

## **CHAPTER 8 CONSULTATION AND COORDINATION**

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**CHAPTER 10 ACRONYMS, ABBREVIATIONS, AND MEASUREMENTS****10.0 ACRONYMS, ABBREVIATIONS, AND MEASUREMENTS****10.1 ACRONYMS AND ABBREVIATIONS****A**


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A&M	Artillery and Mortar
AAA	Anti-Aircraft Artillery
AAFP	Anti-Armor Firing Point
AALFTR	Anti-Armor Live fire and Tracking Range
AAR	After Action Review
AAS	Analysis of Alternatives Study
AC	Active Component
ACC/MVM	Accidents per Million Vehicle miles
ACGIH	American Conference of Governmental Industrial Hygienists
ACHP	Advisory Council on Historic Preservation
ACM	Advanced Cruise Missile
ADNL	A-Weighted Day-Night Average Sound Level
ADT	Average Daily Traffic
AEDB-R	Army Environmental Database- Restoration
AGL	Above Ground Level
AGR	Aerial Gunnery Range
AHA	Ammunition Holding Area
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AIROPS	Aircraft Operations Support
AMRP	Army Master Range Plan
AMSL	Above Mean Sea Level
AOR	Area of Responsibility
APE	Area of Potential Effect
AR	Army Regulation
ARFORGEN	Army Force Generation
ARPA	Archaeological Resources Protection Act
ARRA	American Recovery and Reinvestment Act
ARRM	Army Range Requirements Model

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ASMEX	Air-to-Surface Missile Exercises
ASP	Ammunition Supply Point
ASW	Anti-Submarine Warfare
ATC	Aberdeen Test Center
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATS	Army Training Strategy
ATSC	U.S. Army Training Support Center
ATSDR	Agency for Toxic Substances and Disease Registry

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**B**


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BA	Biological Assessment
BAAF	Bradshaw Army Airfield
BAX	Battle Area Complex
BCT	Brigade Combat Team
BI	Burning Index
BMP	Best Management Practice
BNOISE	Blast Noise Model
BO	Biological Opinion
BOMBEX	Bombing Exercise
BP	Before Present

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**C**


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C2	Command and Control
CAA	Clean Air Act
CAB	Combat Aviation Brigade
CAC	Cultural Advisory Committee
CAC-T	Combined Arms Center-Training
CACTF	Combined Arms Collective Training Facility
CAL	Caliber
CALFAM	Combined Arms Live-fire and Maneuver
CALFEX	Combined Arms Live-fire Exercises
CAPT	Captain
CAS	Close Air Support

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CASEX	Close Air Support Exercise
CATEX	Categorical Exclusion
CATS	Combined Arms Training Strategy
CCD	Census County Division
CDNL	C-Weighted Day-Night Average Sound Level
CDS	Container Delivery System
CEMML	Center for Environmental Management of Military Lands
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Responsibility, Compensation, and Liability Act
CFA	Controlled Firing Areas
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CHPPM	Army Center for Health Promotion and Preventive Medicine
CIP	Capital Improvement Project
CLF	Convoy Live fire
CMP	Comprehensive Management Plan
CMU	Concrete Masonry Unit
CNEL	Community Noise Equivalent Level
CNS	Central Nervous System
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent
COL	Colonel
CPQC	Combat Pistol Qualification Course
CQM	Close Quarters Marksmanship
CS	Combat Support
CSO	Caltech Submillimeter Observatory
CSS	Combat Service Support
CSU	Colorado State University
CTC	Combat Training Centers
CWA	Clean Water Act
CWB	Clean Water Branch
CZMA	Coastal Zone Management Act

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CZMP	Coastal Zone Management Program
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**D**


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DA	Department of Army
DA PAM	Department of the Army Pamphlet
DCS	Deputy Chief of Staff
DFAC	Dining Facility
DHHL	Department of Hawaiian Homelands
DLNR	Department of Land and Natural Resources
DNA	deoxyribonucleic acid
DNL	Day-Night Average Sound Level
DNT	Dinitrotulene
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DOE	Department of Energy
DOI	Department of the Interior
DOL	Directorate of Logistics
DOT	Department of Transportation
DPW	Department of Public Works
DU	Depleted Uranium

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**E**


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EA	Environmental Assessment
ECO	Environmental Compliance Office
EERI	Earthquake Engineering Research Institute
EIFS	Economic Impacts Forecast Model
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act of 2007
EMCS	Energy Monitoring Control Systems
ENMP	Environmental Noise Management Program
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency

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EPNL	Effective Perceived Noise Level
ESA	Endangered Species Act
EW	Electronic Warfare

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**F**


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FAA	Federal Aviation Administration
FAARP	Forward Area Arming and Refueling Point
FAR	Federal Aviation Regulations
FARP	Forward Arming and Refueling Point
FCC	Facility Use Category Code
FD	Fire Department
FDRS	Fire Danger Rating System
FEMP	Federal Energy Management Program
FEWR	Facilities Engineers Work Request
FFAR	Folding Fin Aerial Rocket
FICUN	Federal Interagency Committee on Urban Noise
FIDLER	Field Instrument for the Detection of Low Energy Radiation
FIRM	Flood Insurance Rate Map
FL	Flight Level
FM	Field Manual
FNSI	Findings of No Significant Impact
FOB	Forward Operating Base
FSO	Full Spectrum Operations
FTI	Fixed Tactical Internet
FUDS	Formerly Used Defense Site
FY	Fiscal Year

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**G**


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GA	General Aviation
GANDA	Garcia and Associates
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GM	Geiger-Mueller
GPS	Global Positioning System
GUNEX	Air-to-Ground Exercise
GWP	Global Warming Potential

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**H**


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HAAT	High Altitude Aviation Training
HAMET	High Altitude Mountainous Environment Training
HAPE	Hawaiian petrels
HAPs	Hazardous Air Pollutants
HAR	Hawai'i Administrative Rules
HC	Hydrocarbons
HCPD	Hawai'i County Police Department
HDBEDT	Hawai'i Department of Business, Economic Development, and Tourism
HDLNR	Hawai'i Department of Land and Natural Resources
HDOH	Hawai'i Department of Health
HDOT	Hawai'i Department of Transportation
HE	High Explosive
HELCO	Hawaiian Electric Light Company
HEMTT	Heavy Expanded Mobility Tactile Truck
HETS	Heavy Equipment Transporter System
HHB	Hawaiian hoary bat
HI	Hawai'i
HIARNG	Hawai'i Army National Guard
HM	Hazardous Materials
HMLA	Marine Light Attack Helicopter
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMX	cyclotetramethylene-tetranitramine
HOA	Homeowners Association

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HQ	Headquarters
HQDA	Headquarters, Department of the Army
HRC	Hawai‘i Range Complex
HRS	Hawai‘i Revised Statutes
HST	Home Station Training
HSTT	Hawai‘i-Southern California Training and Testing
HUD	Housing and Urban Development
HVAC	Heating, Ventilating, and Air Conditioning
HW	Hazardous Waste
Hwy	Highway

**I**


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IBCT	Infantry Brigade Combat Team
ICM	Improved Conventional Munition
ICRMP	Integrated Cultural Resource Management Plan
ID	Infantry Division
ID(L)	Infantry Division (Light)
IDS	Intrusion Detection System
IED	Improvised Explosive Device
IFF	Identify Friend or Foe
IFMZ	Intensive Fire Management Zone
IFR	Instrument Flight Rules
IFS	Integrated Facilities System
IHWMP	Installation Hazardous Waste Management Plan
IMC	Instrument Meteorological Conditions
IMCOM	U.S. Army Installation Management Command
IMPROVE	Interagency Monitoring of Protected Visual Environments
IMU	Intensive Management Unit
INRMP	Integrated Natural Resource Management Plan
Inv Sp	Invasive Species
IONMP	Installation Operational Noise Management Plan
IPBA	Infantry Platoon Battle Area
IPBC	Infantry Platoon Battle Course
IPCC	Intergovernmental Panel on Climate Change

