

Public Health and Safety and  
Protection of Children

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## 1 **3.11 PUBLIC HEALTH AND SAFETY AND PROTECTION OF CHILDREN**

### 2 **3.11.1 INTRODUCTION**

#### 3 **3.11.1.1 Definition**

4 Public health and safety issues are defined as those elements of the Proposed Action that directly affect  
5 the health and safety of the public in the areas adjacent to Naval Weapons Systems Training Facility  
6 (NWSTF) Boardman. The United States (U.S.) Department of the Navy's (Navy's) policy is to use every  
7 possible precaution in planning and executing all activities in order to prevent injury to people or  
8 damage to property. Public safety or health concerns are minimized due to these precautions and  
9 because the public normally does not have access to Navy-controlled areas.

10 Proposed Action effects that do not directly affect an individual's health or safety are not considered in  
11 this assessment. Also, concerns that affect single individuals and isolated incidents may not rise to the  
12 level of a public health or public safety issue. Noise effects are not addressed in this section but are  
13 analyzed in Section 3.4, Acoustic Environment; thus, the resource to be evaluated for Proposed Action  
14 effects is the collective health and safety of groups of individuals, especially children, in the areas  
15 adjacent to NWSTF Boardman training areas.

16 Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks*,  
17 focuses on environmental health risks and safety risks that may affect children. This EO was prompted  
18 by the recognition that children are more sensitive than adults to adverse environmental health and  
19 safety risks because they are still undergoing physiological growth and development. Analysis for EO  
20 13045 requires assessment of readily available information regarding demographic data on the local,  
21 regional, and national populations, and, in particular, children less than 18 years old to evaluate the  
22 number and distribution of children in the region and whether these children are exposed to  
23 environmental health and safety risks from the Proposed Action. Information to support this analysis is  
24 derived from the U.S. Census Bureau (U.S. Census 2000 and U.S. Census 2010) and identified locations  
25 with potentially high concentrations of children, such as schools.

#### 26 **3.11.1.2 Regional Setting**

27 All military training activities at NWSTF Boardman occur either on the ground, in the air, or a  
28 combination of both. Ground training activities occur at NWSTF Boardman approximately 2.5 miles (mi.)  
29 (4 kilometers [km]) south of the City of Boardman in Morrow County, Oregon. The surrounding areas are  
30 composed of agricultural lands and undeveloped areas. NWSTF Boardman is composed of Special Use  
31 Airspace (SUA) and Navy-controlled lands. Special Use Airspace has defined vertical and lateral limits  
32 established by the Federal Aviation Administration to segregate air activities that may be hazardous to  
33 non-participating aircraft.

#### 34 **3.11.1.3 Region of Influence**

35 The Region of Influence for public health and safety concerns includes the entire NWSTF Boardman  
36 (including both SUA and Navy-controlled lands) and the immediately adjacent lands. Areas of  
37 heightened sensitivity to public health and safety concerns within the region of influence include areas  
38 where large groups of people may gather.

#### 39 **3.11.1.4 Determination of Significance**

40 Factors used to assess the significance of potential impacts from military readiness activities at NWSTF  
41 Boardman include the extent or degree to which an alternative would have a serious negative impact on

1 public health or disproportionate environmental health and safety risks specific to children. Types of  
2 activities that could pose a risk to public health are those in which hazardous constituents are released  
3 to the environment in substantial amounts, or in which hazardous levels of energy are released. Types of  
4 activities that raise public safety concerns are those where members of the public are proximate or  
5 within the footprint of a potentially hazardous training activity. Land detonations of explosives in a  
6 controlled training environment on Navy property, where a substantial buffer exists between the  
7 training site and adjacent public areas (i.e., outside of a Safety Danger Zone), are deemed not to  
8 constitute a risk to public safety (see Figure 2-11).

### 9 **3.11.2 AFFECTED ENVIRONMENT**

#### 10 **3.11.2.1 Hazards Overview**

##### 11 **3.11.2.1.1 Electromagnetic Radiation**

12 Communications and electronic devices such as radar, electronic jammers, and other radio transmitters  
13 produce electromagnetic radiation. Equipment that produces an electromagnetic field has the potential  
14 to generate hazardous levels of electromagnetic radiation. An electromagnetic radiation hazard exists  
15 when transmitting equipment generates electromagnetic fields that induce currents strong enough or  
16 voltages high enough to trigger explosive devices in ordnance, to directly harm people or wildlife, or to  
17 create sparks that can ignite flammable substances. Hazards are reduced or eliminated by establishing  
18 minimum distances between electromagnetic radiation emitters and people, ordnance, and fuels.

19 Hazards of electromagnetic radiation to personnel, hazards of electromagnetic radiation to ordnance,  
20 and hazards of electromagnetic radiation to fuel have been determined for electromagnetic radiation  
21 sources, based on their operating frequency and power output. Personnel use low-power  
22 communications equipment, such as two-way radios and cell phones, during training. There are two  
23 surface-to-air emitters located on NWSTF Boardman in support of the Electronic Combat events, which  
24 have a Radiation Hazard Zone of 5 feet (ft.) (1.5 meters [m]). The emitters are positioned as to not allow  
25 the Radiation Hazard Zone to extend beyond the property of the facility. No other known hazards to  
26 personnel, ordnance, or fuel exist at NWSTF Boardman from electromagnetic radiation, and there are no  
27 hazards to the public in off-site areas; therefore this issue will not be addressed further in this  
28 Environmental Impact Statement.

##### 29 **3.11.2.1.2 Hazardous Materials and Wastes**

30 Personnel at NWSTF Boardman use small quantities of hazardous materials at the administrative offices.  
31 These materials typically consist of various petroleum, oils, lubricants, compressed gases, and  
32 office supplies (e.g., toner, cleaning supplies). The small amount of hazardous waste generated at  
33 NWSTF Boardman comes from routine operations at support facilities (building, vehicle, and equipment  
34 maintenance), rather than directly from operations on the range itself. Typically, NWSTF Boardman  
35 generates waste only when a specific project, such as painting, is conducted. According to the Military  
36 Munitions Rule, the munitions included in the Proposed Action are not considered hazardous waste.

##### 37 **3.11.2.1.3 Training Ordnance**

38 Explosives (not high explosive), pyrotechnic devices, and other ordnance used for training are  
39 transported to NWSTF Boardman either from Naval Air Station (NAS) Whidbey Island, Umatilla Chemical  
40 Depot, or other sites outside the area, and used in accordance with Navy and Oregon National Guard  
41 standard operating procedures. Ammunition is transported to the site and stored temporarily until use.  
42 Twenty-four-hour security for stored ammunition is provided by an advance party from the attending  
43 Oregon National Guard unit, in accordance with Army Regulation 190-11 *Physical Security of Arms*,

1 *Ammunition, and Explosives* (U.S. Army 2006). The types and amounts of explosive materials that may  
2 be stored at a single location are determined by the quantity-distance requirements established by the  
3 Department of Defense (DoD) Explosives Safety Board. Explosive Safety Quantity Distance arcs  
4 determine the minimum safe separation between munitions storage areas and habitable structures.

