

Supplemental Draft Environmental Impact Statement

MILITARY TRAINING ACTIVITIES AT MĀKUA MILITARY RESERVATION, HAWAI‘I

Volume 1 - Text



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Prepared for:

25th Infantry Division and US Army, Hawai‘i

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FINAL ENVIRONMENTAL IMPACT STATEMENT

A **LIST OF ACRONYMS** is provided at the beginning of the document following the table of contents.

An **EXECUTIVE SUMMARY** briefly describes the proposed action, alternatives, environmental and socioeconomic consequences, and mitigation measures.

CHAPTER 1 PURPOSE, NEED, AND SCOPE describes the purpose and need for the proposed action and outlines the scope of the analysis presented in this document.

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES describes the proposed action of military training and identifies alternatives to achieve the proposed action.

CHAPTER 3 AFFECTED ENVIRONMENT describes existing environmental and socioeconomic conditions at the project location and within the region of influence.

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES identifies and describes the environmental and socioeconomic impacts of implementing the project alternatives and presents available mitigation measures.

CHAPTER 5 CUMULATIVE PROJECTS AND IMPACTS identifies and describes the impacts of the proposed action when combined with other past, present, and reasonably foreseeable future actions.

CHAPTER 6 OTHER REQUIRED ANALYSIS provides additional evaluation of the project alternatives regarding significant unavoidable adverse impacts, the relationship between short-term uses and long-term productivity, and any irreversible or irretrievable commitment of resources.

CHAPTER 7 REFERENCES provides bibliographic information for sources cited in the text of the document.

CHAPTER 8 CONSULTATION AND COORDINATION lists the persons and agencies that provided information to the preparers of this document.

CHAPTER 9 LIST OF PREPARERS identifies the people who prepared the document and their disciplines.

CHAPTER 10 GLOSSARY AND INDEX provides definitions of selected terms used in the document and lists the pages on which key terms are used.

CHAPTER 11 DISTRIBUTION LIST identifies recipients of the Final EIS.

APPENDICES are provided in Volumes 2, 3, and 4.

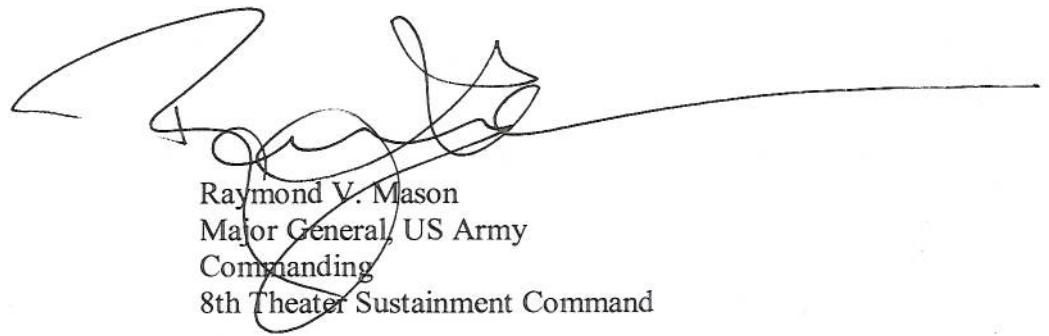
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DEPARTMENT OF THE ARMY

**Supplemental Draft Environmental Impact
Statement**

**Military Training Activities
At Makua Military Reservation**

APPROVED BY:



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DEPARTMENT OF THE ARMY

**Supplemental Draft Environmental Impact
Statement**

**Military Training Activities
At Makua Military Reservation**

APPROVED BY:



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SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Military Training Activities at Mākua Military Reservation, Hawai‘i

Abstract

This Environmental Impact Statement (EIS) addresses the Army's proposed military training activities in the State of Hawai‘i. The 25th Infantry Division (25th ID) and US Army (Army), Hawai‘i are the lead agencies for this Proposed Action. This document has been developed in accordance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ, 40 Code of Federal Regulations [CFR] Parts 1500 to 1508) and the Army (32 CFR Part 651) of the EIS assesses the potential environmental and socioeconomic impacts of the Proposed Action and alternatives at Mākua Military Reservation (MMR) and Pōhakuloa Training Area (PTA).

