

## 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### 3.0 INTRODUCTION

This chapter describes existing environmental conditions (affected environment) for resources potentially affected by the alternatives described in Chapter 2 (Description of Proposed Action and Alternatives). Potential biological, physical, cultural, and social resource impacts (environmental consequences) are identified, described, and evaluated for the alternatives. Due to the concerns regarding wildfire, and the frequency of fires in the region, the potential for wildfire as a result of military activities at Naval Weapons Systems Training Facility (NWSTF) Boardman is addressed in its own resource category. As discussed in Chapter 2, training activities would continue at current levels under the No Action Alternative. In accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [C.F.R.] §1502.14[d]), analysis of the No Action Alternative is required to provide a baseline against which the effects of a proposed action and all other alternatives can be compared. The No Action Alternative analyzed in this Environmental Impact Statement (herein referred to as EIS) involves continuing military training and testing activities at NWSTF Boardman at regular and historic levels. No range enhancements would be made under the No Action Alternative and no new airspace would be established. The potential impacts of the No Action Alternative are compared to the potential impacts of activities proposed under Alternative 1 and Alternative 2.

The affected environment and environmental consequences are described and analyzed according to 13 resource categories. The resource categories and their sections in this EIS are as follows:

- Soils (3.1)
- Air Quality (3.2)
- Water Quality (3.3)
- Noise (3.4)
- Vegetation (3.5)
- Wildlife (3.6)
- Land Use and Recreation (3.7)
- Socioeconomics and Environmental Justice (3.8)
- Transportation (3.9)
- Cultural Resources (3.10)
- American Indian Traditional Resources (3.11)
- Public Health and Safety and Protection of Children (3.12)
- Wildfire (3.13)

As mentioned in Section 1.1 (Introduction), since the proposed action contemplates activities associated with special use airspace (SUA), the United States Department of the Navy (Navy) requested the Federal Aviation Administration's (FAA's) cooperation (January 10, 2012, Appendix B) in accordance with the guidelines described in the Memorandum of Understanding between the FAA and the Department of Defense (DoD) concerning SUA Environmental Actions, dated October 4, 2005. In addition to the Navy's policies and procedures for addressing the National Environmental Policy Act (NEPA), the FAA similarly follows policies and procedures to ensure compliance with NEPA as described in FAA Order 1050.1. The FAA has identified 18 impact categories that it examines for most of its actions. Many of the FAA impact categories are interrelated and are discussed under multiple resource categories as defined above. Table 3.0-1 presents the FAA Impact Category, as well as where it is addressed within this EIS. If the

proposed action and its alternatives will not cause impacts within specific FAA impact categories, a brief statement describing the basis for that conclusion is presented within Table 3.0-1, and this impact category is not carried further in the analysis within this Final EIS.

**Table 3.0-1: FAA Impact Categories and EIS Categories**

<b>FAA Impact Category</b>	<b>EIS Resource Category Where Addressed</b>	<b>NOTES</b>
Air Quality	Air Quality (3.2)	
Biological Resources (includes Fish, Wildlife, and Plants)	Vegetation (3.5) Wildlife (3.6)	Fish are not addressed in this EIS, as there are no habitats in the ROI that support fish. Military training activities proposed under the Action Alternatives do not overlap with habitats that support aquatic life.
Climate	Climate Change (4.5)	
Coastal Resources	n/a	Coastal Resources are not addressed in this EIS as the ROI is geographically separated from coastal areas.
Department of Transportation Act, Section 4(f)	n/a	EIS does not require the use of publicly owned land off a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, State, or local significance
Farmlands	Soils (3.1) Vegetation (3.5) Land Use and Recreation (3.7) Socioeconomics and Environmental Justice (3.8)	
Hazardous Materials, Pollution Prevention, and Solid Waste	Soils (3.1) Air Quality (3.2) Water Quality (3.3)	
Historical, Architectural, Archeological, and Cultural Resources	Cultural Resources (3.10) American Indian Traditional Resources (3.11)	Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of title 49, United States Code.
Land Use	Land Use and Recreation (3.7)	

