⊙	○

LEGEND:
⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

The sections below discuss the effects of implementing the Proposed Action on utility infrastructure and supply. The Proposed Action includes constructing and upgrading CAB facilities to meet current CAB standards established by the USACE Centers for Standardization (COS), as well as standards for design established by the US Army that would minimize environmental impacts.

The construction of critical infrastructure, such as electrical, water, sanitary sewer, storm drainage, and communications, would be scheduled for Phase 1 of the Proposed Action, which would begin in 2012, if the Proposed Action is approved. Implementation of the critical infrastructure is proposed to occur during Phase 1 to support the proposed CAB Complex, as described in the Proposed Action in Section 1.5.2. Sustainable principles would be integrated into the design, development, and construction of the infrastructure project, in accordance with EO 13123 (Greening the Government through Efficient Energy Management), which requires federal agencies to define energy efficiency goals and outline measures to achieve them and other applicable laws and EO. See Section 2.2, Land Use, for more information on EO 13123.

Public Services and Safety

Impacts on public services, such as law enforcement, fire protection, or emergency medical, are not expected to occur in the long-term because the Proposed Action would not increase the population in the ROI. However, during the five-year, seventeen-phase construction period, there is the potential for a slight increase in demand for these services due to the potential for accidents typical of construction sites. However, if necessary, existing services

within the ROI are adequate to accommodate any potential increase. Potential impacts on law enforcement, fire protection, or emergency medical services are expected to be less than significant.

The proposed project site for constructing the new flight control tower is in a runway clear zone. A waiver would be requested by the Department of the Army to construct the flight control tower in a runway clear zone. The flight control tower is critical to the safe operation of the airfield. No impacts on safety would be expected since the flight control tower is an operational requirement for the airfield and under a waiver is an approved use within a runway clear zone.

Electricity

Under the Proposed Action, the CAB Complex would encompass approximately 1,600,000 square feet of facility space and would include new roads, buildings, and aviation maintenance hangars that require electricity. As such, operating the new CAB Complex would cause electricity use to increase, increasing demand on the electrical distribution system at WAAF.

The construction of the CAB Complex would include electricity, fire protection, alarm systems, water heaters, and air conditioning, which would need to be connected to the existing electrical system at WAAF. The CAB Complex would require an additional 10.2 mVA of electrical power to provide these services (Installation Management Command 2009). The current capacity of the electrical system at WAAF is 10 mVA, rendering the current system insufficient to support the Proposed Action. To address this deficiency, the Proposed Action includes upgrades to the electrical system, which would be extended to the CAB Complex. This includes the construction of two pad-mounted 10 mVA transformers and necessary connections from the WAAF substation to and throughout the CAB Complex. The two additional transformers connected to the WAAF substation would provide an additional electrical power load of approximately 20 mVA (Installation Management Command 2009). This would support the demand of the CAB Complex only at 10.2 mVA. While the increased electrical demand for the proposed CAB Complex would have long-term minor adverse effects on the electrical distribution system, installing the additional transformers to provide and distribute required electricity would minimize the effects to less than significant.

The construction of the CAB Complex would comply with current energy conservation directives issued by the DoD. The latest energy-efficient

appliances and equipment compatible with the Army's overall policy would be used to reduce energy consumption.

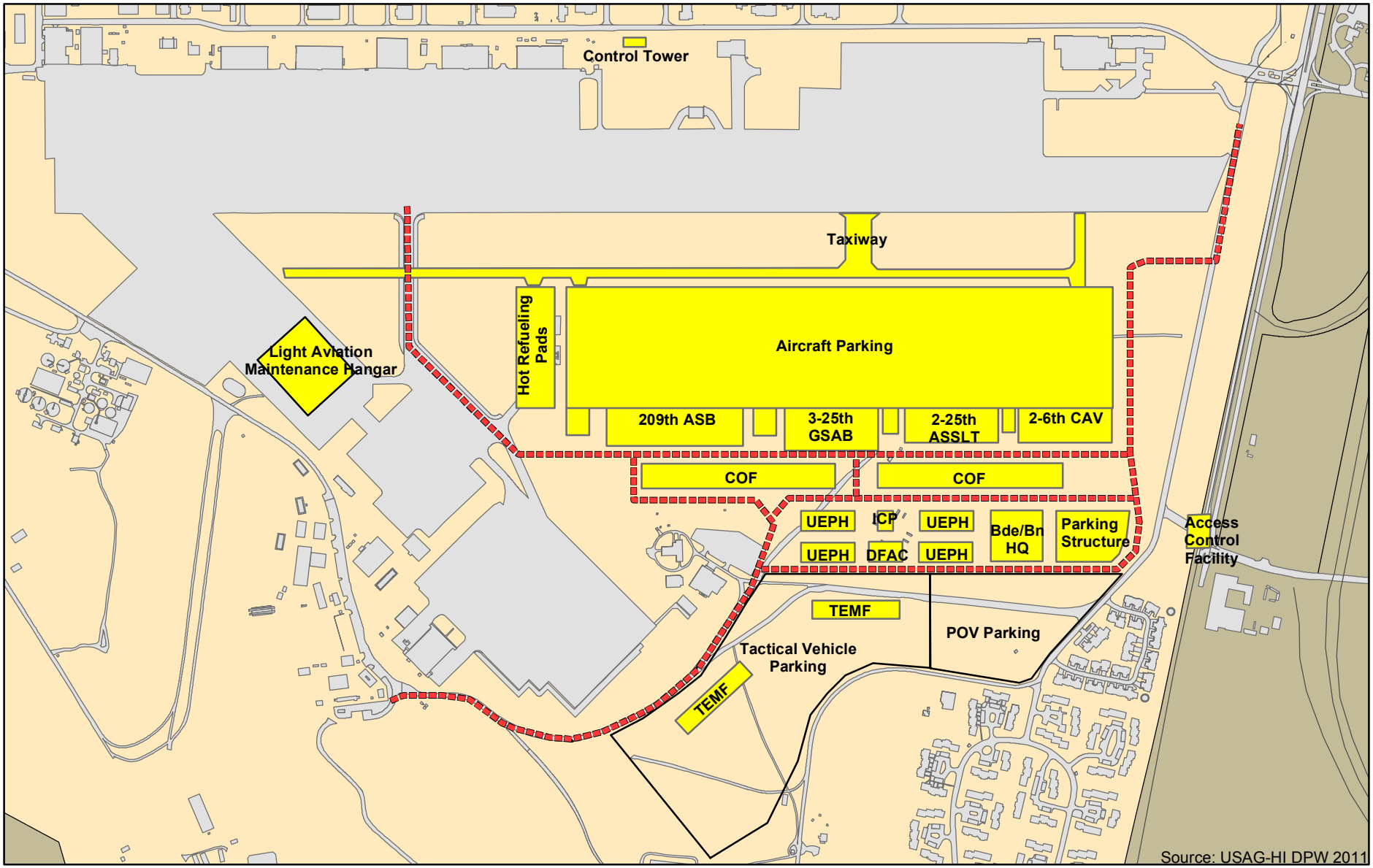
Potable Water Supply and Distribution

Under the Proposed Action, the CAB Complex would include multiple components that require the use of potable water, including housing units, restrooms, and aircraft wash facilities, as well as fire protection. As such, the construction of the CAB Complex would result in increased demand on the existing water supply and distribution system.

As part of the infrastructure project, construction at WAAF would include connecting to the 24-inch water line at the WAAF, installing new 6-inch, 8-inch, and 12-inch water lines, installing 50 new fire hydrants, constructing a fire booster pump station and at-grade fire reservoir, and required manholes (Figure 2.10-1). The new CAB infrastructure project would increase average daily water demand by 189,000 gallons per day (Installation Management Command 2009). As stated, existing demand exceeds water production capacity at WAAF, and the proposed CAB Complex's water demand would further exceed the production capacity of 6.55 mgd, resulting in long-term impacts on the existing system's ability to produce a potable water supply. However, because WAAF currently uses 2.10 mgd, or 53 percent of existing water storage capacity, the projected increase in demand for water can be accommodated by increasing the amount of water stored on the installation. This, in concert with the proposed construction of the 6-, 8-, and 12-inch waters lines, a fire booster pump station (to accommodate the required sprinkler fire protection system), and upgrading the CAB water distribution system, would enable WAAF to accommodate this projected increase in water demand primarily through water storage. Therefore, potential impacts on the potable water supply are expected to be less than significant.

Construction of the CAB Complex would also incorporate new water conservation measures into contemporary construction standards, and Energy Policy Act of 2005 features would be included to reduce the demand to the potable water supply and distribution system.

A sprinkler fire protection system would have to be installed for the new facilities. This component of the facilities would have a high demand on the existing potable water supply system and would require a fire pump once the final water pressures are known. This additional fire booster pump is a component of the Proposed Action Phase 1.



TETRA TECH

N W E S

0 660 1,320 Feet

Legend

- Wheeler Army Airfield
- Off Post
- Proposed Water System
- CAB Facilities
- Existing structures
- Roads

CAB Conceptual Water System Layout Plan

Wheeler Army Airfield, O'ahu

Figure 2-10.1

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Sanitary Wastewater

Under the Proposed Action, the CAB Complex would include new housing units and other facilities that would generate wastewater, thereby increasing the demand on the wastewater collection and treatment system. The estimated average daily wastewater load generated under the Proposed Action would be 117,000 gallons. At a capacity of 4.2 mgd, the existing wastewater treatment facility has adequate design capacity to service the proposed CAB Complex (Installation Management Command 2009).

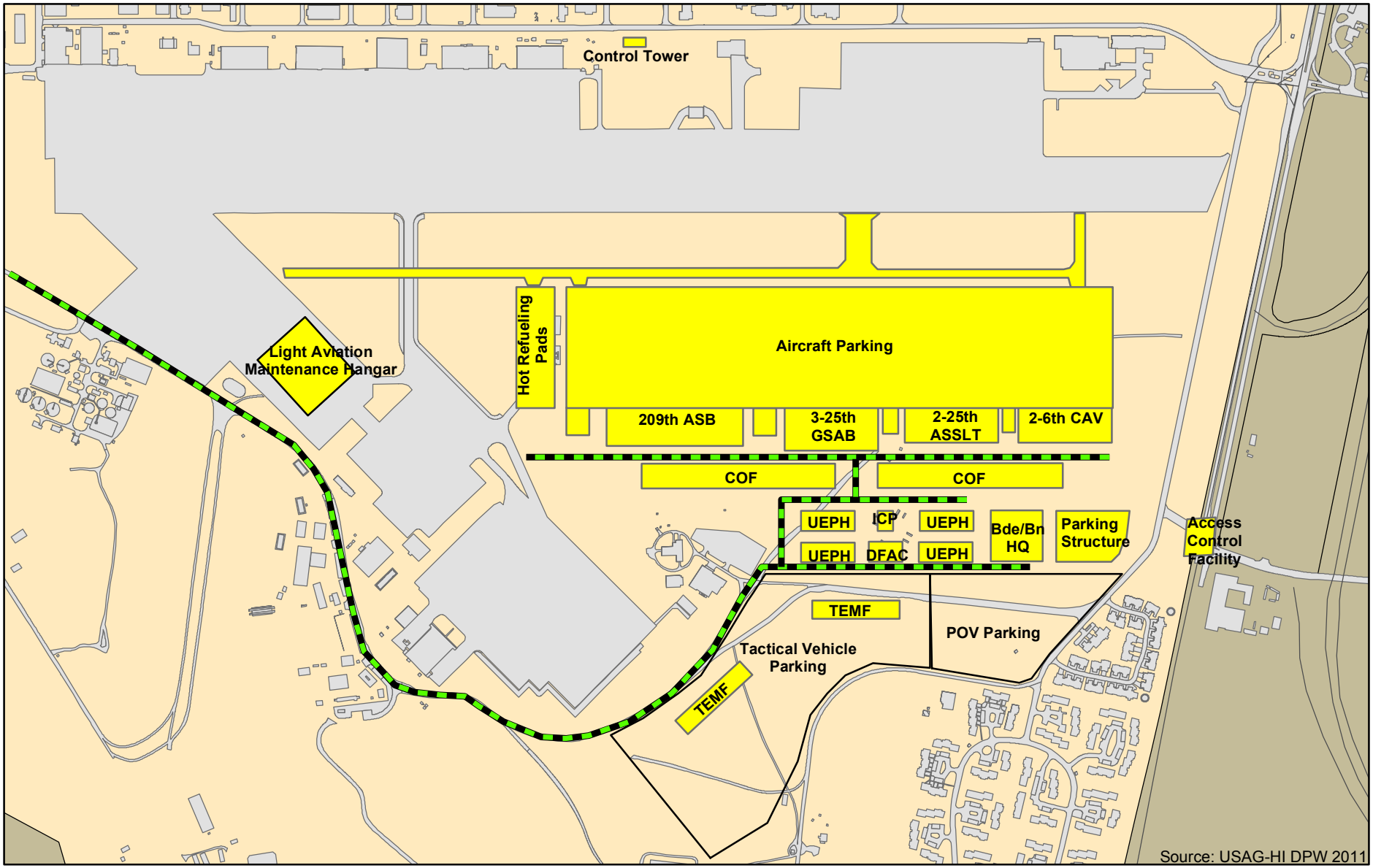
Because the existing capacity of the Schofield Wastewater Treatment Plant would be able to accommodate the increase in processing of wastewater, only construction of new sewer infrastructure connecting to the wastewater treatment plant would be required under the Proposed Action. This would include installing 12,300 linear feet of gravity sewer piping, 2,500 linear feet of sewage force mains, and 40 manholes (Figure 2.10-2). In addition, a new sewage pump station would be constructed to accommodate the CAB Complex, resulting in less than significant impacts on the sanitary wastewater collection and treatment system.