The Army's Proposed Action is to conduct the necessary type, level, duration, and intensity of live-fire and other military training exercises, in particular company-level combined-arms, live-fire exercises (CALFEXs) and convoy live-fire exercises (LFXs) for the combat units assigned to the 25th ID and for other military units to maintain the combat readiness of those units. The purpose of the Proposed Action is to enable the military in the State of Hawai‘i to achieve and maintain readiness for immediate deployments. The Proposed Action is needed because there are no existing training areas in the State, outside of MMR, that are currently configured and available to support a company-level CALFEX. The necessary criteria to support military training at this level are adequate range capacity, adequate range design, quality of life (proximity to home station), and time and cost.

Five alternatives are evaluated in this EIS: the No Action Alternative and four alternatives to achieve the Proposed Action. All project alternatives would involve training for up to 242 days each year, with utilization of weapons systems similar to those used under past training conditions at MMR.

The No Action Alternative involves no live-fire training at MMR. The Army would conduct reduced management activities. The No Action Alternative is the environmentally preferable alternative.

Alternative 1 (Reduced Capacity Use with Some Weapons Restrictions) involves use of MMR for maneuver training, air assaults, sniper training, convoy training, demolitions training, and as a staging base for ground or air movement. The Army would conduct 19 to 28 company-level CALFEXs and 100 convoy LFXs.

Alternative 2 (Full Capacity Use with Some Weapons Restrictions) involves use of MMR similar to that under Alternative 1. However, the Army would conduct up to 50 company-level CALFEXs using tracer ammunition and 200 convoy LFXs.

Alternative 3 (Full Capacity Use with Fewer Weapons Restrictions) involves use of MMR similar to that under Alternative 2. In addition, the Army would use inert, tube-launched, optically tracked, wire-guided (TOW) missiles, 2.75-caliber rockets, and illumination munitions. This alternative would also involve the use of an expanded training area at MMR. The Army would conduct up to 50 company-level CALFEXs using tracer ammunition and 200 convoy LFXs. Alternative 3 is the Army's preferred alternative.

Alternative 4 (Full Capacity Use with Fewer Weapons Restrictions) PTA represents the same weapons and intensity usage as Alternative 3.

Some of the major potential impacts discussed in the EIS are associated with contamination of soil; surface water and groundwater quality; air quality; cultural sites; natural resources; endangered and threatened species; noise; recreational resources; wildfires; and the safety and transport of munitions through the Wai‘anae community.

Individuals and organizations are invited to access information on the Army's Web site established for this EIS at http://www.garrison.hawaii.army.mil/makuaeis .	For further information or to request a copy of the SDEIS, please contact the U.S. Army Garrison, Hawaii, ATTN: Public Affairs Office, U.S. Army Garrison-Hawaii, 742 Santos Dumont, WAAF, Schofield Barracks, HI 96857. A copy may also be requested by e-mail at usaghipaomakuaEIS@hawaii.army.mil or by facsimile at (808) 656-3162.
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List of Acronyms

Acronym	Full Phrase
25th ID	25th Infantry Division
25th ID(L)	25th Infantry Division (Light)
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACUB	Army Compatible Use Buffer
ADNL	A-weighted day-night average sound level
AFB	Air Force Base
AFS	Army Facility Strategy Program
AGL	above ground level
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AMSL	above mean sea level
AR	Army Regulation
ARPA	Archaeological Resources Protection Act
ARTEP	Army Training and Evaluation Program
AST	aboveground storage tank
ATI	Area of Traditional Importance
ATSC	Army Training Support Center
BA	Biological Assessment
BAAF	Bradshaw Army Airfield
BASH	Bird/Animal Strike Hazard
BAX	battle area complex
BCC	Birds of Conservation Concern
bgs	below ground surface
BHC	benzene hexachloride
BLS	Bureau of Labor Statistics
BMP	Best Management Practice
BO	Biological Opinion
BSA	biologically significant area
BTEX	benzene, toluene, ethylbenzene, and xylene
BWS	Board of Water Supply
CAA	Clean Air Act
CACTF	Combined-Arms Collective Training Facility
CALFEX	Combined-Arms Live-Fire Exercise
CCAAC	Company Combined-Arms Assault Course
CCD	Census County Division
CDNL	C-weighted day-night average sound level
CEMML	Center for Ecological Management of the Military Lands