**Table 3.0-1: FAA Impact Categories and EIS Categories (continued)**

FAA Impact Category	EIS Resource Category Where Addressed	NOTES
Natural Resources and Energy Supply	n/a	The use of natural resources other than for fuel needs to be examined only if the action involves a need for unusual materials or those in short supply. The Proposed Action would have no effect on natural resources of the area and energy supplies other than routine consumption of fossil fuels during construction and military readiness activities.
Noise and compatible land use	Noise (3.4)	Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of title 49, United States Code.
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	Socioeconomics and Environmental Justice (3.8) Public Health and Safety and Protection of Children (3.12)	
Visual Effects (including Light Emissions)	Cultural Resources (3.10) American Indian Traditional Resources (3.11)	While visual impacts are discussed in the EIS, light emissions will be negligible and are geographically separated from areas adjacent to public use of lands, thus minimizing the possibility of annoyance from light emissions.
Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)	Water Quality (3.3)	No year-round surface waters occur on NWSTF Boardman. The only natural surface water occurs as rainfall runoff, creating intermittent flows in Juniper and Well Springs canyons on the south end of NWSTF Boardman.  Planning level surveys determined that wetlands do not exist at NWSTF Boardman and hydric soils (soil that formed under conditions of saturation, flooding or ponding) are not present.

Notes: EIS = Environmental Impact Statement, FAA = Federal Aviation Administration, n/a = Not Applicable, NWSTF = Naval Weapons Systems Training Facility, ROI = Region of Influence

With regards to FAA Impact Categories, Compatible Land Use and Historical, Architectural, Archeological, and Cultural Resources: Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of Title 49, United States Code."

During the environmental impact analysis process, the resources analyzed are identified and the expected geographic scope of potential impacts for each resource is defined. Known as the resource's Region of Influence (ROI), this area is defined as the geographic area in which impacts to the subject resource have the potential to occur. For the majority of resource categories, the ROI coincides with the air and land training areas of NWSTF Boardman. For some resources, the ROI encompasses broader regions.

Describing the environment and analyzing impacts requires a comprehensive and systematic review of relevant literature and data to ensure only the best available information is used for analysis. Section 3.0.1 (Data Sources and best Available Data) describes what data were used and the characteristics of the best available data.

The overall approach to analysis is provided in Section 3.0.2 (General Approach to Analysis). This section describes how the Proposed Action is broken down into stressors that are analyzed for each resource. It provides a general analysis framework, preliminary impact screening, resource-specific individual stressor analysis, synthesis of ecosystem effects of the Proposed Action, and introduction to cumulative impacts analysis.

This chapter concludes by assessing impacts to physical resources, biological resources, and human resources (Sections 3.1 through 3.13). Each resource section has a more focused description of the regulatory framework applicable to that resource, a more focused approach to analysis, a discussion of the affected environment of that resource, the environmental consequences of the Proposed Action and alternatives, a summary of the impacts to that resource, and the regulatory determination of impacts to that resource.

In determining environmental consequences, this chapter incorporates current resource protection measures such as standard operating procedures, management practices (MPs), and conservation measures that are integral to the activities covered by the Proposed Action and its Alternatives. If the analysis in a resource section identifies a potential impact to the resource from the Proposed Action, methods are proposed that would minimize or mitigate the potential impacts identified. These mitigation measures are discussed at the end of each resource section and summarized in Chapter 5 (Management Practices, Monitoring, and Mitigation Measures).

### **3.0.1 DATA SOURCES AND BEST AVAILABLE DATA**

A systematic review of relevant literature, regulatory requirements, mitigation provisions, and data was conducted to complete the technical and compliance analysis for each resource category. Both published and unpublished documents were used, including journals, books, periodicals, bulletins, DoD operations reports, theses, dissertations, endangered species recovery plans, species management plans, and other technical reports published by government agencies, private businesses, or consulting firms.

### **3.0.2 GENERAL APPROACH TO ANALYSIS**

The EIS interdisciplinary team composed of Navy and National Guard subject matter experts used a screening process to analyze training activities to identify specific activities in the alternatives that could act as stressors to resources. Other information that was evaluated to identify and analyze stressors included public and agency scoping comments, previous environmental analyses, agency consultations, resource-specific information, and applicable laws, regulations, and executive orders. This process was used to focus the information presented and analyzed in the affected environment and environmental

consequences sections of this EIS. Table 3.0-2 summarizes range activities, the number of yearly training activities that would be associated with each alternative, and the stressors that potentially would occur related to those activities. The proposed training activities were evaluated to identify specific components that could act as stressors by having direct or indirect impacts on the environment. Matrices were prepared to identify associations among stressors, resources, training activities, and alternatives (Table 3.0-2 and Table 3.0-3). Stressors for human resources (land use and recreation, socioeconomic resources, transportation, cultural resources, traditional treaty rights, and public health and safety) are presented under “Other” in Table 3.0-3.