Additionally, construction would incorporate water conservation measures into contemporary construction standards, such as the installation of low-flow fixtures, further reducing wastewater generated and minimizing demand on the wastewater collection and treatment facilities.

Stormwater

Under the Proposed Action, the CAB Complex would encompass approximately 1,600,000 square feet of facility space and would include new roads, buildings, and aviation maintenance hangars. As such, the CAB Complex would increase the amount of impermeable surfaces, potentially increasing stormwater flow and decreasing the surface area available for on-site absorption, resulting in long-term minor adverse effects on the existing stormwater drainage system. These effects of increased runoff from impermeable surfaces on the stormwater drainage system would be minimized through the incorporation of contemporary construction standards for on-site stormwater treatment.

As part of the infrastructure project, construction of a new stormwater drainage system at WAAF would include constructing stormwater drainage controls to capture and retain stormwater on-site. Additionally, the Proposed Action would incorporate BMPs, and the proposed CAB Complex would be



TETRA TECH

N W E S

0 650 1,300 Feet

Legend

- Wheeler Army Airfield
- Off Post
- CAB Area Development Plan
- Existing structures
- Roads
- Proposed Sewer System

CAB Conceptual Sewer System Layout Plan

Wheeler Army Airfield, O'ahu, Hawai'i

Figure 2-10.2

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designed to minimize the anticipated increase in stormwater runoff by incorporating low-impact development techniques, such as porous pavement, bioretention, and bio swales.

The layout of the CAB Complex would also be designed to complement the natural systems of topography of the surrounding area and to ensure that stormwater is conveyed away from the facilities and directed to drainage corridors and on-site containers. During construction, BMPs would be implemented to mitigate stormwater runoff problems, and NPDES permits would be obtained. Potential increases in runoff associated with new construction under the Proposed Action would likely result in less than significant impacts on the existing stormwater drainage system at WAAF because of the BMPs and design of the proposed CAB Complex that address stormwater management.

Solid Waste Management

Under the Proposed Action, debris generated from the construction and long-term operations from the proposed CAB Complex would increase solid waste streams from current levels.

The construction of the CAB Complex would require clearing and grubbing soil and roots and potential soil cleanup. It would also generate solid waste material as a direct result from construction of the proposed CAB Complex. Waste materials generated from these activities would be recycled or diverted to HPower, and only the ash produced would be deposited at the Waimanalo Gulch Landfill. Some materials, such as pesticide-impacted soils, may not be eligible for recycling and would be disposed of according to federal, state, and local regulations. Although the capacity of solid waste facilities is finite and there are environmental impacts associated with incineration, the contribution of solid waste resulting from the CAB Complex would not cause any major adverse effect or exceed the capacity of the existing facilities. Therefore, the Proposed Action would have a less than significant impact on solid waste management.

The long-term operation of the proposed CAB Complex would be expected to place an increased demand on the solid waste collection and disposal system, resulting in long-term minor adverse effects on the solid waste management system. However, additional solid waste generated from the proposed CAB Complex would not exceed the capacity of HPower or the Waimanalo Gulch Landfill.

Communications

Under the Proposed Action, the proposed CAB Complex would require the installation of additional communications infrastructure to ensure successful operations, resulting in an increased demand on communication systems at WAAF.

To accommodate this increased demand, communication systems at the proposed CAB Complex would include the renovation of Building 1322, including a 4,000-square-foot area to facilitate radio communication. Additionally, 7,500 linear feet of information technology underground infrastructure ducting and 13 information technology manholes would be constructed as part of the Proposed Action. Installation of this infrastructure would enable the CAB Complex to successfully operate, resulting in a less than significant impact on the communication systems at the WAAF.

No Action Alternative

The No Action Alternative would not result in any impacts affecting public services and utilities because they would remain as they are under existing conditions. The installation would continue to operate with existing public services and utility infrastructure, with none of the improvements and new facilities described in the ADP. However, the No Action Alternative would not improve operations efficiency at the WAAF, and there would continue to be a physical disconnect between WAAF operations. Existing CAB facilities at WAAF would continue to be noncompliant with the new standards established by the facilities modernization program for the Hawai‘i CAB units.

2.11 BIOLOGICAL RESOURCES

2.11.1 Affected Environment

Introduction and Region of Influence

This section is a description of the biological resources found in or near the ROI. Biological resources include plant and animal species and the habitats or communities in which they live (i.e., vegetation species and communities, general wildlife, sensitive species and habitats, and wetlands).

The ROI for biological resources is the proposed CAB site. This includes the area of impact for the Proposed Action and a 50-foot buffer zone around this site to account for mobile biological species and their habitat needs.

Biological resources in the project area were evaluated in accordance with the applicable provisions of numerous statutes, executive orders, permits, and regulations. Species listed in the biological resource sections are identified as federally listed if they are protected by the Endangered Species Act and as state listed if they are considered threatened or endangered by the State of Hawai‘i.

Wheeler Army Airfield

ROI Overview and Baseline

The proposed CAB Complex will be located at WAAF, which is bordered on the northwest by the Schofield Barracks Main Post and on the northeast by Schofield Barracks East Range and the Kamehameha Highway. WAAF is situated between two mountain ranges, the Ko‘olau Range on the east and the Wai‘anae Range on the west. Sensitive plant and wildlife species are most likely to occur in the higher elevations of the Wai‘anae and Ko‘olau Mountains; they are not likely to occur in the disturbed lowland areas that make up the ROI.

Vegetation

The vegetation community at WAAF consists of three vegetative types: managed land, Leucaena Scrub Forest, and Plantain Forest (Installation Management Command 2009). The area within the Proposed Action site consists of predominantly managed land and is largely mowed because of the airfield activities and other operational activities (Installation Management Command 2009).

The Army manages vegetation at WAAF to control pests and wildfire and to maintain the military training mission. Because the ROI contains mostly disturbed land species or manicured landscape species that need regular

maintenance, such as mowing and pruning, it is not a focus of the Army's vegetation management.

The overall vegetation consists of highly managed nonnative vegetation, like grasses, shrubs, and trees. Species found at WAAF include koa haole (*Leucaena leucocephala*), an invasive species of tree that regenerates rapidly after fire and is prone to forming dense thickets that exclude all other plants. Another species is molasses grass (*Melinus multiflora*), which also regenerates quickly after fire and can inhibit the growth of other plants by its dense matting and by producing chemicals that discourage other plants from taking root. Other species include introduced forest species, such as silk oak (*Grevillea robusta*) and eucalyptus (*Eucalyptus* spp.) (US Army and USACE 2004; USACE 2004; USAG-HI 2005; US Army 2006, 2007e).

WAAF contains numerous "exceptional trees," distinguished by their nomination to the City and County of Honolulu Register of Exceptional Trees (Division of Urban Forestry, not dated). The exceptional trees on WAAF include pogoda trees (*Mimusops elengi*), narra trees (*Pterocarpus indicus*), kamani trees (*Calophyllum inophyllum*), monkeypod tree (*Samanea saman*), royal palms (*Roystonea regia*), white ash trees (*Fraxinus americana*), guachapele trees (*Albizia guachapele*), albizia trees (*A. procera*), and date palm trees (*Phoenix canariensis*). None of these exceptional trees occur in the ROI itself.

Landscaped and disturbed land areas make up most of the ROI for this project. The flora is limited in diversity and is dominated by nonnative species or by species habituated to human disturbance. The ROI site contains managed land, which is landscaped, mowed, or abandoned (Installation Management Command 2009). Disturbed areas in the ROI are habitat types characterized by the presence of buildings, paved locations, landscaping, and mowed grassland. These areas are generally planted with expanses of introduced grass and ornamental trees and shrubs, such as Bermuda grass (*Cynodon dactylon*), Christmasberry (*Schinus terebinthifolius*), Formosa koa (*Acacia confusa*), and Norfolk Island pine (*Araucaria heterophylla*), a vegetation community that generally offers little habitat value.

Overall, the vegetation and general landscape features within the ROI of the Proposed Action include roadways, runways, open grassy fields, managed grasses, ornamental plantings, and lawns. Most of the ROI provides minimal habitat value. The undeveloped land and areas of unmaintained vegetation next to the project sites are outside of the project ROI. Grasses, shrubs, trees, and flowers typically used for landscaping generally do not provide high-quality forage or habitat for wildlife species. The vegetation in areas dominated by

grasses is routinely mowed and tends to be weedy or nonnative, with low plant diversity.

No portion of the Proposed Action in WAAF is in critical habitat for plants, as designated by the US Fish and Wildlife Service (USFWS).

Wildlife

Because the habitat available for wildlife at WAAF is low quality, wildlife abundance and diversity is low. Wildlife is limited in diversity and is dominated by nonnative species or by species habituated to human disturbance.

Nonnative snails found at WAAF include the giant African snail (*Achatina fulica*), bradybaenid land snail (*Bradybaena similaris*), cannibal snail (*Euglandina rosea*), and the zonitid land snail (*Hawaiia minuscula*).

There are no native terrestrial amphibians on the Hawaiian Islands. Nonnative amphibians found on O'ahu include the green and black poison dart frog (*Dendrobates auratus*), the bullfrog (*Rana catesbeiana*), wrinkled frog (*R. rugosa*), giant toad (*Bufo marinus*), coqui frog (*Eleutherodactylus coqui*), greenhouse frog (*Eleutherodactylus planirostris*), and Cuban tree frog (*Osteopilus septentrionalis*). These species were introduced into O'ahu from other countries and have the potential to inhabit WAAF and may incidentally occur in the ROI within the Proposed Action site.

There are no native terrestrial reptiles on the Hawaiian Islands. Nonnative reptiles that have the potential to inhabit WAAF and that may occur incidentally in the ROI include the green anole (*Anolis carolinenesis*), mourning gecko (*Lepidodactylus lugubris*), stump-toed gecko (*Gehyra mutilata*), tree gecko (*Hemiphyllodactylus typus*), Indo-Pacific gecko (*Hemidactylus garnotii*), house gecko (*H. frenatus*), metallic skink (*Lampropholis delicata*), and gold dust day gecko (*Phelsuma laticauda laticauda*). The red-eared turtle (*Trachemys scripta elegans*) was recorded at Waikele Stream and may be found at WAAF, though it is not likely to occur in the ROI (US Army and USACE 2004; USACE 2004; USAG-HI 2005; US Army 2006, 2007e).