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IRP	Installation Restoration Program
ISBC	Infantry Squad Battle Course
ISR	Intelligence, Surveillance, and Reconnaissance
ITAM	Integrated Training Area Management
ITE	Institute of Transportation Engineers
IWFMP	Integrated Wildland Fire Management Plan

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**J**


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JP-8	Jet Fuel/Jet Propellant 8
JTEN	Joint Training and Experimentation Network

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**K**


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KD	Known Distance
KMA	Ke'āmuku Maneuver Area
km/h	Kilometers/hour

**L**


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LAV	Light Armored Vehicles
LBP	Lead Based Paint
LCC	Large Capacity Cesspool
LFX	Live-fire Exercise
LLC	Limited Liability Corporation
LOS	Level of Service
LP	listed plant
LRAM	Land Rehabilitation and Maintenance
LRLTP	Long Range Land Transportation Plan
LSV	Logistic Support Vessels
LTA	Local Training Areas
LTC	Lieutenant Colonel
LULRP	Land Use and Long Range Planning
LUPZ	Land Use Planning Zones
LVC	Live, Virtual, and Constructive
LZ	Landing Zone

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**M**


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MAJ	Major
MARFORPAC	Marine Forces Pacific
MAT	Moving Armored Target
MBTA	Migratory Bird Treaty Act
MCA	Military Construction, Army
MCB	Marine Corps Base
MCBH	Marine Corps Base Hawai'i
MDEP	Management Decision Evaluation Package
MEC	Munitions and Explosives of Concern
METL	Mission Essential Task List
METLs	Mission Essential Task Lists
MG	Machine Gun
MIL STD	Military Standard
MILCON	Military Construction
MIT	Moving Infantry Target
MMR	Mākua Military Reservation
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MOUT	Military Operations on Urban Terrain
MP	Military Police
MPMG	Multipurpose Machine Gun
MPRC	Multi-Purpose Range Complex
MPRC-L	Multi-Purpose Range Complex-Light
MRAP	Mine Resistant Ambush Protected
MRF	Modified Record Fire
MSE-HI	Mission Support Element - Hawai'i
MSL	Mean Sea Level
MSR	Main Supply Route
MT	Metric Tons
MTA	Major Training Areas
MTR	Military Training Routes

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N


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NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAR	Natural Area Reserves
NASA	National Aeronautics and Space Administration
NCA	National Command Authority
NEPA	National Environmental Policy Act
NFDRS	National Fire Danger Rating System
NHO	Native Hawaiian Organization
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service
NMS	National Military Strategy
NO	nitric oxide
N <sub>2</sub> O	nitrous oxide
NO <sub>2</sub>	nitrogen dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO <sub>x</sub>	Nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRC	U.S. Nuclear Regulatory Commission
NRCS	Natural Resources Conservation Services
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NRO	Natural Resources Office
NSS	National Security Strategy
NZEI	Net Zero Energy Installation

**Q**


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O <sub>3</sub>	Ozone
OC	Operations Center
OEA	Overseas Environmental Assessment
OEIS	Overseas Environmental Impact Statement
OIC	Officer in Charge
OHA	Office of Hawaiian Affairs
OMA	Operations and Maintenance, Army
OPA	Other Procurement, Army
OPFOR	Opposing Force
ORAP	Operational Range Assessment Program
ORISE	Oak Ridge Institute for Science and Education
ORMP	Ocean Resources Management Plan
OSHA	Occupational Safety and Health Administration
OWS	Oil-Water Separator

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**P**


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PA	Programmatic Agreement
PAH	Polynuclear Aromatic Hydrocarbon
PAN	Peroxyacetyl nitrate
Pan-STARRS	Panoramic Survey Telescope & Rapid Response System
Pb	Lead
PCBs	Polychlorinated Biphenyls
PCSI	Pacific Consulting Services, Inc.
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PHRI	Paul H. Rosendahl, Inc.
PIP	Pōhakuloa Implementation Plan
P.L.	Public Law
PM	Particulate matter
PMRF	Pacific Missile Range Facility
PNL	Perceived Noise Level
POI	Programs of Instruction
POL	Petroleum, Oils, and Lubricants

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POM	Program Objective Memorandum
POV	Personally Owned Vehicles
PPBE	Planning, Programming and Budgeting Execution
PRG	Preliminary Remediation Goals
PRL	Practical Reporting Level
PTA	Pōhakuloa Training Area
PUC	Public Utilities Commission
PV	Photo-Voltaic
PVC	Polyvinyl Chloride

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**Q**


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QDR	Quadrennial Defense Review
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**R**


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RA	Restricted Airspace
RC	Reserve Component
RCMP	Range Complex Master Plan
RCO	Range Control Officer
RDP	Range Development Plan
RDT&E	Research, Development, Test & Evaluation
RDX	Cyclotrimethylenetrinitramine
RF	Radio Frequency
RFMSS	Range Facility Management Support System
RI/FS	Remedial Investigation/Feasibility Study
RIMPAC	Rim of the Pacific
ROC	Reactive Organic Compounds
ROCA	Range Operations Control Area
ROD	Record of Decision
ROG	Reactive Organic Gases
ROI	Region of Influence
RTLTA	Range and Training Land Assessment
RTLTP	Range and Training Land Program
RTV	Rational Threshold Value

**S**


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SAIA	Sikes Act Improvement Act
SAM	Surface-to-Air Missile
SARNAM	Small Arms Range Noise Assessment Model
SAT	Stationary Armored Target
SAW	Squad Automatic Weapon
SBCT	Stryker Brigade Combat Team
SC	Spread Component
SDWA	Safe Drinking Water Act
SDWB	Safe Drinking Water Branch
SDZ	Surface Danger Zone
SEL	Sound Exposure Level
SENEL	Single Event Noise Exposure Level
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SIT	Stationary Infantry Target
SO <sub>2</sub>	sulfur dioxide
SONMP	Statewide Operational Noise Management Plan
SOP	Standard Operating Procedure
SO <sub>x</sub>	Sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasures
SPECWAROPS	Special Warfare Operations
SPL	Sound Pressure Level
SR	Saddle Road
SRA	Sustainable Range Awareness
SRP	Sustainable Range Program
SRTA	Short Range Training Ammunition
STRAC	Standards in Training Commission
STWEX	Strike Warfare Exercise
SUA	Special Use Airspace
SVOC	Semi-Volatile Organic Compound

**T**


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TAC-P	Tactical Air Control Party
TADSS	Training Aids, Devices, Simulators, and Simulations
TBD	To Be Determined
TC	Training Circular
TCP	Traditional Cultural Properties
TI	Technical Instructions
TISA	Troop Issue Subsistence Activity
TLV	Threshold Level Value
TMDL	Total Maximum Daily Load
TMK	Tax Map Key
TNMHC	Total non-methane hydrocarbons
TNT	Trinitrotoluene
TOP	Transportation for O'ahu Plan
TP	Target Practice
TPT	Training Practice Tracer
TRADOC	Training and Doctrine Command
TRI	Training Requirements Integration
TSC	Theater Sustainment Command
TSR	Training Support Representative
TT PEG	The Training Program Execution Group
TTP	Tactics, Techniques and Procedures

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**U**


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U	Uranium
U.S.	United States
UAS	Unmanned Aircraft Systems
UAV	Unmanned Aircraft Vehicles
UCAS	Urban Close Air Support
UFC	Unified Facilities Criteria
UIC	Underground Injection Control
ULO	Unified Land Operations
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force

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USAG	U.S. Army Garrison
USAG-HI	U.S. Army Garrison-Hawai'i
USAG-P	U.S. Army Garrison-Pōhakuloa
USAPHC	U.S. Army Public Health Command
USARHAW	U.S. Army Hawai'i
USARPAC	U.S. Army Pacific
USASCH	U.S. Army Support Command, Hawai'i
U.S.C.	United States Code
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPACOM	U.S. Pacific Command
UST	Underground Storage Tank
USWEX	Undersea Warfare Exercise
UV	Ultraviolet light
UXO	Unexploded Ordnance