#### 5 **3.11.2.1.4 Lasers**

6 Laser-guided training rounds are also dropped during training at NWSTF Boardman. These training  
7 rounds are non-explosive missile-shaped rounds that are released by the attacking aircraft and guided  
8 into the target by an “eye-safe” laser that is emitted from the aircraft. An air-to-ground bombing  
9 exercise can also include the use of lasers by ground units to simulate, identify, or mark targets for  
10 attack by aircraft. The hazard zone for laser spotting is contained within Navy-administered land on  
11 NWSTF Boardman. Standard operating procedures are implemented to protect the public from  
12 operational hazards related to laser spotting. All laser use areas undergo a command review to ensure  
13 safety of personnel and the public. Prior to use of a proposed laser area, a certified laser system safety  
14 officer surveys the area to ensure compliance with all applicable rules and regulations governing laser  
15 use. The procedures developed for an area are reviewed annually, and the area is resurveyed every  
16 three years to ensure the area remains in compliance. Lasers are not used under conditions that would  
17 affect the beam, such as in the presence of standing water or snow. The NWSTF Boardman current laser  
18 certification has lapsed, however, recertification will occur prior to any new use of the range.

#### 19 **3.11.2.1.5 Aircraft Accident Potential**

20 Aircraft supporting NWSTF Boardman training operate out of NAS Whidbey Island, National Guard  
21 locations, and from within NWSTF Boardman as well (Unmanned Aerial System [UAS] launched on site).  
22 Aircraft fly to and from NWSTF Boardman following Federal Aviation Administration (FAA) regulations  
23 and enter the airspace according to instructions from the controlling agency, Seattle Air Route Traffic  
24 Control Center (ARTCC). Additionally, during exercises, pilots typically avoid towns, noise-sensitive areas,  
25 and wilderness areas at prescribed vertical or horizontal distances. During flights, pilots avoid areas  
26 where obstructions to air navigation have been identified. UASs follow the same safety regulations as  
27 aircraft. Additionally, if a UAS loses radio or other contact, it is designed to circle in place until it can  
28 reacquire the signal. If it cannot, it is preprogrammed to return to a specific point.

29 Guidelines for establishing aviation safety zones around helicopter landing zones (LZs) are identified in  
30 NAVFAC P-80.3, and include clear zones and Accident Potential Zones (APZs). Infrequent helicopter  
31 activities—such as at NWSTF Boardman—require designation of a clear zone, but not APZs. The clear  
32 zone for Visual Flight Rule (VFR) aircraft is the same as the takeoff safety zone. The takeoff safety zone  
33 constitutes the area under the approach/departure surface until that surface is 50 to 100 ft. (15.24 to  
34 30.48 m) above the landing zone elevation; this zone must be free of obstructions.

#### 35 **3.11.2.1.6 Surface Danger Zone**

36 A surface danger zone (SDZ) is the mathematically predicted, three-dimensional area that a projectile or  
37 fragment could travel through and impact the earth, either by direct fire or ricochet. A SDZ is calculated  
38 using procedures found in Department of the Army Pamphlet 385-63 *Range Safety*. Except for areas on  
39 the ranges themselves, none of the SDZ areas would be disturbed during construction. A SDZ serves only  
40 as a human safety buffer downrange from a firing point and it must be controlled by the training unit.

#### 41 **3.11.2.1.7 Weapons Danger Zone**

42 A weapons danger zone (WDZ) encompasses the ground and airspace for lateral and vertical  
43 containment of projectiles, fragments, debris, and components resulting from the firing, launching,

1 and/or detonation of aviation delivered ordnance. This three-dimensional zone accounts for weapons  
2 accuracy, failures, and ricochets based on weapon type delivered by a specific aircraft type. WZDs  
3 represent the minimum safety requirements designed for aviation weapons training on Department of  
4 Defense ranges, and it must be controlled by the training unit.

#### 5 **3.11.2.1.8 Public Access and Proximity**

6 Public access to NWSTF Boardman is controlled per NASWHIDBEYINST 8020.8 Ground Entry/Access to  
7 NWSTF Boardman. The control of public access is for security reasons, and to safeguard against  
8 potential hazards associated with military activities, and is accomplished through the use of fences and  
9 posted signs at NWSTF Boardman. Due to the fences and posted signs installed on the boundaries of  
10 NWSTF Boardman and the distance an individual would have to walk to the proposed training ranges, it  
11 is not expected for individuals to wander onto the proposed new training ranges from the city of  
12 Boardman and other surrounding areas. Occasional trespassers have been observed on NWSTF  
13 Boardman and reported to the appropriate authorities. Standard operating procedures require that the  
14 Range Safety Officer ensure that a range and the associated SDZ is clear of trespassers prior to the  
15 commencement of training activities. The control of public access to NWSTF Boardman training areas is  
16 for safety concerns—to protect the public from harm. Additionally, the ranges on NWSTF Boardman are  
17 positioned away from the City of Boardman and they are located at least 3 mi. (4.83 km) into the  
18 property.

#### 19 **3.11.2.2 Protection of Children**

20 EO 13045 requires assessment of readily available information regarding demographic data on the local,  
21 regional, and national populations of children. Children are defined as individuals less than 18 years of  
22 age for the purposes of this assessment. Demographic data is derived from the U.S. Census Bureau (U.S.  
23 Census 2000 and U.S. Census 2010) and locations with potentially high concentrations of children, such  
24 as schools, are identified.

25 Children are not be expected to wander onto NWSTF Boardman from the City of Boardman due to  
26 fences and posted signs installed on the boundaries and the distance children would have to walk to the  
27 proposed training ranges. During operation of the training ranges, Range Control safety personnel  
28 ensure that there are no people forward of the firing line or in the target areas.

#### 29 **3.11.2.2.1 Population of Children**

30 Table 3.11-1 depicts percentage of population less than 18 years of age and average family size for the  
31 city, county, state, and nation, as well as for the two adjoining counties that underlie the NWSTF  
32 Boardman Military Operations Area (MOA), Gilliam and Umatilla. The City of Boardman's population of  
33 children is slightly higher compared to county, state, or national populations. Areas within the City of  
34 Boardman with higher concentrations of children are addressed in the following subsection.

#### 35 **3.11.2.2.2 Schools**

36 According to the Morrow County School District, approximately 1,000 students are enrolled in  
37 elementary, middle and high schools in the City of Boardman. Schools located within the region of  
38 influence (as defined by the maximum extent of acoustic impacts, see Section 3.4, Acoustic Environment  
39 [Airborne]) include the following public schools: Sam Boardman Elementary School, Windy River  
40 Elementary School, and Riverside Junior/Senior High School.

1 Of these schools, Sam Boardman and Windy River Elementary Schools are located closest to NWSTF  
 2 Boardman. These schools are located approximately 1.5 mi. (2.4 km) north of the northern border of  
 3 NWSTF Boardman.