Wildlife at WAAF primarily consists of birds, with the greatest diversity found in the forested gully areas outside of the ROI. Naturalized species, including the spotted dove (*Streptopelia chinensis*), common mynah (*Acridotheres tristis*), red-vented bulbul (*Pycnonotus cafer*), and red-crested cardinal (*Paroaria coronata*), may occur on WAAF (US Army and USACE 2004; USACE 2004; USAG-HI 2005; US Army 2006, 2007e). Mostly nonnative and common birds,

such as the aforementioned species, are expected to use the ROI because of its highly disturbed nature and the habitat that it provides. Some other typical nonnative bird species known to occur in the ROI are the red-billed leiothrix (*Leiothrix lutea*), white-rumped shama (*Copsychus malabaricus*), Japanese bush warbler (*Cettia diphone*), rock dove (*Columbia livia*), zebra dove (*Geopelia striata*), Japanese white-eye (*Zosterops japonicus*), nutmeg manikin (*Lonchura punctulatua*), barn owl (*Tyto alba*), Erchel's francolin (*Francolinus erckelii*), ring-necked pheasant (*Phasianus colchicus*), house sparrow (*Passer domesticus*), chestnut manikin (*Lonchura malacca*), and northern cardinal (*Cardinalis cardinalis*). These species have been introduced on O'ahu by humans and may occur at WAAF and possibly in the ROI.

Nonnative mammals identified in the vicinity include feral pigs, feral goats, feral cats (*Felis catus*), feral dogs (*Canis familiaris familiaris*), Indian mongoose (*Herpestes auropunctatus*), Polynesian rat (*Rattus exulans hawaiiensis*), Norway rats (*R. norvegicus*), black rats (*R. rattus*), and common mouse (*Mus musculus*) (US Army and USACE 2004; USACE 2004; USAG-HI 2005; US Army 2006, 2007e). Pigs and goats are not likely to be found on the project sites or within the ROI.

Sensitive Species

Sensitive species are those special status species listed or proposed for listing by the USFWS or Hawai'i Natural Heritage Program as endangered or threatened, as a candidate species for listing, or as a species of concern. Species also considered as sensitive species are those protected under the Migratory Bird Treaty Act (MBTA). Special status species are provided varying levels of legal protection under federal and state endangered species acts. Sensitive species are managed by USAG-HI in accordance with the 2010-2014 Integrated Natural Resources Management Plan. No special status species have been identified at WAAF (USAG-HI 2010) or within the ROI. No sensitive plant species occur, and any sensitive wildlife species that may occur would be rare or incidental. The Pacific golden-plover (*Pluvialis fulva*), which is also protected by the MBTA, has been observed at WAAF. The Hawaiian short-eared owl (*Asio flammeus sandwichensis*), also known as pueo, is an indigenous bird species that has been recorded near WAAF (US Army and USACE 2004; USACE 2004; USAG-HI 2005; US Army 2006, 2007e).

Table 2.11-1 lists the sensitive species that may be found in the vicinity of the ROI, based on life history and potential habitat found at WAAF. A brief description of each species is provided following the table.

Table 2.11-1
Sensitive Species that May Occur in the Proposed Action Site

Scientific Name (*Genus species*)	Common Name	Status Federal/State	Occurrence at Site
Asio flammeus sandwichensis	Hawaiian owl	C	U
*Pluvialis fulva**	Pacific golden plover	-	C

Notes:

Federal Status	State Status	Occurrence
E = Endangered	E = Endangered	P= Possible
C= Candidate for listing		C= Confirmed
		U= Unlikely

*Protected under the Migratory Bird Treaty Act.

The Hawaiian short-eared owl, a federal candidate for listing, is known to occur on all the main Hawaiian Islands, though it is most common on Moloka‘i, Hawai‘i, and Kaua‘i. It is active throughout the day and evening and is most often seen hunting in grasslands. It is a ground-nesting bird and inhabits dry forests and rainforests (Audubon Society 1997). This species is rare on O‘ahu. It is unlikely to occur and is not expected to be found in the ROI.

The Pacific golden plover (*Pluvialis fulva*) is in greatest abundance in Hawai‘i, from August through May. It is aggressively territorial and returns to the same wintering grounds year after year. The 11-inch bird is commonly found on mudflats, lawns, fields, and grassy mountain slopes from sea level to 10,000 feet. This migratory bird is known to occur in the project area (Audubon Society 1997) and may be found in other areas at WAAF.

There are no reported endangered species, critical habitats, wetlands, or areas of any significant biological resource value in the ROI. Because the area has been so significantly disturbed and the habitat so altered, it is unlikely that habitat capable of supporting any listed species remains on the project site.

2.11.2 Environmental Consequences

Impact Methodology

Impacts on biological resources were assessed based on whether the Proposed Action is consistent with natural resource protections in the ROI. Another factor for assessing impacts was if the Proposed Action were evaluated in accordance with the applicable provisions of numerous statutes, executive orders, permits, and both state and federal regulations, as described in Section 2.11.1.

Factors Considered for Impacts Analysis

An action is considered to have a significant adverse impact on biological resources if it would result in the following:

- Cause the "take" of a highly sensitive resource, such as a threatened and endangered or special status species;
- Result in a jeopardy biological opinion by the USFWS;
- Reduce the population of a sensitive species, as designated by federal and state agencies, or a species with regional and local significance. This can happen with a reduction in numbers, by alteration in behavior, reproduction, or survival, or by loss or disturbance of habitat;
- Damage or degrade wetlands or riparian habitat regulated by the local, state, or federal government or another sensitive habitat, such as designated critical habitat, identified in local or regional plans, policies, or regulations or by the USFWS;
- Interfere with the movement of any native resident or migratory wildlife species (including aquatic species) or with established native resident or migratory wildlife corridors;
- Alter or destroy habitat that would prevent biological communities in the area from reestablishing themselves;
- Introduce or increase the prevalence of undesirable nonnative species; or
- Cause long-term loss or impairment of a substantial portion of local habitat that species depend on.

An impact is considered significant but mitigable if the result of the proposed project would have a significant impact on biological resources but compensatory mitigation is included to reduce the level of impact to below significant levels.

Summary of Impacts

Table 2.11-2 summarizes impacts on biological resources.

Table 2.11-2
Summary of Potential Biological Resource Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Take a sensitive status species or result in a jeopardy opinion	○	○
Reduce the population of a sensitive species	○	○
Damage or degrade wetlands or riparian habitat	○	○
Interfere with the movement of any native resident or migratory wildlife species	⊙	○
Alter or destroy habitat	⊙	○
Introduce or increase the prevalence of undesirable nonnative species	○	○
Cause long-term loss or impairment of a substantial portion of local habitat	○	○

LEGEND:

⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Vegetation, Habitat, and General Wildlife

There would be a less than significant impact from the permanent loss of a minimal amount of lawn under the Proposed Action. Short-term less than significant impacts from construction are expected on the project site for vegetation and general wildlife. These impacts would result from demolishing buildings and associated structures, removing landscaping and vegetation, constructing the buildings, facilities, and parking, and installing utilities for the Proposed Action. Construction and demolition would increase the amount of traffic, noise, and general human activity, which would deter most wildlife in and around the project sites. However, the area is already highly developed, and the human-tolerant species would not likely be greatly disturbed. Habitat within the ROI is for the most part disturbed natural and introduced landscapes. Activities would mostly affect nonnative species adapted to stressed or nonnative environments.

Staging and construction can reduce vegetation in areas not generally used for these purposes. Eliminating an area's vegetation exposes soil, increasing the potential for erosion. Construction runoff may contain chemical agents that

could harm trees and vegetation by percolating into the root zone where the agents could be absorbed. Construction vehicles are often heavy and could disturb root zones if driven near trees. Dust and debris from construction and demolition could damage vegetation in the vicinity of those project activities. Careless grounds maintenance may also have an adverse impact. Demolition, construction, and grounds maintenance could have an impact on trees. Any potential damage to the trees is not considered a significant impact because those trees are not rare and are not habitat for rare or protected species, and there are no exceptional trees in the ROI. In addition, the use of standard BMPs for construction would minimize these potential impacts.

In areas where staging reduces vegetation, efforts would be made during replanting to include appropriate native plants, consistent with the existing vegetation communities. BMPs include limiting staging in areas not currently in heavy use, controlling surface water runoff in accordance with a SWPPP, and implementing BMPs for oil spills and toxic substances cleanup. Construction staging areas would be in already disturbed areas near or on the proposed site. These BMPs would reduce the impacts on vegetation, wildlife, and their respective habitats.

Sensitive Species

There would be no impacts from the Proposed Action on Federal and State listed species since they are unlikely to occur in the ROI. The plover, protected under the MBTA, would be adversely impacted in the short term, especially if demolition, staging, or construction occurs between August and April when the Pacific golden plover is wintering in the Hawaiian Islands from the permanent loss of a minimal amount of lawn area. However, impacts would be considered less than significant, as there is abundant alternative habitat for this species in the adjacent areas, and the adverse effects from construction would be temporary and less than significant. Once construction is completed, the plover could forage on any newly planted grass.

Other then the Pacific golden plover, there are no protected or sensitive wildlife species that are likely to occur in the ROI. Impacts on the short-eared owl are considered extremely unlikely because the Hawaiian short-eared owl is not expected to be found in the ROI.

Because there are no special status plants on the project site, there would be no impacts on special status plants from the Proposed Action.

Because there are no USACE-designated wetlands within the Proposed Action site, there would be no impacts on wetlands from the construction of the CAB Complex.

Because there is no federally designated critical habitat or sensitive habitats within the Proposed Action site, there would be no impacts on critical habitat from the construction of the CAB Complex.

The maintenance of the landscaping and the utilities for the buildings and for the buildings themselves would ensure that the areas are in good condition. No long-term impacts are expected on the project site under the Proposed Action for vegetation and general wildlife.

No Action Alternative

The No Action Alternative would be a continuation of existing conditions, so there would be no construction and no impact on vegetation, wildlife, or habitats.

2.12 CULTURAL RESOURCES

2.12.1 Affected Environment

Introduction and Region of Influence

Cultural resources consist of archaeological resources, Native Hawaiian traditional resources and sacred sites, and built environment resources, such as historic buildings, structures, districts, and landscapes. Resources can be either prehistoric (pre-Contact) or historic (post-Contact). The term "historic properties" refers to cultural resources that are eligible for listing on or that are listed on the National Register of Historic Places (NRHP), including individual sites, artifacts, and districts. Traditional resources or sacred sites that are historic properties are referred to as traditional cultural properties (TCPs). In general cultural resources must be a minimum of 50 years old to be considered historic, but considerations may be made for resources that have achieved national significance in the past 50 years, such as buildings and sites associated with the Cold War.

There are numerous cultural resource laws and regulations that govern the management of cultural resources at WAAF (see Belt Collins 2000). The most pertinent ones with regard to the Proposed Action include the National Historic Preservation Act (NHPA), the Archaeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act (AIRFA), the Native American Graves Protection and Repatriation Act (NAGPRA), EO 13007 (Indian Sacred Sites), EO 13175 (Consultation and Coordination with Indian Tribal Governments), Curation of Federally Owned and Administered Collections (36 CFR, Part 79), the Secretary of the Interior's Standards for Treatment of Historic Properties (36 CFR, Part 68), and DOD guidelines, including Army regulations.