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**V**


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VEC	Valued Environmental Component
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VMM	Marine Medium Tiltrotor
VMT	Vehicle miles Traveled
VOC	Volatile Organic Compound
VOG	Volcanic Smog
VSCW	Four letter code for the range operations MDEP

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W

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WAAF	Wheeler Army Airfield
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WQC	Water Quality Certification
WRCC	Western Regional Climate Center
WWB	Wastewater Branch

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X

Y

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YR	Year
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Z

**10.2 MEASUREMENTS****A**

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ac	Acre
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**B****C**

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°C	Celsius
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cfs	cubic feet per second
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cm	centimeter
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**D**

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dB	Decibel
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dBA	A-Weighted Decibel
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dBC	C-Weighted Decibel
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dBp	Unweighted Peak Sound Level
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**E****F**

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°F	Fahrenheit
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ft	feet
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**G**

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g	gram
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gal	gallon
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gpd	gallons per day
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**H**

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ha	hectares
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Hz	Hertz
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**I**

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in	inch(es)
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**J**

**K**

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km	kilometers
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kv	kilovolts
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kvA	kilo Volt Amperes
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kw	kilowatt
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kwh	kilowatt hours
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**L**

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L	Litre (liter)
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lb(s)	pounds
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**M**

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m	meter
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m <sup>2</sup>	meters squared
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mg	milligram
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mgd	Million Gallons per Day
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mg/kg	Milligrams Per Kilogram
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mg/d	Million Gallons per Day
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mi	miles
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mm	millimeter
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mph	miles per hour
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mrem	millirem
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mSv	millisievert
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**N**


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nm	nautical miles
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**O****P**


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PK15(met)	Peak Sound Level
PM10	inhalable particulate matter (10 microns)
PM2.5	fine particulate matter (2.5 microns)
ppb	parts per billion by volume
ppm	parts per million by volume
ppt	parts per thousand

**Q****R**


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rms	root mean squared
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**S**


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sf	square foot
sq.	square

**T**


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tpy	tons per year
TSP	Total Suspended Particulates

**U**


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µg/m <sup>3</sup>	microgram per cubic meter
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**V****W****X****Y****Z**

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**CHAPTER 11 GLOSSARY OF TERMS****11.0 TERMS****A**

**A'a Flows** - Lava flows characterized by jagged, slag-like piles of impassable material.

**Aerosol** - Solid or liquid material having size, shape, and density characteristics that allow the material to remain suspended in the atmosphere for more than a few minutes. A synonym for suspended particulate matter.

**Affected environment** - The physical features, land, and area or areas to be influenced, affected by, or created by an alternative under consideration; also includes various social and environmental factors and conditions pertinent to an area.

**Air basin** - A regional area defined for air quality management purposes based on considerations that include the constraints of topographic features on meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs.

**Air Traffic Control Assigned Airspace (ATCAA)** - Airspace of defined vertical and lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic (Pilot/Controller Glossary 2008). This airspace, if not required for other purposes, may be made available for military use. ATCAAs are frequently structured and used to extend the horizontal and/or vertical boundaries of Military Operations Areas.

**Alien** - A species (plant or animal) that differs in nature or character from the local vegetation or wildlife species. Often used to refer to invasive species that cause difficulties for the local, native species.

**Ambient air quality standards** - A combination of air pollutant concentrations, exposure durations, and exposure frequencies that are established as thresholds above which adverse impacts on public health and welfare may be expected. Ambient air quality standards are set on a national level by the EPA. Ambient air quality standards are set on a state level by public health or environmental protection agencies as authorized by state law.

**Ambient air** - Outdoor air in locations accessible to the general public.

**Aromatics** - A class of organic compounds with a chemical structure based on a six-member carbon ring with alternating single and double bonds; examples include benzene, toluene, xylene, and naphthalene.

**Attainment area** - An area considered to have air quality as good as or better than the NAAQS. An area may be an attainment area for one pollutant and a nonattainment area for others.

**Average daily traffic volumes** - The total traffic volume during a given time in 24-hour periods, greater than one day and less than one year, divided by the number of days in that period.

**A-weighted decibel (dBA)** - A frequency-weighted decibel scale that approximates the relative sensitivity of human hearing to different frequency bands of audible sound.

## **B**

**Ballistic effect** - Relating to the trajectory and fall of a ballistic projectile.

**Ballistic** - Guided in the ascent of a high-arch trajectory and freely falling in the descent.

**Basaltic Rock** - A fine grained igneous rock formed by the rapid cooling of volcanic lava.

**Battalion** - Military unit generally composed of multiple companies with a headquarters section (approximately 700 to 1,000 Soldiers).

**Best management practices (BMP)** - Methods adopted as standard practice as the most effective and practical means of preventing damage to a resource or reducing pollution while performing an action or activity.

**Billet** - Shelter for troops.

**Biological Opinion (BO)** - Documentation required by federal agencies stating the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries (NMFS) opinion as to whether action funded, authorized or carried out by federal agencies is likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy their designated critical habitats.

**Bivouac/bivouacking** - Temporary settlement or shelter; to watch at night or be on guard as a whole army.

**Brigade** - A military unit smaller than a division, usually composed of multiple battalions with a headquarters section, to which are attached smaller units tailored to meet anticipated requirements (approximately 4,000 to 5,000 Soldiers).

**Burning Index (BI)** - A number relating to the potential amount of effort needed to contain a single fire in a particular fuel type within a rating area. The National Fire Danger Rating System (NFDRS) uses a modified version of Bryam's equation for flame length - based on the Spread Component (SC) and the available energy - to calculate flame length from which the Burning Index is computed.

**C**

**Caliber (CAL)** - The diameter of a firearm projectile in inches. For example, a .50-caliber firearm uses an ammunition round that has a diameter of .50 inches.

**Call-for-fire** - A request for gunfire containing data necessary for obtaining the required gunfire on a target.

**Cancer** - A class of diseases characterized by uncontrolled growth of somatic cells. Cancers are typically caused by one of three mechanisms: chemically induced mutations or other changes to cellular deoxyribonucleic acid (DNA); radiation induced damage to cellular chromosomes; or viral infections that introduce new DNA into cells.

**Candidate species** - plants and animals for which the U.S. Fish and Wildlife Service (FWS) has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

**Canopy** - The uppermost spreading branchy layer of a forest.

**Cantonment area** - Permanent military station, usually containing administration buildings, barracks, and support facilities.

**Carbon monoxide (CO)** - A colorless, odorless gas which is toxic because it reduces the oxygen-carrying capacity of the blood.

**Carcinogen** - A chemical substance or type of radiation that can cause cancer in living organisms.

**Ceded lands** - Either Crown or government lands until 1893, when the Hawaiian Kingdom was overthrown. The successor government, the Republic of Hawai'i, assumed ownership and control of these lands and continued their public use. When the Republic of Hawai'i was annexed as a territory of the United States in 1898, it ceded these lands to the United States, which took ownership of them in fee simple. During the territorial era, the United States set some of these lands aside for military and other public purposes. When Hawai'i became a state in 1959, the United States retained ownership of the ceded lands it needed for military and public purposes and conveyed the remaining ceded lands to the State of Hawai'i.

**Census County Division (CCD)** - A statistical subdivision of a county, established and delineated cooperatively by the Census Bureau and state, local, and tribal officials for data presentation purposes. CCDs have been established in 21 states that do not have minor civil divisions suitable for data presentation; that is, minor civil divisions have not been legally established, do not have a governmental or administrative purpose, have boundaries that are ambiguous or change frequently, and/or generally are not well known to the public.

**Chemistry** - Any chemical reactions that transform pollutant emissions into other chemical substances.

**Chlorofluorocarbons (CFCs)** - A family of inert, nontoxic, and easily liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents or aerosol propellants. Because CFCs are not destroyed in the lower atmosphere they drift into the upper atmosphere where they can be decomposed by high intensity ultraviolet radiation. The chlorine released when CFCs decompose reacts with and destroys ozone in the stratosphere.