4 **Table 3.11-1: Population of Children in the NWSTF Boardman Region of Influence**

	Census Year	City of Boardman	Morrow County	Gilliam County	Umatilla County	Oregon	U.S.
Population	2000 <sup>1</sup>	2,855	10,995	1,915	70,548	3,421,399	281,421,906
	2010 <sup>2</sup>	3,220	11,173	1,871	75,889	3,831,074	308,745,538
Population less than 18 years of age (%)	2000 <sup>1</sup>	38.1%	30.8%	23.2%	27.8%	24.7%	25.7%
	2010 <sup>2</sup>	35.1%	28.5%	18.8%	26.6%	22.6%	24.1%
Average family size	2000 <sup>1</sup>	3.66	3.28	2.85	3.14	3.02	3.14
	2010 <sup>2</sup>	3.70	3.25	2.74	3.17	3.00	3.14

<sup>1</sup>U.S. 2000 Census

<sup>2</sup>U.S. 2010 Census

### 5 **3.11.2.3 Range Sustainability Environmental Program Assessment**

6 The migration of hazardous substances off military ranges can pose a risk to public health. The Navy's  
 7 Range Sustainment Program is designed to ensure that Navy ranges remain operational while still  
 8 protecting human health and the environment for nearby communities during training. The Range  
 9 Sustainability Environmental Program Assessment (RSEPA) process is designed to assess environmental  
 10 impacts of testing and training operations and to implement measures to protect the environment when  
 11 needed. RSEPA was developed in response to a proactive Navy initiative, and is not driven by any federal  
 12 or state regulatory requirements. The RSEPA assessment process can include up to three main steps, but  
 13 not all ranges will require all three steps. There are decision points worked into the process to  
 14 determine if more study or action is needed to ensure the protection of human health and the  
 15 environment.

16 The three potential steps in RSEPA include the Range Condition Assessment (RCA), the Comprehensive  
 17 Range Evaluation (CRE), and Sustainable Range Oversight. The RSEPA process is repeated every five  
 18 years even if previous studies identified no potential off-site release of munitions constituents. The RCA  
 19 is primarily an information gathering process to answer two questions: is the range in full compliance  
 20 with environmental laws and policies and is there a threat of an off-range release of munitions  
 21 constituents? A CRE is a detailed investigation of the range. A CRE is conducted if there is not enough  
 22 information from the RCA to determine if munitions constituents could be moving off site, or if the RCA  
 23 finds evidence that munitions constituents could potentially be moving off site. Most CREs involve  
 24 sampling and they can include risk assessments. The sampling strategies are designed to examine only  
 25 potential off-range releases of munitions constituents. The CRE sampling results are used to assess the  
 26 potential for a release of munitions constituents off-range and determine if the potential off-range  
 27 levels could pose a threat to human health or the environment.

28 If the CRE determines that munitions constituents are migrating off-range at levels that may pose safety  
 29 concerns, the Navy will use a specified system of oversight known as Sustainable Range Oversight. This  
 30 process addresses off range releases through environmental cleanup, informing regulators and the

1 public throughout the process. Any off-range environmental clean-up that is needed will be conducted  
2 in accordance with the Navy's environmental restoration program and the Comprehensive  
3 Environmental Response, Compensation, and Liability Act (CERCLA). Additionally, in accordance with the  
4 Emergency Planning and Community Right-to-Know Act, the storage and use of hazardous materials at  
5 NWSTF Boardman will be disclosed to emergency planning entities and emergency notifications will be  
6 issued if hazardous materials are released in amounts greater than defined under CERCLA.

7 Protective measures can be implemented at any point during the RSEPA process to ensure public safety,  
8 sustain range operations, and maintain environmental compliance. Some examples of protective  
9 measures may include relocating targets, posting warning signs or erecting fences, and modifying actual  
10 use of the range.

#### 11 **3.11.2.4 Current Requirements and Management Practices**

12 There are specific and documented procedures in place to ensure that nonparticipants are not  
13 endangered by training actions. Medically trained personnel and first aid kits are on site for each  
14 training activity in the unlikely event of an injury. The presence of fences around NWSTF Boardman, and  
15 the use of gates and signs to control access, helps to protect the public from potentially hazardous  
16 training activities. Monitoring of training events serves to identify potential public health and safety risks  
17 and avoid them.

##### 18 **3.11.2.4.1 Range Planning and Control**

19 Factors considered in evaluating the impact of the training on public safety include proximity of the  
20 activity to public areas; access control; schedule (time of day, day of week); frequency, duration, and  
21 intensity of activities; range safety procedures; operational control of hazardous activities or events; and  
22 safety history. Range users are instructed to discuss planned activities with the range scheduler to  
23 ensure that current and applicable range procedures are applied prior to conducting any activities.

24 Current range control procedures at NWSTF Boardman limit unanticipated interactions with the public.  
25 NWSTF Boardman areas are fully fenced; entrance into these areas is controlled by unmanned gates.  
26 Signs also are posted to warn the public of potentially hazardous activities. Trainers and exercise  
27 participants are responsible for assuring that nonparticipants are not close enough that they are at risk  
28 during all training activities.

##### 29 **3.11.2.4.2 Hazardous Materials and Wastes**

30 NWSTF Boardman has a *Hazardous Control and Management Plan*, Authorized Use List, and a Hazard  
31 Communication Program. Material Safety Data Sheets are available for the hazardous materials stored  
32 there. Navy personnel at NWSTF Boardman receive initial and periodic refresher training in the proper  
33 storage, handling, and management of hazardous materials. NWSTF Boardman maintains a Conditionally  
34 Exempt Small Quantity Generator status for hazardous waste, and the facility is not required to have an  
35 Environmental Protection Agency Hazardous Waste Generator Identification number. Hazardous wastes  
36 are disposed of through local vendors (e.g., Safety Kleen provides a parts-cleaning service for vehicle  
37 maintenance). Some hazardous materials that are no longer needed at NWSTF Boardman are  
38 transported to NAS Whidbey Island for reassignment in compliance with the Hazardous Materials  
39 Transportation Act, U.S. Department of Transportation and Oregon Department of Transportation  
40 regulations. Some of these materials may be determined to be excess at that point and may then be  
41 generated as hazardous wastes, but this would occur at NAS Whidbey Island.

#### 1 **3.11.2.4.3 Unexploded Ordnance**

2 Currently, users on the ground of NWSTF Boardman are made aware of unexploded ordnance hazards  
3 by signage warning of areas where unexploded ordnance clearance has not been confirmed as well as  
4 safety briefings provided prior to conducting activities on NWSTF Boardman.

### 5 **3.11.3 ENVIRONMENTAL CONSEQUENCES**

6 Public health and safety is an interdisciplinary issue—aspects of which are intertwined with other  
7 environmental topics. Hazardous air pollutants are addressed in Section 3.2, Air Quality, in accordance  
8 with the Clean Air Act’s National Emissions Standards for Hazardous Air Pollutants regulations. Human  
9 annoyance and the potential for hearing loss from training noise are addressed in Section 3.4, Acoustic  
10 Environment. Transportation of project personnel on public roads is addressed in Section 3.9  
11 Transportation. The remaining public health and safety issues are addressed in this section.