The stressors and some of the activities that could cause them include:

- Noise (Fixed-Wing Aircraft Noise, Helicopter Noise, Range Noise [Small Arms Firing, Large Arms Firing, Impulsive/Land Demolition], Non-explosive Practice Munitions Impact Noise, Vehicle/Equipment Noise, Construction Noise)
- Physical Strikes (Non-explosive Practice Munitions, Vehicle/Equipment, or Aircraft [Collisions with Organisms/Habitat])
- Ground Disturbing Activities or Alteration of Habitat (Construction, Military Training Activities, Maintenance Activities, Training-related Wildfire, Invasive Plants)
- Energy (Electromagnetic Radiation, Lasers)
- Air Pollutant Emissions (Criteria Air Pollutant Emissions, Hazardous Air Pollutant Emissions, Fugitive Dust Emissions)
- Potential Release of Soil or Water Contaminants (Incidental Spills, Non-Explosive Practice Munitions, Domestic Wastewater Treatment and Disposal)
- Other (Groundwater Withdrawal, Air Activities, Land Activities)

**Table 3.0-2: Range Activities and Potential Stressors**

Range Activity	Location	Annual Number of Training Events <sup>1</sup>			Stressors						
		No Action Alternative	Alternative 1	Alternative 2	Noise	Physical Strike	Ground Disturbing Activities/Alteration of Habitat	Energy	Air Pollutant Emissions	Release of Soil or Water Contaminants	Other
Construction of Range Elements	Rangewide	n/a	n/a	n/a	✓	✓	✓		✓		✓
<b>Air Warfare</b>											
Surface-to-Air Counter Tactics and Low Altitude Tactical Training	Boardman MOA, Boardman MOA (proposed extension) Boardman Low MOA (proposed) Restricted Areas	257	1,047	1,047	✓	✓			✓		✓

**Table 3.0-2: Range Activities and Potential Stressors (continued)**

Range Activity	Location	Annual Number of Training Events <sup>1</sup>			Stressors							
		No Action Alternative	Alternative 1	Alternative 2	Noise	Physical Strike	Ground Disturbing Activities/Alteration of Habitat	Energy	Air Pollutant Emissions	Release of Soil or Water Contaminants	Other	
<b>Strike Warfare</b>												
Air-to-Ground Bombing Exercise	Main Target Area	133	133	133	✓	✓	✓	✓	✓	✓	✓	
Air-to-Ground Gunnery Exercise	Main Target Area, Strafe Pit, DMPTR (proposed)	20	70	70	✓	✓	✓	✓	✓	✓	✓	
Air-to-Ground Missile Exercise/High Speed Anti-Radiation Missile Exercise (non-firing)	Main Target Area, Boardman MOA, Restricted Areas	65	180	180	✓	✓		✓	✓	✓	✓	
Intelligence, Surveillance, and Reconnaissance	Boardman MOA, Restricted Areas	9	9	9	✓	✓					✓	
<b>Electronic Warfare</b>												
Chaff and Electronic Attack and Electronic Support	Boardman MOA, Restricted Areas	193	500	500	✓	✓		✓	✓		✓	
<b>Support Activities</b>												
Unmanned Aircraft Systems/Tactical Unmanned Aircraft Systems Operations	TUAS Airfield, R-5701 (all), R-5706	896	1,709	1,709	✓	✓			✓		✓	
Insertion and Extraction	Drop Zone (Proposed)	0	12 Days	12 Days	✓	✓	✓ <sup>2</sup>		✓		✓	
Small Arms Training	Main Target Area, MPMGR (Proposed)	13 Days	18 Days	18 Days	✓	✓	✓		✓	✓	✓	
Mortar Firing	Main Target Area	0	0	18	✓	✓	✓ <sup>2</sup>		✓	✓	✓	
<b>Conduct Airborne Operations</b>												
Night Vision Goggle Low-Level Training	Boardman MOA, Restricted Areas	48	48	48	✓	✓		✓	✓		✓	
<b>Conduct Fire Support</b>												
Convoy Live Fire Training	CLFR (Proposed)	0	45 Days	45 Days	✓	✓	✓		✓	✓	✓	
DMPTR Training <sup>3</sup>	DMPTR (Proposed)	0	21 Days	0	✓	✓	✓	✓	✓	✓	✓	
Multipurpose Machine Gun Range Training <sup>4</sup>	MPMGR (Proposed)	0	117 Days	117 Days	✓	✓	✓		✓	✓	✓	