The ROI for cultural resources is equivalent to the area of potential effect under Section 106 of the NHPA. The ROI for the Proposed Action has been defined as the project area, as depicted in Figure 1-4, as well as the depths below ground surface to be disturbed during demolition, construction, and renovation. The ROI further includes the WAAF National Historic Landmark (NHL), discussed below, and any historic buildings adjacent to the area depicted in Figure 1-4, given that the project would be constructed within the viewshed and historic landscape of these built environment resources.

Overview of Valued Environmental Component

Cultural resources previously identified on WAAF include archaeological resources and built environment resources. No cultural resource surveys were

conducted specifically for the Proposed Action, and the discussions below are based on previous surveys and identification efforts, as well as on input from the cultural resources staff of USAG-HI.

Archaeological Resources

A high degree of historic ground disturbance within WAAF boundaries has left little undisturbed land or preserved archaeological sites. No archaeological sites have been recorded within the ROI of the Proposed Action (Belt Collins 2000; Lucking 2011).

Most of WAAF is considered to have low sensitivity for archaeological resources, as is most of the ROI. However, the most northeast corner of the ROI is within an area of medium sensitivity. Areas of low archaeological sensitivity are those where there is a low probability of site preservation, either due to an absence of past use that would result in archaeological deposits or extensive surface and subsurface disturbance. Areas of medium sensitivity are those where there is a high probability of site preservation. The northeast corner of the ROI was not bulldozed during construction of the runway and has never been built on; therefore, it is possible that buried features could be found here (Belt Collins 2000).

Native Hawaiian Traditional Resources

As a general rule, access to Army land is restricted to DOD personnel. However, Army staff work regularly with Native Hawaiians and Range Control to provide access to specific sites on request, subject to mission requirements and public safety. The Army provides copies of cultural resources reports produced for the cultural resource management program to Native Hawaiian groups with ties to WAAF lands.

The ROI is within Wai‘anae Uka, a part of the Wai‘anae *ahupua‘a* in the traditional Hawaiian district of Wai‘anae. No traditional Native Hawaiian resources or TCPs have been identified on WAAF lands (Belt Collins 2000).

Built Environment Resources

WAAF has a NHL district and many other properties adjacent to the NHL district that have been determined eligible for the NRHP. The properties that have been determined eligible compose most of the 1932 cantonment area of the installation as well as the area where the hangars are located and the original airfield. The cantonment area includes historic buildings set in a historic landscape in a Garden City plan. The cantonment area is approximately 800 feet away from the proposed site for the CAB Complex.

The US Army is conducting Section 106 consultations with the (State Historic Preservation Officer (SHPO) regarding the Proposed Action. The consultations will be completed prior to signing of a FNSI for the Proposed Action and USAG-HI will then issue a clearance memorandum for the project.

2.12.2 Environmental Consequences

Impact Methodology

The methods for assessing potential impacts on cultural resources include identifying significant cultural resources in the ROI under the Proposed Action and determining potential direct and indirect impacts on these resources. Identified resources are described above.

Impacts on cultural resources are evaluated in terms of significance. A significant impact on cultural resources is defined as expected and unmitigable impacts on known cultural resources. A significant but mitigable to less than significant impact is defined as one on known cultural resources or likely impacts on unknown cultural resources that are mitigable. This category also includes unlikely or unanticipated impacts on known or unknown cultural resources that could be mitigated. A less than significant impact is defined as one on NRHP-ineligible cultural resources or cultural resources not of concern to Native Hawaiians or historical societies or agencies. If during project implementation and operation no cultural resources were identified or discovered then the project would not have any impacts on cultural resources.

Factors Considered for Impacts Analysis

The factors that determine the significance of potential impacts on cultural resources in an ROI are determined based on the federal laws and regulations that set the standards for cultural resources protection.

Section 106 of the NHPA requires that federal agencies consider the possible effects of their actions on NRHP-eligible properties within their boundaries. Eligible properties include, in addition to archaeological and other cultural sites, those considered significant for their importance to Native Hawaiian groups. Section 106 and its implementing regulations state that an undertaking has an effect on a historic property (an NRHP-eligible or listed resource) when that undertaking may alter those characteristics of the property that qualify it for inclusion on the NRHP.

Under Section 106, an undertaking is considered to have an adverse effect on a historic property when it diminishes the integrity of the property's location,

design, setting, materials, workmanship, feeling, or association. Adverse effects include the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property or alteration of the property's setting when that character contributes to the property's qualifications for the NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property, or changes that may alter its setting;
- Neglect of a property, resulting in its deterioration or destruction; and
- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

Traditional and ethnographic resources, including sacred sites, burials, and cultural items, whether they are considered NRHP-eligible, are also protected under the AIRFA, ARPA, or NAGPRA. Factors considered in determining whether an action would have a significant impact on cultural resources include the extent or degree to which its implementation would have an adverse effect on a historic property or TCP, as defined under Section 106 of the NHPA, or would violate the provisions of AIRFA, ARPA, or NAGPRA.

An adverse effect on a historic property, as defined by the NHPA, is not necessarily a major impact under NEPA. While mitigation under the NHPA does not necessarily negate the adverse nature of an effect, mitigation under NEPA can reduce the significance of an impact. NHPA and NEPA compliance are separate and parallel processes, and the standards and thresholds of the two are not precisely the same.

Public concerns are also considered as part of impact analysis under NEPA. The concerns expressed by the public during previous analyses emphasized the following needs:

- Continuing access to traditional and religious sites for ceremonial purposes and to hunting and gathering areas;
- Protecting and preserving archaeological and traditional sites;
- Interpreting significance based on Native Hawaiian tradition and the knowledge of community elders and for community involvement in managing cultural resources on Air Force land; and

- Complying with federal and state laws and regulations concerning cultural resources protection.

Summary of Impacts

Table 2.12-1 is a summary of the potential impacts on cultural resources.

Table 2.12-1
Summary of Potential Cultural Resources Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Archaeological resources	⊙	○
Traditional Native Hawaiian resources	⊙	○
Built environment resources	⊙	○

LEGEND:

⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

Constructing the CAB Complex under the Proposed Action would result in less than significant impacts on archaeological, traditional/ethnographic and built resources within the ROI. The Army will integrate best management standards and practices pertaining to cultural resources into the Proposed Action minimize impacts to cultural resources.

Archaeological resources. As a result of the Proposed Action, new permanent structures and buildings would be erected in and near areas of low to medium archaeological sensitivity. In areas of low sensitivity, it is unlikely that archaeological sites would be encountered during project activities. There is a higher likelihood in areas of medium sensitivity.

If archaeological resources were discovered during project activities, disturbance of these resources would be considered an adverse impact, and could possibly be significant depending on the resources affected. The standard USAG-HI inadvertent discovery clause would be implemented as part of the proposed project and will be included in any construction or development plans. The clause reads as follows:

Inadvertent Discovery Plan for Human Skeletal Remains and Previously Unknown Cultural Resources

- Any Employee (or contractor in the employ) of the Garrison who knows or has reason to know that human remains, associated cultural items, or previously unidentified or unanticipated cultural resources have been inadvertently discovered on land owned or controlled by the Garrison, shall provide immediate telephone notification of the discovery, with written back up to the Garrison Commander and the Garrison Cultural Resources Manager (GCRM). Human remains and cultural items include those as defined under the NAGPRA. Cultural resources may be prehistoric or historic; surface or subsurface; and include but are not limited to human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, soil, or other deposits; rocks or coral alignments, paving, wall or other constructed features; and any indication of agricultural or other uses.
- The Employee or contractor shall also immediately stop any activity in the area of the discovery and protect the human remains, cultural items and unidentified or unanticipated cultural resources unless prevented from doing so due to life/safety concerns. The contractor shall not proceed in that area until directed by the GCRM or designated representatives. The Contractor shall expect reasonable delays of up to 7 calendar days for unidentified cultural resources discoveries.
- Once contacted regarding an inadvertent discovery, the GCRM, their representative from the Cultural Resources staff or the designated contract project archaeologist will determine the nature and context of the discovery:
    - If the inadvertent discovery is determined potentially human remains or cultural items, the GCRM or their representative from the Cultural Resources staff will make an in-situ examination of the condition, antiquity, and cultural affiliation of the cultural resource based upon applicable professional standards to determine whether or not the remains and cultural items appear to be Native Hawaiian.
    - If the previously unidentified or unanticipated cultural resources can positively and unquestionably be determined not to be human remains or associated cultural items, the GCRM, their representative from the Cultural Resources staff or the designated contract project archaeologist will make an in-situ examination to obtain an assessment of the discovery and to

determine its susceptibility to damage from ongoing construction activity. In coordination with the GCRM, the construction standoff distance may be increased or decreased and determine what procedures need to be implemented.

- If the examination determines that the human remains or cultural items appear to be Native Hawaiian, the Garrison shall notify the State Historic Preservation Division, Office of Hawaiian Affairs (OHA), Hui Malama I Na Kapuna ‘O Hawai‘i Nei, and the appropriate Burial Council by telephone, via e-mail, or with written correspondence within 48 hours.
- If, through consultation with the above parties, the Garrison Commander establishes the human remains and cultural items cannot be left in situ, their excavation and removal shall be undertaken by professional archaeologists employed by the Garrison within 15 working days from the initial contact between the Garrison and the Burial Council.
- Prior to disposition of the human remains and cultural items, the Garrison shall publish a general notice of the proposed disposition in a newspaper of general circulation in the area which the remains were recovered. The notice shall provide information as the nature and cultural affiliation of the remains and cultural items and shall solicit further claims of ownership. The notice shall be published at least twice, at one-week intervals, and transfer shall not take place until 30 days after the second notice to allow for any additional claimants to come forward.
- If re-internment is on land owned or controlled by the Garrison, the location of the re-internment shall only be reported to the claimant, the Garrison Commander, and the GCRM.

Traditional/Ethnographic resources. The presence of traditional or ethnographic resources or concerns within the project area is unknown but is unlikely due to the absence of prehistoric Native Hawaiian archaeological resources within the ROI. WAAF complies with all laws, regulations, and EOs requiring access for religious or traditional uses by Native Hawaiians. The Army would incorporate the standard USAG-HI inadvertent discovery clause to the project to avoid inadvertent impacts on archaeological resources, the Proposed Action is expected to have less than significant impacts on traditional and ethnographic resources.

Built Environment resources: The view of WAAF National Historic Landmark NHL would not be impacted by the Proposed Action because the Army plans to site new construction of the CAB buildings and structures approximately 800 feet south and south east of the NHL. A 67 foot control tower will be constructed approximately 400 feet to the north of the NHL (Ching 2011). Therefore, new construction would not hinder the current view of the NHL from Kawamura Gate, Santos Dumont Avenue, Lauhala Road, or Kamehameha Highway because it is sited away from the NHL.

The introduction of new visual elements would not jmpact the historic character of the NHL and would not diminish the view of the NHL. The Army would follow the installation design guidelines found in the WAAF: Installation Exterior Architectural Plan (1995) and the Area Development Plan and Infrastructure Capacity Analysis (Installation Management Command 2009) as they pertain to the Proposed Action. Construction would be completed in such a way as to preserve the view of the NHL as currently seen from Kawamura Gate, Santos Dumont Avenue, Lauhala Road, and Kamehameha Highway. New construction height, orientation, and architecture will designed to ensure the view of the NHL is preserved.

The Army intends to use the existing hangars in the Landmark district for the CAB in addition to the new complex. If during the planning phase of this undertaking new uses of the NHL district buildings are proposed, the Army will develop a Programmatic Agreement for their rehabilitation (US Army 2011b).

No Action Alternative

Under the No Action Alternative, no demolition, construction, modification, or ground-disturbing activities would occur. The potential to disturb archaeological or traditional/ethnographic resources would not exist. Buildings, roads, and structures would not be demolished, relocated, or constructed in proximity of the WAAF NHL. Therefore, there would be no impact on cultural resources under the No Action Alternative.