12 This resource section focuses on groups of activities that could pose a credible risk to public health and  
13 safety. Similar types of activities are grouped together for ease of analysis. Types of activities that could  
14 pose a risk to public health are those in which hazardous constituents are released to the environment  
15 in substantial amounts, or in which hazardous levels of energy are released. Types of activities that raise  
16 public safety concerns are those where members of the public are proximate or within the footprint of a  
17 potentially hazardous training activity. Land detonations of explosives in a controlled training  
18 environment on Navy property, where a substantial buffer exists between the training site and adjacent  
19 public areas (i.e., outside of a Safety Danger Zone), are deemed not to constitute a risk to public safety  
20 (see Figure 2-11).

#### 21 **3.11.3.1 Approach to Analysis**

22 Training activities are considered to have a significant impact on public health or safety if the general  
23 public is substantially endangered. Most of the training activities consist of individuals, vehicles, and  
24 equipment stationed at or moving within NWSTF Boardman. Those activities that take place wholly  
25 within Navy-controlled areas have little potential to affect public safety in the absence of unauthorized  
26 public access. Some activities take place within NWSTF Boardman and are designed to be wholly  
27 contained therein, but have some potential to project secondary effects outside of NWSTF Boardman.  
28 For each training activity or group of similar activities, risks to the public are estimated, taking into  
29 consideration current safety procedures for range activities.

#### 30 **3.11.3.2 No Action Alternative**

##### 31 **3.11.3.2.1 Land Activities**

32 NWSTF Boardman training activities use live ammunition, such as small- and non-exploding medium-  
33 caliber rounds, and non-explosive practice bombs (see Table 2-2). Activities utilizing live ammunition do  
34 not project hazardous effects off site because of their size, and because safety zones are established  
35 specifically to control these effects. Routine training activities conducted within NWSTF Boardman pose  
36 little risk to public health or safety outside of the training areas. All live ammunition to be utilized in  
37 training activities on NWSTF Boardman would be transported to the site at the time of training and  
38 removed from the site following completion of training exercises. Transportation and storage of training  
39 materials in accordance with federal, state, and Navy requirements pose no substantial risk to public  
40 safety.

41 Training activities at NWSTF Boardman take place in well-defined locations under the close supervision  
42 of experienced military personnel. The same policies and procedures that protect training participants

1 from injury or adverse health exposures would protect members of the public who were inadvertently  
2 present in the vicinity. However, trainers and exercise participants watch for the approach of  
3 nonparticipants, and respond accordingly; thus, no significant impacts to public safety are expected  
4 under the No Action Alternative.

#### 5 **3.11.3.2.2 Air Activities**

6 Air activities under the No Action Alternative include the use of fixed-wing aircraft, helicopters, and  
7 Unmanned Aerial Systems, which are involved in approximately 1,815 sorties per year (Table 2-4).  
8 Aircraft supporting NWSTF Boardman training operate out of NAS Whidbey Island. Transit routes are  
9 typically military training routes, substantially reducing the risk to the general public in the event of an  
10 accident. Aircraft participate in the Anti-Air Warfare, Strike Warfare, Electronic Combat, and Support  
11 Activities and conduct airborne operations. During these exercises, pilots would typically avoid towns,  
12 noise-sensitive areas, and wilderness areas at prescribed vertical or horizontal distances. In areas with  
13 wind turbine development, there may be increased safety risks due to additional structures in the area.  
14 However, these areas are not in heavily populated areas and would therefore not pose an increased risk  
15 to public health and safety. Given the use of military training routes and the avoidance of flights over  
16 public areas, aircraft activities associated with the No Action Alternative would have no significant  
17 impacts on public safety.

#### 18 **3.11.3.2.3 Protection of Children**

19 Based on the analysis presented in this Environmental Impact Statement on Air Quality, Water  
20 Resources, and Noise associated with the No Action Alternative, the following conclusions are presented  
21 in regard to human health and environmental effects to children:

- 22 • Air Quality (Section 3.2) – Air emissions do occur from the No Action Alternative but do not pose  
23 human health or environmental risks as emissions are within or below historical or desired air  
24 quality conditions, and therefore do not pose environmental health risks to children that may  
25 disproportionately affect children, as all surrounding communities are affected by air emissions  
26 from this action.
- 27 • Water Resources (Section 3.3) – There is little chance for an incidental spill to reach  
28 groundwater if one were to occur based on the response procedures in place and the small  
29 quantities of materials and wastes used and generated at NWSTF Boardman. Non-explosive  
30 practice munitions would have negligible effects on groundwater under the No Action  
31 Alternative because potential contaminants are not expected to migrate to groundwater.  
32 Domestic wastewater would continue to be treated by a septic system serving the  
33 Administrative Area. Based on the limited full time presence at NWSTF Boardman  
34 (approximately six personnel), loadings to the system would be low and the effects to  
35 groundwater under the No Action Alternative would be negligible. While current groundwater  
36 usage data are not available for NWSTF Boardman, use is limited based on the limited number  
37 of full time personnel and the limited needs to support training. Because water discharges do  
38 not have significant impacts to the local water resources at NWSTF Boardman, they do not pose  
39 environmental health risks to children that may disproportionately affect children.
- 40 • Acoustic Environment (Section 3.4) – Primary sources of sound at NWSTF includes aircraft (fixed-  
41 wing and helicopters) and weapons firing. Concerns related to noise from the No Action  
42 Alternative on the surrounding communities include hearing loss, non-auditory health effects,  
43 and speech interference/temporary attention. Based on the distribution and magnitude of noise  
44 impacts under the No Action Alternative, surrounding communities are slightly affected by

1 training noise; however, lands adjacent to NWSTF Boardman that are primarily exposed to  
2 training activity noise are not heavily populated and do not contain sensitive noise receptors.  
3 Therefore, noise impacts do not pose environmental health risks to children that may  
4 disproportionately affect children.

5 There would be no significant impacts to the health and safety of children from the No Action  
6 Alternative, due to fences and posted signs installed on the boundaries and the considerable distance  
7 children would have to walk to get onto the proposed training ranges. Additionally, the No Action  
8 Alternative would not pose environmental health risks to children that may disproportionately affect  
9 children.