**Commercial air navigation** - Around Hawai‘i Island is served primarily by three principal airports. Kona International Airport, just north of Keāhole Point, is on the west coast; Hilo International Airport is on the east coast, and Waimea-Kohala Airport is located on the northern part of the island. Other airports/airfields in the ROI include ‘Upolu at ‘Upolu Point at the northern tip of the island; and the Pu‘u Wa‘a Wa‘a private airfield off Highway 190, midway between Kona and Waimea. There is a private heliport, Ka‘ūpūlehu, on the west coast north of Makalawena, just north of Kona International Airport (U.S. Army and USACE, 2004).

**Community noise equivalent level (CNEL)** - A 24-hour average noise level rating with a 5 dB penalty factor applied to evening noise levels and a 10 dB penalty factor applied to nighttime noise levels. Ldn is a seldom used alternative unit designation.

**Company** - A military unit usually composed of multiple platoons with a headquarters section (at least 150 Soldiers).

**Concentration units** - The ratio of the quantity of a substance in a mixture to the quantity of the mixture is its concentration in the mixture. Concentrations are often expressed in units of mass (weight) or volume of a substance per unit of mass or volume of the mixture. If the concentration is very high, then the concentration might be given in terms of a percentage. Percentage concentrations are equivalent to “parts per hundred”. In many environmental applications, the concentrations of interest are very dilute, and it is convenient to express concentrations in parts per thousand (ppt), parts per million (ppm), or parts per billion (pPB). Concentrations in water are typically given either in units of mass per mass or in mass per volume. For example, there are approximately 35 grams of salt in 1,000 grams of seawater. The concentration of salt in seawater, in units of mass per mass, is therefore approximately 35 parts of salt per thousand parts of seawater, or 35 ppt. The “parts” in this case are units of mass for both the salt and the seawater. If, instead of 35 grams, there were only 35 milligrams (mg) of salt in the same mass of water and salt (i.e., less salt in the mixture by a magnitude of 1,000), then the concentration would be 35 ppm, and if there were only 35 micrograms (µg) in water, then the concentration would be one thousand time more dilute, or 35 pPB. Because 35 mg of salt takes up only a very small volume, adding 35 mg of salt to 1 liter of pure water does not change the volume of the solution much. One liter of pure water has a mass of 1,000 grams, or 1 kilogram. Therefore, at dilute concentrations, 35 ppm can be expressed as 35 milligrams per liter (mg/L). Similarly, 35 pPB is nearly the same as 35 µg/L. Concentrations in soils are nearly always given in units of mass per mass. Concentrations in air are typically given in units of volume per volume, or, because volume of air depends on the temperature and pressure, in units of mass per volume at a specified pressure and temperature.

**Contingency force** - A force reserved in order to be deployed as needed.

**Convoy** - An organized and controlled group of vehicles that moves over the same route at the same time and under one commander.

**Corps** - A tactical unit usually consisting of two or more divisions and auxiliary arms and services.

**Criteria pollutant** - An air pollutant for which there is a national ambient air quality standard (carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, inhalable particulate matter, fine particulate matter, or airborne lead particles).

**Critical Habitat** - A description of the specific areas with physical or biological features essential to the conservation of a listed species and that may require special management considerations or protection. These areas have been legally designated via **Federal Register** notices.

**Cumulative effects** - Effects that are the result of incremental impacts of an action, when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or non-federal) or person undertakes such actions.

**Current Force** - Army units and structure currently in place.

**C-Weighted Decibel (dBC)** - A frequency-weighted decibel scale that correlates well with the physical vibration response of buildings and other structures to airborne sound.

## **D**

**Day-Night Average Sound Level (Ldn)** - A 24-hour average noise level rating with a 10 dB penalty factor applied to nighttime noise levels. DNL is an alternative unit designation.

**Day-Night Average Sound Level (DNL)** - A 24-hour average noise level rating with a 10 dB penalty factor applied to nighttime noise levels. Ldn is an alternative unit designation.

**Daytime Average Sound Level (Ld)** - An Leq value based either on a 15-hour time period between 7:00 a.m. and 10:00 p.m. (used for Ldn calculation) or on a 12-hour time period between 7:00 p.m. and 7:00 a.m. (used for CNEL calculation). Also used for specifying noise limits in some local noise ordinances (time period may vary).

**De minimis level** - A threshold for determining whether various regulatory requirements apply to a particular action or facility. In an air quality context, *de minimis* thresholds typically are based on emissions, facility size, facility activity levels, or other indicators.

**Decibel (dB)** - A generic term for measurement units based on the logarithm of the ratio between a measured value and a reference value. Decibel scales are most commonly associated with acoustics (using air pressure fluctuation data); but decibel scales sometimes are used for ground-borne vibrations or other types of measurements.

**Depleted uranium (DU)** - DU is a dense, slightly radioactive heavy metal used by the United States and other countries in making ammunition, armor, aircraft counterweights, and other materials. Because of its density and penetrating power, DU is an excellent material for making armor and armor-piercing weapons.

**Deployment** - The movement of forces within operational areas.

**Detachment** - A temporary military or naval unit formed from other units or parts of units.

**Direct fire** - Gunfire delivered on a target, using the target itself as a point of aim for either the gun or the director.

**Division** - A major administrative and tactical unit/formation that combines the necessary arms and services required for sustained combat; larger than a regiment/brigade and smaller than a corps (approximately 15,000 to 20,000 Soldiers).

**Dry fire** - Simulated gunfire; used only for training.

**Dud rounds** - Explosive munitions that has not been armed as intended or that has failed to explode after being armed.

## **E**

**Easement** - An interest in land owned by another that entitles its holder to a specific limited use. A right-of-way is usually an easement.

**Ecosystem** - A community of interacting organisms (including people) and their environment that functions together to sustain life.

**Effective Perceived Noise Level (EPNL)** - A complex weighted decibel scale used internationally for aircraft and aircraft engine noise certification requirements. EPNL values cannot be measured directly, but must be calculated from other data.

**Emission standard** - A requirement established under the federal Clean Air Act that limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis.

**Emissions** - The types, amounts, and locations of pollutants emitted into the atmosphere.

**Emission** - The release of air contaminants into the ambient air.

**Endangered species** - Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that is in serious danger of becoming extinct throughout all, or a significant portion, of its range. Federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, and the designation is published in the **Federal Register**.

**Endemic** - Restricted or peculiar to a locality or region.

**Environmental consequences** - The impacts on the affected environment that are expected from implementing a given alternative.

**Environmental impact statement (EIS)** - As defined in the Council on Environmental Quality regulations, a detailed written report that provides a “full and fair discussion of significant environmental impacts and (informs) decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” The draft EIS evaluates a range of reasonable alternatives and their associated impacts and presents a preferred alternative if one option is clearly favored above the others. After departmental review, the draft EIS is circulated among agencies and the public for comment. Following the public hearing held to formally record comments on the draft, a final EIS is prepared incorporating public and agency input and recommending a selected alternative.

**Environmental** - 1) In a scientific context, a combination of natural conditions. 2) In a planning context, a category of analytical studies of aesthetic values, ecological resources, cultural (historical) resources, sociological and economic conditions, etc.

**Equivalent Average Sound Pressure Level (or Energy-Averaged Sound Level) (Leq)** - The decibel level of a constant noise source that would have the same total acoustical energy over the same time interval as the actual time-varying noise condition being measured or estimated. Leq values must be associated with an explicit or implicit averaging time in order to have practical meaning. The use of A-weighted, C-weighted, or un-weighted (flat) decibel units sometimes is indicated by LAeq, LCeq, or LFeq, respectively.

**Evening Average Sound Level (Le)** - An Leq value based on a 3-hour time period between 7:00 p.m. and 10:00 p.m. (used primarily for CNEL calculation).