List of Acronyms

Acronym	Full Phrase
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHPPM	Center for Health Promotion and Preventive Medicine
cm	centimeter
CNEL	Community Noise Equivalent Level
CMETL	Core Mission Essential Task List
CO	carbon monoxide
CONUS	Continental United States
CREL	Cold Regions Experimentation Lab
CTC	Combat Training Center
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DA PAM	Department of the Army Pamphlet
dB	decibel
dBA	A-weighted decibel
dbc	C-weighted decibel
dBf	unweighted decibel
dBp	linear decibel
DBEDT	Department of Business, Economic Development, and Tourism
DHL	Department of Hawaiian Homelands
DLNR	Department of Land and Natural Resources
DMETL	Directed Mission Essential Task List
DMR	Dillingham Military Reservation
DNL	Day-Night Average Sound Level
DNT	dinitrotoluene
DoD	Department of Defense
DoD HITS	Department of Defense Hawai‘i Information Transfer System
DOE	Department of Energy
DOFAW	Division of Forestry and Wildlife
DOT	Department of Transportation
DP	District Planning
DPTM	Directorate of Plans, Training, and Mobilization
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
DRMO-HI	Defense Reutilization and Marketing Office, Hawai‘i
DTO	Division Transportation Office

List of Acronyms

Acronym	Full Phrase
DTS	Division of Traffic Safety
DU	depleted uranium
DuSMMoP	Dust and Soils Mitigation Monitoring Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
ELF-EMF	extremely low frequency electromagnetic field
EMF	electromagnetic field
ENMP	Environmental Noise Management Program
EOD	explosive ordnance disposal
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EXO	exploded ordnance
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FARRP	Forward Area Rarm and Refuel Point
FARSITE	Fire Area Simulator
FICUN	Federal Interagency Committee on Urban Noise
FIRM	Flood Insurance Rate Map
FM	Field Manual
FMTV	Family of Medium Tactical Vehicles
FNSI	Finding of No Significant Impact
FTI	Fixed Tactical Internet
FY	fiscal year
GIS	geographic information system
gpm	gallons per minute
HAP	hazardous air pollutant
HCM	Highway Capacity Manual
HCZMP	Hawai‘i Coastal Zone Management Program
HDOH	Hawai‘i Department of Health
HE	high explosive
HINHP	Hawai‘i Natural Heritage Program
HMCC	Hazardous Materials Control Center
HMMWV	High mobility multi-purpose wheeled vehicle
HMX	octagen (Octohydro-1,3,5,7-tetranito-1,3,5,7-tetrazocine
HPP	Historic Preservation Plan
HQDA	Headquarters, Department of the Army
HUD	Department of Housing and Urban Development
HWSSP	hazardous waste shop storage point

List of Acronyms

Acronym	Full Phrase
Hz	hertz
I3A	Installation Information Infrastructure Architecture
IBCT	Infantry Brigade Combat Team
ICM	improved conventional munitions
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
IED	improvised explosive device
IFR	instrument flight rule
INRMP	Integrated Natural Resources Management Plan
IPBC	Infantry Platoon Battle Course
ISBC	Infantry Squad Battle Course
ITAM	Integrated Training Area Management
ITE	Institute of Transportation Engineers
IWFMP	Integrated Wildland Fire Management Plan
JRTC	Joint Readiness Training Center
L ₀₅	dB level exceeded 5 percent of the time
L ₁₀	dB level exceeded 10 percent of the time
L ₃₃	dB level exceeded 33 percent of the time
L ₅₀	dB level exceeded 50 percent of the time
L ₉₀	dB level exceeded 90 percent of the time
L ₉₅	dB level exceeded 95 percent of the time
LAW	light anti-tank weapon
LBP	lead-based paint
LCA	Land Commission Award
Ldn	Day-Night Average Sound Level
Leq	Equivalent Sound Level
LFAM	live fire and maneuver
LFX	live fire exercise
Lmax	Maximum Sound Level
Lmin	Minimum Sound Level
LMTV	Light Medium Tactical Vehicle
LRLTP	Long Range Land Transportation Plan
LOS	level of service
LSV	Logistic Support Vessel
LUPZ	Land Use Planning Zone
µg/m ³	micrograms per cubic meter
µg/g	microgram per gram, or part per million
µg/kg	microgram per kilogram