### 10 **3.11.3.3 Alternative 1**

#### 11 **3.11.3.3.1 Land Activities**

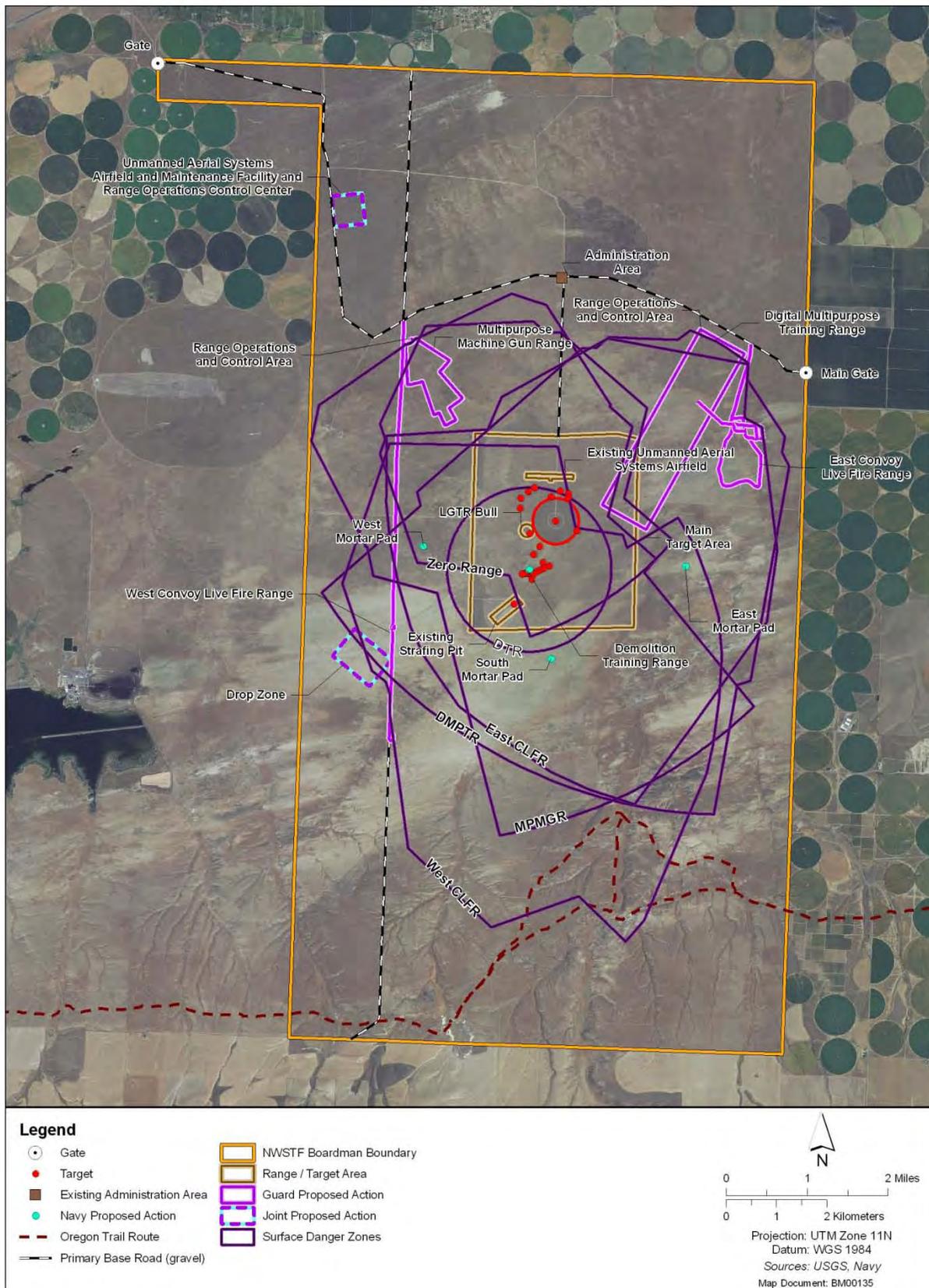
12 Under Alternative 1, the proximity of public areas to training activities and the potential for  
13 unauthorized nonparticipants to be in the vicinity of a training exercise would remain unchanged. Under  
14 Alternative 1, training activities would increase. However, the Navy would continue to implement Range  
15 Control Coordination Procedures to avoid public safety issues. NWSTF Boardman training activities  
16 under Alternative 1 use live ammunition, such as small- and medium-caliber rounds, mortar rounds,  
17 tank cannon rounds, missiles and high explosive charges, and non-explosive practice bombs.

18 Additionally, under Alternative 1, range enhancements would be implemented including a Multi-  
19 Purpose Machine Gun Range and range operations control area, a Digital Multi-Purpose Training Range  
20 and range operations control area, Convoy Live Fire Range (CLFR) (eastern), a Demolition Training  
21 Range, and a Tactical Unmanned Aerial Systems training and maintenance facility and combined range  
22 operations control center. The surface danger zones for these ranges are depicted in Figure 3.11-1.  
23 Ordnance used yearly at the NWSTF Boardman Demolition Training Range includes two 200 pound (lb.)  
24 (90.7 kilograms [kg] shots, five 100 lb. (45.4 kg) shots, ten 50 lb. (22.7 kg) shots, twenty 25 lb. shots, and  
25 13 shots under 25 lbs. (11.3 kg). The daily maximum net explosive weight is not to exceed 200 lb. (90.7  
26 kg). The WDZs and SDZs for these ranges are depicted in Figure 3.11-1 and Figure 3.11-2.

27 All construction activities would use typical construction equipment. Building materials, such as concrete  
28 and gravel would likely be imported from one or more off-site sources. Staging for construction would  
29 be established within the Navy range operations compound. The transportation of materials and the  
30 construction activities would be in accordance with federal, state and Navy requirements and would not  
31 pose a substantial risk to public health or safety. Construction and operation of the training ranges,  
32 located in the potential presence of historical unexploded ordnance, would result in a small, but  
33 potentially significant, risk to the health and safety of individuals working and training on the ranges.  
34 However, routine training activities conducted within NWSTF Boardman pose little risk to public health  
35 or safety outside of the training areas. Activities utilizing live ammunition do not project hazardous  
36 effects off site because of their size, and because safety zones have been established specifically to  
37 control these effects. Therefore, land activities under Alternative 1 would not significantly impact public  
38 health and safety.