**Executive Order (EO)** - Order issued by the President by virtue of his authority vested by the Constitution or by an act of Congress. An executive order has the force of law.

**Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations** - Issued February 11, 1994. To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

**Executive Order 13045, Protection of Children from Environmental Health and Safety Risks** - Issued April 21, 1997. To the extent permitted by law and appropriate, and consistent with the agency's mission, each federal agency: (a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

**Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation**

**Management** - Issued January 24, 2007. Executive Order 13423 instructs federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.

**Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance**

- Issued October, 8 2009. This Executive Order sets sustainability goals for federal agencies and focuses on making improvements in their environmental, energy and economic performance. The Executive Order requires federal agencies to set a 2020 greenhouse gas (GHG) emissions reduction target within 90 days; increase energy efficiency; reduce fleet petroleum consumption; conserve water; reduce waste; support sustainable communities; and leverage federal purchasing power to promote environmentally-responsible products and technologies.

**F**

**Facilities** - Buildings and the associated infrastructure, such as roads, trails, and utilities.

**Farmland Protection Policy Act** - Soil phases/areas protected by the Farmland Protection Policy Act and 7 CFR 658. Soils include prime farmland, unique farmland, farmland of statewide importance, and farmland of local importance.

**Federal Register** - A daily publication of the U.S. Government Printing Office that contains notices, announcements, regulations, and other official pronouncements of U.S. Government administrative agencies. Various printed announcements and findings related to specified environmental matters and transportation projects and activities appear in this publication.

**Field artillery** - 1) A basic branch and arm of the Army. The branch name identifies personnel and units that use cannons, and rockets and missile systems, with target acquisition means, assisting in land combat operations. (2) Artillery weapons that are sufficiently mobile to accompany and support infantry, mechanized, armored, airborne, and air mobile units in the field.

**Fire Danger Rating System (FDRS)** - A system used by wildland fire management agencies to assess current fire danger levels. The system integrates the effects of existing or expected states of selected fire danger factors into qualitative or numeric indices that reflect the area's fire protection needs.

**Fire power** - The capacity of an individual or unit to deliver accurate and effective gunfire on a target or area to kill or suppress the enemy in its position, to deceive the enemy, and to support tactical maneuvers.

**Forced entry** - To enter a property by use of force, usually without permission.

**Force-on-force** - A force engaging another force, usually from within the same army, in a non-live-fire situation, for the purpose of training and practice.

**Fugitive emissions** - Emissions that could not reasonably be confined or collected in a stack, vent, or similar device that would allow application of emission control equipment.

**G**

**Geospatial** - pertaining to the geographic location and characteristics of natural or constructed features and boundaries on, above, or below the earth's surface.

**Geothermal** - Relating to the internal heat of the earth.

**Gulch** - a deep, narrow ravine, especially one marking the course of a stream or torrent.

**H**

**Habituation** - Decrease in responsiveness upon repeated exposure to a stimulus.

**Hazardous air pollutant (HAP)** - Air pollutants which have been specifically designated by relevant federal or state authorities as being hazardous to human health. Most HAP compounds are designated due to concerns related to carcinogenic, mutagenic, teratogenic properties; severe acute toxic effects; or ionizing radiation released during radioactive decay processes.

**Hazardous material (HM)** - A 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 if improperly used.

**Hazardous waste (HW)** - An environmental impact category encompassing all types of permitted and unregulated materials, sites, and substances that require prudent handling and treatment to prevent harm or danger. Sites are often referred to as waste management sites.

**Heavy brigade** - A brigade that is composed of heavy artillery and armored vehicles and designed to contain, repel, or defeat a heavily armed enemy force.

**Heavy forces** - A large force designed for sustained battlefield combat, usually composed largely of armored vehicles.

**Hertz (Hz)** - Sound wave cycles per second. A standard unit for describing acoustical frequencies measured as the number of air pressure fluctuation cycles per second. For most people, the audible range of acoustical frequencies is from 20 Hz to 20,000 Hz.

**Hydrocarbons (HC)** - A class of organic compounds composed solely of carbon and hydrogen atoms; often used loosely to include substituted hydrocarbons. Hydrocarbons are a subclass of organic compounds. This term is frequently misused as a synonym for “organic compounds”.

**I**

**Impacts** - Positive or negative effects on the natural or social environment resulting from transportation projects.

**Improved conventional munitions (ICMs)** - Cluster bombs, artillery munitions that contain multiple submunitions.

**Incendiaries** - A weapon, such as a bomb, designed to ignite fires.

**Indirect fire** - Gunfire delivered on a target that is not itself used as a point of aim for the weapon or the director.

**Infantry** - Soldiers trained, armed, and equipped to fight on foot.

**Instantaneous peak sound pressure level (Lpk)** - The highest instantaneous decibel level detected during a monitoring interval. The reported value depends somewhat on the instrument detector setting (slow, fast, or impulse sampling rate). Some sound level meters allow the decibel weighting for the Lpk measurement to be set independently from the decibel weighting used for the normal time-integrated monitoring. Lpk will differ from Lmax when the instrument samples more frequently than the minimum integration time. For many modern sound level meters, the slow sampling rate is 8 readings per second and the fast sampling rate is either 16 or 32 readings per second. A separate impulse sampling rate also may be available (typically at the fast sampling rate but with a special detector that can track a noise level rise over time intervals as short as 20 to 60 microseconds (0.02 to 0.06 milliseconds). The use of A-weighted, C-weighted, or un-weighted (flat) decibel units sometimes is indicated by LApk, LCpk, or LFpk, respectively.

**Interim force** - The force between the Current Forces and the Objective Force.

**J****K**

**Knot** - a unit of speed equal to one nautical mile or about 1.15 statute miles per hour.

**L**

**Land navigation training** - Maneuvers designed to train troops in techniques for navigating to a given destination.

**Level of service (LOS)** - Combinations of operating conditions that can occur in a given lane or roadway when it is accommodating various traffic volumes.

**Light brigade** - A force composed primarily of foot-mobile fighters employing artillery, mortars, tactical air, Army aviation, naval gunfire, and reconnaissance assets to support the tactical operations plan.

**Light forces** - Small agile forces designed for quick deployment and redeployment, usually not involving armored vehicles.

**Light infantry** - Composed of light arms and hand-held weapons and lacking heavy artillery.

**Live-fire exercise (LFX)** - Training activities using “live” or lethal ammunition.

**Low Level Waste** - items that have become contaminated with radioactive material or have become radioactive through exposure to neutron radiation. This waste typically consists of contaminated protective shoe covers and clothing, wiping rags, mops, filters, reactor water treatment residues, equipment and tools, luminous dials, medical tubes, swabs, injection needles, syringes, and laboratory animal carcasses and tissues. The radioactivity can range from just above background levels found in nature to very highly radioactive in certain cases such as parts from inside the reactor vessel in a nuclear power plant.

## **M**

**Maintenance area** - An area that currently meets federal ambient air quality standards but which was previously designated as a nonattainment area. Federal agency actions occurring in a maintenance area are still subject to Clean Air Act conformity review requirements.

**Maneuver** - A movement to place ships, aircraft, or land forces in a position of advantage over the enemy.

**Materiel** - All items necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes. Examples of materiel are ships, tanks, self-propelled weapons, and aircraft and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities.

**Maximum Sound Pressure Level (Lmax)** - The highest decibel level measured during a stated or implied monitoring period or noise event. The Lmax value recorded by a sound level meter depends on the time factor used for integration of instantaneous sound pressure level measurements. For most modern sound meters, this is 1 second when the instrument is set for the slow sampling rate and 1/8 second when the instrument is set for the fast sampling rate. The use of A-weighted, C-weighted, or un-weighted (flat) decibel units sometimes is indicated by LAmax, LCmax, or LFmax, respectively.