2.13 VISUAL RESOURCES

2.13.1 Affected Environment

Introduction and Region of Influence

This section describes the visual resources associated with project alternatives. Visual resources are the visible physical features on a landscape, such as land, water, vegetation, animals, and structures. The ROI for visual resources is the site for the proposed CAB Complex, under the Proposed Action Alternative, the No Action Alternative, and the areas adjacent to these sites.

Various guidelines and requirements affect the visual resources of WAAF, including the design, construction, and maintenance of structures and facilities. The Proposed Action would be subject to these and other applicable design, construction, and maintenance guidelines and requirements for project structures, facilities, and landscaping. Installation guidelines and requirements affecting the project site include the Wheeler Army Airfield Installation Exterior Architectural Plan (Belt Collins 1995) and the Area Development Plan and Infrastructure Capacity Analysis (Installation Management Command 2009).

Overview of Environmental Valued Component

Landscape Character of Surrounding Area

The visual landscape on WAAF is largely characterized by urban development, including an aircraft runway and parking aprons, support structures, and other infrastructure. Landscape vegetation provides a buffer between functional portions of the installation and provides screening of views either into or out of the installation, with the rugged Wai‘anae and Ko‘olau Mountains dominating the background. A NHL along the north end of the runway includes 10 architectural resources: three airfield apron segments, one barracks, five hangars, and a family support facility. The view of the NHL can be seen from Kawamura Gate, Santos Dumont Avenue, Lauhala Road, and Kamehameha Highway (Figure 2.13-1). An approved designated historic district north of the runway contains approximately 240 eligible buildings. Although this area offers panoramic views of the surrounding mountains, the overall visual quality has been reduced by extensive landscape modification (US Army and USACE 2004). The 1932 cantonment area of WAAF is a designed and constructed landscape in the Garden City plan. The landscape features include the Garden City low density residential loops with open common grassy lawns and boulevards with grass islands. The original landscape design of WAAF is intact and displays a high degree of historic integrity.

Figure 2.13-1: View of the NHL from Lauhala Road, camera facing west, April 2009

Lands surrounding WAAF are also highly developed, dominated by buildings, roads, agricultural features, power lines, and other human-made features associated with Wahiawā or other developments.

Landscape Character of Proposed Sites

Wheeler Army Airfield. The CAB Complex under the Proposed Action would be built on developed land that is currently used for airfield operations, training, industrial functions, and recreation. This site is just south of the runway and extends to the edge of the installation boundary to the east. The area is a relatively flat open area, with a few structures, ball fields, parking lots, and open grassy areas.

2.13.2 Environmental Consequences

Impact Methodology

Potential impacts on visual resources are based on a review of site conditions, of applicable guidelines pertaining to visual resources, and of proposed changes to the visual landscape (described in the description of the Proposed Action). Various actions that might change the basic landscape elements were considered in identifying potential impacts on visual resources.

Impacts on visual resources can be either positive or negative, depending on the type and degree of visual contrasts introduced to a landscape. Where modifications repeat the general elements of the landscape, the degree of visual contrast is lower, and the impacts are generally perceived less negatively. Where modification introduces pronounced changes, the degree of contrast is greater, and impacts are often perceived more negatively.

Factors Considered for Impact Analysis

Factors considered in determining whether an alternative would have a significant impact are the extent or degree to which its implementation would cause or result in the following:

- Conflict with regulations and policies governing visual resources;
- Degrade the visual character or quality of the site and its surroundings;
- Block or disrupt views or reduce public opportunities to view scenic resources; or
- Create a new source of light or glare.

Summary of Impacts

Table 2.13-1 summarizes potential impacts on visual resources.

Table 2.13-1
Summary of Potential Visual Resources Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Conflict with visual resource regulations	○	○
Degrade the visual character or quality of the site and its surroundings	⊙	○
Block or disrupt views	⊙	○
Create a new source of light or glare	⊙	○

LEGEND:

⊙ = Less than significant impact
○ = No impact

Proposed Action (Preferred Alternative)

There would be a less than significant impact on visual resources within the ROI. The Proposed Action would create short-term and long-term adverse effects, affecting receptors sensitive to visual resources. The closest on-post facilities with these receptors are on properties that border the proposed CAB Complex area to the north. These receptors are those people who are traveling

along Santos Dumont Avenue, those in barracks and unit facilities along Santos Dumont Avenue, and people travelling along Lauhala Road. The closest off-post, publicly accessible vantage point from which project activities could be viewed is along Kamehemeha Highway, next to the airfield perimeter road.

Various guidelines and requirements affect the visual resources of WAAF, including the design, construction, and maintenance of structures and facilities. The proposed project would be subject to the guidelines and requirements described in Section 2.13.1, and to other applicable design, construction, and maintenance guidelines and requirements for project structures, facilities, and landscaping. There would be no impacts on visual resources from conflicts with visual resource regulations.

During construction, there would be short-term adverse impacts on the visual character of the site and surroundings. Impacts include a visible increase in traffic from project vehicles, an increase in activity and equipment from demolition and construction, and a decrease in visibility from fugitive dust. Temporary laydown and staging areas would likely be confined to the actual project sites and may include using nearby areas if any were available. These adverse impacts on the visual landscape of the project sites would be less than significant because they would be limited to the duration of demolition and construction, and BMPs would be used to reduce any long-term impacts resulting from disrupted views.

The assumption is that temporary staging areas outside the actual project sites would be returned to predisturbance conditions after construction. BMPs would be used to reduce potential impacts on visual resources during demolition and construction. Such practices include the following:

- Developing a worker awareness program to educate workers about BMPs and safety standards before the activity begins;
- Implementing dust minimization practices, such as regularly watering exposed soils and using silt screens around the perimeter of the construction site, to prevent dust from leaving the site; and
- Restricting the parking of construction-related vehicles on-site for the duration of construction, or parking construction vehicles in other designated areas.

All construction would take place during the day, so there would be no nighttime lighting.

With the construction of the CAB Complex, there would be an increase in light and glare. The degree of adverse impacts would vary, depending on screening objects, such as landscaping, and viewer sensitivity. However, the proposed facilities would be considered appropriate for the designated use of the land. Nevertheless, to minimize long-term impacts from lighting, the proposed project would implement BMPs that include using proper outdoor lighting design features, such as shrouding outdoor lights to keep stray light from illuminating unnecessary areas, and equipping outdoor lights with motion detectors, where practical, to provide light only when necessary. Therefore, less than significant impacts from light and glare are anticipated.

The view of WAAF NHL would not be impacted by the Proposed Action because the Army plans to site new construction of the CAB buildings and structures approximately 800 feet south and south east of the NHL. A 67 foot control tower will be constructed approximately 400 feet to the north of the NHL (Ching 2011). Therefore, new construction would not hinder the current view of the NHL from Kawamura Gate, Santos Dumont Avenue, Lauhala Road, or Kamehameha Highway because of it is sited away from the NHL. Additionally, the Army will provide a view plane study, as part of the Section 106 study, to confirm that the NHL district will not be adversely affected by the proposed development.

The introduction of new visual elements would not impact the historic character of the NHL and would not diminish the view of the NHL. The Army would follow the installation design guidelines found in the WAAF: Installation Exterior Architectural Plan (1995) and the Area Development Plan and Infrastructure Capacity Analysis (Installation Management Command 2009) as they pertain to the Proposed Action. Construction would be completed in such a way as to preserve the view of the NHL as currently seen from Kawamura Gate, Santos Dumont Avenue, Lauhala Road, and Kamehameha Highway. New construction height, orientation, and architecture will designed to ensure the view of the NHL is preserved.

New construction will be visible within WAAF where no buildings or structures are currently present. Although the Army will follow installation design guidelines to ensure the new construction is in keeping with the overall visual quality of buildings within WAAF, the new construction will reduce the overall visual quality of this site, which is currently open space. The new construction will modify the existing landscape but as the design of the new complex will be in keeping with the design guidelines of the WAAF, there will be a less than significant impact to visual resources.

No Action Alternative

No impacts are expected under the No Action Alternative. No construction would occur, and the sites for the Proposed Action would remain unchanged.

2.14 ENVIRONMENTAL JUSTICE

2.14.1 Affected Environment

Introduction and Region of Influence

The ROI for environmental justice issues is Honolulu County on O'ahu because this is where potential impacts would most likely be realized. The Proposed Action and No Action Alternative are reviewed and evaluated to identify potential beneficial or adverse impacts on conditions in the ROI. The environmental justice indicators used for this study were minority and low-income populations and the population of children in the ROI. The baseline year for environmental justice data is 2009, the most recent year that data are reasonably available. Information in this analysis was obtained from the US Census Bureau.

Overview of Valued Environmental Components

Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. It is designed to focus the attention of federal agencies on the human health and environmental conditions in minority and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts from proposed actions and to identify alternatives that might mitigate these impacts. Minority populations included in the census are identified as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Hispanic or Latino, Some Other Race, and Two or More Races. Poverty status, used in this analysis to define low-income status, is reported as the number of persons with income below the poverty level. The US Census Bureau calculates annual poverty rates using the sum of family income over the year, divided by the sum of poverty thresholds that can change from month to month if the family composition changes.

Populations

The demographic profiles of the ROI, of Hawai'i, and of the United States are presented in Table 2.14-1. While many other regions in the United States have large white populations, Hawai'i and the ROI have large Asian and Native Hawaiian and Other Pacific Islander populations. As shown in the table, these groups accounted for 41.7 percent and 8.2 percent of the total population of Honolulu County in 2009. This represents a slight decrease from 2006 for the

Table 2.14-1
Race, Ethnicity, and Poverty Status and Trends for Honolulu County, Hawai'i, and the United States, 2006 and 2009

	Honolulu County		Hawai'i		United States	
Race/Ethnicity	2006	2009	2006	2009	2006	2009
White	22.2	23.0	26.3	26.9	73.9	74.8
Black or African American	2.8	3.0	2.2	2.3	12.4	12.4
American Indian and Alaska Native	0.3	0.3	0.3	0.3	0.8	0.8
Asian	44.2	41.7	39.9	37.1	4.4	4.5
Native Hawaiian and Other Pacific Islander	7.9	8.2	8.7	8.8	0.1	0.1
Hispanic or Latino (of any race)	7.0	8.1	7.8	9.0	14.8	15.8
Some Other Race	1.1	0.8	21.5	23.6	6.3	4.9
Two or More Races	21.5	22.9	0.3	0.7	2.0	2.4
Total Population	**909,863**	**907,574**	**1,285,498**	**1,295,178**	**299,398,485**	**307,006,556**

Source: US Census Bureau 2010d, 2010e, 2010f
Numbers do not add up to 100 percent because persons of Hispanic origin can be of any race and are therefore also included in the Some Other Race and Two or More Races categories.

Asian group, which comprised 44.2 percent of the population, and a slight increase for the Native Hawaiian and Other Pacific Islander group, which comprised 7.9 percent of the population in 2006. Other increases in ethnic groups between 2006 and 2009 include Black or African American, Hispanic or Latino, and Two or More Races. There was no change in people describing themselves as American Indian and Alaskan Native and a slight decrease in Some Other Race.

Poverty Rate

The Census Bureau bases the poverty status of families and individuals on 48 threshold variables, including income, family size, number of family members under the age of 18 and over 65, and amount spent on food. The poverty rates for Honolulu County, Hawai'i, and the US for 2006 and 2009 are presented in Table 2.14-2. In 2009, approximately 9.9 percent of all people and 7.5 percent for all families with children under the age of 18 residing in Honolulu County were classified as living in poverty. This is lower than the state's poverty rate and the US poverty rate, at 10.4 percent and 13.3 percent (Table 2.14-1). This is also higher than the poverty rate for Honolulu County and Hawai'i in 2006.

Table 2.14-2
Poverty Rates and Trends for
Honolulu County, Hawai'i, and the United States, 2006 and 2009

Poverty Rate	Honolulu County		Hawai'i		United States	
	2006	2009	2006	2009	2006	2009
All families	6.3	7.5	7.1	7.5	9.8	10.5
All people	8.4	9.9	9.3	10.4	14.3	13.3

Source: US Census Bureau 2010g, 2010h, 2010

Protection of Children

Executive Order 13045, Protection of Children from Environmental Health and Safety Risks, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children.