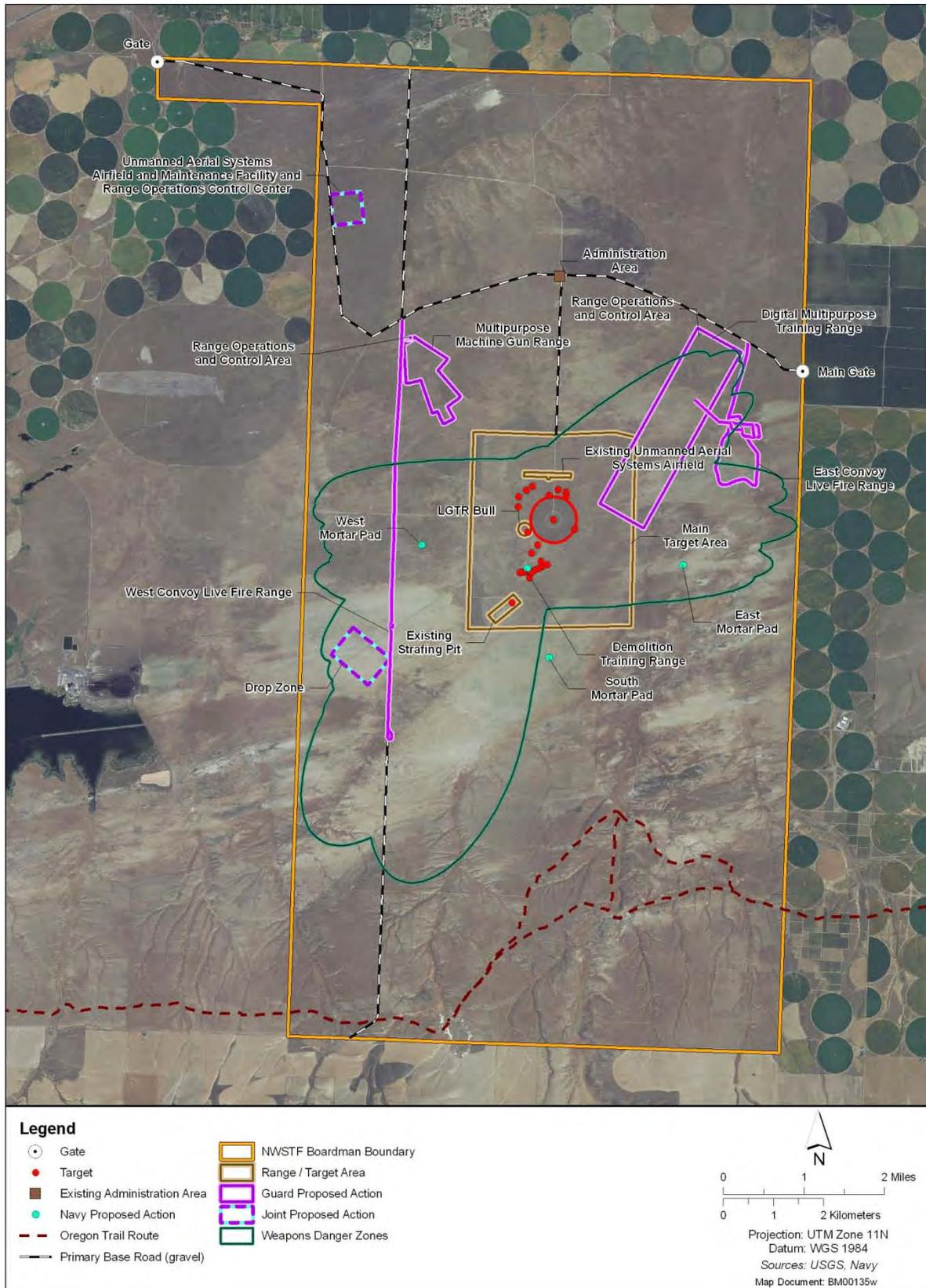
#### 39 **3.11.3.3.2 Air Activities**

40 Under Alternative 1, typical flight paths for Low Altitude Tactical Training (LATT) would change their  
41 orientation as a result of the addition of SUA (Boardman Northeast MOA A and B) (Figure 3.11-3).  
42 Aircraft sorties (fixed wing, rotary wing, and unmanned aerial systems) would increase to about 3,470



1  
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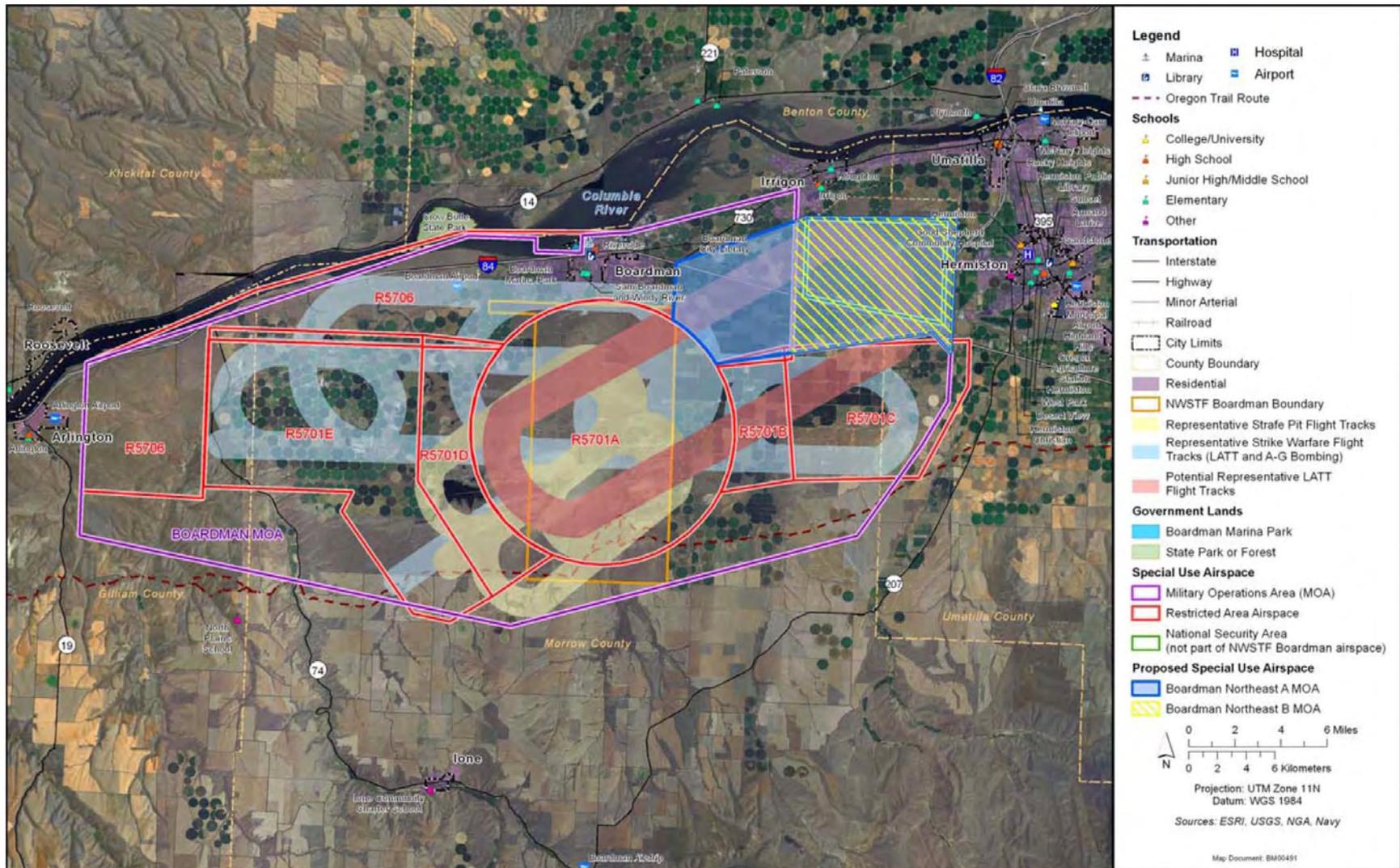
Figure 3.11-1: Surface Danger Zone for the Proposed Action



1

2

Figure 3.11-2: Weapons Danger Zones for the Proposed Action



1

2

Figure 3.11-3: Aircraft Flight Tracks Under Alternative 1 and 2 (Representative)

1 from 1,815 in the No Action Alternative. Additional risks posed by these activities would be associated  
2 with increased aircraft overflights and ordnance. Flights over public and private lands would be of short  
3 duration (with flights lasting 5-10 seconds at any point along the aircraft's flight path). Air operations  
4 would continue to be conducted in accordance with regulations for the use of aircraft targets, Restricted  
5 Area Airspaces, and MOAs/Air Traffic Control Assigned Airspace (ATCAA) scheduled by NAS Whidbey  
6 Island (NASWHIDBEY INSTRUCTION 3770.1E).