**Table 3.0-2: Range Activities and Potential Stressors (continued)**

Range Activity	Location	Annual Number of Training Events <sup>1</sup>			Stressors						
		No Action Alternative	Alternative 1	Alternative 2	Noise	Physical Strike	Ground Disturbing Activities/Alteration of Habitat	Energy	Air Pollutant Emissions	Release of Soil or Water Contaminants	Other
<b>Ordnance Disposal and Demolition</b>											
Explosive Demolition Training	DTR (Proposed)	0	50	50	✓		✓		✓	✓	✓

<sup>1</sup> Annual number of events unless noted otherwise

<sup>2</sup> While there will be no ground disturbing construction activities, personnel will still be present at these locations, thus potentially disturbing the area

<sup>3</sup> Vehicle-mounted, crew-served weapons and helicopter door gunnery training and qualification

<sup>4</sup> Crew-served machine gun and sniper rifle training and qualification

Notes: MOA = Military Operations Area, MPTR = Multipurpose Training Range, TUAS = Tactical Unmanned Aircraft Systems, MPMGR = Multipurpose Machine Gun Range, DMPTR = Digital Multipurpose Training Range, CLFR = Convoy Live Fire Range, DTR = Demolition Training Range, n/a = not applicable

**3.0.2.1 Resources and Issues Evaluated**

Physical resources and issues evaluated include soils, water quality, and air quality. Biological resources (including threatened and endangered species) evaluated include, but are not limited to mammals, birds (including migratory birds), and vegetation. Human resources evaluated in this EIS include land use, cultural resources, socioeconomics, and public health and safety. The methods used in this EIS to assess resource impacts associated with the proposed alternatives include the procedural steps outlined below:

1. Describe existing resource conditions.
2. Review existing federal and state regulations and standards relevant to resource-specific management and/or protection.
3. Identify critical resource conditions or areas that require specific analytical attention, such as designated listed species critical habitat.
4. Analyze the activities to determine what stressors may affect the particular resource.
5. Review and analyze data sources for information on stressor impacts to the resource, including modeling efforts and scientific research.
6. Determine specific impacts to the resource associated with the stressors that could result from Navy and Guard activities.
7. Adjust initial impact determinations to account for use of standard operating procedures, MPs, and other mitigation measures.
8. Determine overall impacts to the resource associated with the Proposed Action and Alternatives, given the applicable regulatory framework.
9. Summarize impact findings with respect to resource effects and compliance with applicable laws, regulations, and Navy and National Guard Bureau policies for each alternative.

Additional steps may be added to some resource evaluations to address unique resource characteristics or specific regulatory and public-issue concerns.

### **3.0.2.2 Resource-Specific Effects Analysis for Stressors**

The direct and indirect effects of each stressor carried forward for further analysis were analyzed for each resource. Quantitative and semi-quantitative methods were used to the extent possible, but inherent scientific limitations required the use of qualitative methods for most stressor/resource interactions. Resource-specific methods are described in respective sections of Chapter 3, where applicable. While specific methods used to analyze the effects of individual stressors varied by resource, the following generalized approach was used for all stressor/resource interactions:

- The frequency, duration, and spatial extent of exposure to stressors were analyzed for each resource. The frequency of exposure to stressors or frequency of a proposed activity was characterized as intermittent or continuous, and was quantified in terms of number per unit of time when possible. Duration of exposure was expressed as short- or longer-term, and was quantified in units of time (seconds, minutes, hours, etc.) when possible. The spatial extent of exposure was generally characterized as widespread or localized, and the stressor footprint or area (e.g., square feet, square kilometers) was quantified when possible.
- An analysis was conducted to determine whether and how resources are likely to respond to stressor exposure or be altered by stressor exposure based upon available scientific knowledge. This step included reviewing available scientific literature and empirical data. For many stressor/resource interactions, a range of likely responses or endpoints was identified. For example, exposure of an organism to sound produced by an explosion could result in no response, a physiological response such as increased heart rate, a behavioral response such as being startled, or injury or mortality.
- The information obtained from the first two bullet points was used to analyze the likely effects of individual stressors on a resource and to characterize the type, duration, and intensity (severity) of effects. The type of effect was generally defined as beneficial or adverse, and further defined as a specific endpoint (e.g., change in behavior, mortality, change in concentration, loss of habitat, etc.). When possible, the endpoint was quantified. The duration of an effect was generally characterized as short-term (e.g., minutes, days, weeks, months, depending on the resource), long-term (e.g., months, years, decades, depending on the resource), or permanent. For biological resources, the analysis started with individual organisms and their habitats, and then addressed populations, species, and communities, as appropriate. All of the above information was analyzed to make a significance determination for each resource individually.