Historically, children have been present at WAAF and SBMR as residents and visitors (e.g., dependents living in family housing, schoolchildren, and users of recreation facilities). On such occasions, the Army has taken precautions for their safety by a number of means, including fencing areas, limiting access to certain areas, and providing adult supervision. According to the Census Bureau, there are approximately 223,335 children under the age of 19 in Honolulu County (US Census 2010d).

2.14.2 Environmental Consequences

Impact Methodology

The ROI is defined to include Honolulu County. The Proposed Action and the No Action Alternative are reviewed and evaluated to identify any potential beneficial or adverse impacts on conditions in the ROI. Potential disproportionate effects on low-income or minority populations and the potential for increased adverse health risks to children were assessed to evaluate potential environmental justice impacts.

To determine if low-income and minority populations could be disproportionately affected by the Proposed Action, the proportion of low-income people and minorities in the areas surrounding the Proposed Action site were identified. If high percentages of low-income and minority populations were identified, then the potential was assessed for construction or operational activities to cause these populations to be displaced, their income or employment to be lost, or their health or environmental condition to be adversely affected. To evaluate if children would encounter disproportionate environmental health or safety effects, the population under the age of 19

surrounding the Proposed Action area on WAAF was analyzed. The potential environmental health and public safety risks identified for the Proposed Action and the No Action Alternative was then evaluated for proximity to populations of children.

Factors Considered for Impacts Analysis

Factors considered in determining if an alternative would have a significant impact on environmental justice include the extent or degree to which its implementation would result in the following:

- Change any social, economic, physical, environmental, or health conditions to disproportionately affect a particular low-income or minority group, or
- Disproportionately endanger children in areas on or near the installations.

Summary of Impacts

Table 2.14-3 is a summary of environmental justice impacts.

Table 2.14-3
Summary of Potential Environmental Justice Impacts

Impact Issues	Proposed Action (Preferred Alternative)	No Action Alternative
Low-income or minority groups	○	○
Endangerment to children	○	○

LEGEND:
○ = No impact

Proposed Action (Preferred Alternative)

Effects on Low-Income or Minority Groups

The Proposed Action would not have any impacts on low-income or minority populations within the ROI. However, it may result in beneficial short-term impacts through the creation of jobs during the five-year construction period, if low-income or minority residents within the ROI were hired. There would be no long-term impact on social, economic, physical, environmental, or health conditions from the Proposed Action. Therefore, the Proposed Action would have no impacts on any low-income or minority group in the ROI.

Endangerment of Children

During construction of the CAB Complex at WAAF, safety measures stated in 29 CFR, 1926, Safety and Health Regulations for Construction, and Army Regulation 385-10, Army Safety Program, would be followed to protect the health and safety of residents, including children. Therefore, the Proposed Action would have no impacts on children.

No Action Alternative

The No Action Alternative would not result in disproportionate impacts on low-income or minority populations or children because there would be no changes to the existing conditions.

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SECTION 3:

CUMULATIVE IMPACTS

CHAPTER 3
CUMULATIVE IMPACTS

3.1 INTRODUCTION

Cumulative impacts are the direct and indirect effects of a proposed project's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR, 1508.7). Guidance for implementing NEPA recommends that federal agencies identify the temporal and geographic boundaries of the potential cumulative effects of a proposed action (CEQ 1997). For the purposes of this EA, the temporal boundary of analysis is from approximately 2000 to 2017. This boundary encompasses a range within which data are reasonably available and forecasts can be reasonably made.

The geographic boundaries of analysis vary, depending on the resource and potential effects. For most resources, the ROI for cumulative impacts is the same as the ROI used for analyzing the effects from the Proposed Action and No Action Alternatives. Resources with farther-reaching impacts, such as air quality or socioeconomics, are analyzed with a more regional perspective. The analysis area is described under each resource. Specific projects that are similar in size or scope or have the potential to cumulatively affect the resources evaluated for the project are identified in Table 3-1. Some resources would be affected by several or all of the described activities, while others could be affected very little or not at all.

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
Battle Command Training Center	SBMR/WAAF	US Army	Construct a Battle Command Training Center.	Completed	Completed
Information Systems Facility	SBMR/WAAF	US Army	Construct an Information Systems Facility to support 25th Infantry Division for Army Transformation.	Completed	Completed
Army Growth and Force Structure Realignment	SBMR	US Army	Various new facilities and increase in personnel. Approximately 1,700 more personnel are scheduled to be stationed at SBMR/WAAF.	Ongoing	2013
USAG-HI FY 05 Modularity	SBMR/WAAF	US Army	Increase in personnel associated with restructuring the 25th ID headquarters elements, 3rd Brigade and Aviation Brigade to a modular force structure.	Completed	Completed
Warrior in Transition Facilities	SBMR	US Army	Construct Warrior in Transition Complex, consisting of 120-person-barracks, administration and operations space, Soldier family assistance center, and a parking structure.	To begin 2010	Unknown
Whole Barracks Renewal Program	SBMR/WAAF /HMR/TAM C	US Army	Upgrade barracks. Includes several individual projects within the WBR program, such as barracks construction and renovation and battalion headquarters.	Ongoing	2013
Stryker Brigade Combat Team Transformation	O‘ahu and Hawai‘i	US Army	Multiple construction projects and land acquisitions for converting the 2nd Brigade of the 25th ID(L) into a Stryker Brigade Combat Team.	Ongoing	2015
Headquarters and Headquarters Company (HHC) 8th MP Brigade (WGHDAA)	SBMR	USAG-HI	The HHC 8th MP Brigade (100-person organization) relocated to and reorganized at SBMR starting December 16, 2006. The project did not demolish or construct any structures.	Completed	Completed
Child Development Center	SBMR	US Army	Construct a 195-child-capacity standard design Child Development Center, measuring 22,999 square feet, for children ages 6 to 10.	Completed	Completed
Gate alignments	SBMR/WAAF	US Army	Three gate alignments at SBMR and two at WAAF.	Ongoing	Ongoing
82nd Engineering Company	SBMR/Fort Shafter	US Army	The 82nd Engineering Company moved from Korea to Hawai‘i in October 2005.	Completed	Completed

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
Prescribed burns at Army installations in Hawai‘i	MMR, SBMR (McCarthy Flats), Pohakuloa Training Area, and Dillingham Military Reservation	US Army	Conduct controlled burns of dangerous vegetation to reduce fuel load at ranges. This also facilitates unexploded ordinance clearance and surveys for cultural sites.	Ongoing	Ongoing, seasonal
Residential Communities Initiative	Army Installations on O‘ahu	US Army	8,132 housing units on seven Army installations have been transferred to Army Hawai‘i Family Housing, LLC, including 3,424 units on SBMR and 657 units on WAAF. There is ongoing construction/renovation/demolition on these installations.	Ongoing	2015
Integrated Training Area Management (ITAM)	All O‘ahu ranges	US Army	The intent of the ITAM program is to systematically provide uniform training land management capability across USAG-HI and to ensure that the carrying capacity of the training lands is maintained over time.	Ongoing	Unknown
Implementation of the Integrated Natural Resources Management Plan (INRMP)	O‘ahu	US Army	The INRMP “preserves, protects, and enhances natural and cultural resources and complies with all applicable laws and regulations, while improving the Army’s capability to conduct training and maintain military readiness.”	Ongoing	Ongoing
Implementation of the Integrated Cultural Resource Management Plan (ICRMP)	O‘ahu	US Army	The intent of the ICRMP is to preserve, protect, and enhance cultural resources. It complies with all applicable laws and regulations, while improving the Army’s capability to conduct training and maintain military readiness.	Ongoing	Ongoing
Implementation of Proposed Range and Training Land Program Development Plan actions	O‘ahu	US Army	A planning document for managing range facilities and training areas, based on Army training doctrine and resource guidance.	Ongoing	Ongoing
Improvised Explosive Device Defeat Training Lane	SBMR	USAG-HI	Use mostly existing trails and add some structures for improvised explosive device defeat training course.	2009	Completed
AAFES shoppette renovations	HMR	USAG-HI	Interior and exterior renovations to AAFES shoppette	2009	Completed

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
New barracks (68823)	SBMR	USAG-HI	Construct a barracks on Schofield Barracks for approximately 192 persons, with private vehicle parking, on a site bounded by Montague, Sutton, and Menoher, which was formerly used for family housing but is now abandoned. This would help alleviate the shortage of barracks that meet current housing standards.	2009	2012
Stryker Brigade Combat Team Transformation - Military Trail from SBMR to HMR	SBMR/HMR	US Army	Construct an approximately seven-mile-long military vehicle trail between SBMR and HMR.	2009	2010
8th Theater Sustainment Command (TSC) Motor Pool	SBMR	USAG-HI	To provide modern facilities for 8th TSC units stationed at Schofield Barracks, construct a standard design tactical vehicle maintenance facility, organizational vehicle parking, hardstand, related facilities, and site work on a vacant site near Lyman and Trimble Roads, which previously had warehouses.	2010	2013
Sewer line upgrades	SBMR/WAAF	USAG-HI	Replace sewer lines along Lyman Road and other roads at SBMR.	2010	2011
Residential Communities Initiative water tank	HMR	US Army	Construct an elevated water tank next to the existing tank to provide adequate water pressure to the family housing area at HMR.	2010	2011
Outdoor Recreation Complex	SBMR	Army nonappropriated funds (NAF)	Construct a building for outdoor recreation equipment checkout and recreational vehicle storage, a maintenance building, and a recreational vehicle storage lot. The existing recreation facility does not provide the full range of recreation services.	2010	2011
Multipurpose ball fields	SBMR	Army NAF	Construct a multipurpose athletic field, with soccer field, four softball fields, batting cages, and running path, at the athletic field area. A new announcer's building will include concessions, restrooms, and storage. The current number of athletic fields available to Schofield Barracks Soldiers and families is inadequate.	2010	2011

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
New barracks (52267)	SBMR	USAG-HI	Construct a barracks on Schofield Barracks for approximately 228 persons, with private vehicle parking, on a site bounded by Montague, Wilson, and Menoher, which was formerly used for family housing but is now abandoned. This would help alleviate the shortage of barracks spaces that meet current housing standards.	2011	2014
Upgraded Air Support Operations Center	WAAF	Air Force	Renovate and reconfigure Buildings 203 and 204, construct storage facilities, resurface motor pool pavement, add vehicle parking, and conduct site work.	2010	2012
Temporary Organizational Parking, 249th Engineering Battalion	SBMR	USAG-HI	Construct temporary parking area for 249th Engineer Battalion along Matthews Avenue. There are no permanent parking areas currently available for the 249th to accommodate their additional vehicles and equipment.	2010	2011
Regional SATCOM facility	WAAF	USAG-HI	Substandard building is scheduled for demolition. Construct satellite communications planning facility, including administrative, work, and training spaces and equipment storage.	2010	2011
Training Support Center	SBMR	USAG-HI	Construct training support center with parking lot near training areas at South Range for using simulations equipment and to provide weather protection for training equipment, which is subject to rapid deterioration if left exposed to the weather.	2011	2013
Centralized Vehicle Wash Facility	SBMR	USAG-HI	Construct a centralized vehicle wash facility near training areas at Lyman and Trimble Roads to eventually replace inefficient and inferior individual motor pool wash racks. Facility will include a tank to use recycled water.	2012	2013
New barracks (57394)	SBMR	USAG-HI	Construct a barracks on Schofield Barracks, with private vehicle parking, near Lyman Road, on a previously developed area used for motor pools. This would help alleviate the shortage of barracks spaces that meet current housing standards.	2013	2015