**Mesic** - Characterized by, relating to, or requiring a moderate amount of moisture.

**Meteorology** - The physical processes affecting the distribution, dilution, and removal of these pollutants

**Microgram (µg)** - One one-millionth of a gram.

**Micron (µm)** - A unit commonly used to describe particle size. One one-millionth of a meter (one micrometer).

**Military Operations Area** - Airspace of defined vertical and lateral limits established outside Class A airspace to separate and segregate certain non-hazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted (Pilot/Controller Glossary 2008). Class A airspace covers the continental U.S. and limited parts of Alaska, including the airspace overlying the water within 12 nm (22 km) of the U.S. coast. It extends from 18,000 feet AMSL up to, and including, 60,000 feet AMSL (Pilot/Controller Glossary 2008).

**Military Training Routes (MTRs) (flight routes)** - Flight corridors developed and used by the Department of Defense (DoD) to practice high-speed, low-altitude flight, generally below 10,000 feet AMSL. Specifically, MTRs are airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots indicated airspeed (Pilot/Controller Glossary 2008).

**Millisievert (mSv)** - The International System of Units (SI) unit for the radiation absorbed dose equivalent of ionizing radiation.

**Mine-clearing line charge** - A rocket-propelled, explosive line charge. It is used to reduce minefields that contain single-impulse, pressure-activated antitank mines and mechanically activated antipersonnel mines.

**Minimum Sound Pressure Level (L<sub>min</sub>)** - The lowest decibel level measured during a stated or implied monitoring period or noise event. The L<sub>min</sub> value recorded by a sound level meter depends on the time factor used for integration of instantaneous sound pressure level measurements. For most modern sound meters, this is 1 second when the instrument is set for the slow sampling rate and 1/8 second when the instrument is set for the fast sampling rate. The use of A-weighted, C-weighted, or un-weighted (flat) decibel units sometimes is indicated by L<sub>Amin</sub>, L<sub>Cmin</sub>, or L<sub>Fmin</sub>, respectively.

**Mission essential** - That materiel, equipment, personnel, projects, etc. that are authorized for and available to combat, combat support, combat service support, and combat readiness training forces in order to accomplish their assigned missions.

**Mitigation measure** - A specific design commitment made with the resource agencies and other agencies during the environmental evaluation and study process that serve to moderate or lessen impacts derived from the Proposed Action. This might include planning and development commitments, environmental measures, and right-of-way improvements. A mitigation measure is implemented during construction or post construction.

**Mutagen** - A chemical substance or physical agent that causes a permanent change to the genes of a cell.

## N

**National Environmental Policy Act of 1969 (NEPA)** - Our nation's basic charter for protecting the environment. It establishes policy, sets goals, and provides means for carrying out the policy. In accordance with NEPA, all federal agencies must prepare a written statement on the environmental impact of a Proposed Action. The provisions to ensure that federal agencies act according to the letter and spirit of NEPA are the Council on Environmental Quality regulations for implementing NEPA (43 CFR 1500-1508).

**Nighttime Average Sound Level (L<sub>n</sub>)** - An Leq value based on a 9-hour time period between 10:00 p.m. and 7:00 a.m. (used for both L<sub>dn</sub> and CNEL calculations). Also used for specifying noise limits in some local noise ordinances (time period may vary).

**Nitric oxide (NO)** - A colorless toxic gas formed primarily by combustion processes that oxidize atmospheric nitrogen gas or nitrogen compounds found in the fuel. A precursor of ozone, nitrogen dioxide, numerous types of photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids. Most nitric oxide formed by combustion processes is converted into nitrogen dioxide by subsequent oxidation in the atmosphere over a period that may range from several hours to a few days.

**Nitrogen dioxide (NO<sub>2</sub>)** - A toxic reddish gas formed by oxidation of nitric oxide. Nitrogen dioxide is a strong respiratory and eye irritant. Most nitric oxide formed by combustion processes is converted into nitrogen dioxide by subsequent oxidation in the atmosphere. Nitrogen dioxide is a criteria pollutant in its own right, and is a precursor of ozone, numerous types of photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids.

**Nitrogen oxides (NO<sub>x</sub>)** - A group term meaning the combination of nitric oxide and nitrogen dioxide; other trace oxides of nitrogen may also be included in instrument-based nitrous oxide measurements. A precursor of ozone, photochemically generated nitrate particles (including PAN), and atmospheric nitrous and nitric acids.

**Nonattainment area** - An area that does not meet a federal or state ambient air quality standard. Federal agency actions occurring in a federal nonattainment area are subject to Clean Air Act conformity review requirements.

**Non-live-fire exercise** - Training exercise using training rounds or nonlethal ammunition or blanks.

**Notice of Intent (NOI)** - Announcement in the **Federal Register** advising interested parties that an EIS will be prepared and circulated for a given project.

**Noxious** - Physically harmful or destructive to living beings.

**Noy** - A linear scale of perceived noisiness developed in connection with the PNL decibel weighting system. The noy scale is linear with respect to 40 dB PNL; consequently, a noise rated at 3 noy is **perceived to be three times as noisy as a sound of 40 dB PNL.**

## **Q**

**Objective Force** - The future forces of the Army. Legacy Forces, Army wide, will undergo transformation in training, equipment, and weapons over an estimated 20 years to become the Objective Force.

**Onset Rate Adjusted Day (Ldnmr)** - Night Average Sound Level. A modified version of the Ldn descriptor that is used for evaluation of low altitude aircraft flight noise. Additional penalty factors of up to 11 dB are added to the basic Ldn calculation, with the precise value dependent on both the magnitude of noise level increase during a flyover event and the duration of the noise level rise from background noise levels to the maximum instantaneous noise level.

**Ordinance impact area** - An area having designated boundaries, within the limits of which all ordnance will detonate on impact.

**Organic compounds** - Compounds of carbon containing hydrogen and possibly other elements (such as oxygen, sulfur, or nitrogen). Major subgroups of organic compounds include hydrocarbons, alcohols, aldehydes, carboxylic acids, esters, ethers, and ketones. Organic compounds do not include crystalline or amorphous forms of elemental carbon (graphite, diamond, carbon black, etc.), the simple oxides of carbon (carbon monoxide and carbon dioxide), metallic carbides, or metallic carbonates.

**Overall Sound Pressure Level** - This term is used in two different contexts. As a technical term, it is a composite un-weighted decibel value based on measurements across a broad spectrum of acoustical frequencies. In more generic usage, it simply means a composite sound pressure level (typically an A-weighted level) that reflects the overall spectrum of acoustical frequencies associated with a given sound.

**Ozone (O<sub>3</sub>)** - A compound consisting of three oxygen atoms. Ozone is a major constituent of photochemical smog that is formed through chemical reactions in the atmosphere involving reactive organic compounds, nitrogen oxides, and ultraviolet light. Ozone is a toxic chemical that damages various types of plant and animal tissues and which causes chemical oxidation damage to various materials. Ozone is a respiratory irritant, and appears to increase susceptibility to respiratory infections. A natural layer of ozone in the upper atmosphere absorbs high energy ultraviolet radiation, reducing the intensity and spectrum of ultraviolet light that reaches the earth's surface.

## P

**Pāhoehoe Flows** - Lava flows characterized by smooth undulating surfaces and can be traversed on foot for short distances.

**Particulate matter (PM)** - Solid or liquid material having size, shape, and density characteristics that allow the material to remain suspended in the atmosphere for more than a few minutes. Particulate matter can be characterized by chemical characteristics, physical form, or aerodynamic properties. Categories based on aerodynamic properties are commonly described as being size categories, although physical size is not used to define the categories. Many components of suspended particulate matter are respiratory irritants. Some components (such as crystalline or fibrous minerals) are primarily physical irritants. Other components are chemical irritants (such as sulfates, nitrates, and various organic chemicals). Suspended particulate matter also can contain compounds (such as heavy metals and various organic compounds) that are systemic toxins or necrotic agents. Suspended particulate matter or compounds adsorbed on the surface of particles can also be carcinogenic or mutagenic chemicals.