**Table 3.0-3: Stressors Analyzed for Each Resource Category or Impact Topic**

Stressor	Resource Category or Impact Topic												
	Soils	Air Quality	Water Quality	Noise	Vegetation	Wildlife	Land Use and Recreation	Socioeconomics and Env. Justice	Transportation	Cultural Resources	American Indian Traditional Resources <sup>1</sup>	Public Health and Safety	Wildfire
<b>Noise</b>													
Aircraft Noise (Fixed-wing)				✓		✓				✓			
Aircraft Noise (Helicopter)						✓				✓			
Range Noise (Small Arms Firing)				✓		✓				✓			
Range Noise (Large Arms Firing)				✓		✓				✓			
Range Noise (Impulsive / Land Demolition)						✓				✓			
Non-explosive Practice Munitions Impact Noise						✓				✓			
Vehicle/Equipment Noise				✓		✓				✓			
Construction Noise				✓									
<b>Physical Strikes</b>													
Non-explosive Practice Munitions Strikes						✓				✓			
Vehicle/Equipment Strikes						✓				✓			
Aircraft Strikes						✓							
<b>Ground Disturbing Activities and Alteration of Habitat</b>													
Construction Activities	✓	✓	✓		✓	✓				✓			✓
Military Training Activities	✓	✓	✓		✓	✓				✓			✓
Maintenance Activities	✓	✓	✓		✓	✓				✓			
Training-related Wildfire	✓				✓	✓							✓
Invasive Plants					✓	✓							
<b>Energy</b>													
Electromagnetic Radiation						✓						✓	
Lasers						✓						✓	
<b>Air Pollutant Emissions</b>													
Criteria Air Pollutant Emissions		✓											
Hazardous Air Pollutant Emissions		✓											
Fugitive Dust Emissions		✓											
<b>Potential Release of Soil or Water Contaminants</b>													
Incidental Spills	✓		✓										
Non-Explosive Practice Munitions	✓		✓										
Domestic Wastewater Treatment and Disposal			✓										

**Table 3.0-3: Stressors Analyzed for Each Resource Category or Impact Topic (Continued)**

Stressor	Resource Category or Impact Topic												
	Soils	Air Quality	Water Quality	Noise	Vegetation	Wildlife	Land Use and Recreation	Socioeconomics and Env. Justice	Transportation	Cultural Resources	Tribal Treaty Rights <sup>1</sup>	Public Health and Safety	Wildfire
<b>Other</b>													
Groundwater Withdrawal			✓										
Air Activities							✓	✓	✓		✓	✓	
Land Activities							✓	✓	✓		✓	✓	

<sup>1</sup>Tribal Treaty Rights are not included in the stressor-based analysis

### 3.0.2.3 Cumulative Impacts

A cumulative impact is the impact on the environment that results when the incremental impact of the action is added to other past, present, and reasonably foreseeable future actions. The cumulative impacts analysis (Chapter 4) considers other actions regardless of what agency (federal or non-federal) or person undertakes the actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R. §1508.7). The goal of the analysis is to provide the decision makers with a “big picture” view of the effects on the future sustainability of important resources, not only of the proposed action and alternatives, but all other actions occurring within the same geographic region.

Similar to the resource-specific combined effects analysis described above, the cumulative impact analysis considered additive, synergistic, and antagonistic effects in relation to past, present, and reasonably foreseeable actions. The following process was used to identify the cumulative impacts of the Proposed Action and alternatives.

1. Other past, present, and reasonably foreseeable future actions that have affected, or will affect, the same resources as the proposed action were identified through the scoping process, communications with other agencies, a review of other military activities, literature review, and previous NEPA analyses. Individual actions were grouped to the extent possible so that the cumulative impacts analysis could focus on aggregate effects of the actions.
2. The effects of past, present, and reasonably foreseeable future actions on each resource were identified and summarized. Available information concerning the effects of other actions was derived from existing NEPA documents, the literature, and best professional judgment.
3. The incremental effects of each alternative were analyzed to determine if a significant cumulative effect would occur when added to the effects of past, present, and reasonably foreseeable actions.

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