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
Unit Facilities (31311), Phase I	SBMR	USAG-HI	Construct standard design unit facilities to accommodate the modular force structure, on a previously developed area used for motor pools, including a 500-stall parking structure. Current facilities are inadequate.	2013	2015
Unit Facilities (52582), Phase I	SBMR	USAG-HI	Construct standard design unit facilities, including company operations facility, tactical equipment maintenance facility, unit storage, organizational parking, and related facilities and site work, including road and utility connections. Current facilities are inadequate to support the modular force structure.	2014	2018
Unit Facilities (67176), Phase II	SBMR	USAG-HI	Construct standard design unit facilities to accommodate the modular force structure on a previously developed area used for motor pools. Includes brigade headquarters, battalion headquarters, 600-space parking structure, company operations facility, tactical equipment maintenance facility, unit storage, and related site work. Current facilities are inadequate.	2014	2018
Unit Facilities (67114), Phase II	SBMR	USAG-HI	Construct standard design unit facilities, including tactical equipment maintenance facility, unit storage, organizational parking, and related facilities and site work, including road and utility connections. Current facilities are inadequate to support the modular force structure.	2014	2018
Division Headquarters Facilities, Phase I	SBMR	USAG-HI	Construct Division Headquarters operational complex, including general purpose administrative area, battalion headquarters, company operations facility, band facility, tactical equipment maintenance facility, organizational parking, parking structure, unit storage, and related site work. Renovate Building 580 on Schofield Barracks. Current facilities do not meet current facilities standards.	TBD	2017
Troop store/mini mall	SBMR	Army NAF AAFES	Construct new store.	2012	2013

Table 3-1
Cumulative Projects

Project	Related Project Location	Project Sponsor	Project Description	Project Start	Projected Completion Date
Auto Skills Center	SBMR	Army NAF	Construct auto skills center, to include 40 bays, office, storage, tool room, classroom and locker rooms. The existing auto skills center does not meet the needs of Schofield Barracks and nearby installation populations.	2013	2014
25th CAB MEDEVAC Reorganization	WAAF	USAG-HI	The 25th CAB MEDEVAC company will reorganize to meet the Army's approved design change for the Air Ambulance company. The reorganization will result in the addition of three UH-60 helicopters (Blackhawks) and 24 personnel.	2010	TBD
Restore and Modernize Leilehua Golf Course	SBMR	USAG-HI	Improvements include removing/pruning overgrown and improperly placed trees, rebuilding the cart path system, which is in severe disrepair, upgrading tee and green complexes to accommodate high use of the course, as well as making some drainage improvements.	2011	2012
Ball field complex	WAAF	USAG-HI	Construct a multipurpose athletic field, with eight softball fields and one football field.	TBD	TBD
Non-Potable Water Transmission System to Leilehua Golf Course	SBMR	USAG-HI	Construct water lines and a one-million-gallon capacity nonpotable water storage tank to provide R-1 effluent from the Schofield Barracks Wastewater Treatment Plant to the golf course for irrigation.	2012	TBD

3.2 LAND USE

The Proposed Action would result in the construction of facilities consistent with the land use goals and polices in the RPMP, as well as with state and local land use plans and policies. The Proposed Action would involve minor changes to land uses at WAAF but would not result in any changes or land use impacts on surrounding areas. Therefore, the Proposed Action would have no impact on cumulative land uses.

3.3 SOCIOECONOMICS

Past, present, and future projects would cumulatively increase economic activity and demand for services within the ROI in the short term and long term. The ROI for the cumulative impacts on socioeconomics is the overlap of the ROIs of the Proposed Action and the areas affected by the cumulative

projects listed in Table 3-1 and any other past, present, or reasonably foreseeable future action. In the short term, these projects would contribute to the regional economy through increased income, regional employment, demand for public services, and increased tax revenue through an increase in sales volume in the ROI during construction. In the long term, these projects could increase the population and subsequently sales tax revenue, notably those projects that would construct new permanent housing and Army operation facilities within the ROI. Comparatively, because the Proposed Action would create only short-term impacts during the five-year construction period and would not contribute to any notable long-term population growth, it would marginally contribute to cumulative beneficial impacts on the economy and future Army operations within the ROI.

3.4 TRAFFIC

Roadway and development projects could increase traffic or change vehicular, pedestrian, and bicycle circulation. These projects can also improve traffic flow and safety by correcting problems through engineering new traffic patterns and facilities. The Proposed Action would have long-term beneficial impacts due to the construction of a new ACP at the intersection of Kamehameha Highway and Leilehua Golf Course Road. This would be the primary entrance to the CAB Complex and the existing housing area on the southeastern portion of the installation. In addition, proposed sidewalks in the CAB development area would result in long-term beneficial impacts by providing dedicated areas for pedestrians. The projects listed in Table 3-1 are likely to result in less than significant long-term impacts on traffic and long-term beneficial impacts on pedestrian and bicycle circulation. The construction projects listed in Table 3-1 would have less than significant, short-term impacts on vehicular, pedestrian, and bicycle circulation for the duration of each construction period. Therefore, past, present, and reasonably foreseeable future actions, combined with the Proposed Action, would have less than significant and beneficial cumulative impacts on transportation and circulation. The contribution of the Proposed Action to cumulative impacts would be primarily beneficial.

3.5 NOISE

The ROI for cumulative impacts is WAAF and a one-mile buffer around it. Existing noise levels in this ROI can be relatively high, primarily due to existing aircraft operations. Noise levels within much of WAAF and some outside areas fall within the DoD Zone II noise levels (DNL levels of 65 to 75 dBA), which is slightly higher than typical urban and suburban noise levels (DNL levels of 55 to 65 dBA; Table 2.5-1). The past, present, and reasonably foreseeable future actions, when combined with the Proposed Action would not significantly alter existing noise levels in the ROI or exceed established

DoD noise levels or applicable regulatory standards and would therefore have less than significant cumulative impacts on noise levels.

3.6 AIR QUALITY

Criteria Pollutants

Cumulative air quality impacts occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of air quality impacts on a given area over a longer period. The air quality impacts of the Proposed Action are primarily due to temporary construction (operational impacts are minor). Temporary construction-related air quality issues include local fugitive dust and more regional issues related to ozone precursor emissions from construction equipment engine exhaust. Emissions from cumulative projects would affect the local area, but impacts should be minimal because the proponents of the cumulative projects are expected to use such BMPs as dust minimization to ensure that their projects comply with air quality standards. Thus, cumulative air quality impacts from the Proposed Action and other local and regional projects are considered to be less than significant.

Greenhouse Gas Emissions

GHG emissions from sources associated with the Proposed Action would combine with the GHG emissions from other cumulative projects. As noted above, state and federal agencies have not yet established impact significance criteria for GHG emissions. However, given the relatively small quantities of criteria pollutant emissions estimated for the Proposed Action, the project's GHG emissions would not significantly contribute to global climate change, and the proposed project would not contribute considerably to cumulative GHG emissions.

3.7 GEOLOGY, SOILS AND SEISMICITY

The Proposed Action includes using both temporary and permanent erosion and sediment control measures to minimize erosion impacts. Erosion and sediment control measures are expected to be applied as necessary at surrounding project locations where foreseeable land-disturbing activities would occur so as to preclude significant erosion impacts. In addition, the project is anticipated to take the appropriate measures to preclude significant impacts from expansive soils. Less than significant cumulative impacts with respect to geology, topography, and soils are expected.

3.8 WATER RESOURCES

No significant cumulative impacts on water resources are anticipated. During construction of the new CAB Complex under the Proposed Action Alternative, there would be an increased potential for water quality degradation due to silt runoff from disturbed areas at the construction site. However, implementing a SWPPP, which includes engineering BMPs for erosion control, would control localized silt runoff from reaching receiving waters. Similar measures are expected to be used at construction sites for other projects throughout the installation to preclude significant water quality degradation from construction.

3.9 HAZARDOUS MATERIALS

Cumulative projects would comply with applicable regulations and policies governing hazardous materials. Therefore, there would be no cumulative impacts on hazardous materials from conflicts with applicable regulations.

The increase in hangar and operational space would have cumulative impacts on the quantity of hazardous materials generated at WAAF but would not alter the type of hazardous materials. These impacts would be similar to those described above. Similarly, less than significant long-term impacts are expected as facilities modernization would streamline the waste processing systems currently in place. To minimize long-term impacts, the proposed project would implement BMPs that include using proper handling, transport, and usage of hazardous materials, such as testing and removing potential lead-impacted buildings and removing and replacing transformers potentially containing PCBs.

3.10 UTILITIES

Past, present, and future projects would cumulatively increase the demand for public services and utilities necessary to support the proposed CAB Complex at WAAF in the short term and long term. The ROI for the cumulative impacts on public services and utilities is the overlap of the ROIs of the Proposed Action and the areas affected by the cumulative projects listed in Table 3-1 and any other past, present, or reasonably foreseeable future action. The Proposed Action and cumulative projects would increase energy and potable water consumption, wastewater generation, stormwater generation, solid waste generation, and demands on communication systems. However, significant cumulative impacts are not anticipated because the Army is expected to ensure that the capacity of infrastructure systems is not exceeded by upgrading existing and constructing new critical infrastructure where existing infrastructure would not be sufficient to meet anticipated utility demand, for example, adding a new substation to meet the cumulative demand for

electricity. Additionally, including BMPs, such as porous pavement, evaporation detention ponds, and bio swales to reduce stormwater runoff, would also mitigate cumulative impacts.

Presumably, the projects listed in Table 3-1 would not occur without environmental review to identify mitigation for these, and potentially other, issues. When compared to the cumulative projects list, the Proposed Action would increase the demand for public services and utilities in the short term and long term, but this demand would be met during Phase 1 of the Proposed Action, thereby making the Proposed Action's contribution to cumulative impacts less than significant.

3.11 BIOLOGICAL RESOURCES

The biological uniqueness of Hawai'i is under constant pressure from development, construction, and general human pressures, which individually and collectively hasten the deterioration of native landscapes and forests. Declines in native habitats, no matter how minor, contribute in a proportionally meaningful way, with adverse consequences to vegetation and wildlife. Less than significant adverse cumulative effects are expected over time due to this trend toward general decline of native habitats, vegetation, and wildlife species, largely resulting from continued available habitat loss.

Because the assumption is that the Army would follow identified protocols to protect biological resources, there also is an assumption that cumulative projects would comply with applicable regulations and policies governing biological resources; therefore, there would be no cumulative impacts on biological resources from conflicts with natural resource regulations. The cumulative projects would likely increase activity within the area and may involve construction, an increase in human presence, noise, erosion, dust, and a continued removal of habitat, even if it is already disturbed. These impacts would be adverse for biological resources. The ROI does not have any special status biological resources and is already highly disturbed and developed; however, the health of the overall environment and increases in any degradation of habitat may contribute cumulatively to the success of biological resources. Impacts on these resources would likely be less than significant because the biological resources affected by the Proposed Action alternatives are limited, so its contribution to the overall cumulative impact would be minor.

Cumulative impacts would be greater if the cumulative projects were to involve new activities on high-value habitat, instead of on disturbed, existing redeveloped areas, which would create little change to an area's current habitat.

Therefore, cumulative impacts could range from less than significant, if developed areas were redeveloped, to significant, if undeveloped high-value areas were developed. The Proposed Action alternatives would not, in any case, cause the significance level to rise above a less than significant status.

3.12 CULTURAL RESOURCES

In general, projects involving construction, demolition, and ground-disturbing activities, such as the Child Development Center at SBMR or Residential Communities Initiative on O‘ahu, have the potential to impact architectural, archaeological, and traditional/ethnographic resources. Other projects, such as those included in the INRMP and ICRMP for installations on O‘ahu, present opportunities to protect, preserve, and enhance cultural resources. Still others, such as prescribed burns at Army installations, present a balance of impact and protection potential for archaeological and traditional/ethnographic resources.