7 Additional lands underneath the new northeast MOA would experience aircraft overflights; however,  
8 these activities would still be conducted in compliance with NASWHIDBEY INSTRUCTION 3770.1E. During  
9 training activities, pilots would typically avoid towns, noise-sensitive areas, and wilderness areas at  
10 prescribed vertical or horizontal distances. Non-military aircraft would be allowed to utilize the MOA  
11 during training activities; however pilots will be vigilant to avoid any interactions. In areas with wind  
12 turbine development, there may be increased safety risks due to additional structures in the area.  
13 However, these areas are not in heavily populated areas and would therefore not pose an increased risk  
14 to public health and safety. Given the use of military training routes, vigilance by military pilots to avoid  
15 any obstructions or other planes, and the avoidance of flights over public areas, aircraft activities under  
16 Alternative 1 generally would have no significant impacts on public safety.

### 17 **3.11.3.3.3 Protection of Children**

18 Based on the analysis presented herein on air quality, water resources, acoustics, and public health and  
19 safety associated with Alternative 1, the following conclusions are presented in regard to human health  
20 and environmental effects to children:

- 21 • Air Quality (Section 3.2) – Air emissions do occur from Alternative 1 but do not pose human  
22 health or environmental risks as the status of the air quality in the Eastern Oregon Intrastate Air  
23 Quality Control Region 191 would not be affected. Additionally, air emissions from Alternative 1  
24 do not pose environmental health risk to children that may disproportionately affect children.
- 25 • Water Resources (Section 3.3) – There is little chance for an incidental spill to reach  
26 groundwater if one were to occur based on the response procedures in place and the small  
27 quantities of materials and wastes used and generated at NWSTF Boardman. Non-explosive  
28 practice munitions would have negligible effects on groundwater under Alternative 1 because  
29 potential contaminants are not expected to migrate to groundwater. Domestic wastewater  
30 would continue to be treated by a septic system serving the Administrative Area. Based on the  
31 limited full time presence at NWSTF Boardman (approximately six personnel), loadings to the  
32 system would be low and the effects to groundwater under Alternative 1 would be negligible.  
33 While current groundwater usage data are not available for NWSTF Boardman, use is low based  
34 on the small number of full-time personnel and the limited needs to support training. Because  
35 water discharges do not have significant impacts to the local water resources at NWSTF  
36 Boardman, they do not pose health or environmental risks to the surrounding communities.  
37 Therefore, water discharges do not pose environmental health risk to children that may  
38 disproportionately affect children.
- 39 • Acoustic Environment (Section 3.4) – Primary sources of sound includes aircraft (fixed-wing and  
40 helicopters) and weapons firing. Concerns related to noise from Alternative 1 on the  
41 surrounding communities would include hearing loss, non-auditory health effects, and speech  
42 interference/temporary attention. Low-level flights within the restricted airspace would  
43 generate much higher levels of sudden-onset pass-by aircraft sound, but few individuals would  
44 be close enough to the aircraft to hear such sounds, as these activities are limited to the  
45 restricted airspace, which occurs over areas with low densities of sensitive receptors. Based on

1 the distribution and magnitude of noise impacts under Alternative 1, communities surrounding  
2 NWSTF Boardman and those located under the restricted airspace would continue to be slightly  
3 affected by training noise. Lands adjacent to NWSTF Boardman, as well as those underlying the  
4 new SUA, are exposed to training activity noise; however, they are sparsely populated as they  
5 are primarily agricultural or conservation land. The numbers of sensitive receptors in these  
6 regions are low to non-existent; therefore, noise from Alternative 1 does not pose  
7 environmental health risk to children that may disproportionately affect children. Under  
8 Alternative 1, construction related noise would be short-term and negligible and would not  
9 attenuate beyond NWTSF Boardman boundaries.

10 Based on the analysis presented in Section 3.2 (Air Quality), Section 3.3 (Water Resources), and Section  
11 3.4 (Acoustic Environment) Alternative 1 does not pose environmental health risk to children that may  
12 disproportionately affect children.

### 13 **3.11.3.4 Alternative 2**

14 NWSTF Boardman training activities use live ammunition, such as small- and medium-caliber rounds,  
15 mortar rounds, tank cannon rounds, missiles and high explosive charges, and non-explosive practice  
16 bombs. Activities utilizing live ammunition do not project hazardous effects off site because of their size,  
17 and because safety zones are been established specifically to control these effects. Routine training  
18 activities conducted within NWSTF Boardman pose little risk to public health or safety outside of the  
19 training areas. Transportation and storage of energetic training materials would occur in accordance  
20 with applicable federal, state, and Navy requirements and would therefore pose no substantial risk to  
21 public safety.

#### 22 **3.11.3.4.1 Land Activities**

23 Under Alternative 2, the proximity of public areas to training activities and the potential for  
24 unauthorized nonparticipants to be in the vicinity of a training exercise would remain unchanged. Under  
25 Alternative 2, the number of training activities would increase compared to the No Action Alternative,  
26 however, the Navy would continue to implement Range Control Coordination Procedures to avoid public  
27 safety issues.

28 Under Alternative 2, range enhancements would be implemented including those listed under  
29 Alternative 1, three mortar firing points, CLFR (western), Range Operations Control Center (separate  
30 building from the UAS Training and Maintenance Facility). All construction activities would use typical  
31 construction equipment. Building materials, such as concrete and gravel, would likely be imported from  
32 one or more off-site sources. Staging for construction would be established within the Navy range  
33 operations compound. The transportation of materials and the construction activities would be in  
34 accordance with applicable federal, state and Navy requirements and would not pose a substantial risk  
35 to public health or safety. Therefore land activities under Alternative 2 would not significantly impact  
36 public health and safety.

#### 37 **3.11.3.4.2 Air Activities**

38 Under Alternative 2, aircraft sorties (fixed wing, rotary wing, and unmanned aerial systems) would  
39 increase to about 3,470 from 1,815 in the No Action Alternative. Additional risks posed by these  
40 activities would be associated with increased aircraft overflights and ordnance. Typical flight paths for  
41 LATT would change their orientation as a result of the addition of SUA (Boardman Northeast MOA A and  
42 B) (Figure 3.11-2). The lands underneath the northeast MOA would experience aircraft overflights.

1 However, similar to the No Action Alternative, flights over public and private lands would be of short  
2 duration (with flights lasting 5-10 seconds at any point along the aircraft's flight path). Air operations  
3 would continue to be conducted in accordance with regulations for the use of aircraft targets, Restricted  
4 Area Airspaces, and MOAs/ATCAA scheduled by NAS Whidbey Island (NASWHIDBEY INSTRUCTION  
5 3770.1E). During training activities, pilots would typically avoid towns, noise-sensitive areas, and  
6 wilderness areas at prescribed vertical or horizontal distances. Other aircraft would be allowed to utilize  
7 the MOA during training activities; however pilots will be vigilant to avoid any interactions. In areas with  
8 wind turbine development, there may be increased safety risks due to additional structures in the area.  
9 However, these areas are not in heavily populated areas and would therefore not pose an increased risk  
10 to public health and safety.