List of Acronyms

Acronym	Full Phrase
µg/L	microgram per liter
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Limit
METL	Mission Essential Task List
mg/kg	milligrams per kilogram
MGD	million gallons per day
MILES	Multiple Integrated Laser Engagement System
MIP	Mākua Implementation Plan
MIT	Mākua Implementation Team
mm	millimeter
MMPA	Marine Mammal Protection Act
MMR	Mākua Military Reservation
MOPM	Modular Packed Mine System
MOU	Memorandum of Understanding
MOUT	military operations on urbanized terrain
mph	miles per hour
MPRC-L	Multipurpose Range Complex – Light
msl	mean sea level
MU	management unit
MW	monitoring well
NAAQS	National Ambient Air Quality Standards
NACO	National Aeronautical Charting Office
NAGPRA	Native American Graves Protection and Repatriation Act
NAR	Natural Area Reserve
NARS	Natural Area Reserve System
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NIH	National Institutes of Health
NO	nitric oxide
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
NOI	Notice of Intent
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTC	National Training Center

List of Acronyms

Acronym	Full Phrase
NWCG	National Wildlife Coordinating Group
O ₃	ozone
OAQPS	Office of Air Quality Planning and Standards
OB/OD	Open Burn/Open Detonation
OE	Ordnance and Explosives
OIF/OEF	Operation Iraqi Freedom/Operation Enduring Freedom
ONR	Office of Naval Research
PA	Programmatic Agreement
PAH	polyaromatic hydrocarbon
PCBs	polychlorinated biphenyls
PCE	passenger car-equivalent
pCi/L	picocuries per liter
PCPI	per capita personal income
PCSU	Pacific Cooperative Studies Unit
PDC	Pacific Disaster Center
PIP	Pōhakuloa Implementation Plan
PLS	palletized loading system
PM ₁₀	inhalable particulate matter (10 microns)
PM _{2.5}	fine particulate matter (2.5 microns)
POLs	petroleum, oils, and lubricants
POV	privately owned vehicle
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
PRG	Preliminary Remediation Goal
PSD	Prevention of Significant Deterioration
PTA	Pōhakuloa Training Area
PTRCI	Property of Traditional Religious and Cultural Importance
PU	population unit
RAWS	Remote Automated Weather Stations
RCRA	Resource Conservation and Recovery Act
RDX	Cyclotrimethylenetrinitramine (Royal Demolition Explosive)
RFMSS	Range Facility Management Support System
ROC	reactive organic compound
ROD	Record of Decision
ROG	reactive organic gas
ROI	region of influence
rpm	revolutions per minute

List of Acronyms

Acronym	Full Phrase
RTLP	Range and Training Land Program
SAW	squad automatic weapon
SBCT	Stryker Brigade Combat Team
SBER	Schofield Barracks East Range
SBMR	Schofield Barracks Military Reservation
SDZ	surface danger zone
SEA	Supplemental Environmental Assessment
SEL	Sound Exposure Level
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMA	Special Management Area
SMAW	shoulder-launched multipurpose assault weapon
SOC	Species of Concern
SOP	standard operating procedure
SR	State Route
SRB	spotter round body
SRTA	short-range training ammunition
STRAC	Standards in Training Commission
SVOC	semivolatile organic compound
TC	Training Circular
TCDD	tetra-chloro dibenzo-p-dioxin
TMDL	Total Maximum Daily Load
TNT	Trinitrotoluene
TOW missile	tube-launched, optically tracked, wire-guided missile
TS	threshold shift
TSP	total suspended particulates
TSDF	treatment, storage, or disposal facility
TTS	temporary threshold shift
UAV	unmanned aerial vehicle
UCL	upper confidence limit
US	United States
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Center
USAG-HI	US Army Garrison - Hawai‘i
USARHAW	US Army Hawai‘i
USC	United States Code
USCENTCOM	US Central Command
USFWS	US Fish and Wildlife Service

List of Acronyms

Acronym	Full Phrase
USGS	US Geological Survey
USMC	US Marine Corps
UST	underground storage tank
UXO	unexploded ordnance
VFR	visual flight rules
VOC	volatile organic compound
VTC	vehicle type classification
WAAF	Wheeler Army Airfield
WCCHC	Wai‘anae Coast Comprehensive Health Center
WFMP	Wildland Fire Management Program
WPAA	West PTA Acquisition Area
YTC	Yakima Training Center