No significant cumulative impacts on cultural resources are anticipated as a result of the Proposed Action. During construction of the new CAB Complex, there would be potential for an adverse and possibly significant impact on cultural resources. However, implementing the mitigation measure for inadvertent discoveries described above would reduce that potential. Similar measures are expected to be used at construction sites for other projects throughout the Hawai‘i installations to preclude significant cultural resources impacts.

3.13 VISUAL RESOURCES

Cumulative projects would comply with applicable regulations and policies governing visual resources; therefore, there would be no cumulative impacts on visual resources from conflicts with visual resource regulations.

Cumulative projects would have cumulative impacts on the visual character of sites and surroundings from demolition and construction. These impacts are similar to those described above. Similarly, less than significant long-term impacts are expected as views would be disrupted with the new CAB Complex. BMPs would be implemented to reduce impacts associated with disrupting views.

Cumulative projects would have cumulative impacts on the visual character of sites and surroundings, scenic views, and light and glare from operations. These impacts are similar to those described above. To minimize long-term impacts from lighting and glare, the Proposed Action would include such BMPs as using proper outdoor lighting design, for example, shrouding outdoor lights to keep them from illuminating unnecessary areas and equipping certain outdoor

lights with motion detectors to provide light only when necessary. Therefore, less than significant impacts from light and glare are anticipated.

As undeveloped areas are developed, the sprawl across the natural landscape of human-made structures and modifications becomes more pronounced. The conversion of the natural landscape to a built environment is further aggravated when undeveloped areas become limited and land use designations are revised to allow for continued development of undeveloped areas. The finite amount of visual resources is more evident on the Hawaiian Islands, where land is limited, than in the continental United States. Although short- and long-term adverse cumulative effects could occur, island-wide impacts and the conversion of undeveloped areas to developed areas and the subsequent loss of local aesthetics and visual resources would be more substantial. The proposed alternatives would not, in any case, cause the significance level to rise above a less than significant status.

3.14 ENVIRONMENTAL JUSTICE

When compared to past, present, and reasonably foreseeable actions, the Proposed Action would not have any impact on minority or low-income populations and would not contribute to a cumulative impact on environmental justice. Further, the Proposed Action would not contribute to any adverse impacts relating to the endangerment of children. Although, there has always been a gap between the cost of living and average family income in Hawai‘i, with nearly 10.4 percent of the population living in poverty (Table 2.14-2), this gap would persist despite implementation of the Proposed Action, and Hawai‘i would continue to rank high in quality of life studies due to its natural environment.

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SECTION 4:

OTHER REQUIRED NEPA ANALYSIS

CHAPTER 4
OTHER REQUIRED NEPA ANALYSES

4.1 INTRODUCTION

In addition to the analyses discussed in Chapter 2, NEPA requires additional evaluation of the project's impacts with regard to the following:

- The relationship between local short-term uses of the environment and long-term productivity and
- Any irreversible or irretrievable commitment of resources.

NEPA also requires that an EA include a discussion of the agencies consulted during preparation of the document.

4.2 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Short-term damage to the environment from the Proposed Action would be limited. No significant impacts were identified. The long-term productivity of the Proposed Action is based on the Army's mission, specifically its duty under transformation. Any measurement of long-term productivity in this context must include the overriding importance of national defense and the Army's obligation to adapt to changing national security needs. While the Army will take whatever actions are reasonable and practicable to preserve and protect the natural environment under its stewardship, the necessity of national defense requires the Army to provide the nation with capabilities that meet current and evolving national defense requirements. The Proposed Action is designed to help the Army meet these goals and further the security and welfare of the United States, its residents, and its natural environment.

4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires an analysis of the extent to which the proposed project's primary and secondary effects would commit nonrenewable resources to uses that would be irretrievable to future generations.

Implementing the Proposed Action would require committing both renewable and nonrenewable energy and material resources for the construction of the CAB Complex, such as the fuel used by construction vehicles, the materials necessary to construct the CAB facilities, and the resources necessary to maintain and operate the various facilities in the complex.

4.4 AGENCY CONSULTATION

The following agencies have been consulted during preparation of this document:

- Hawai'i State office of Planning, Coastal Zone Management Program (Coastal Zone Management Act Negative Determination Letter provided in Appendix A of this document) and
- Hawai'i State Historic Preservation Officer/Office of Hawaiian Affairs (letters are included in Appendix C).

SECTION 5:

REFERENCES

CHAPTER 5
REFERENCES

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SECTION 6:

LIST OF PREPARERS

CHAPTER 6
LIST OF PREPARERS

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APPENDIX A

COASTAL ZONE MANAGEMENT ACT NEGATIVE DETERMINATION LETTER

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND, PACIFIC REGION
HEADQUARTERS, UNITED STATES ARMY GARRISON, HAWAII
851 WRIGHT AVENUE, WHEELER ARMY AIRFIELD
SCHOFIELD BARRACKS, HAWAII 96857-5000

REPLY TO
ATTENTION OF:

Office of the Garrison Commander

Mr. Abbey Seth Mayer
Office of Planning
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu, Hawai‘i 96804-2359

RE: Hawai‘i Coastal Zone Management Program—Proposed Construction and Use of a US Army Combat Aviation Brigade Complex, Wheeler Army Airfield

Dear Mr. Mayer:

In accordance with Section 307 of the Coastal Zone Management Act of 1972 (16 USC, Section 1456), the United States Army has determined that constructing aviation support facilities at Wheeler Army Airfield (WAAF) would not affect the coastal zone and therefore does not require a consistency determination regarding the Hawai‘i Coastal Zone Management Program (CZMP). This letter and the enclosed Environmental Assessment (EA) serve as a Coastal Consistency Negative Determination, as required by the National Oceanic and Atmospheric Administration regulations for federal consistency with approved coastal management programs (15 CFR, 930).

Background The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and addresses in detail the potential impacts on environmental resources. The US Army Garrison, Hawai‘i (USAG-HI) is the lead agency on this proposed project. The project would occur at WAAF on O‘ahu land that is wholly owned or leased by the US Army. Following issuance of the EA and the draft Finding of No Significant Impact, a 30-day period for public review and comment would occur.

Project Description The USAG-HI proposes to construct new facilities at WAAF to accommodate the Combat Aviation Brigade (CAB), in accordance with the current requirements of the US Army Modified Table of Organization and Equipment for CAB units and Real Property Planning and Analysis System. The project would involve infrastructure upgrades, including those to stormwater drainage, sewer, irrigation, landscaping, and utilities. New or updated facilities would include aviation maintenance hangars, a flight control tower, hazardous materials and fuel storage buildings, barracks, a dining facility, and support facilities. These facilities would be constructed in seventeen phases, scheduled to begin in 2012 and be completed by 2017. The

improvements would provide for working and training facilities to be near housing to improve operations and maximize energy efficiency.

Documentation and Analysis The Army has prepared extensive documentation and analyses to comply with the requirements of NEPA, the National Historic Preservation Act, the Endangered Species Act, and other federal, state, and local laws. The CZMP policy areas are addressed in the following EA sections:

CMP	**EA**
Recreational resources	Land use
Historic resources	Cultural resources
Open space and scenic resources	Land use, visual resources
Coastal ecosystems	Biological resources, water resources
Economic uses	Socioeconomics
Coastal hazards	Geology, soils, and seismicity
Managing development	Land use
Public participation	Public involvement
Coastal protection	Geology, soils and seismicity; water resources
Marine resources	Biological resources, water resources

These sections document that any potential impacts on resources under the Proposed Action would be limited to the WAAF and would not affect coastal resource areas.

Conclusion The USAG-HI has determined that implementing the proposed project at WAAF on O‘ahu, in Hawai‘i, would be consistent with the Hawai‘i CZMP. We request a letter of concurrence with our findings. In accordance with 15 CFR, Section 930.41, the Hawai‘i CZMP has 60 days from receipt of this letter in which to concur with or object to this Negative Determination, or to request an extension in writing, under 15 CFR, Section 930.41(b). If additional information is required, please contact William Rogers at (808) 656-3075 or william.rogers5@us.army.mil.

Douglas S. Mulbury
Colonel, US Army
Commanding

Enclosure

APPENDIX B

RECORD OF NONAPPLICABILITY

APPENDIX B

RECORD OF NONAPPLICABILITY FOR
COMBAT AVIATION BRIGADE ACTIONS
AT WHEELER ARMY AIRFIELD

The United States Army Garrison, Hawai‘i proposes to construct and operate new facilities for the US Army 25th Infantry Division Combat Aviation Brigade, in accordance with the specifications of the Area Development Plan at Wheeler Army Airfield on the Island of O‘ahu, Hawai‘i.

The proposed Army action has been evaluated for compliance with Section 176(c) of the Clean Air Act (42 United States Code, 7506) and with the United States Environmental Protection Agency (EPA) rule promulgated at 40 Code of Federal Regulations (CFR), Part 93. The requirements and procedures set forth in the EPA general conformity rule apply only to federal agency actions undertaken in locations designated as nonattainment or maintenance areas for one or more of the federal ambient air quality standards (40 CFR, 93.153[b]).

Wheeler Army Airfield is on the island of O‘ahu, Hawai‘i. All portions of Hawai‘i are classified as attainment or attainment/unclassifiable for each of the federal ambient air quality standards (40 CFR, 81.312). Therefore, in accordance with 40 CFR, 93.153(b), I find that the requirements of the EPA general conformity rule are not applicable to the proposed Army action.

Signature: _____

Date: _____

APPENDIX C

SHPO LETTER

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND, PACIFIC REGION
HEADQUARTERS, UNITED STATES ARMY GARRISON, HAWAII
851 WRIGHT AVENUE, WHEELER ARMY AIRFIELD
SCHOFIELD BARRACKS, HAWAII 96857-5000

REPLY TO ATTENTION OF:

Office of the Garrison Commander

Mr. William Aila
State Historic Preservation Officer
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Aila:

The Office of the Garrison Commander, United States Army Garrison-Hawaii (USAG-HI) is writing to open consultation with your office pursuant to Section 106 of The National Historic Preservation Act of 1966, as amended (16 USC 470f), on the proposed construction of the Army's new Combat Aviation Brigade (CAB) complex at Wheeler Army Airfield on the Island of Oahu, Hawaii. The TMK designation for WAAF is 1-7-7-1. Wheeler Army Airfield has a National Historic Landmark District that was created by the National Park Service in 1986-87 when a thematic series of districts were created associated with World War II history and the attack on Oahu by the Empire of Japan on the 7 December 1941. The period of significance for the installation has been identified as 1927-1945.

The new complex is proposed to expand the capacities of the aviation brigade by constructing new site infrastructure, aviation maintenance and storage hangars, aircraft maintenance aprons, company operation facilities, rotary parallel taxiway, tactical equipment maintenance facilities, barracks, hot refueling pads, parking areas, dining facility, central plant, flight control tower, remote switch center, and an access control point. The new complex will be located across the existing runway from the 1932 hangars southwest of the cantonment area of WAAF.

The design of the complex of buildings is still in the conceptual phase. The Army will continue to consult on the project as the plans become more developed. It is anticipated now that due to the distance away from the National Historic Landmark District, that the new complex will have no negative impacts, direct or visual, on the district. The Army intends to provide a view plane study to assist in the consultation process. A copy of the conceptual layout is included for your review (Enclosure 1). Currently, the Army intends to use the existing hangars in the Landmark district for the aviation brigade in addition to the new complex. If during the planning phase of this undertaking new uses of the Landmark district buildings are proposed, the Army will develop a Programmatic Agreement for their rehabilitation.

The Army has also commissioned an Environmental Assessment (EA) to fulfill the agency obligations under the National Envrionmental Protection Act of 1969. A copy of the EA will be forwarded to your office once the final draft is compiled. We look forward to working with you in this new endeavor to the completion of this project.

If you have any questions, please contact Kenneth Hays at 808-655-9709 or Dr. Laurie Lucking at 808-655-9707.

Sincerely,

Douglas S. Mulbury
Colonel, US Army
Commanding

Enclosures