11 Given the use of military training routes, vigilance by military pilots to avoid any obstructions or other  
12 planes, and the avoidance of flights over public areas, aircraft activities under Alternative 2 generally  
13 would have no significant impacts on public safety.

#### 14 **3.11.3.4.3 Protection of Children**

15 Based on the analysis presented herein on air quality, water resources, acoustics, and public health and  
16 safety associated with Alternative 1, because Alternative 2 would have similar impacts, the following  
17 conclusions are presented in regard to human health and environmental effects to children for  
18 Alternative 2:

- 19 • Air Quality (Section 3.2) – Air emissions do occur from Alternative 2 but do not pose human  
20 health or environmental risks as the status of the air quality in the Eastern Oregon Intrastate Air  
21 Quality Control Region 191 would not be affected. Additionally, air emissions from this action do  
22 not pose environmental health risk to children that may disproportionately affect children.
- 23 • Water Resources (Section 3.3) – There is little chance for an incidental spill to reach  
24 groundwater if one were to occur based on the response procedures in place and the small  
25 quantities of materials and wastes used and generated at NWSTF Boardman. Non-explosive  
26 practice munitions would have negligible effects on groundwater under Alternative 2 because  
27 potential contaminants are not expected to migrate to groundwater. Domestic wastewater  
28 would continue to be treated by a septic system serving the Administrative Area. Based on the  
29 limited full time presence at NWSTF Boardman (approximately six personnel), loadings to the  
30 system would be low and the effects to groundwater under Alternative 2 would be negligible.  
31 While current groundwater usage data are not available for NWSTF Boardman, use is limited  
32 based on the limited number of full-time personnel and the limited needs to support training.  
33 Because water discharges do not have significant impacts to the local water resources at NWSTF  
34 Boardman, they do not pose health or environmental risks to the surrounding communities.  
35 Therefore, Alternative 2 does not pose environmental health risk to children that may  
36 disproportionately affect children.
- 37 • Acoustic Environment (Section 3.4) – Major sources of sound includes aircraft (fixed-wing and  
38 helicopters) and weapons firing. Concerns related to noise from Alternative 2 on the  
39 surrounding communities would include hearing loss, non-auditory health effects, and speech  
40 interference/temporary attention. Low-level flights within the restricted airspace would  
41 generate much higher levels of sudden-onset pass-by aircraft sound, but few individuals would  
42 be close enough to the aircraft to hear such sounds, as these activities occur over areas with low  
43 densities of sensitive receptors. Based on the distribution and magnitude of noise impacts under  
44 Alternative 2, communities surrounding NWSTF Boardman and those located under the  
45 restricted airspace would continue to be slightly affected by training noise. Lands adjacent to

1 NWSTF Boardman, as well as those underlying the new SUA, are exposed to training activity  
2 noise; however, they are sparsely populated as they are primarily agricultural or conservation  
3 land. It is expected that the number of sensitive receptors in these regions are low to non-  
4 existent; therefore, noise under Alternative 2 does not pose environmental health risk to  
5 children that may disproportionately affect children. Under Alternative 2, construction related  
6 noise would be short-term and negligible and would not attenuate beyond NWTSF Boardman  
7 boundaries.

8 Based on the analysis presented in Section 3.2 (Air Quality), Section 3.3 (Water Resources), and Section  
9 3.4 (Acoustic Environment) Alternative 2 does not pose environmental health risk to children that may  
10 disproportionately affect children.

### 11 **3.11.3.5 Proposed Management Practices, Monitoring, and Mitigation Measures**

#### 12 **3.11.3.5.1 Best Management Practices**

13 Current measures in place to ensure that nonparticipants are not endangered by actions at NWSTF  
14 Boardman would continue (Section 3.11.2.4). The following Best Management Practices would be  
15 implemented to reduce hazards associated with unexploded ordnance: (1) post signs warning of areas  
16 where unexploded ordnance clearance has not been confirmed, and (2) after range development,  
17 restrict movement of Soldiers using the training range to designated areas that are known to be free of  
18 any unexploded ordnance. In addition, supplemental unexploded ordnance clearance operations would  
19 be conducted prior to construction of range enhancements and operation of the proposed training  
20 ranges.

#### 21 **3.11.3.5.2 Monitoring**

22 No specific monitoring needs were identified for public health and safety.

#### 23 **3.11.3.5.3 Mitigation Measures**

24 Mitigation measures for other resources that affect public health and safety (e.g., noise, air quality)  
25 would be implemented. No additional mitigation measures are warranted.

#### 26 **3.11.3.6 Summary of Effects and Conclusions**

27 Table 3.11-2 summarizes the effects of and mitigation measures for the No Action Alternative,  
28 Alternative 1, and Alternative 2.

1

**Table 3.11-2: Summary of Effects**

Alternative	Effects
<b>No Action Alternative</b>	
Air Activities	<ul style="list-style-type: none"> <li>• Risks to the public from aircraft supporting NWSTF Boardman training is minimal, based on the use of military training routes, vigilance by military pilots to avoid any obstructions or other planes, and flight path avoidance of sensitive areas.</li> </ul>
Land Activities	<ul style="list-style-type: none"> <li>• Routine training activities conducted within NWSTF Boardman pose little risk to public health or safety outside of the training areas.</li> </ul>
Impact Conclusion	<ul style="list-style-type: none"> <li>• No significant impacts to public health and safety is expected.</li> <li>• No disproportionate environmental health and safety risks specific to children are expected under the No Action Alternative.</li> </ul>
<b>Alternative 1</b>	
Air Activities	<ul style="list-style-type: none"> <li>• Though exercises involving aircraft would increase, public safety would be maintained.</li> </ul>
Land Activities	<ul style="list-style-type: none"> <li>• On-site training activities would increase. The Navy would continue to implement Range Control Coordination Procedures to avoid public safety issues.</li> <li>• Range enhancement construction activities would be conducted in accordance with legally applicable federal, state, and Navy regulations.</li> </ul>
Impact Conclusion	<ul style="list-style-type: none"> <li>• No significant impacts to public health and safety is expected.</li> <li>• No disproportionate environmental health and safety risks specific to children are expected under Alternative 1.</li> </ul>
<b>Alternative 2</b>	
Air Activities	<ul style="list-style-type: none"> <li>• Though exercises involving aircraft would increase, public safety would be maintained.</li> </ul>
Land Activities	<ul style="list-style-type: none"> <li>• On-site training activities would increase. The Navy would continue to implement Range Control Coordination Procedures to avoid public safety issues.</li> <li>• Range enhancement construction activities would be conducted in accordance with legally applicable federal, state, and Navy regulations.</li> </ul>
Impact Conclusion	<ul style="list-style-type: none"> <li>• No significant impacts to public health and safety is expected.</li> <li>• No disproportionate environmental health and safety risks specific to children are expected under Alternative 2.</li> </ul>

Notes: NWSTF = Naval Weapons Systems Training Facility, Navy = U.S. Department of the Navy

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