**Parts per \*\*\*** - See concentration units.

**Pathogenic** - Causing or capable of causing disease

**Peak Unweighted Decibel (or Linear Peak Decibel)(dB<sub>P</sub>)** - A unit designation for the peak un-weighted decibel level. The peak un-weighted decibel measurement sometimes is designated as LFPk (for flat-weighted peak level).

**Perceived Noise Level (PNL)** - A decibel weighting system originally developed for evaluation of aircraft noise levels. In current practice, the PNL descriptor is used primarily as a step in the computation of EPNL values which are used for aircraft noise level certification purposes. PNL values sometimes are designated as PNdB. Lpn is a seldom-used alternative designation for PNL.

**Percentile Sound Pressure Level (L<sub>x</sub>)** - The decibel level exceeded “x” percent of the time during a monitoring episode. Sometimes designated as L<sub>n</sub> or L<sub>nn</sub>, although those designations are easily confused with the nighttime average noise level descriptor used for L<sub>dn</sub> and CNEL estimates.

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**Permissible exposure limit** - An occupational air quality standard adopted by the Occupational Safety and Health Administration (OSHA). The OSHA permissible exposure limits are typically adopted as 8-hour time-weighted averages.

**Peroxyacetyl nitrate (PAN)** - A toxic organic nitrate compound formed by photochemical reactions in the atmosphere. PAN is a strong respiratory and eye irritant, and a strong necrotic agent affecting plant tissues. Also called peroxyacetic nitric anhydride. A number of similar organic nitrate compounds are formed along with PAN during photochemical smog reactions. In relatively remote rural areas PAN and related organic nitrates, together with nitric acid, are often the dominant atmospheric nitrogen compounds.

**Pesticide** - Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest; the term pesticide also applies to herbicides, fungicides, avicides (bird agents), rodenticides, and various other substances used to control pests.

**Phon** - A unit of equal perceived loudness for pure tones. Phon values are indexed to the un-weighted decibel value for tones at 1000 Hz. The phon value for any given tone is based on the dB value of a 1000 Hz tone that has the same perceived loudness as the tone under consideration.

**Physiography** - the study of physical geography.

**Platoon** - A subdivision of a company-size military unit, normally consisting of two or more squads or sections (approximately 30 Soldiers).

**PM<sub>10</sub> (inhalable particulate matter (EPA))** - A fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 50 microns penetrate to the lower respiratory tract (tracheo-bronchial airways and alveoli in the lungs). In a regulatory context, PM<sub>10</sub> is any suspended particulate matter collected by a certified sampling device having a 50% collection efficiency for particles with aerodynamic equivalent diameters of 9.5-10.5 microns and an maximum aerodynamic diameter collection limit less than 50 microns. Collection efficiencies are greater than 50% for particles with aerodynamic diameters smaller than 10 microns and less than 50% for particles with aerodynamic diameters larger than 10 microns.

*NOTE: The American Conference of Governmental Industrial Hygienists (ACGIH) definition of inhalable particulate mass is based on a D50 of 100 microns aerodynamic equivalent diameter.*

**PM<sub>2.5</sub> (fine particulate matter (EPA))** - A fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 6 microns penetrate into the alveoli in the lungs. In a regulatory context, PM<sub>2.5</sub> is any suspended particulate matter collected by a certified sampling device having a 50% collection efficiency for particles with aerodynamic equivalent diameters of 2.0-2.5 microns and an maximum aerodynamic diameter collection limit less than 6 microns. Collection efficiencies are greater than 50% for particles with aerodynamic diameters smaller than 2.5 microns and less than 50% for particles with aerodynamic diameters larger than 2.5 microns.

**Precursor** - A compound or category of pollutant that undergoes chemical reactions in the atmosphere to produce or catalyze the production of another type of air pollutant.

**Preliminary Remediation Goal (PRG)** - Chemical-specific concentration goals for specific media (e.g. soil, sediment, water, and air) and land use combinations at Superfund, Federal Facilities and Resource Conservation and Recovery Act sites. They serve as a target to use during the initial development, analysis, and selection of cleanup alternatives. These goals should both be protective of human health and the environment and comply with all applicable, relevant, and appropriate regulations (ARARs) for all exposure pathways being addressed.

**Proposed Action** - Plan that a federal agency intends to implement and that is the subject of an environmental analysis. Usually, but not always, the Proposed Action is the agency's preferred alternative for a project. The Proposed Action and all reasonable alternatives are evaluated against the No Action Alternative.

**Pyrotechnics** - A mixture of chemicals that, when ignited, is capable of producing light, heat, smoke, sound, or gas.

## Q

## R

**R-1 Water** - Recycled water that has been treated to have a significant reduction in viral and bacterial pathogens. R-1 water is suitable for multiple agricultural and industrial uses, such as spray or pressure washing, commercial laundry, and flushing toilets and urinals, among others.

**Radial Distribution System** - A power distribution system that has only one power source for a group of costumers. A radial network leaves the station and passes through the network area with no normal connection to any other supply. This is typical of long rural lines

**Range impact area** - An area having designated boundaries, within the limits of which all ordnance will detonate on impact.

**Reactive organic compounds (ROC)** - The most technically accurate term for the organic precursors of ozone and other photochemically generated pollutants. The more commonly used term is "reactive organic gases (ROG)".

**Reactive organic gases (ROG)** - Organic compounds emitted into the air which have photochemical reaction rates sufficient to be considered precursors of ozone. Organic compounds which are not considered reactive in the lower atmosphere include methane, ethane, acetone, methyl acetate, carbonic acid, ammonium carbonate, methylene chloride, methyl chloroform, and numerous fully-saturated chloro-fluorocarbon compounds. The term “reactive organic compounds” (ROC) would be technically more accurate, since many of the compounds of concern may be present in both gaseous and aerosol states (e.g., as atmospheric aerosols or as liquid films condensed on atmospheric particles in dynamic equilibrium with gas phase vapors). However, the acronym ROC is not in common use, and there are far too many acronyms already in use for organic compound emissions.

**Recommended exposure limit** - An occupational air quality guideline recommended by the National Institute of Occupational Safety and Health (NIOSH). The NIOSH recommended exposure limits are typically adopted as time weighted averages for workdays of up to 10 hours in a 40-hour work week.

**Regiment** - A military unit usually consisting of a number of battalions or squadrons.

**Region of influence (ROI)** - An ROI is a geographic area selected as a basis on which social and economic impacts of project alternatives are analyzed. The criteria used to determine the ROI are the geographic location of the installation or training area where the Proposed Action would occur; the residency distribution of the military and civilian personnel associated with these facilities; commuting distances and times; and the location of businesses providing goods and services to the affected facilities, their personnel, and their dependents.

**Respirable particulate matter (ACGIH definition)** - Approximately  $PM_{10}$  with a 2% collection efficiency at 25 microns aerodynamic equivalent diameter. The collection efficiency curve may differ from EPA  $PM_{10}$  certification requirements.

**Restricted Area (airspace)** - Designated airspace that supports ground or flight activities that could be hazardous to non-participating aircraft. A Restricted Area is airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated “joint-use” and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency (Pilot/Controller Glossary 2008).

**Root Mean Squared (rms)** - A mathematical calculation technique that determines the average of absolute deviations (whether positive or negative) from a reference or mean value. The numerical deviation from the reference value is squared to generate a positive numerical value; the mean of a sequence of such squared deviation values is then determined; and the square root of that mean value is then taken to provide the average of the numerical deviations. This is the technique used in sound level meter circuitry to measure physical air pressure fluctuations so that sound pressure levels can be calculated.

**S**

**Scoping** - A process conducted early in the project that is open to agencies and the general public to identify the range, or scope, of issues and alternatives to be addressed during the environmental studies and in the EIS. Even though scoping is the initial step in the EIS process, public involvement is a critical component that continues throughout the EIS process.

**Short-term exposure limit** - An occupational exposure standard adopted by OSHA or an occupational exposure guideline recommended by ACGIH or NIOSH that is typically based on a 15-minute time-weighted average which should not be exceeded at any time during a workday. In some cases, exposure duration periods shorter than or longer than 15 minutes are specified.

**Single Event Noise Exposure Level (SENEL)** - An older term identical to SEL, but implying the use of A-weighted decibels. In current practice, the SEL designation is used more often than the SENEL designation.

**Socioeconomic** - Of, relating to, or involving a combination of social and economic factors.

**Sone** - A linear scale of equal perceived loudness indexed to the perceived loudness of a 40 dB tone at 1000 Hz. The sone scale is linear with respect to a 40 dB tone at 1000 Hz; consequently, a noise rated at 3 sones is perceived to be three times as loud as a 40 dB tone at 1000 Hz.

**Sound Exposure Level (SEL)** - An alternative unit designation for SEL. Might be confused with A-weighted Leq, which sometimes is designated as LAeq.

**Sound Exposure Level (SEL)** - An alternative unit designation for SEL, but could be confused with the Lx designation for A-weighted measurements.

**Sound Exposure Level (SEL)** - An alternative unit designation for SEL, but easily confused with the Le descriptor.

**Sound Exposure Level (SEL)** - The SEL measure represents the cumulative (not average) sound exposure during a particular noise event, integrated with respect to a one-second time frame. SEL measurements are equivalent to the Leq value of a one-second noise event producing the same cumulative acoustic energy as the actual noise event being analyzed. In effect, an SEL measure "spreads" or "compresses" the noise event to fit a fixed one-second time interval. If the actual duration of the noise event is less than one second, the SEL value will be less than the Leq value for the event. If the duration of the noise event exceeds one second, the SEL value will exceed the Leq of the event. SEL values can have any specified decibel weighting. Blast noise SEL values frequently are given as C-weighted decibels. SEL values for sources such as aircraft flyover events or train passby events typically are given as A-weighted decibels.

**Sound Pressure Level (Lp)** - An alternative unit designation for SPL, but might be confused with the Lpk descriptor. Weighting system confusion with the dBP unit designation also is possible. The Lp or SPL designation typically is used for the current sound pressure level as displayed on an operating sound level meter.

**Sound Pressure Level (SPL)** - A decibel level calculation based on the measurement of instantaneous pressure fluctuations over and under the prevailing barometric pressure. The root mean squared (rms) pressure measurements are converted to a pressure ratio using 20 micropascals as the reference pressure. The sound pressure level in decibels is calculation as 10 times the logarithm of the square of the pressure ratio. Most sound level meters integrate the SPL readings over minimum time intervals that depend on user-set detector sampling rates. Most sound level meters also allow the user to specify a decibel weighting for the SPL measurements. Modern sound level meters typically sample 8 times per second at a slow setting and 16 or 32 times per second at a fast setting. When set to the slow sampling setting, modern sound level meters average SPL readings over a 1 second interval and use those one second Leq values for other time period integrations. The basic data integration period will be 1/8 of a second when a fast sampling rate setting is used. SPL (Lp), Lmax, Lmin, and Lx data typically are based on the one second (slow response) or 1/8 second (fast response) Leq values.

**Special Operation Forces** - Forces designed and equipped to deal with unusual or specific tasks, often involving foreign language capabilities, specialized equipment, training, and tactics.

**Special status species** - Those plants or animals that have a protective status designated by a state or federal agency because of general or localized population decline.

**Special Use Airspace (SUA)** - airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed on aircraft operations that are not part of those activities. Types of SUA include Alert Areas, Controlled Firing Areas (CFA), Military Operations Areas, Prohibited Areas, Restricted Areas, and Warning Areas.

**Species of Concern** - an informal term, not defined by the federal Endangered Species Act, which commonly refers to species that are declining or appear to be in need of conservation.

**Squad** - A small military unit, usually consisting of approximately 10 Soldiers.

**Squadron** - Battalion-sized ground unit in U.S. Army cavalry regiments and in the SBCT, which consists of troops instead of companies.

**State implementation plan (SIP)** - Legally enforceable plans adopted by states and submitted to EPA for approval, which identify the actions and programs to be undertaken by the State and its subdivisions to achieve and maintain national ambient air quality standards in a time frame mandated by the Clean Air Act.

**Strike Force** - A force prepared to carry out an attack that is intended to inflict damage on, seize, or destroy an objective.

**Stryker Brigade Combat Team (SBCT)** - The interim force between the Current Force and the Objective Force. SBCT is a new concept that uses technology and information to improve the abilities of Army units. The SBCT uses the lighter more efficient Stryker (and other tactical vehicles) to transport Soldiers more quickly to areas of conflict.

**Sulfur dioxide (SO<sub>2</sub>)** - A pungent, colorless, and toxic oxide of sulfur formed primarily by the combustion of fossil fuels. It is a respiratory irritant, especially for asthmatics. A criteria pollutant in its own right, it is also a precursor of sulfate particles and atmospheric sulfuric acid.

**Sulfur oxides (SO<sub>x</sub>)** - A group term meaning the combination of sulfur dioxide and sulfur trioxide; treated as a precursor of sulfur dioxide, sulfate particles, and atmospheric sulfuric acid.

**Sustainable yield** - The maximum rate of forced withdrawal from a source of water, which does not result in a loss of water quality or loss of rate of withdrawal.

## **T**

**Tactical Force** - A combat force, together with any service force required for its direct support, organized under one commander to operate as a unit and to engage the enemy in combat.

**Tactical maneuver** - A maneuver designed to perform a specific task or a task with a specific goal.

**Tactical** - Using tactics in the use of weapons or forces deployed at the battlefield in such a way as to achieve a given objective.

**Tax map key (TMK)** - The description of a physical land unit of the state, using the division, zone, section, plat, and parcel. It is prepared especially for taxation purposes and in accordance with the requirements of the City and County of Honolulu Real Property Assessment Division and the County of Hawai'i Real Property Tax Division.

**Taxon/taxa** - The name applied to a taxonomic group in a formal system of nomenclature.

**Threatened Species** - any species likely to become endangered in the near future

**Threshold limit value (TLV)** - An occupational air quality guideline recommended by the ACGIH. ACGIH TLVs are typically adopted as 8-hour time-weighted averages.

**Tone-Corrected Perceived Noise Level** - A decibel weighting system originally developed for evaluation of aircraft noise levels by adjusting PNL values for the presence of dominant pure tones. In current practice, this descriptor is used primarily as a step in the computation of EPNL values which are used for aircraft noise level certification purposes.

**Toxic agent** - A chemical compound or a mixture of compounds that exerts an adverse physiological effect on a living organism.

**Toxic** - Poisonous. Exerting an adverse physiological effect on the normal functioning of an organism's tissues or organs through chemical or biochemical mechanisms following physical contact or absorption.

**Tracers** - Ammunition containing a chemical composition to mark the flight of projectiles by a trail of smoke or fire.

**Troop** - The company-sized elements in the Reconnaissance, Surveillance, and Target Acquisition Squadron.

U

**Unexploded Ordnance (UXO)/Munitions and Explosives of Concern (MEC)** - Explosive ordnance that has been primed, fuzed, armed, or otherwise prepared for action, and that has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause.

**Ungulates** - Hoofed animals.

**Unified Land Operations (ULO)** - Describes how the Army seizes, retains, and exploits the initiative to gain and maintain a position of relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution. ADP 3-0, Unified Land Operations, is the Army's basic warfighting doctrine and is the Army's contribution to unified action.

**Unique agricultural land** - Land other than prime agricultural land that is used for producing specific high-value food and fiber crops, as determined by the Secretary of Agriculture. Unique agricultural land possesses a special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farm methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits, and vegetables.

V

**Vehicle miles traveled (VMT)** - A measure of both the volume and extent of motor vehicle operation; the total number of vehicle miles traveled within a specified geographical area (whether the entire country or a smaller area) over a given period of time.

**Viewshed** - The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

**Volatile Organic Compound (VOC)** - one of a number of chemicals, including benzene and acetone, that evaporate or vaporize readily and are harmful to human health and the environment.

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